TALIS

Providing Quality Early Childhood Education and Care

RESULTS FROM THE STARTING STRONG SURVEY 2018

OECD

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Foreword

For many children, early childhood education and care (ECEC) is their first experience with other children and adults, away from their families. The promises of this experience are multiple. At this time of rapid brain development, children can play, learn new things and develop a range of skills and abilities. They can acquire a joy of learning, and they can make their first friends. Participation in ECEC also offers opportunities to detect and respond to children's individual needs and to help all children to develop, building on their strengths.

Thanks to extensive research and studies, we know that high-quality ECEC can turn these promises into reality. Research shows that a major contributor to children's learning, development and well-being is the quality of the interactions children experience daily with staff and other children in ECEC centres (these interactions are known as process aspects of quality). Research also identifies several factors that can influence the quality of these interactions, from ECEC staff and the extent to which they are educated, trained and motivated to work with children, to elements of the classroom/playroom environment, such as the number of children and staff and the mechanisms for monitoring ECEC settings (these factors are known as structural aspects of quality).

But while research suggests that the education we receive in early childhood matters most for our lives, ECEC is the sector of education we know least about. We take it for granted that all children attend school, and school is paid for by the public purse in virtually every OECD country. But in the first years of life, enrolment varies greatly across countries, and some countries ask the youngest children to pay the highest fees, while they make university tuition-free. We have a clear picture of what children learn in school, as well as who their teachers are, what they do, how they are paid, and how they were educated. In contrast, the provision of ECEC is often fragmented, poorly regulated and patchy.

That is the gap the OECD Starting Strong Teaching and Learning International Survey (TALIS Starting Strong) seeks to fill. It is the first international survey that focuses on the workforce in ECEC. It reveals key characteristics of the ECEC workforce, the practices they use with children, their beliefs about children's development and their views on the profession and on the ECEC sector. TALIS Starting Strong was designed to approximate quality through questions to staff and leaders of ECEC centres on major elements that, according to research, influence children's learning, development and well-being.

One of the most important findings is the relationship between pre-service and in-service education and training of staff, as well as their working conditions, and the practices staff use with children and parents. However, training specifically to work with children is not universal, and participation in professional development, while common, is not equal among staff. These findings point to the need for policies to better prepare and support staff in their daily activities and practices with children.

TALIS Starting Strong also shows great variation within countries in the factors related to the quality of interactions between staff and children. For instance, there are large variations within countries in the share of highly educated staff per centre. In centres with many children from socio-economically disadvantaged homes, enhanced services can help put all children on a level playing field, but few countries systematically provide such services. At the same time, there is little evidence that the allocation of human resources to

ECEC centres increases inequalities between centres with different geographical locations and child characteristics.

Finally, TALIS Starting Strong asks staff and leaders a number of key questions to learn about the major difficulties they face in their jobs. Staff are asked about the barriers they face to participation in professional development and their priorities for spending reallocation, and leaders are asked about the barriers to their effectiveness. Both staff and leaders are asked about their sources of stress. Answers to these questions converge to highlight a number of bottlenecks in the ECEC sector. Some of these bottlenecks are common to all participating countries. This is the case for staff absences and staff shortages, which appear as barriers to leaders' effectiveness and to staff's participation in professional development. According to staff, support to work with children with special needs appears as a top priority for both professional development and reallocation of spending. Reducing group size is another top priority for staff for reallocation of spending, while too many children in the group is a top source of stress. These findings point to the need for policy changes that governments are aware of, but such changes would involve trade-offs in situations of tight budget constraints. TALIS Starting Strong offers guidance that can help each participating country to identify priorities for policy change.

In all countries, people care about children, especially young children. However, in most countries participating in the Survey, staff do not feel highly valued by society. Why do those who devote their time to do the best for children not feel more highly valued? Attracting and retaining a high-quality workforce is a challenge for all participating countries.

In many countries, governments have done a lot to develop access to ECEC. But access is not enough; ECEC policies need to focus more on quality. TALIS Starting Strong reminds us that children's early years are the foundation of their lives as students, adults and citizens. In the same way, it reminds us that ECEC policies need to be fully integrated with other policies that support economic growth and social inclusion. For children's learning, development and well-being, every year counts.

Andreas Schleicher,

Director for Education and Skills

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The OECD Starting Strong Teaching and Learning International Survey (TALIS Starting Strong) is the outcome of a collaboration among the participating countries, the OECD Secretariat and the International Association for the Evaluation of Educational Achievement (IEA) with its international consortium partners RAND Europe and Statistics Canada.

The development of this report was guided by Andreas Schleicher and Yuri Belfali and led by Stéphanie Jamet. The report built on preparatory work led by Arno Engel and was drafted by the OECD Early Childhood Education and Care team with co-ordination from Elizabeth Shuey. Stéphanie Jamet was the lead author of Chapter 1 and wrote Chapter 2 with Clara Barata (external consultant); Elizabeth Shuey was the lead author of Chapter 3; Arno Engel wrote Chapter 4 with Joana Cadima (external consultant); and Chapter 5 was co-authored by Victoria Liberatore and Théo Reybard. Statistical analyses and outputs were co-ordinated by Elisa Duarte and Francois Keslair with assistance from Luisa Kurth and Lorenz Meister. Victoria Liberatore was the lead author of Annex A. The initial survey development and implementation phase was led by Miho Taguma.

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Annex E of this report lists the various institutions and individuals that contributed to TALIS Starting Strong.

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Reader's guide

The OECD Starting Strong Teaching and Learning International Survey (TALIS Starting Strong) is the first international survey that focuses on the workforce in early childhood education and care (ECEC). The results referred to in this volume can be found in Annex D and through OECD StatLinks at the bottom of the tables and figures throughout the report.

Country coverage

This publication features results from staff and leaders who provide early childhood education and care (ECEC) in pre-primary settings (ISCED level 02) in nine countries (Chile, Denmark, Germany, Iceland, Israel, Japan, Korea, Norway, and Turkey), as well as from staff and leaders who provide ECEC to children under age 3 in four countries (Denmark, Germany, Israel and Norway).

In the tables throughout the report, countries are ranked in alphabetical order, with one exception: countries that did not meet the standards on TALIS Starting Strong participation rates are placed at the bottom of the tables. Similarly, countries that did not meet the standards on TALIS Starting Strong participation rates are not shown in any figures presenting results of the Survey.

One note applies to the information on data for Israel:

- The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

Classification of levels of ECEC and the TALIS Starting Strong sample

The classification of ECEC settings as pre-primary or serving children under age 3, as well as the other levels of education described in the volume, is based on the International Standard Classification of Education (ISCED). ISCED is an instrument for compiling statistics on education internationally. ISCED-2011 is the basis of the levels presented in this publication. It distinguishes the following levels of education:

- early childhood education (ISCED level 0)
  - early childhood educational development (ISCED level 01)
  - pre-primary education (ISCED level 02)
- primary education (ISCED level 1)
- lower secondary education (ISCED level 2)
- upper secondary education (ISCED level 3)
- post-secondary non-tertiary education (ISCED level 4)

- short-cycle tertiary education (ISCED level 5)
- bachelor's or equivalent (ISCED level 6)
- master's or equivalent (ISCED level 7)
- doctoral or equivalent (ISCED level 8).

Within early childhood education (ISCED level 0), settings classified under ISCED-2011 have an intentional educational component and aim to develop cognitive, physical and socio-emotional skills necessary for participation in school and society. Programmes at this level are often differentiated by age, with early childhood educational development serving children under age 3 and pre-primary education serving children from age 3 until entry to primary school. Pre-primary settings in TALIS Starting Strong meet the ISCED-2011 definition for ISCED level 02. Settings serving children under age 3 in TALIS Starting Strong were not required to meet the ISCED-2011 definition for ISCED level 01.

Despite the distinction made by ISCED-2011 within ISCED level 0, many countries, including several participating in TALIS Starting Strong, offer an integrated ECEC system (see Annex A). In integrated ECEC systems, a single government ministry or authority oversees ECEC programmes from birth or age 1 until entry into primary school. For countries with integrated ECEC systems that participated in data collection for both pre-primary settings and settings for children under age 3 (i.e. Denmark, Germany and Norway), the TALIS Starting Strong sampling strategy randomly split ECEC programmes that were expected to cover both age groups to be included in the sampling universe for one population of interest or the other. In this way, programmes could be sampled as part of the pre-primary sample or as part of the sample of settings for children under age 3, but the same programme would not be sampled for both levels of ECEC.

Next, staff were sampled within these settings if they were serving children within the designated level of ECEC (see Annex B). As a result, the sample of pre-primary staff and leaders is representative of staff and leaders in settings providing pre-primary education across all nine participating countries, regardless of whether an integrated system exists or not. Similarly, the sample of staff and leaders in settings for children under age 3 is representative of staff and leaders in settings providing services for this age group across all four participating countries, regardless of whether an integrated system exists or not. Home-based settings were included in the samples of settings for children under age 3 in Denmark, Germany and Israel. However, to enhance comparability with pre-primary education settings, data from staff in home-based settings are excluded from this report. These exclusions represent 16% of the settings serving children under age 3 in Denmark, 16% in Germany and 60% in Israel.

Readers should bear in mind that the age distinctions in levels of ECEC do not necessarily reflect the organisation of the ECEC system or ECEC programmes in all participating countries (see Annex A). Furthermore, programmes included in the samples for both levels of ECEC may also serve younger or older children.

The report uses the term "centres" as shorthand to describe all ECEC settings. The specific programmes or settings vary across and within countries (see Box 1 for details on the types of settings covered in each participating country).

Box 1. ECEC settings included in TALIS Starting Strong

Chile	kindergartens, preschools and schools that offer preschool education
Denmark	kindergartens, integrated institutions, nurseries and day-care facilities
Germany	kindergartens, school kindergartens, pre-school classes, mixed-age ECEC centres and day nurseries
Iceland	preschools
Israel	kindergartens and day-care centres
Japan	kindergartens, nursery centres and integrated centres for ECEC
Korea	kindergartens and childcare centres
Norway	kindergartens
Turkey	preschools, kindergarten classrooms and practice classrooms

Notes: The settings listed here are the English translations of the setting types within each country. These translations were used for the purposes of creating the TALIS Starting Strong sampling frame. Home-based settings are also included in the TALIS Starting Strong data collection for children under age 3 in Denmark, Germany and Israel, but they are not included in this report.

Data underlying the report

TALIS Starting Strong results are based exclusively on self-reports from ECEC staff and leaders and, therefore, represent their opinions, perceptions, beliefs and accounts of their activities. No data imputation from administrative data or other studies is conducted. As with any self-reported data, the information is subjective and may, therefore, differ from data collection through other means (e.g. administrative data or observations). The same is true of leaders' reports about centre characteristics, sources of funding and practices, which may differ from descriptions provided by administrative data at national or local government levels. TALIS Starting Strong does not directly measure children's learning, development and well-being and does not provide data on children and families participating in ECEC.

Results are presented only when estimates are based on at least 10 centres/leaders and/or 30 staff.

Reporting staff and leader data

As part of the TALIS Starting Strong 2018 data collection, all staff who worked regularly in a pedagogical way with children in officially registered settings providing ECEC in participating countries were eligible to participate[1]. Within ECEC settings, centre co-ordinators identified staff as eligible to participate as a centre leader (the person with the most responsibility for administrative, managerial and/or pedagogical leadership) or in one of several roles working directly with children: teacher; assistant; staff for individual children; staff for special tasks; or intern. In some countries, other specific staff roles were also included, but these roles were simultaneously coded to reflect one of the overarching international categories.

The initial assignment of staff to these categories ensured that all staff who were eligible to participate were included in the sample selection process and, if selected, were asked to complete the relevant questionnaire (leader or staff). A combined questionnaire was used for staff in very small centres (i.e. with only one staff member or with only one main teacher and assisting staff). It included suitable questions both from the staff questionnaire and the leader questionnaire. Respondents who completed these combined questionnaires are included in the data reported for both staff and leaders.

The staff categories used to identify staff eligible for participation were also used after data collection to group respondents according to their overall roles in the ECEC centres, focusing on teachers and assistants. Teachers are those with the most responsibility for a group of children. Assistants support the teacher in a group of children. This distinction is used in many of the tables and analyses that provide a comparison between teachers and assistants (for example, Table D.3.1).

However, several countries do not make a distinction between teachers and assistants in this way. In Japan and Turkey, only teachers work in a pedagogical way with children in ECEC. In Iceland, a shortage of certified ECEC teachers means that staff without this credential (i.e. assistants) may be serving as teachers in some settings. So this overall role distinction in TALIS Starting Strong is not meaningful for Iceland. In centres serving children under age 3 in Israel, fewer than 1% of participating staff were identified as assistants, making the comparison between teachers and assistants impossible for this population as well. In the remaining countries and populations (Chile, Denmark, Germany, Israel in pre-primary education settings, Korea and Norway), the roles of teacher and assistant can, but do not necessarily, reflect differences in staff credentials. Rather, for TALIS Starting Strong the difference between teachers and assistants is defined to reflect the roles that staff members typically have within their centres.

Reporting staff data

The report uses the term “staff” as shorthand for the TALIS Starting Strong population of teachers, assistants, staff for individual children, staff for special tasks and interns. In addition, leaders who also had staff duties (e.g. those working alone or in very small centres) are included in the staff data throughout this report.

Reporting leader data

The report uses the term “leader” to identify the person who was identified as having the most responsibility for administrative, managerial and/or pedagogical leadership in their centres. Responses from leaders who also had staff duties (e.g. those working alone or in very small centres) are included in both the leader data and the staff data throughout this report. Leaders provided information on the characteristics of their centres and their own work and working conditions by completing a leader questionnaire or a combined questionnaire. Where responses from leaders are presented in this publication, they are usually weighted to be representative of leaders. In some cases, leader responses are treated as attributes of staff working conditions. In such cases, leaders’ answers are analysed at the staff level and weighted to be representative of staff (see Annex C).

Staff reports of their own roles in the target group

In addition to the initial categories used to classify staff for participation in TALIS Starting Strong, staff who participated in the Survey had the opportunity to describe their roles within a specific group. Staff were asked to consider the first group of children that they worked with on their last working day before the Survey (the target group) and to select the category that best represented their role in that group on that day (leader, teacher, assistant, staff for individual children, staff for special tasks, intern or other). Throughout the report, those who describe themselves as “leaders” and “teachers” are grouped together to describe the staff with the most responsibility in the target group.

These staff reports do not necessarily reflect staff members' broader roles in the ECEC centre, but they provide contextual information for other questions that were asked about the target group. These role distinctions are used in tables and analyses that focus on the target group (see, for example, Chapter 2, Figure 2.14).

Leader reports of roles within their centres

Leaders provided an overview of the number of staff in each category working in their ECEC centres (leaders, teachers, assistants, staff for individual children, staff for special tasks, interns and other staff). These data cannot be linked to individual staff responses on the questionnaire, but they give a summary of the human resources available in each participating ECEC centre. These role distinctions are used in tables and analyses at the centre level (see, for example, Chapter 4, Figure 4.10).

Reporting data on the number of children

For a subset of questions, staff reported on their work with the target group (the first group of children that they worked with on their last working day before the Survey). In some cases, the target group may reflect a stable group of children and adults. In other cases, the target group may reflect a staff member's full day of work, involving many other staff (e.g. those who join the group for special activities or who come to ensure that the required group ratios are maintained while another staff member takes a break) and perhaps a changing set of children as well.

To better understand the numbers of staff and children that interact together in these target groups, this report refers to the number of staff per child in the target group. In regard to target groups, the "number of staff per child" refers to the total number of staff working in the target group, regardless of their role, divided by the number of children in the target group. Because the number of staff per individual child is low, when specific examples are cited for comparative purposes, they are presented as the "number of staff per ten children" in the target group. This grouping of ten children is designed to facilitate comparisons across different staffing approaches and different countries. It does not imply that target groups include only or exactly ten children; some target groups may be larger and others smaller. The results can be interpreted as the average number of staff (i.e. leaders, teachers, assistants, staff for individual children, staff for special tasks, interns or others) with whom a group of ten children may interact at various points during their time in the target group. See Box 2.3 in Chapter 2 and Annex C for further details on the computation of this indicator.

In addition to reporting the number of staff working in their centres, leaders also report on the number of children enrolled in their centres. To understand the numbers of staff and children that interact together in centres, this report also refers to the number of staff per child in the centre. In regard to centres, the "number of staff per child" refers to the total number of staff working in a centre, regardless of their role, divided by the total number of children enrolled. Again, because the number of staff per individual child is low, when specific examples are cited for comparative purposes, they are presented as the "number of staff per ten children" in the centre. The results can be interpreted as the average number of staff (i.e. leaders, teachers, assistants, staff for individual children, staff for special tasks, interns or others) with whom a group of ten children may interact at various points during their time in the centre. See Box 4.4 in Chapter 4 and Annex C for further details on the computation of this indicator.

These TALIS Starting Strong indicators on the "number of staff per child" differ from regulated child-to-staff ratios, as they do not take into account factors such as whether staff members are working full-time or part-time, the number of hours during which each child attends the centre, and the time staff are expected to directly interact with children (versus time when staff may be present at the centre but engaged in other types of work, such as planning or professional development).

International averages

Cross-country averages are provided for pre-primary settings throughout the report. These averages correspond to the arithmetic mean of the nine country estimates.

Symbols used in tables

Five symbols are used to denote non-reported estimates:

- a: The question was not administered in the country because it was optional.
- c: There are too few or no observations to provide reliable estimates and/or to ensure the confidentiality of respondents (i.e. there are fewer than 10 centres/leaders and/or 30 staff with valid data and/or the item non-response rate [i.e. ratio of missing or invalid responses to the number of participants for whom the question was applicable] is above 50%).
- m: Data were collected but subsequently removed for technical reasons (e.g. low participation rate) as part of the data adjudication process.
- p: Data were collected but not reported for technical reasons (e.g. low participation rate) as part of the data adjudication process.
- w: Data were withdrawn or were not collected at the request of the country concerned.

Rounding figures

Because of rounding, some figures in tables may not add up exactly to the totals. Totals, differences and averages are always calculated on the basis of exact numbers and are rounded only after calculation.

All standard errors in the publication have been rounded to one, two or three decimal places. Where the value 0.0, 0.00 or 0.000 is shown, this does not imply that the standard error is zero, but that it is smaller than 0.05, 0.005 or .0005, respectively.

Statistically significant differences

Statistically significant differences are denoted using different colours in figures. See Annex C for further information.

Additional data sources

Throughout the report, additional data sources are included to better understand the context of ECEC systems in participating countries. The two primary sources of additional data are OECD's *Education at a Glance* publication and an OECD policy survey on *Quality beyond Regulations*. The *Education at a Glance* series provides key information on the organisation of education systems, access to different levels of education and financial resources invested in education, as well as information on the staff and teachers working in education settings. The *OECD Quality beyond Regulations* policy survey provides data on the policies and regulations governing aspects of quality in ECEC settings. It was completed in 2019 by ministries and governing authorities responsible for the oversight of ECEC in countries, including the countries participating in TALIS Starting Strong. This publication presents first findings of the *OECD Quality beyond Regulations* policy survey for countries participating in TALIS Starting Strong.

Abbreviations

- ECEC early childhood education and care
- ISCED International Standard Classification of Education
- PPP purchasing power parity (i.e. the purchasing power of staff salaries using a common currency [USD] to facilitate cross-country comparisons)
- S.D. standard deviation
- S.E. standard error

Further technical documentation

For further information on the TALIS Starting Strong instruments and the methods used, see the *TALIS Starting Strong 2018 Technical Report* (OECD, 2019[1]).

This report uses the OECD StatLinks service. All tables and figures are assigned a URL leading to a corresponding Excel™ workbook containing the underlying data. These URLs are stable and will remain unchanged over time. In addition, readers of the e-books will be able to click directly on these links, and the workbook will open in a separate window if their Internet browser is open and running.

Reference

OECD (2019), *TALIS Starting Strong 2018 Technical Report*, OECD Publishing, Paris. [1]

Note

[1] For detailed information on data collection procedures, please refer to the *TALIS Starting Strong 2018 Technical Report* (OECD, 2019[1]).

Executive summary

The OECD Starting Strong Teaching and Learning International Survey (TALIS Starting Strong) asks early childhood education and care (ECEC) staff and leaders in nine participating countries (Chile, Denmark, Germany, Iceland, Israel, Japan, Korea, Norway, and Turkey) about their characteristics, the practices they use with children, their beliefs about children's development and their views on the profession and on the ECEC sector. This first volume of findings from TALIS Starting Strong, *Providing Quality Early Childhood Education and Care*, examines these multiple factors that are known to determine quality and thereby influence children's learning, development and well-being.

What the data tell us

Interactions between children, staff and parents/guardians in early childhood education and care centres

- Around 70% of staff report regular use of practices facilitating children's socio-emotional development (such as encouraging children to help each other) or practices facilitating children's language development (such as singing songs or rhymes). Specific practices emphasising literacy and numeracy (such as playing with letters or playing number games) are used to a lesser extent.
- Related to this, the ability to co-operate easily with others is at the top of the list of skills and abilities that ECEC staff regard as important for young children to develop.
- Exchanging information with parents regarding daily activities and children's development is common. Smaller percentages of staff report encouraging parents to play and carry out learning activities at home with their children.
- In pre-primary education centres, the average size of the target group (defined as the first group of children staff were working with on the last working day before the day of the Survey) varies from 15 children to more than 20. Staff working with larger groups report using more behavioural support practices (such as asking children to quieten down).

Teachers, assistants and leaders in early childhood education and care

- Staff in the ECEC field have typically completed education beyond secondary school, with Japan, Korea and Turkey having the highest rates of ECEC staff with post-secondary education. Training specifically to work with children is not universal, ranging from 64% of staff in Iceland to 97% of staff in Germany. Staff with more education and training and more responsibility report that they adapt their practices in the classroom or playroom to individual children's development and interests.

- In all countries, a majority of staff (more than 75%) report having participated in professional development activities within the 12 months prior to the Survey, with particularly strong rates of participation in Korea and Norway. However, staff who are less educated tend to participate less in professional development activities.
- Staff in all countries report feeling more valued by the children they serve and their parents or guardians than by society in general. Satisfaction with salaries is low. Even so, staff report high levels of overall job satisfaction. In several countries, staff who feel that ECEC staff are more valued by society report more use of practices in the classroom or playroom adapted to individual children's development and interests.
- Lack of resources and having too many children in the classroom or playroom are major sources of work-related stress among ECEC staff. For centre leaders, a primary source of work-related stress is having too much administrative work associated with their job. Leaders also report that inadequate resources for the centre and staff shortages are the main barriers to effectiveness.

Early childhood education and care centres and structural features of quality environments

- ECEC centres are generally characterised as stand-alone buildings. In several countries, co-location with a primary school is associated with more frequent meetings and communication with primary school staff and transition-related activities for parents and guardians.
- There is little indication that ECEC centres with larger shares of children from socio-economically disadvantaged homes benefit from enhanced structural conditions and services (e.g. higher staff qualifications or a more favourable number of staff per child).
- More than a third of centres in Germany, Iceland and Norway have 11% or more children whose first language differs from the language(s) used in the centre, while this is rare in Japan and Korea. In Chile, Germany and Iceland, staff in pre-primary centres with more children who have a different first language also report greater use of activities related to children's diversity.

Governance, funding and the quality of early childhood education and care

- In participating countries, more than 90% of centres receive government funds. Parents are also involved in the funding of ECEC centres, with more than 60% of centres receiving funds from parents in all countries surveyed except Chile and Iceland.
- Staff across countries and levels of education concur that reducing group size, improving staff salaries and receiving support for children with special needs are important spending priorities. Having opportunities for high-quality professional development also appears as a top priority for staff, particularly in centres for children under age 3.
- The share of privately managed centres varies from 10% in Israel to 70% in Germany. Privately managed centres benefit from more autonomy in the management of budget and human resources. Publicly managed centres are more likely to be located in more rural areas than privately managed centres in almost all countries surveyed.
- Monitoring activities tend to focus more frequently on assessing the facilities and financial situation of centres than on the quality of interactions between staff and children (i.e. process quality). More than 20% of leaders in Germany and Japan report that their centres have never been evaluated on process quality.

What TALIS Starting Strong implies for policies

The findings presented in this report suggest four major objectives for policies to ensure high quality ECEC:

1. **Promoting practices that foster children's learning, development and well-being:** This points to pre-service and in-service education and training programmes that can support staff in their use of relevant practices, well designed curriculum frameworks, and flexible organisation of activities that ensure interactions of staff with small groups of children.
2. **Attracting and retaining a high-quality workforce:** This points to policies that can raise the status of the profession through adequate salaries, reduced sources of instability and stress, and access to relevant and flexible professional development opportunities.
3. **Giving a strong start to all children:** This points to policies that ensure access to high quality ECEC for children facing greater barriers, prepare staff to adapt their practices to the needs of children with different characteristics, and allocate resources to provide additional support where required.
4. **Ensuring smart spending in view of complex governance and service provision:** This points to policies to identify and agree on the spending priorities, develop assessment and monitoring frameworks that support quality, and empower ECEC centre leaders.

Policies to raise the quality of ECEC face a number of trade-offs in terms of the areas to invest in and the areas to spend less on. TALIS Starting Strong sheds light on what could be priorities for each country. This report also suggests flexible and co-ordinated approaches that can be less costly and easier to implement than radical changes.

What is TALIS Starting Strong?

Introduction

The OECD Starting Strong Teaching and Learning International Survey (TALIS Starting Strong) is an international, large-scale survey of staff and leaders in early childhood education and care (ECEC). TALIS Starting Strong uses questionnaires administered to staff and leaders to gather data. Its main goal is to generate robust international information relevant to developing and implementing policies focused on ECEC staff and leaders and their pedagogical and professional practices, with an emphasis on those aspects that promote conditions for children's learning, development and well-being. It gives ECEC staff and leaders an opportunity to share their insights, allowing them to provide input into policy analysis and development in key areas. It is also a collaboration between participating countries, the OECD and an international research consortium. TALIS Starting Strong builds on the OECD's 20 years of experience in conducting ECEC policy reviews in the context of the *Starting Strong* series, the guidance of the OECD Network on Early Childhood Education and Care and the established TALIS programme collecting data from school principals and teachers.

TALIS Starting Strong seeks to serve the goals of its three main beneficiaries: policy makers, ECEC practitioners and researchers. First, it aims to help policy makers review and develop policies that promote high-quality ECEC, for both professionals in the field and children. Second, TALIS Starting Strong aims to help staff, leaders and ECEC stakeholders to reflect upon and discuss their practice and find ways to enhance it. Third, TALIS Starting Strong builds upon past research to inform the future work of researchers.

Which countries participate in TALIS Starting Strong?

TALIS Starting Strong 2018 includes nine countries: Chile, Denmark, Germany, Iceland, Israel, Japan, Korea, Norway and Turkey. All of these countries collected data from staff and leaders in pre-primary education (ISCED level 02) settings. In addition, four of the nine countries (Denmark, Germany, Israel and Norway) collected data from staff and leaders in settings serving children under age 3.

What is TALIS Starting Strong about?

TALIS Starting Strong has a cross-cutting focus on equity and diversity in addition to the 11 main areas covered by the Survey:

- process quality (the quality of interactions between staff and children and staff and parents/guardians, as well as among children)
- monitoring of children's learning, development and well-being
- background and initial preparation of staff and leaders
- professional development for staff and leaders
- staff and leader well-being

- professional beliefs about children's learning, development and well-being
- staff self-efficacy
- structural quality (i.e. available physical, human, and material resources), pedagogical and administrative leadership
- climate
- stakeholder relations.

More information on the conceptualisation of these areas is available in the *Starting Strong Teaching and Learning International Survey 2018 Conceptual Framework* (Sim et al., 2019[2]).

What are the key features of the TALIS Starting Strong design?

The key features of the TALIS Starting Strong design are as follows:

- **Target sample size:** Minimum of 180 ECEC settings per country and level of ECEC (pre-primary education and settings serving children under age 3).
- **Target response rate for staff:** 75% of the sampled ECEC settings, together with a 75% response rate from staff within participating ECEC settings. An ECEC setting is considered to have participated if 50% of sampled staff within the setting responded to at least one question in the Survey.
- **Target response rate for leaders:** 75% of the sampled leaders in the country.
- **Questionnaires:** Separate questionnaires for staff and leaders, each requiring approximately 45 minutes to complete. In addition, a combined questionnaire was used for staff in very small centres (i.e. with only one staff member or with only one main teacher and assisting staff) that included suitable questions from both the staff questionnaire and the leader questionnaire.
- **Mode of data collection:** Questionnaires were completed on paper or online.
- **Survey windows:** March to May 2018 for countries participating on a Northern Hemisphere schedule and August to October 2018 for countries participating on a Southern Hemisphere schedule (with some extensions in both cases).

Further details on the sample for all target populations can be found in Annex B.

What kinds of results does TALIS Starting Strong provide?

TALIS Starting Strong data are based exclusively on self-reports from ECEC staff and leaders and, therefore, represent their opinions, perceptions, beliefs and accounts of their activities. No data imputation from administrative data or other studies is conducted. The views of staff and leaders provide insight into how they perceive the ECEC environments in which they work and how policies in place are carried out in practice. But, as with any self-reported data, this information is subjective and may differ from data collected through other means (e.g. administrative data or observations). The same is true of leaders' reports about ECEC centre characteristics, sources of funding and practices, which may differ from descriptions provided by administrative data at national or local government levels.

In addition, as a cross-sectional survey, TALIS Starting Strong cannot assess causality. For instance, in examining the relationship between staff education and process quality, it is possible to determine the direction (positive, negative) of the association, its strength and statistical significance. It is not possible, however, to establish whether different levels of staff education lead to different levels of process quality or whether centres with different levels of process quality attract staff with different educational profiles.

The report focuses on the quality of ECEC environments, placing children at the centre of analyses. Results from both staff and leaders are included throughout the report, to understand the different aspects of ECEC centres that matter for children's learning, development and well-being. The analyses also aim to draw meaningful international comparisons while acknowledging the complex differences in ECEC systems across participating countries (see Annex A). Throughout the report, emphasis is put on contextualising the findings by highlighting examples of policies or practices, and also by breaking down results according to contextual variables, for instance whether centres are publicly or privately managed.

How is this report organised?

This report presents the first results and policy recommendations emerging from TALIS Starting Strong. The chapters are organised starting with factors that are closest to child learning, development and well-being and progressing through factors that are more distant.

- **Chapter 1** gives readers an overview of the main findings and policy implications of the report.
- **Chapter 2** presents the rich information on practices used by staff with groups of children in ECEC and examines the types of interactions between staff and children and staff and parents/guardians that comprise process quality. It also discusses how activities are organised within groups, in terms of the size of the group and the number of staff available, as well as how the workforce adapts practices to support children with different backgrounds and needs.
- **Chapter 3** describes the ECEC workforce in terms of age, gender, pre-service training and participation in ongoing professional development. It also gives a profile of the working conditions staff report, including their contractual status, working hours, sources of work stress and job satisfaction. Recognising that interactions between children and staff are crucial to the quality of early childhood settings, the chapter explores how characteristics of the workforce are associated with process quality.
- **Chapter 4** examines characteristics of ECEC centres: where the centres are located; what types of centres exist; how many staff they employ; and which children they serve. It explores how centre characteristics are associated with staff qualifications and different staff practices, including support for process quality.
- **Chapter 5** presents an overview of the funding and governance structure of ECEC centres and explores centre leaders' perceptions of effective management and sources of stress. The chapter also looks at the associations between centre governance and staff's level of education, perceptions on spending priorities, support for professional development, process quality, and enrolment of children from different socio-economic backgrounds.
- **Annex A** contains information about the ECEC systems in each of the nine participating countries, which is drawn from sources outside of TALIS Starting Strong.
- **Annex B** contains information about the TALIS Starting Strong target populations, the samples and a summary of the adjudication outcomes for each sample, along with cautionary notes about interpretation of the results, when necessary.
- **Annex C** contains information about complex variables derived from the staff and leader questionnaires that are analysed in the report and statistical methods used to analyse the data.
- **Annex D** contains the full list of online results tables.
- **Annex E** lists the members of the OECD Extended ECEC Network, managers in the TALIS Starting Strong national study centres, members of the OECD Secretariat, members of the TALIS Starting Strong International Consortium and members of TALIS Starting Strong expert groups.

References

OECD (2019), *TALIS Starting Strong 2018 Technical Report*, OECD Publishing, Paris. [1]

Sim, M. et al. (2019), "Starting Strong Teaching and Learning International Survey 2018 Conceptual Framework", *OECD Education Working Papers*, No. 197, OECD, Paris, https://doi.org/10.1787/19939019. [2]

1 Policy implications of the 2018 Starting Strong Teaching and Learning International Survey

The report on the results of the 2018 Starting Strong Teaching and Learning International Survey (TALIS Starting Strong) focuses on the quality of early childhood education and care (ECEC) environments. This first volume examines multiple factors that can affect children's learning, development and well-being, from those that are close to children's everyday lives to those that are more distant. This chapter provides an overview of the main findings presented in this volume and then discusses policy implications that countries can consider to raise the quality of ECEC environments.

The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

The OECD Starting Strong Teaching and Learning International Survey (TALIS Starting Strong) is the first international survey that focuses on the workforce in early childhood education and care (ECEC). The workforce plays a fundamental role in ensuring the quality of ECEC provision. Survey responses from ECEC staff offer timely and meaningful information, providing insight into quality within ECEC settings, particularly process quality. Process quality in ECEC refers to the quality of interactions, how staff engage with children and with parents and how children interact with one another. Without strong process quality, ECEC falls short of supporting children's early learning, development and well-being, which are foundational for them to become lifelong learners (OECD, 2018[1]).

Early childhood is a time of rapid brain development, when young children are learning constantly through their experiences and interactions. High-quality ECEC can provide a stepping stone for children to progress through their educational journey equipped with skills that will allow them to succeed, both in further education and in life. Poor-quality ECEC provision can seriously affect children's social and emotional development and can also be detrimental to their overall well-being at an age when they are highly vulnerable. In settings with strong quality, investments made in providing ECEC lead to robust returns both for individuals throughout their life course and for economies and societies as a whole. Furthermore, with availability of high quality ECEC services, parents can decide to return to or join the workforce. This can, in turn, ensure that children from different backgrounds will participate in ECEC and help reduce inequalities between children.

TALIS Starting Strong was designed to approximate quality through questions to staff and leaders of ECEC centres on major elements that, according to research, influence children's learning, development and well-being (Sim et al., 2019[2]). The goals of TALIS Starting Strong and of this publication are to:

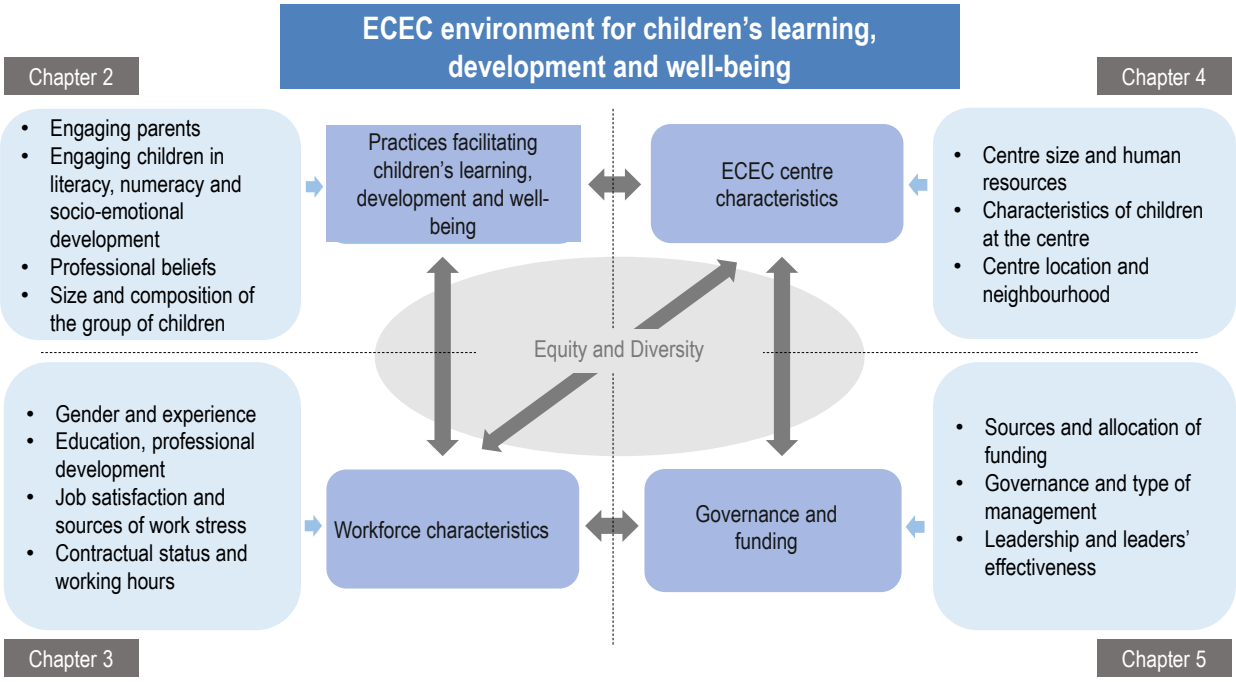
- explore the characteristics of the ECEC workforce and ECEC settings
- investigate the factors that can support quality
- compare early childhood settings and staff practices within and across countries to identify policy strategies to improve ECEC provision for all children.

TALIS Starting Strong offers an opportunity to learn about the characteristics of the ECEC workforce, the practices they use with children, their beliefs about children's development and their views on the profession and on the ECEC sector, in terms of process quality. Analyses in this publication relate to the use of practices that are known through research to influence children's learning, development and well-being and to the factors that are expected to influence those practices (as informed by the workforce). TALIS Starting Strong data complement and extend existing international data on structural characteristics of ECEC and countries' policies in this area (OECD, 2017[3]).

This publication includes results from staff (those who work regularly in a pedagogical way with children) and leaders (those with the most responsibility for administrative, managerial and/or pedagogical leadership at the centre level) in pre-primary settings (ISCED level 02) in nine countries (Chile, Denmark, Germany, Iceland, Israel, Japan, Korea, Norway and Turkey). It also features results from staff and leaders in centres providing ECEC to children under age 3 in four countries (Denmark, Germany, Israel and Norway).

After this introductory chapter setting out the main findings and policy implications, the report starts with what is closest to children's daily experiences. Chapter 2 explains how the quality of the interactions between staff and children are captured through the Survey. The following chapters further investigate such factors and progressively move on to factors that are less closely tied to children's daily life: the workforce (Chapter 3); characteristics of ECEC centres (Chapter 4); and governance and funding (Chapter 5). Each chapter gives information on two main aspects: 1) the workforce and the ECEC sector; and 2) the determinants of quality. Annex A provides a concise overview of the ECEC system in each of the participating countries. Figure 1.1 summarises the framework used to understand the quality of ECEC and the structure of this publication.

Figure 1.1. Framework for the analysis of the quality of ECEC environments in TALIS Starting Strong



Children in early childhood education and care centres

Through the questions put to the ECEC workforce in TALIS Starting Strong and other sources of information, this publication gives an indirect picture of children in ECEC. The Survey does not measure children's learning, development and well-being, but it provides rich information on the settings where children spend their time outside of the home and family and offers new insights on the perspectives of staff working with children in these settings.

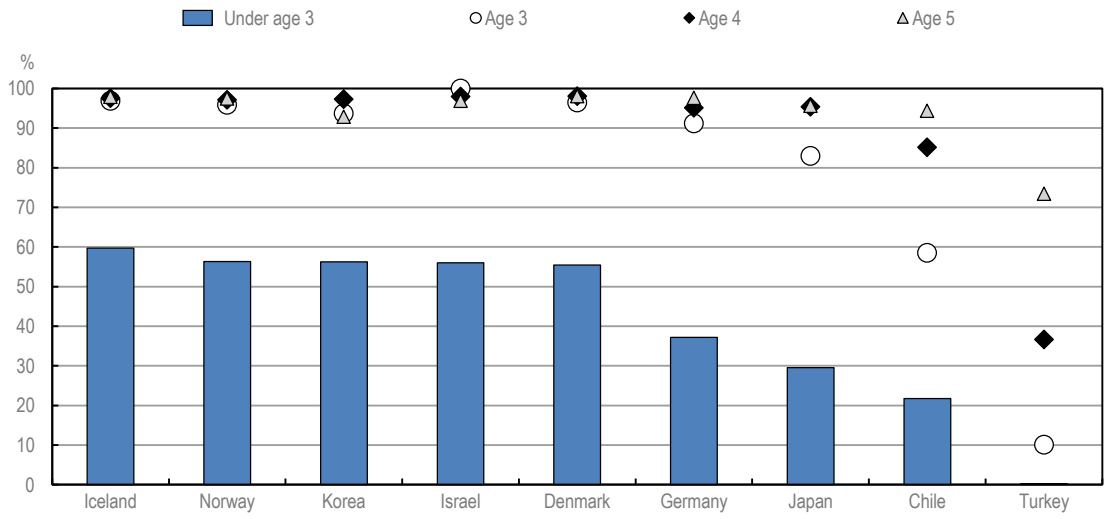
How many children participate in ECEC?

Among countries participating in TALIS Starting Strong, close to 100% of children are enrolled at age 5, with the exception of Turkey, where 73% of children were enrolled in 2017 (Figure 1.2). On average across OECD countries in 2017, around one-third of children under age 3 were enrolled in ECEC. There are large differences in these rates across the countries participating in TALIS Starting Strong, with a very small share of the youngest children being enrolled in Turkey and a large share, compared to the OECD average, in Denmark, Iceland, Israel, Korea, and Norway (OECD, 2019[4]).

Which other children do they meet at their centres?

The size of centres (in terms of the number of children) and thus the number of peers children encounter in ECEC varies greatly both across and within countries. Large centres with 80 or more children are most common in Japan and Iceland. In Norway, for both pre-primary centres and centres for children under age 3, the average size is closer to 40 children. In Israel, the average size of pre-primary centres is around 30 children. Within countries, the size of centres varies a lot in Korea and Turkey, with many smaller centres.

Figure 1.2. Enrolment in early childhood education and care, 2017



Source: OECD (2019[4]), *Education at a Glance 2019: OECD Indicators*, https://dx.doi.org/10.1787/f8d7880d-en.

StatLink https://doi.org/10.1787/888934010128

In terms of age, children in countries with an integrated system of ECEC (where ECEC for children aged around 0-5 is governed by the same authority and regulatory framework) are more likely to be in contact with a large age range of children. This is the case in Chile, Denmark, Germany and Norway, where the same authority is in charge of most pre-primary education centres and also centres serving children under age 3. In Japan and Korea, although ECEC is split in terms of governance, ECEC centres also serve a large age range of children.

In terms of children's socio-economic background, the composition of centres varies quite a lot across countries participating in TALIS Starting Strong. In pre-primary centres, the percentage of centres that report having 11% or more children from socio-economically disadvantaged homes varies from 4% in Japan to 65% in Chile. In centres for children under age 3, the percentage of centres with a high share of children from socio-economically disadvantaged homes varies from 11% in Norway to more than 20% in Germany and Israel. In Germany, Iceland and Norway, at least two in five leaders report that there are 11% or more children in their centre whose first language is different from the language(s) used in the centre.

To learn about the background of other children a child may be directly exposed to, the Survey asks staff about the composition of the first group of children they were working with on the last working day before the day of the Survey (the target group). In Germany, Iceland and Norway, at least three in ten staff report that the target group includes 11% or more children whose first language is different from the language(s) used in the centre, meaning that in a group of ten children, there will be at least one child speaking another language.

What do children learn and do?

TALIS Starting Strong asks staff about the practices that are used in their centres. This information helps gain a sense of what is happening in ECEC centres, although it cannot reflect children's own perspective on their experiences in the centres.

In all countries, a large majority of staff report wide use of practices facilitating children's socio-emotional development (such as talking with children about feelings and encouraging children to help each other) or practices facilitating children's language development (such as encouraging children to talk to each other and singing songs or rhymes). Specific practices emphasising literacy and numeracy (such as playing number games or playing with letters) are used to a lesser extent. Overall, these findings suggest that ECEC focuses on developing interpersonal and language skills.

The beliefs of staff on the skills and abilities that are important for children to develop for their future are related to staff practices and thereby to the types of activities children are engaged in in the playroom/classroom. Oral language skills and the ability to inquire and explore based on one's own curiosity and to think creatively are among the skills considered as the most important. Staff consider as less important the foundational cognitive skills that are valued in schools and further education, such as reading, writing, numeracy and science.

With which staff do children interact at their centres?

Children are mainly interacting with women in ECEC centres: 95% of pre-primary education staff and 96% of staff in centres serving children under age 3 are women, across all countries participating in TALIS Starting Strong. The majority of staff are between 30 and 49 years old. In Korea and Turkey, however, around 40% of staff are under age 30.

In many countries, children interact with both staff with relatively high levels of education (often teachers) and staff with less education (often assistants). Staff in the ECEC field have typically completed education beyond secondary school, but average education levels mask differences within countries between staff who work as teachers and those who work as assistants in all countries for which the distinction can be made, except Korea. In Chile, Israel at pre-primary level and Norway, there are large differences in the educational background of assistants and less so for teachers.

Where are children's centres located?

In all participating countries, a majority of centre leaders report that children are in centres where the neighbourhood is a good place to raise children. But there are also negative perspectives, depending on the country. For instance, more than one in ten leaders in all countries, except in Japan and Norway "agree" or "strongly agree" that there is vandalism and deliberate damage to property in the neighbourhood of the centre or litter lying around. Children are in ECEC centres that are usually in stand-alone buildings in countries participating in TALIS Starting Strong, except in Turkey, where co-location with primary schools is the most common arrangement.

How much is spent per child?

On average in OECD countries, USD 8 605 per child was spent on ECEC in 2016 (OECD, 2019[4]). This is similar to expenditure per child in primary education institutions, but it hides differences within the ECEC sector. On average in OECD countries, expenditure per child in early childhood educational development (generally for children under age 3) is in fact higher than what is spent in primary education, while expenditure per child in pre-primary education (generally for children aged 3-5) is slightly lower. On average in OECD countries, expenditure per child in 2016 was USD 12 080 in early childhood educational development and USD 8 349 in pre-primary education. Some countries participating in TALIS Starting Strong spend more per child on ECEC than the OECD average (Denmark, Germany, Iceland and Norway), while others spend less (Chile, Israel, Japan, Korea, and Turkey).

Ensuring quality of early childhood education and care systems: Policy implications

The findings presented in this report suggest four broad areas where policies and practices can improve conditions to support children's learning, development and well-being. The remainder of this chapter is structured around these objectives:

- promote practices that foster children's learning, development and well-being
- attract and retain a high-quality workforce
- give a strong start to all children
- ensure smart spending in view of complex governance and service provision.

For each of these broad objectives, this chapter highlights key findings, offers some examples of good performance (as shown in italics), and points out policy strategies that can be considered to enhance ECEC quality. However, as TALIS Starting Strong results vary across and within countries, the proposed policy pointers may not be relevant to all ECEC systems.

Promote practices that foster children's learning, development and well-being

Early childhood staff use many practices to support children's learning, development and well-being in both cognitive and socio-emotional areas. These practices can help children to reach their full potential in terms of learning and development. To approximate process quality, TALIS Starting Strong has developed a rich set of indicators that explore the variety of practices used by staff to foster children's development in multiple dimensions. Policies can support process quality by training and supporting staff to use relevant practices. Including examples of these practices in curriculum frameworks and ensuring that the size and organisation of groups of children are conducive to optimal staff-child interaction can also facilitate the use of these practices.

> *Country examples: For pre-primary education, Korea appears to combine a well-trained workforce on various aspects, including engaging parents and guardians, facilitating children's transition across levels of education, ensuring that a large percentage of staff benefit from professional development and broad use of practices to support children's learning, development and well-being in a holistic way (Table 1.1, Indicators 1 to 18). Norway shares similar patterns to some extent, but with a large share of staff with relatively low levels of education combined with high participation in professional development.*

Design high-quality pre-service and in-service training programmes to shape staff practices

TALIS Starting Strong builds on the concept that ECEC is effective when staff use practices that help all children to learn and develop to their full potential in multiple dimensions, regardless of their socio-economic background, native language and other specific needs. In all countries, the percentage of staff who report that practices that facilitate children's socio-emotional development apply "a lot" in ECEC centres is larger than the percentage who report that practices specifically emphasising literacy and numeracy development apply "a lot". For instance, for pre-primary education, the gap between the percentage of staff indicating that "encourage children to talk to each other" and "play number games" applies "a lot" to staff in the centre is large in Iceland, Japan, and Norway and relatively small in Chile, Korea and Turkey (Table 1.1, Indicator 1). In these latter three countries, the smaller gap may suggest an approach giving pre-academic and socio-emotional learning and development more equal weight.

Education and training for staff can support their knowledge and use of effective practices with children. It can also shape their beliefs. In many countries, the ability to co-operate easily with others is at the top of the list of skills and abilities that ECEC staff regard as important for young children to develop. Staff consider the foundational cognitive skills valued in schools and further education, such as reading, writing,

numeracy and science, as less important. This is in line with their less frequent use of the practices to develop these skills.

TALIS Starting Strong also looks at the practices used with the group of children staff were working with on the last working day before the day of the Survey (the target group). When reporting on practices used with the target group, on average across countries in pre-primary settings, less than 50% of staff report that they "always or almost always" use specific practices to provide individual support to children and adapt to children's needs. This may reflect a number of barriers staff face to individualise practices for children (such as a lack of time to do so) and may also reflect a need for stronger preparation of staff to use these practices when working with a group of children. Furthermore, TALIS Starting Strong data show that staff with more education, particularly training to work with children, and more responsibility in the target group, report using more adaptive practices (see Chapter 3). These practices can facilitate children's learning and development in a large range of areas, such as socio-emotional and cognitive. Staff who participated in professional development during the year prior to the Survey also generally report more use of adaptive practices.

Staff in the ECEC field typically have completed education beyond secondary school, with Japan, Korea and Turkey having the highest rates of ECEC staff with post-secondary education and Iceland, Israel and Norway having the lowest rates in pre-primary education centres (Table 1.1, Indicator 2). There is also large variation within countries in staff educational background. Training specifically to work with children as part of pre-service programmes is not universal, ranging from 64% of staff in Iceland to 97% in Germany (Table 1.1, Indicator 3). In addition, if staff benefitted from training to work with children, this preparation did not necessarily include a practical component (Table 1.1, Indicator 4). Overall, a significant percentage of staff may be insufficiently prepared through their pre-service education and training programme to work in the ECEC sector in Iceland, and to some extent in Israel and Norway for pre-primary education, while staff appear globally well-prepared in Germany, Japan and Korea.

Continuous professional development is one of the most promising ways to enhance process quality in ECEC settings. It can help staff who are inadequately prepared through their pre-service training to catch up, get all staff to learn about pedagogical innovations and new skills needs and, if professional development is taken as a group, build a common approach to practices within centres. Participation in ongoing professional development is common among ECEC staff, ranging from 79% of staff in Israel indicating that they participated in a training activity in the 12 months prior to the Survey to near universal participation (97%) in such activities by staff in Korea (Table 1.1, Indicator 5).

Leaders in ECEC settings tend to have formal education at the level of a bachelor's degree or equivalent or above. Exceptions to this include Japan and, to some extent, Israel's sector serving children under age 3 (Table 1.1, Indicator 6). Leaders may better support staff in the use of practices fostering children's learning, development and well-being if they have been trained to support and guide staff in their pedagogical practices. In all participating countries except Germany, a majority of leaders received training on pedagogical leadership (Table 1.1, Indicator 7).

Policy pointer 1: Ensure that pre-service and in-service education and training programmes for staff lead to a common understanding of good practices

Depending on the age structure of the ECEC workforce and the tradition of pre-service education and training programmes, there can be large variation within countries in how staff are prepared for their roles. Countries in which a significant part of the workforce appear to be inadequately prepared to develop quality staff-child interaction strategies should emphasise the need to develop specific in-service programmes that focus on these aspects. Countries can ensure that pre-service and in-service training programmes for staff fully recognise the need for young children to progressively develop a holistic set of skills, including socio-emotional skills, literacy and numeracy skills and interest in science and the arts.

ECEC curriculum frameworks do not only shape what staff do with children; they also underpin education and training programmes. Policy makers can establish guidelines or curriculum frameworks that encourage high-quality practices, provide support to help implement these practices and focus on aspects of children's holistic development (see Box 2.1 in Chapter 2).

Policy pointer 2: Include a work-based learning component in all pre-service ECEC programmes

Work-based learning components in pre-service training programmes can help staff to learn how to manage a group of children in the classroom/playroom setting, adjust practices to children's changing needs and effectively foster children's learning, development and well-being. Work-based learning can also provide a mechanism to attract new staff, ensure they are familiar with the day-to-day demands of the job and grow the ECEC workforce (see Box 3.1 in Chapter 3). Finally, participants in work-based learning can help to support ECEC staff by providing additional adults in the classroom/playroom, enabling staff to give more individualised attention to children.

Support engagement with parents

TALIS Starting Strong considers how staff and leaders engage parents/guardians as a key part of process quality in ECEC centres. These practices, including supporting parents to be their children's first educators, have been shown in the literature to be a powerful driver of children's learning, development and well-being.

There are many benefits of consulting parents/guardians when developing strategies to support children's learning and development in ECEC settings. Parental partnerships are critical in enhancing the knowledge of ECEC staff about the children they work with, ensuring high-quality learning for children at home and developing good communication between parents and ECEC staff. Aspects of interactions between staff and parents/guardians are also of paramount importance for the quality of ECEC provided to children and families of diverse cultural or socio-economic backgrounds and to dual/second-language learners.

In all countries, the majority of staff are aware of the importance of engaging with parents, which they learned about during their pre-service programme (Table 1.1, Indicator 8). Parent engagement, however, is not addressed as much in professional development. During the 12 months prior to the Survey, a majority of staff received training on engaging with parents/guardians only in Chile, Japan, Korea, and in Germany for staff in centres for children under age 3 (Table 1.1, Indicator 9).

Practices associated with exchanging information with parents regarding daily activities and children's development are well established, but practices that specifically engage parents in children's development are less frequent. In particular, there are large variations across countries in the percentages of staff who report encouraging parents to play and participate in learning activities at home with their children and in the percentage of leaders who report that the centre provided "workshops or courses regarding child-rearing or child development" over the 12 months prior to the Survey (Table 1.1, Indicators 10 and 11).

Policy pointer 3: Ensure that pre-service and in-service education and training programmes for staff lead to a common understanding of successful ways to engage parents

Countries can ensure that engaging parents and staff in as many ways possible to support children's development is fully integrated in both pre-service and in-service education and training programmes. Professional development, on this aspect, could be targeted to staff in centres with a large share of children from different cultural backgrounds or with special needs to build a bridge between their home-learning environment and the daily ECEC experience. The importance of engaging parents could also be emphasised in curriculum frameworks.

Facilitate children's transitions across levels of education

Children at an early age face important transitions, such as transitioning from pre-primary education to primary education. Many young children also have to transition from programmes for children under age 3 to pre-primary education centres.

Interaction and engagement between early-years services and other services can support smooth transitions within ECEC and from ECEC to school. Well-prepared transitions may be critically important for children and their families from disadvantaged backgrounds, who are at greater risk of lack of support and consistency between home, ECEC and schools (OECD, 2017[5]).

TALIS Starting Strong asks leaders how often their centres engage in communication and co-operation with primary education staff. In all countries except Israel and Korea, most leaders report communicating with primary education staff (Table 1.1, Indicator 12). TALIS Starting Strong also inquires about whether centres hold meetings with primary school staff and provide activities for parents to facilitate transitions. The analysis based on TALIS Starting Strong suggests that those practices are more frequent when ECEC centres are co-located with primary schools. However, in all participating countries except Turkey, only a minority of centres are co-located with primary schools, which implies that it is even more important to encourage co-operation between staff and leaders of ECEC centres and schools (Table 1.1, Indicator 13).

Pre-service and in-service education and training programmes can prepare staff to include transition practices as part of their work with children and parents. In Korea, Norway and Turkey, a large share of staff report that their pre-service programme included practices to facilitate transitions (Table 1.1, Indicator 14). In all countries except Japan, a minority of staff received training on facilitating transitions in the 12 months prior to the Survey (Table 1.1, Indicator 15). For staff working with children under age 3, a smaller number of staff in the four participating countries received training on this aspect.

Policy pointer 4: Ensure that pre-service and in-service education and training programmes for staff include how to prepare children (and families) for transitions across levels of education

In some countries, pre-primary education settings and primary schools are co-located, which may facilitate transitions for children. This could be one of the options to consider when building new ECEC centres, but it is important to continue ensuring age-appropriate practices.

More generally, countries can make sure that staff and leaders are well-prepared to use the multiple options that can facilitate transitions, ranging from specific practices with children to co-operation with primary schools and parents. Those aspects can be better integrated in in-service training programmes. Countries can influence the use and quality of practices by staff by establishing guidelines or curriculum frameworks that encourage high-quality practices, providing assistance to implement these practices and putting the focus on children's development and well-being.

Favour interactions between staff and children as part of small groups of children

Several studies indicate that smaller group sizes and a higher number of staff per child are conducive to high-quality interactions between staff and children, although the evidence is not always conclusive (Burchinal et al., 2002[6]; Cryer et al., 1999[7]). Analyses from TALIS Starting Strong find that, on average in participating countries, pre-primary education staff working with a relatively large group of children are more likely to use behavioural support practices such as "asking the children to quieten down when activities begin" or "addressing children's disruptive behaviour that slows down other children's learning" (see Chapter 2). Larger group size is associated with more practices for behavioural support in Chile, Israel and Korea at the pre-primary level and Denmark in centres for children under age 3 (with low response rates). Behavioural support can be positive for children's learning and development, but staff may have less time to focus on other activities when they use those practices a lot.

In pre-primary settings in Iceland and Israel, staff who report more stress from having too many children in the class or group report using fewer practices to adapt to children's interests, needs and background. This finding may indicate that staff limit the amount they engage in more individualised practices if they feel more overwhelmed by the number of children they are working with. Staff who report more stress from having too many children in the target group also report using more behavioural support practices in pre-primary settings in Germany, Japan, Korea and Turkey. In pre-primary centres in Denmark (with low response rates), Germany, Iceland, Israel, Korea and Norway, a majority of staff report that "having too many children in my classroom/playgroup/group" is "quite a bit" or "a lot" a source of stress (Table 1.1, Indicator 16). This is also the case in centres for children under age 3 in Denmark (with low response rates), Germany and Norway.

The Survey provides information on the size of the first group of children staff were working with on the last working day before the day of the Survey (the target group). The size of the target group reported by staff in pre-primary education centres varies between 16 children on average in Germany, Iceland, Korea, Norway and Turkey to more than 20 in Chile, Israel and Japan (see Chapter 2). In centres for younger children, the size of the group is slightly smaller. There are also variations within countries. In Chile, Israel (for both pre-primary centres and centres for children under age 3) and Japan, at least two-thirds of target groups have a size that is higher than the median of participating countries (18 children for pre-primary centres and 12 children for centres for children under age 3) (Table 1.1, Indicator 17).

The Survey also provides information on the size of centres and the total number of staff in centres. The "number of staff per child" refers to the total number of staff in the centre, regardless of their role, divided by the number of children in the centre. The total number of staff per child in ECEC centres becomes less favourable as the size of the centre increases across countries. In all participating countries, the number of staff per child is bigger in smaller centres than in larger centres, but this is particularly the case in Chile, Denmark (in centres for children under age 3, with low response rates) and Korea (Table 1.1, Indicator 18, see Chapter 4). The within-country variation in the number of staff per child in ECEC centres highlights that children's experiences in ECEC can vary greatly even within a single country.

Policy pointer 5: Investigate options to foster interactions between staff and children as part of small groups and ensure that larger groups benefit from well-trained staff

Facilitating interactions between staff and children as part of small groups could be considered, particularly in Chile and Israel (pre-primary education level) and also potentially in Japan, where staff work with relatively large groups of children, which appears to be related to their practices. As an overall reduction of the size of groups can be financially costly and countries face competing spending priorities, flexible organisation of activities and practices over the day can ensure that staff interact with small groups of children in at least some moments during the day. Countries also have to ensure that large centres have a sufficient number of staff. Finally, well-trained staff need to be allocated to larger groups of children.

Attract and retain a high-quality workforce

Given the importance of a qualified workforce for providing high-quality ECEC, strategies to recruit new staff with relevant pre-service training are crucial, as are strategies to keep these trained professionals in the ECEC sector. Yet, earnings quality still tends to be low for ECEC staff, which may harm process quality and staff retention (OECD, 2018[1]). Furthermore, staff well-being seems to matter for their use of specific practices with children, suggesting that staff who are less satisfied with their jobs or who experience more work stress may be less likely to engage in rich interactions, limiting the level of process quality in their classrooms/playrooms. Policies can raise the status of ECEC staff as a profession and reduce sources of instability and stress, particularly through ensuring access to relevant, ongoing professional development opportunities.

> *Country examples: For pre-primary education, staff in Norway appear to be relatively satisfied with their jobs, to generally have permanent contracts and to benefit from opportunities for professional development (Table 1.1, Indicators 19 to 25). A similar pattern holds for Israel and Turkey, but overall participation of staff in professional development is lower in the two countries (Table 1.1, Indicator 5). In Israel, less educated staff report lower participation in professional development than highly educated staff.*

Raise the status of the profession

A majority of staff in all countries report feeling valued by the children and parents or guardians they serve. A majority of staff also "agree" or "strongly agree" with the statement "All in all, I am satisfied with my job" (Table 1.1, Indicator 19). However, in all countries, staff reports of feeling valued by society are much lower (Table 1.1, Indicator 20): at the lower end, only 31% of staff in Japan "agree" or "strongly agree" that ECEC staff are valued in society. Among pre-primary staff in Israel, this number rises to 75%, although this is still far below their level of agreement that they are valued by the children they serve. Importantly, staff in several countries who agree that ECEC staff are valued in society report using more practices that are tailored to individual children than staff who do not agree with this statement. These countries include the pre-primary sector in Chile, Germany, Japan and Korea and the sector serving children under age 3 in Denmark (with low response rates), Israel and Norway (see Chapter 3).

Staff perceptions of being valued by society are likely shaped, at least in part, by the salaries they receive. In all countries, fewer than two in five staff report being satisfied with their salary (Table 1.1, Indicator 21). Across OECD countries, pre-primary education teachers earn only 78% of the salaries of full-time, full-year workers with tertiary education (ISCED levels 5 to 8) in other fields (OECD, 2019[4]). Given the diversity of educational backgrounds among ECEC staff, as well as the number of ECEC staff who do not work full-time, some salary differences may be due to characteristics of the workforce and their labour contracts.

Policy pointer 6: Review ECEC staff financial packages to ensure that they can attract and maintain a high-quality workforce in the sector

To attract and retain a high-quality workforce, ECEC systems need to offer attractive financial packages. However, most countries have limited room for increased public expenditure, and ECEC budgets compete with the budgets of both other levels of education and other public policies. In this context, a long-term objective could be to ensure that ECEC financial packages are aligned with those proposed to teachers in other levels of education, especially primary education, to recognise ECEC staff as key contributors in education systems. In parallel, policies can focus on raising the quality of pre-service education and ongoing training to ensure alignment between the quality of the workforce and wages and meet this long-term objective. Policy makers also need to engage with the profession to identify and agree on the policy priorities and on how to implement them, given the budget constraints many countries face. This may include a broad review of the cost-efficiency of education expenditure, both within and outside the ECEC sector.

Reduce sources of instability and stress

Staff turnover in ECEC centres matters for the stability of relations among staff and between staff and children, contributing to both staff well-being and process quality more generally. ECEC centre leaders across countries report that, on average in the previous year, between around 1 and 5 staff members permanently left their centres for every 15 current staff. In a quarter of the centres in Iceland, Israel (at both levels of ECEC), Japan and Korea, at least one in five staff members left in the previous year (see Chapter 4). Staff leaving their centres is partly due to the age of the workforce. On average across participating countries, retirement is the most likely reason to leave the profession indicated by staff. Staff leaving their centres can also reflect instability in staff contractual status, as a substantial minority of ECEC

staff work on fixed-term rather than permanent contracts (Table 1.1, Indicator 22). At the same time, several countries face difficulties attracting candidates to the profession.

TALIS Starting Strong gives information on the sources of work stress faced by staff. Among sources of work stress that staff rate as causing them "a lot" of stress across all countries, a lack of resources is among the top three. Another common source of work stress across countries is having too many children in the classroom/playroom. Other sources of work stress vary across countries, highlighting the importance of asking staff about their working conditions. For example, staff in Iceland report comparatively little stress related to documenting children's development, and staff in Korea report comparatively high stress from having too much administrative work. Identifying and addressing sources of instability and of stress in the profession are important to maintain the workforce and attract new candidates.

Policy pointer 7: Engage in dialogue with ECEC professionals to identify sources of work stress and develop strategies to alleviate them

Among the various sources of stress, not all require the same effort to alleviate them. Governments can engage with the profession to identify sources of stress and prepare plans with both short-term and long-term actions to mitigate them. Reducing the amount of work to document children's development could, for instance, involve identifying types of documentation that are not needed or moving to quicker and easier types of documentation better integrated in daily practice, possibly using technology.

For countries where having too many children in the group is a source of stress and where the size of groups is relatively large (e.g. pre-primary centres in Israel), reducing group size could be a policy priority. For countries where group size is an important source of stress but average group size tends to be smaller (e.g. Iceland), ensuring a good mix of highly trained staff with additional support staff for each group could be a more appropriate policy goal.

Ensure equal access to relevant professional development

Professional development can support staff to enhance quality in their interactions with children (Markussen-Brown et al., 2017[8]; OECD, 2018[1]). It can also help mitigate negative associations between staff stress and their interactions with young children (Sandilos et al., 2018[9]). TALIS Starting Strong data show that staff who participated in professional development during the year prior to the Survey generally report adapting their practices more to individual children's development and interests. To adjust to the changing landscape of ECEC provision, and given the multiple educational pathways that exist to prepare staff for a career in ECEC as well as staff shortages in many countries, providing ongoing professional development in the area of young children must be a priority for all staff. Professional development opportunities are especially important in countries in which part of the workforce has a relatively low level of educational attainment or is relatively old, for example in Iceland and Israel.

In all participating countries, a majority of staff (more than three-quarters) report having participated in professional development activities within the 12 months prior to the Survey (Table 1.1, Indicator 5). Despite overall strong rates of participation in professional development, there are differences in participation related to staff background. Staff with higher levels of pre-service education (equivalent to ISCED level 6 or above) are more likely to report participation in professional development activities in the previous year than their colleagues with lower pre-service educational attainment in most countries, especially among pre-primary staff in Chile, Denmark (with low response rates) and Israel (Table 1.1, Indicator 23). To address the participation gap between more and less educated staff, policies need to act on multiple fronts.

The most prevalent barrier to participation in professional development reported by staff in both pre-primary education and in centres for children under age 3 is a lack of staff to compensate for absences (Table 1.1, Indicator 24). This is the number one barrier to participation in professional development in all countries

and populations, except for Chile. In Chile, staff report that their top barrier is that professional development activities are too expensive, which is also a common barrier in other participating countries (Table 1.1, Indicator 25). The lack of replacement staff to compensate for absences is often perceived as a higher barrier to professional development in publicly managed centres than in privately managed centres. Otherwise, staff in publicly and privately managed centres generally agree on the main barriers to their professional development.

The content of professional development staff received in the 12 months prior to the Survey is only partially aligned with their reported needs. For example, in contrast to the strong reported need for ongoing training to work with children with special needs, only in Japan is this content area among the top three covered in recent professional development activities. However, staff reports of professional development needs may be shaped by staff beliefs and prior training experiences.

Policy pointer 8: Compensate for staff absence to allow time to participate in professional development and encourage flexible forms of training

Compensating for staff absence and providing release time during regular working hours for professional development activities are necessary to encourage greater engagement in ongoing training. Staff absence is also a widely cited barrier to effectiveness among centre leaders, making it important to address this issue to ensure that leaders can be supportive of staff professional development opportunities.

The most frequent type of support, receiving release time from working with children for professional development activities during regular working hours, was available to only 48% of pre-primary staff who participated in professional development in the year before the Survey. This release time is particularly important for increasing the likelihood that staff will participate in in-person courses or seminars. However, it also supports participation in coaching with an external person, which is a particularly effective form of professional development for enhancing staff interactions with children (Egert, Fukkink and Eckhardt, 2018[10]).

Flexible forms of training, such as learning from peers and mentoring, can help staff improve their practices with children. These informal forms of professional development do not require release time from working with children, as they can be easily combined with staff's usual schedules. Leaders can play an important role in developing a stimulating learning environment for staff through co-operation and exchanges about their practices, but they need to be prepared for that role.

Policy pointer 9: Ensure that financial cost is not a barrier to participation in professional development

Participation in professional development entails both direct and indirect costs. Staff need adequate financial returns to support their investments in ongoing training. This points to several options for policies: 1) financing part of the cost of training to limit the upfront cost for participants; 2) developing flexible training programmes that enable working and training at the same time to avoid a loss of wages; and 3) developing career progressions to ensure that the cost of training is offset by higher future wages. This latter point is particularly important for staff participation in a qualification programme (e.g. a degree programme).

Policy pointer 10: Engage in dialogue with staff and leaders to identify and agree on the needs for high-quality professional development

There should be alignment between in-service training programmes and staff perceptions of their training needs. A shared understanding of important directions for professional development between staff and training programmes can also help to align policy goals (e.g. improving parent engagement in learning and development activities) with staff expectations for their ongoing training. The quality of ongoing training

needs to be monitored to ensure that staff are benefitting from their engagement in these activities and to encourage ongoing interest in continuous professional development.

In addition, dialogues with staff can help ensure that the training needs for both teachers and assistants are met in countries where this distinction is reflected in both pre-service and in-service training, such as in pre-primary settings in Chile and Israel. Assistants may need or be interested in different types of ongoing training than teachers. Policies that require all staff, regardless of their roles, to participate in ongoing professional development can reduce the participation gap between teachers and assistants.

Give a strong start to all children

Participation in high-quality ECEC can be particularly beneficial for children from socio-economically disadvantaged homes, those with special needs or those whose first language is different from the one(s) mainly used in the country and its educational institutions. By supporting children's socio-emotional and cognitive development, high-quality ECEC can help all children have a strong start on their educational pathways and help mitigate potential inequalities between children from different backgrounds (OECD, 2017[3]) (OECD, 2018[1]).

Harnessing the benefits of ECEC for all children requires providing access to the services for those facing greater barriers, as well as ensuring that staff are well-prepared to adapt their practices to the needs of children with different characteristics and that centres have the resources to provide additional support where required. Several participating countries have many ECEC centres in which a large share of staff work in centres with sizable groups of children with diverse characteristics, such as children from socio-economically disadvantaged homes or children whose first language is different from the language(s) used in the centre (Table 1.2, Indicators 26, 28 and 29; see Chapter 4).

> ***Country examples:*** *For pre-primary education, in Germany, Iceland and Norway, many centres serve large percentages of children whose first language is different from the language(s) of the centre, and large percentages of staff are educated and trained to work with these children (Table 1.2, Indicators 26 to 34). Chile and Turkey appear to have many centres with large shares of children from socio-economically disadvantaged homes and large percentages of staff who report using practices to adapt to children's cultural background or to promote diversity. In Japan, many centres serve large percentages of children with special needs, and large percentages of staff are trained to work with these children.*

Ensure equal access to high-quality ECEC for all children

Children from disadvantaged socio-economic backgrounds tend to attend ECEC for a shorter period of time than advantaged children. Prior data show that this difference is relatively small in countries participating in TALIS Starting Strong, except in Turkey and to some extent in Chile and Norway (OECD, 2017[3]). Countries have taken action to facilitate access and address these disparities by introducing legal entitlements to a place in ECEC and providing services free of charge for some or all children (see Annex A). In most participating countries, more than half of children are enrolled in ECEC before they turn 3, but the share remains lower in Chile, Germany, Japan and Turkey (see Figure 1.2).

To meet the growing demand for ECEC places across countries, the ECEC sector relies more on privately managed provision than higher levels of education. TALIS Starting Strong shows that the share of privately managed pre-primary centres varies from 9% in Israel to 71% in Germany. Most of these centres, however, do not report aiming to generate a profit. Privately managed centres benefit from more autonomy, which means more responsibility at the centre level in shaping budget and human resources policies than in publicly managed centres. Privately managed centres are more common in more urban areas and, except in pre-primary education centres in Germany and Japan, they tend to have fewer children from socio-economically disadvantaged homes (Table 1.2, Indicator 27). Across countries, publicly managed centres

also typically serve a larger share of children whose first language is different from the language(s) of the centre than privately managed centres.

The type of centre management (public or private) also appears to be linked to some dimensions of process quality in several countries. In Denmark (with low response rates), Germany (pre-primary centres), Iceland and Norway, publicly managed centres tend to make less use than privately managed centres of practices facilitating children's learning and development and parental engagement. Staff in publicly managed pre-primary centres in Israel and Norway also report less support for professional development than staff in privately managed centres (see Chapter 5). Overall, these findings point towards a concentration of children with similar characteristics in the same type of centres and suggest that the dichotomy between privately and publicly managed centres may be a source of inequalities between children.

Policy pointer 11: Ensure consistent quality across public and private ECEC centres and support access to both types of settings for all families

Where differences persist in the participation of children from socio-economically disadvantaged homes and/or with a home language different from the majority language in ECEC, governments should explore options to lower entry barriers for them. This can involve, for instance, making places available free of charge or on more progressive fee scales, ensuring that ECEC centres are close to parents' homes or workplaces and that opening hours align with parents' professional commitments. Centres should also provide the quality of interactions that are particularly important for the development of children from less favourable backgrounds. Given the strong role of the state in co-financing privately managed centres, governments have leeway to ensure that all children have access to high-quality services, regardless of how centres are being managed (see Box 4.3 in Chapter 4).

Prepare staff and leaders to adapt practices to children's diverse backgrounds and needs

While high-quality practices are important for all children, pedagogical approaches need to consider children's different needs. TALIS Starting Strong provides evidence that staff already adapt their practices to the characteristics of children in the group they work with. The percentage of staff reporting that they "always or almost always" adapt their activities to differences in children's cultural background is higher for staff working with a larger percentage of children whose first language is different from the language(s) used in the centre or who are from socio-economically disadvantaged homes. Large percentages of staff and leaders also report that it is important to learn about other cultures and that it is common to use books featuring a variety of cultural groups. However, concrete practices, such as getting children to sometimes play with toys from minority cultures, are less widespread in almost all countries, but particularly in Germany, Japan and Norway (Table 1.2, Indicator 30).

It is crucial to prepare staff to adapt their practice to children's diverse characteristics. In all countries except Korea, the top priority need for professional development according to staff is working with children with special needs. Working with dual/second language learners is another area where staff in multiple countries participating in TALIS Starting Strong report a strong need for ongoing training. TALIS Starting Strong also shows that working with children with special needs or with children with a different first language is not systematically covered by pre-service and in-service training programmes (Table 1.2, Indicators 31, 32, 33 and 34). Overall, it seems that there is a perceived lack of training to work with children from different backgrounds, but an interest among staff in receiving this type of training (see Chapter 3).

Policy pointer 12: Ensure that practices for working with children from different cultural backgrounds and children with special needs are included in pre-service and in-service staff training

To ensure the quality of practice and support for staff, relevant preparation for their work with all children is crucial. Since in many countries the characteristics of children in ECEC change over the years, this preparation must take place not only as staff acquire their qualifications to work with children, but also as part of continuous professional development throughout their careers. When updating training plans and curricula, it is important to ensure coherence with the curriculum frameworks for ECEC provision itself. For example, the curriculum framework may emphasise the need to value the diversity of cultures and encourage staff to provide concrete opportunities for young children to get a better understanding of the diversity of cultures to ensure an effective integration of all children (see Box 2.5 in Chapter 2).

Allocate resources to provide additional support to those who need it most

The allocation of human and financial resources to centres and groups of children can mitigate, accentuate or leave unchanged the inequalities between children stemming from the fact that children from similar socio-economic or cultural backgrounds tend to be concentrated in the same centres and sometimes in the same groups of children. In pre-primary settings in Chile, Denmark (with low response rates) and Turkey, as well as in centres in Norway serving children under age 3, staff are more likely to have higher educational attainment when working in target groups with 11% or more children from socio-economically disadvantaged homes than their colleagues working in groups with a lower proportion of disadvantaged children. However, at the same time, pre-primary staff in Turkey and those in centres in Israel serving children under age 3 who work in groups with a higher proportion of children from disadvantaged homes tend to report having less experience (see Chapter 3).

TALIS Starting Strong suggests that there tend to be more children from socio-economically disadvantaged homes in centres where leaders report less availability of public spaces for children to play, indicating a less favourable context for learning, development and well-being outside the centre. However, apart from these cases, overall analyses do not show consistent links across countries between the allocation of human resources to ECEC centres and other aspects of the neighbourhood, geographic location or the concentration of children from disadvantaged homes (see Chapter 4). Thus, there is no indication that countries systematically provide enhanced services to centres (and therefore children) that need them most, but there is also little evidence that the allocation of human resources to ECEC centres increases inequities between centres with different geographical locations and child characteristics.

Policy pointer 13: Attract staff with high levels of relevant training to centres with higher shares of children from socio-economically disadvantaged homes

Especially in countries where there is evidence that children starting their educational careers with some disadvantages are not benefitting from the best ECEC provision available, the incentives and rules for allocating resources across centres should be considered carefully. The overall staffing of centres with large shares of children from socio-economically disadvantaged homes can be reviewed to create favourable working environments for staff and learning environments for children. In view of persistent staff shortages in the sector, it is important to take measures to ensure that, at the centre level, such additional resources actually reach the children who require specific support, rather than being absorbed by broader capacity needs (see Box 4.3 in Chapter 4). In countries where salaries do not provide sufficient incentives for highly trained and experienced staff to work in centres with more children from socio-economically disadvantaged homes, rewards can be put in place to encourage work in these centres.

Ensure smart spending in view of complex governance and service provision

In the last decade, countries' expenditure on ECEC has increased in line with a surge in attention from government authorities and growing scientific evidence highlighting the long-lasting benefits of high-quality ECEC for children, parents and society at large. However TALIS Starting Strong findings point to areas for policies that would require larger budgets.

The ECEC sector differs from primary and secondary levels of education in many respects, including the multiplicity of types of providers, the higher share of private expenditure, the large number of privately managed centres in several countries and the involvement of a greater variety of ministries and levels of governance, with local authorities often playing a more important role (see Chapter 5). In addition, provisions for funding and monitoring may deviate from those in the schooling sector, as ECEC is not part of compulsory education and its accountability mechanisms in most countries. While the complexity of the sector can imply more flexibility in some respects, it also means that it may be more challenging to ensure that public and private spending is used in an effective manner. By asking questions about funding and governance aspects to staff and leaders from a representative set of diverse ECEC centres, TALIS Starting Strong sheds light on the functioning of the sector from their perspective and provides new considerations for directing funding according to the sector's needs and putting in place effective mechanisms to govern spending.

> ***Country examples:*** *In all countries except Chile and Turkey, staff absences, staff shortages (or both) are among the top three barriers to their effectiveness reported by leaders (Chapter 5). In Germany and Norway, at both levels of ECEC, staff report staff absences as a top priority for increased spending in the sector. Shortages of staff are also a major barrier to participation in professional development. Altogether, these findings suggest that attracting and retaining staff can be a priority area for policies. It may also be possible to take action on spending for quality at the centre level. A large share of pre-primary leaders report that process quality is monitored at least once a year in Israel and Korea and that they have responsibilities for allocation of the budget. This may suggest that spending can be reallocated to raise process quality (Table 1.2, Indicators 35 to 40).*

Identify the priorities for spending allocations

According to TALIS Starting Strong, staff across countries in both pre-primary education settings and in centres for children under age 3 converge on their top three priorities for the items on which they would spend more if the budget of the ECEC sector as a whole were to increase by 5% (Table 1.2, Indicator 35). The reduction of group sizes by recruiting more ECEC staff appears as a clear priority, mentioned among the top three needs for pre-primary education settings in all countries surveyed except Chile and Turkey. Reduction of group sizes also appears as the top priority in centres for children under age 3 in Denmark (with low response rates), Germany and Norway, and as the second priority in Israel.

Improving staff salaries and receiving support for children with special needs are also mentioned among the top-three spending priorities in several countries, in both in pre-primary education settings and centres for children under age 3. Receiving high-quality professional development also appears as a top-three priority for staff in pre-primary education centres in Chile, Denmark (with low response rates), Norway and Turkey and for staff in centres for children under age 3 in all countries except Germany.

The Survey also shows some country-specific needs. Investing in buildings, facilities and material resources for children is the top priority for staff in Turkey. In Japan and Korea, staff's second most important priority is the reduction of their administrative load through the recruitment of more support staff (Chapter 5).

Across countries, staff's spending priorities are consistent with their answers on other aspects of the Survey. For instance, in centres with a higher number of children, or with a relatively limited number of staff per child, staff are more likely to indicate reduction of group size as a spending priority. Staff also

indicate that having too many children in the group is an important source of stress and that a lack of staff to compensate for the absence of staff in training is an important barrier to participating in professional development.

The fact that improving staff salaries is indicated as a top spending priority is no surprise, since fewer than two in five staff report being satisfied with their salary in all participating countries. Since staff salaries likely shape, at least in part, staff perceptions of being valued by society, this spending priority is consistent with the perception of the majority of staff in Chile, Germany, Iceland, Japan and Korea that their profession is not valued by society (Table 1.1, Indicator 20).

Policy pointer 14: Set clear principles to identify spending priorities and engage with the profession to ensure that spending priorities are set in careful consideration of the needs identified on the ground

Across countries, staff's converging answers on the need to increase spending on certain areas highlight that fundamental aspects of ECEC provision, such as addressing staff shortages, remain a shared concern in the ECEC sector. This is an important reminder for policy makers to consider how to effectively recruit ECEC staff and ensure the attractiveness of the profession before embarking on more specific aspects of ECEC provision. It also shows that priorities identified by ECEC staff are consistent with key issues considered by policy makers. The establishment of consultation mechanisms at early stages can help ensure that policies adapt to the sector's transformations and changing needs and that policy changes are understood and acknowledged by staff. Policy makers also need to set clear principles for identifying spending priorities, accounting for the whole range of trade-offs within both the ECEC sector and the education sector more generally.

Ensure that monitoring meets quality improvement and accountability needs

Given the complexity of the ECEC system and the high level of autonomy devolved to local authorities and centres in some countries, monitoring can play an important role in ensuring quality across early childhood services. Monitoring structural and process quality, as well as child development, learning and well-being, can play an important role in improving staff practices and service provision and thus enhance children's development (Sim et al., 2019[2]). Monitoring can also help policy makers steer the ECEC system to help ECEC staff improve interactions in the classroom/playroom and support children's development. There is some evidence in the literature that positive feedback loops between monitoring systems and staff practices may be associated with gains in children's language development (OECD, 2018[1]).

TALIS Starting Strong shows that, although participating countries have established structures and mechanisms to assess ECEC centres, monitoring efforts are focused on a limited number of domains that do not always directly relate to quality. Aspects linked to the state of the facilities and to financial management of the settings seem to be regularly monitored in most countries. Only a few centre leaders across countries report that they have never had inspections to ensure that facilities meet the appropriate requirements (e.g. regarding the space and equipment available and health and safety standards). The same applies to audits on the financial management of centres, with the exception of pre-primary centres in Chile and Israel, where more than a quarter of leaders report that they have never experienced such audits.

Structural features of quality (child-staff ratio, qualification levels of staff) and process quality (e.g. interaction with children, content of activities) appear to be unevenly monitored across countries. A majority of centre leaders report that they have inspections on process quality at least once a year in Chile, Denmark (with low response rates), Iceland, Israel, Japan, Korea and Turkey (Table 1.2, Indicator 36). In Norway, a large share of leaders report that these inspections occur less than once a year. In Germany (in both centres for children under age 3 and pre-primary centres), Japan and Norway (in

centres for children under age 3), more than 20% of leaders report that they have never had this type of inspection (Chapter 5).

Policy pointer 15: Ensure that quality standards and monitoring systems are guided by a clear regulatory framework that considers process quality

Gaining an understanding of the performance of ECEC systems through monitoring is important not only for purposes of accountability, but also for informing policy design and implementation beyond questions of access, health and safety. In addition to developing minimum standards on structural aspects of quality, countries should consider to what extent their monitoring systems are able to track the implementation of such regulations and their implications for process quality. Countries can ensure they systematically collect information on the quality of interactions in ECEC centres to inform policy for quality improvements.

Empower ECEC centre leaders

Centre leaders are often in the position of making key decisions at the centre level. At the same time, TALIS Starting Strong raises doubts about the extent to which centre leaders receive all the support they need to make a positive difference. There are large differences regarding leaders' specific responsibilities across participating countries. In Denmark (in both centres for children under age 3 and pre-primary centres, with low response rates), Germany (in both centres for children under age 3 and pre-primary centres), Israel (in centres for children under age 3), Korea and Norway, a majority of leaders report they that they have significant responsibility in deciding on budget allocations within the ECEC centre and in appointing or hiring ECEC staff in their centre (Table 1.2, Indicators 37 and 38). Leaders appear to play a smaller role in the decision-making process in Japan and Turkey. Analyses based on TALIS Starting Strong suggest that in Germany, Japan and Norway, staff report more interactions fostering children's learning, development and well-being when their centre leaders have influence on staff recruitment (Chapter 5).

Centre leaders also identify various barriers to their effectiveness (i.e. what they feel limits their ability to produce the desired outcomes in their centres). The main barriers cited by leaders as limiting their effectiveness "a lot" vary across countries, but staff absences or staff shortages appear at the top in Germany, Iceland, Israel (in centres for children under age 3), Japan and Norway (Table 1.2, Indicator 39). Indeed, in several countries, leaders report that around 20% of staff left their ECEC centre in the previous year (Table 1.2, Indicator 40). In several countries, leaders also highlight an inadequate budget, which is at the top of the barriers to effectiveness in Denmark (in both centres for children under age 3 and pre-primary centres, with low response rates), Israel (pre-primary education) and Turkey. Government regulation and policies are also often quoted as important barriers (Chapter 5).

These findings are in line with the main sources of stress reported by leaders. Having too much administrative work, a lack of resources (e.g. financial support and material resources) and a lack of staff to carry out work are the most important sources of stress for leaders (Chapter 3). The sources of stress for leaders of centres for children under age 3 generally reflect those expressed by their pre-primary counterparts. This raises questions about whether centre leaders at both levels of ECEC have too much procedural work to complete and/or whether they are sufficiently trained for this dimension of their job.

Leaders generally do not indicate that a lack of opportunities for professional development can be a barrier to their effectiveness. While this could be caused by a lack of self-awareness, leaders in most countries tend to be highly educated and have extensive experience (ten years or more) in the field of ECEC, except in Turkey, where slightly less than half of leaders report this level of experience. Experience specifically as leaders is somewhat more variable but still high, with the average ranging from approximately 5 years in Turkey to over 15 years in centres serving children under age 3 in Norway (Chapter 3).

Policy pointer 16: Investigate options to address the difficulties leaders face in recruiting temporary or permanent staff

Policies to attract and retain staff will ensure a more stable workforce at the centre level. However, those policies may take time to achieve results, while centre leaders are often confronted with urgent and immediate needs. Authorities in charge of ECEC can engage with centre leaders to identify their needs and help overcome obstacles to recruiting staff. In some countries, those needs may reflect broader labour shortages in the education, social and health sectors. This would require consultation with labour market institutions and might require initiatives to encourage geographical and sectoral mobility of potential candidates. Policies that support leaders to identify and manage stress among their staff can also benefit staff retention and process quality in classrooms/playrooms.

Policy pointer 17: Ensure that policies and regulations do not create an excessive burden to leaders that prevent them from exerting the various aspects of leadership

Some administrative burden is inevitable and tied to the day-to-day management and monitoring of ECEC centres that is needed to ensure quality. However, too much administrative work can prevent leaders from spending more time on pedagogical leadership or helping other staff in case of staff absences. Digitalisation provides several options to increase the efficiency of education policies while alleviating the administrative burden of leaders (Burns and Köster, 2016[11]). Countries could investigate whether such options can be better exploited in the ECEC sector, especially in small centres where leaders may need help to fully benefit from new technologies.

Table 1.1. Data overview: Staff's practices and working conditions

	Chile	Germany*	Iceland	Israel	Japan	Korea	Norway	Turkey	Denmark**	Germany*	Israel	Norway	Denmark**
	Pre-primary education (ISCED 02)									Children under age 3			
Promote practices that foster children's learning, development and well-being													
Design high-quality pre-service and in-service training programmes to shape staff practices													
1. Gap between the percentage of staff indicating that the two following practices apply "a lot" to staff in the centre: "Encourage children to talk to each other" and "Play number games"	13	29	41	16	39	12	28	8	66	43	45	34	63
2. Percentage of staff whose highest level of education is above secondary level	87	77	52	61	99	96	67	92	75	81	63	68	72
3. Percentage of staff who have received training specifically to work with children	74	97	64	77	94	79	77	72	70	95	71	74	64
4. Percentage of staff for whom practical training was included in the programme that prepared them to work with children	45	78	71	74	92	82	74	75	39	80	81	78	32
5. Percentage of staff having participated in professional development activities over the 12 months prior to the survey	83	82	87	79	85	97	94	83	78	83	79	94	79
6. Percentage of centre leaders with formal education equivalent to a bachelor's degree or higher	94	79	77	95	44	87	99	92	97	85	65	98	100
7. Percentage of centre leaders whose training/education included pedagogical leadership	84	35	83	75	83	87	96	74	71	43	85	94	77
Support engagement with parents													
8. Percentage of staff whose formal education or training programme included working with parents or guardians/families	68	87	72	61	86	92	89	89	83	87	59	87	79
9. Percentage of staff whose professional development activities over the 12 months prior to the survey included working with parents or guardians/families	58	45	25	48	68	71	44	35	48	50	44	44	44
10. Percentage of staff reporting that "parents or guardians are encouraged by ECEC staff to do play and learning activities with their children at home" describes "well" or "very well" how they engage with parents or guardians at their ECEC centre	90	65	51	76	53	76	44	96	74	61	65	42	72
11. Percentage of leaders reporting that the centre provided "workshops or courses regarding child-rearing or child development" over the 12 months prior to the survey	87	59	49	55	65	90	71	62	41	58	45	64	41
Facilitate children's transitions across levels of education													
12. Percentage of leaders who report that in their centre there is communication with ISCED level 1 school teachers (all those who do not say "never")	69	92	93	39	85	40	89	88	82				
13, Percentage of leaders who report that their centre is co-located with a primary school	27	4	23	9	4	31	3	63	12	1	6	10	5
14. Percentage of staff whose formal education or training programme included facilitating transitions to pre-primary education (in centres for children under age 3) and to primary education (in ISCED level 02 centres)	68	62	50	57	61	72	72	90	48	43	60	55	54
15. Percentage of staff whose professional development activities over the 12 months prior to the survey included facilitating transitions	48	16	16	39	53	40	29	32	25	22	40	26	23

	Chile	Germany*	Iceland	Israel	Japan	Korea	Norway	Turkey	Denmark**	Germany*	Israel	Norway	Denmark**
	Pre-primary education (ISCED 02)									Children under age 3			
Favour interactions between staff and children as part of small groups of children													
16. Percentage of staff reporting that having too many children in their classroom/playgroup/group is "quite a bit" or "a lot" a source of stress	37	61	61	53	23	51	63	34	52	52	40	57	65
17. Percentage of staff reporting that the number of children in the target group is higher than the median group size across participating countries[1]	71	46	47	95	72	35	34	35	48	49	84	50	36
18. Gap in the total number of staff per ten children in centres between the bottom and top quarters of centre size	6	1	1	2	1	7	2	2	3	1	2	3	18
Attract and retain a high-quality workforce													
Raise the status of the profession													
19. Percentage of staff who "agree" or "strongly agree" with the statement: "All in all, I am satisfied with my job"	97	93	96	98	81	79	97	95	96	94	96	97	95
20. Percentage of staff who "agree" or "strongly agree" that ECEC staff are valued in society	40	36	33	75	31	47	52	50	61	37	56	58	55
21. Percentage of staff who "agree" or "strongly agree" with the statement "I am satisfied with the salary I receive for my work"	31	26	10	33	23	37	30	39	36	29	16	30	32
Reduce sources of instability and stress													
22. Percentage of staff with permanent contracts	66	83	78	80	61	24	88	76	90	82	87	88	91
Ensure equal access to relevant professional development													
23. Gap in the percentage of staff reporting participation in professional development activities in the 12 months prior to the survey between those who have at least a bachelor's degree or equivalent and those with lower educational attainment	15	10	10	28	11	0	8	0	35	7	5	5	21
24. Percentage of staff who "agree" or "strongly agree" that a lack of staff to compensate for their absences is a barrier to their participation in professional development	60	38	57	46	61	88	55	58	46	38	55	50	51
25. Percentage of staff who "agree" or "strongly agree" that professional development being too expensive is a barrier to their participation in professional development	79	34	42	42	54	69	47	38	47	38	59	47	51

1. The median (target) group size across participating countries is 18 for pre-primary education centres and 12 for centres for children under age 3.

* Estimates for sub-groups and estimated differences between sub-groups in the TALIS Starting Strong 2018 data need to be interpreted with care. See Annex B for more information.

** Low response rates in the survey may result in biases in the estimates reported and limit the comparability of the data.

Notes: The table highlights the top three countries (dark blue), the bottom three countries (light blue) and the two countries in the middle (medium blue) for the eight countries with data for pre-primary education (ISCED 02) that met the TALIS Starting Strong standard participation rates. These groupings were applied without consideration to statistically significant differences between countries or to the specific policy contexts within each country. More detailed information on each of these indicators is available throughout this report.

Source: TALIS Starting Strong 2018 database.

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Table 1.2. Data overview: Equity, governance and funding

	Chile	Germany*	Iceland	Israel	Japan	Korea	Norway	Turkey	Denmark**	Germany*	Israel	Norway	Denmark**
	Pre-primary education (ISCED 02)									Centres for children under age 3			
Give a strong start to all children													
Ensure equal access to high-quality ECEC													
26. Percentage of leaders reporting that the centre includes 11% or more children from socio-economically disadvantaged homes	65	27	7	14	4	11	7	30	27	23	22	11	18
27. Gap between publicly and privately managed centres in the percentage of ECEC centre leaders reporting that they serve 11% or more children from socio-economically disadvantaged homes	33	-2	3	12	-6	18	4	27	22	6	10	5	14
Prepare staff and leaders to adapt practices to children's diverse backgrounds and needs													
28. Percentage of leaders reporting that their centre includes 11% or more children whose first language is different from the language(s) used in the centre	6	47	46	16	2	2	40	19	43	41	10	39	38
29. Percentage of leaders reporting that their centre includes 11% or more children with special needs	34	9	24	10	14	2	8	3	29	10	3	4	21
30. Percentage of staff reporting that children sometimes playing with toys and artefacts from cultures other than the ethnic majority happens "to some extent" or "a lot" in their centre	52	15	33	49	32	46	15	70	22	12	38	12	21
31. Percentage of staff reporting that working with dual/second language learners was included in their formal training programme	19	45	52	24	a	37	64	a	55	43	26	61	55
32. Percentage of staff whose professional development activities over the 12 months prior to the survey included working with dual/second language learners	22	24	35	19	6	24	34	a	32	25	21	35	25
33. Percentage of staff reporting that working with children with special needs was included in their formal training programme	56	50	71	56	86	75	69	86	78	46	28	60	75
34. Percentage of staff whose professional development activities over the 12 months prior to the survey included working with children with special needs	56	17	38	38	74	45	36	35	45	20	21	30	40

	Chile	Germany*	Iceland	Israel	Japan	Korea	Norway	Turkey	Denmark**	Germany*	Israel	Norway	Denmark**
	Pre-primary education (ISCED 02)									Centres for children under age 3			
Ensure smart spending in view of complex governance and service provision													
Identify the priorities for spending reallocations													
35. Top spending priority indicated by staff for the case of a budget increase of 5%	Special needs	Staff	Salary	Staff	Salary	Salary	Staff	Material	Staff	Staff	Salary	Staff	Staff
Ensure that monitoring meets quality improvement and accountability needs													
36. Percentage of leaders who report receiving an inspection regarding process at least "once every year"	74	47	64	78	54	78	37	72	65	42	83	38	17
Empower ECEC centre leaders													
37. Percentage of leaders reporting that they or other centre staff have significant responsibility for deciding on budget allocations within their centres	24	81	32	66	43	61	55	27	79	81	56	66	73
38. Percentage of leaders reporting that they or other centre staff have significant responsibility for appointing or hiring ECEC staff	53	76	100	10	45	77	85	11	92	76	79	77	97
39. Top barrier to leaders' effectiveness in their centres, according to leaders	Lack of parent involvement	Staff absence	Staff absence	Budget resource	Staff shortage	Regulations	Staff absence	Budget resource	Budget resource	Staff absence	Staff shortages	Staff absence	Budget resource
40. Average share of staff who left their ECEC centre in the previous year, according to leaders	8	10	19	11	22	18	7	11	9	12	31	6	11

* Estimates for sub-groups and estimated differences between sub-groups in the TALIS Starting Strong 2018 data need to be interpreted with care. See Annex B for more information.

** Low response rates in the survey may result in biases in the estimates reported and limit the comparability of the data.

Notes: The table highlights the top three countries (dark blue), the bottom three countries (light blue) and the two countries in the middle (medium blue) for the eight countries with data for pre-primary education (ISCED 02) that met the TALIS Starting Strong standard participation rates. These groupings were applied without consideration to statistically significant differences between countries or to the specific policy contexts within each country. More detailed information on each of these indicators is available throughout this report.

Source: TALIS Starting Strong 2018 database.

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2 Interactions between children, staff and parents/guardians in early childhood education and care centres

Building on a rich set of information on practices used by staff in early childhood education and care centres, this chapter examines the types of interactions between staff and children and staff and parents, as well as the differences across countries in the use of these practices. It also discusses how activities are organised by groups of children, in terms of the size of the group, the number of staff and the composition of the group. The chapter ends with a section on how staff work with a diversity of children and investigates how the workforce adapts their practices to children with different backgrounds and needs.

The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

Key messages

- Among the range of practices used by staff with children at the centre level, around 70% of staff report wide use of practices facilitating children's socio-emotional development (such as talking with children about feelings and encouraging children to help each other) or practices facilitating children's language and literacy development (such as encouraging children to talk to each other and singing songs or rhymes). Specific practices emphasising literacy and numeracy (such as playing with letters or playing number games) are used to a lesser extent. For instance, in centres for pre-primary education in Iceland, Japan, and Norway, there is a large gap between the percentages of staff who report that encouraging children to talk to each other and playing number games apply "a lot" in their centre. In Chile, Korea and Turkey, this gap is smaller, suggesting a more comprehensive approach to children's learning, development and well-being.
- Practices that engage families and guardians in early childhood education and care (ECEC) centres are well established. Exchanging information with parents regarding daily activities and children's development, and well-being is even more common in centres for children under age 3 than in centres for older children. Smaller percentages of staff report encouraging parents to play and carry out learning activities at home with their children. Korea appears to combine a large use of practices to inform parents and also to engage them in children's development, while practices to engage parents could be further developed in Israel, for both pre-primary centres and centres for children under age 3.
- In many countries, the ability to co-operate easily with others is at the top of the list of skills and abilities that ECEC staff regard as important for young children to develop. Also among the skills staff consider "of high importance" are oral language skills, the ability to inquire and explore based on children's own curiosity and the ability to think creatively. Among skills staff consider as of lesser importance are the foundational cognitive skills valued in schools and further education, such as reading, writing, numeracy and science. Associations between beliefs in a particular skill (socio-emotional, literacy or numeracy) and practices to develop this skill are strong in all countries.
- In pre-primary education centres, the size of the target group (defined as the first group of children staff were working with on the last working day before the day of the Survey) varies from 15 children on average in Denmark (with low response rates), Germany, Iceland, Korea, Norway and Turkey to more than 20 in Chile, Israel and Japan. In centres for younger children, the size of the target group is slightly smaller. There are substantial variations within countries. Staff working with larger groups report more behavioural support practices (such as asking children to quieten down) and, to some extent, adapt their practices to children's needs (such as explaining how a new activity relates to children's lives).
- In several participating countries, large percentages of staff work with groups that include a diversity of children, such as children from socio-economically disadvantaged homes or children whose first language is different from the language(s) used in the centre. Staff report that they adapt their practices to the composition of the group of children. Large percentages of staff and leaders report that it is important to learn about other cultures and that is it common to use books featuring a variety of cultural groups. However, concrete practices, such as getting children to sometimes play with toys from minority cultures, are less widespread in almost all countries, but particularly in Germany, Japan and Norway.

Introduction

Children's daily experiences with adults and other children matter a lot for their development and well-being. During their first five years, children learn at a faster rate than at any other time in their lives, developing cognitive, social and emotional skills that are fundamental to their achievements throughout childhood and as adults (Schleicher, 2019[1]).

For most children, ECEC provides the first experience of life in a group away from their parents and contributes to children's joy in learning. Little is known about what is happening in these playrooms and classrooms, especially in terms of comparison across countries. The Starting Strong Teaching and Learning International Survey (TALIS Starting Strong) asks the ECEC workforce a range of questions about the practices they use to enhance children's learning, development and well-being. The Survey also questions the workforce about their beliefs on the skills and abilities that children should develop for the future and on the importance of adopting approaches aiming to include all children, regardless of their culture and socio-economic background. Those beliefs can shape the practices used by staff with all children and, in turn, children's development and well-being.

This chapter focuses on children and on what is happening at the centre level in general and in playrooms and classrooms more specifically. It looks at the elements that are closest to children:

- how staff interact with children and their parents
- how daily activities are organised by groups (size of the group, number of staff and composition of the group)
- how this organisation of work with a group and the composition of the group can be linked to the practices used.

TALIS Starting Strong asks staff to report on different types of situations and also asks different types of staff, as well as leaders, to report on the same situations. These different points of view help to gain a better sense of what is happening in the playroom or classroom, although they cannot reflect children's own experience of life in the ECEC centre.

TALIS Starting Strong builds on a vast field of research to capture information on the practices used in ECEC centres that are known to contribute to the quality of the interactions between children, staff and parents (known as process quality) and to children's development. It also builds on the OECD Teaching and Learning International Survey (TALIS), with a specific focus on young children (OECD, 2019[2]).

This chapter explains the construction of indicators capturing the quality of these interactions in several dimensions that can be used to examine the link between the quality of the interactions and other determinants. These indicators are discussed and used in this chapter and throughout this publication.

After summarising the insights from research and policy evidence, the chapter starts by discussing the workforce's practices with children and parents to derive a framework for analysing process quality with a number of indicators. It then discusses how staff beliefs about skills and abilities that will prepare children for the future shape those practices and describes how activities with a group of children are organised in terms of number of staff and number of children. It further investigates relationships between the number of children in a group and practices used by staff with children. It ends with a section on staff working with a diversity of children and investigates how the workforce adapts their practices to children with different backgrounds and needs.

Insights from research and policy evidence

A growing body of research suggests that the magnitude of the benefits to children of attending ECEC depends on the level of quality of services and that low-quality ECEC can be associated with no benefits

or even with detrimental effects on children's development and learning (Britto, Yoshikawa and Boller, 2011[3]; Howes et al., 2008[4]). However, even defining quality in ECEC remains a challenge for researchers and policy makers seeking to enhance quality (La Paro et al., 2012[5]).

Definitions of the quality of ECEC often distinguish between two aspects: structural quality and process quality (Pianta et al., 2005[6]; Slot et al., 2017[7]; Thomason and La Paro, 2009[8]; Howes et al., 2008[4]). Structural aspects of quality refer to characteristics of the ECEC environment, such as the number of children per staff member, group size, workforce education and training, staff turnover and programme monitoring. Process quality comprises children's interactions in ECEC settings with other children, staff/teachers, space and materials, their families and the wider community.

ECEC settings are considered of high quality if they encourage children in their everyday experience to engage in a variety of activities with staff and other children (peer interactions) that foster their learning, development and well-being. These activities involve social, emotional, physical and instructional aspects, while building on play and routines (Anders, 2015[9]; Barros et al., 2016[10]; Ghazvini and Mullis, 2010[11]; Howes et al., 2008[4]; Slot et al., 2015[12]).

There is a growing consensus that process quality is closely related to children's development and learning (Pianta, Downer and Hamre, 2016[13]). The evidence shows that, with more positive staff-child interactions or staff providing higher quality or more exposure to developmental and educational activities, children have higher levels of emerging literacy and numeracy skills in ECEC settings, as well as better behavioural and social skills (OECD, 2018[14]).

Structural aspects of quality can affect the interactions between staff and children, although they do not guarantee the quality of these interactions. In particular, several studies indicate that smaller group sizes and child-staff ratios support staff-child interactions, both in centres for children aged 3-5 and in centres for children under age 3 (Slot, 2018[15]). Nevertheless, some studies showed mixed findings, particularly for overall group size (Pianta et al., 2005[16]).

There is empirical evidence that the beliefs of ECEC staff on what is important for children are associated with their pedagogical practices (Charlesworth et al., 1991, Pianta et al., 2005, Stipek and Byler, 1997, Stipek et al., 2001). For instance, ECEC staff beliefs regarding the value of direct instruction with young children (a teacher-directed method consisting of using explicit techniques to teach a specific skill) are likely to influence the extent to which they use direct instruction (Sim et al., 2019[17]). Some studies have found that, even after adjusting for staff experience or training and structural factors (such as staff-child ratio), ECEC staff beliefs about children were the factor most related to observed pedagogical quality (Pianta et al., 2005[6]). ECEC staff beliefs direct and constrain their pedagogical practices, which subsequently shape children's academic and social environments.

There is no single measure or definition of process quality. To date, the vast majority of research studies focus on one aspect of process quality, the quality of staff-child interactions. Staff-child interactions are generally described as including several dimensions, such as teachers' sensitivity to individual needs, support for positive behaviour (including physical and emotional care and support), stimulation of language and cognitive development (including through instructional and pedagogical support) (Hamre et al., 2014[18]; Pianta, La Paro and Hamre, 2008[19]). Some other less studied areas also seem important for the quality of the interactions between children and staff. They include the different ways in which individual children experience the same classroom, the extent to which curricula and instructional activities can shape interactions and teachers' ability to develop their skills when interacting with children (Pianta, Downer and Hamre, 2016[13]).

ECEC learning and well-being environments do not operate in isolation. Parental partnership is critical in enhancing the knowledge of ECEC staff about the children they work with. Several examples of effective ECEC services that promote parental engagement (such as Head Start, the Perry Preschool and the Chicago Parent Centers in the United States) offer evidence that parental engagement matters (Bennett,

2008[20]). Research has shown that parental engagement, especially when it ensures high-quality learning for children at home and good communication with ECEC staff, is strongly associated with children's later academic success, socio-emotional development and adaptation in society (OECD, 2011[21]; Sylva et al., 2004[22]).

Aspects of the interactions between staff and parents/guardians or the community are also of paramount importance for the quality of ECEC provided to children and families of diverse cultural or socio-economic backgrounds or to dual/second-language learners. ECEC staff and leadership may have clear strategies and goals for creating a welcoming atmosphere for parents and children, but they may fail to engage parents and guardians of children from ethnic minorities (Crozier and Davies, 2007[23]).

Involving and empowering parents or guardians as caregivers and educators of their children may require collaboration with other stakeholders, such as family support, social work and health services (Sim et al., 2019[17]). Community engagement can help connect families and ECEC services, as well as other services for children. Different services, such as formal ECEC services, daycare, health services, and other child services, can work together to create a continuum of services that is reassuring for parents and can meet the needs of young children (OECD, 2011[21]). Many countries face challenges in promoting co-operation across different services for children and their families and proposing a holistic and continuous approach to child development.

TALIS Starting Strong collects information about practices and interactions at ECEC settings along four major dimensions (Sim et al., 2019[17]) (Figure 2.1):

- practices facilitating children's language, literacy and numeracy development
- practices facilitating children's socio-emotional development
- practices facilitating group organisation and individual support
- practices facilitating engagement of parents or guardians in the development and well-being of their children and their participation in the activities of the centre.

These practices contribute to the quality of the interactions between staff and children and staff and parents, as well as among children, but they can also indirectly affect parents' interactions with children. All of these interactions are important for children's development.

Figure 2.1. Framework for the analysis of practices affecting children's learning, development and well-being in TALIS Starting Strong

Supporting children's learning, development and well-being through practices

In their daily work with children, staff use many practices to support children's development. TALIS Starting Strong builds on the concept that ECEC is effective when staff use practices that help all children to learn and develop to their full potential along multiple dimensions, regardless of their socio-economic background, native language and other specific needs. More data would be needed, in particular on children, to fully understand the type of combinations of practices or the specific practices that best foster children's learning, development and well-being. TALIS Starting Strong has developed a rich set of indicators to learn about the practices used by staff with children. These indicators build on the OECD Teaching and Learning International Survey of teachers and leaders in primary and secondary education, and on a conceptual framework with a focus on practices specifically used with young children (ISCED level 0) (Sim et al., 2019[17]).

The quality of the interactions between children and staff is difficult to measure. There are several advantages to learning about staff practices through a staff survey. This method makes it possible to gather information on a range of behaviours that could be difficult to capture through observation in a single day. Staff perceptions of their behaviours are crucial for understanding where interventions could be well received or most needed. However, this type of self-reporting also involves a number of challenges resulting from the biases in how people tend to respond to surveys (Sim et al., 2019[17]).

Those biases are of two types. First, individuals tend to answer in a manner that will be viewed favourably by others (known as social desirability bias). For instance, when teachers self-report their practices, several studies have found that teachers tend to report practices they believe are high quality, rather than what they actually do in the classroom (Muijs, 2006[24]). Second, individuals interpret and judge phenomena by standards inherent to their own culture (known as cultural bias) (He and Van de Vijver, 2013[25]).

To limit social desirability and cultural biases, TALIS Starting Strong uses several approaches to learn about the interactions between staff and children:

- The Survey inquires about the extent to which respondents consider that each practice is used by staff in their centre, asking respondents to mark one choice among four options: "not at all", "very little", "to some extent" or "a lot". Asking staff questions about practices that are used in the centre, rather than practices that they are using themselves, can limit social desirability bias, but it can elicit less information and variation on individual practices used by staff.
- The Survey also inquires about the frequency with which staff use each practice with the first group of children they were working with on the last working day before the day of the Survey (known, for the purposes of the Survey, as the target group). Respondents are asked to mark one choice among four options: "never or almost never", "occasionally", "frequently" or "always or almost always". Taking a specific example and asking staff to report on a specific situation they have experienced can also reduce social desirability bias, but it can elicit information that is not necessarily representative of the way individual staff usually work with children.
- Finally, the Survey inquires about what staff would do in concrete daily work situations. These questions present respondents with real-life professional contexts and possible ways to address a specific situation, asking them to indicate how likely they would be to use each response in that particular situation. By asking respondents what they would actually do, rather than asking about their agreement with a certain way of acting, these questions can limit both cultural and social desirability biases. However, these questions cover a limited range of practices.

To further limit cultural bias, this publication uses two approaches. When doing a cross-country comparison of the percentage of staff who report on a practice, it generally aggregates the top two response options (e.g. "to some extent" and "a lot"; "frequently" and "always or almost always"; or "would probably do" and "would definitely do"). Another approach used consists of looking at how, on average, staff in a country rank the importance of a practice compared to other practices, rather than their level of agreement with practices.

Effective practices

As there is a consensus that the quality of the interactions between staff and children is a multidimensional concept, TALIS Starting Strong asks about a range of practices that can foster children's learning, development and well-being in a holistic way (Sim et al., 2019[17]). Indicators of practices used by staff at the centre level (according to respondents) cover the following categories: language development; literacy development; numeracy development; play; emotional development; and prosocial behaviour (behaviour which is positive, helpful, and intended to promote social acceptance and friendship). These practices aim to foster children's development in two major and central dimensions: 1) language, literacy and numeracy development (for the first three categories); and 2) socio-emotional development (for the three last categories).

Indicators of practices used by staff with the target group of children to facilitate group organisation and enable individual support fall under two categories: adaptive practices and behavioural support. These practices focus on strategies and routines used with a group of children to generally foster children's learning, development and well-being, such as by adapting practices to children's needs or helping children with their behaviour to ensure they can benefit from other activities.

Indicators of practices used by staff at the centre level give information on a range of practices used in their centre (according to staff), but not necessarily by respondents themselves. Indicators of practices used by staff with the target group of children focus on a limited number of strategies used by staff themselves in a concrete situation.

The dimensions of quality of the interactions between staff and children are interrelated, and the boundaries between those dimensions are not always clear-cut. Practices that provide emotional support to children also help children learn and reduce stress associated with the time they spend in childcare settings (Sim et al., 2019[17]). In parallel, back-and-forth exchanges between staff and children in literacy and numeracy, along with sharing interesting and creative hands-on materials, may increase children's engagement with staff, facilitate behavioural and emotional regulation and improve children's well-being (Kluczniok et al., 2014[26]; Shuey and Kankaraš, 2018[27]).

On average in countries participating in the survey, staff in pre-primary education centres report that practices facilitating socio-emotional development are used to a large extent (Figure 2.2). More than 70% of staff report that practices such as encouraging children to help each other and talking with children about feelings are used "a lot" in the centre. A smaller share of staff report that practices more specific to the way play is organised (such as allowing children to take the lead when playing, and joining in if invited) are used "a lot".

Most of the staff in pre-primary education centres also report that most of the practices facilitating children's language and literacy development apply "a lot" in their centres. Practices that are most broadly mentioned at the centre level as used "a lot" are singing songs or rhymes with the children and encouraging children to talk to each other. A majority of staff also report using books "a lot". In contrast, a smaller share of staff indicate singing songs about numbers "a lot" or, when reading books, connecting the stories to children's experience. Specific practices putting stronger emphasis on literacy and numeracy (e.g. playing number games or playing with letters) tend to be less broadly used.

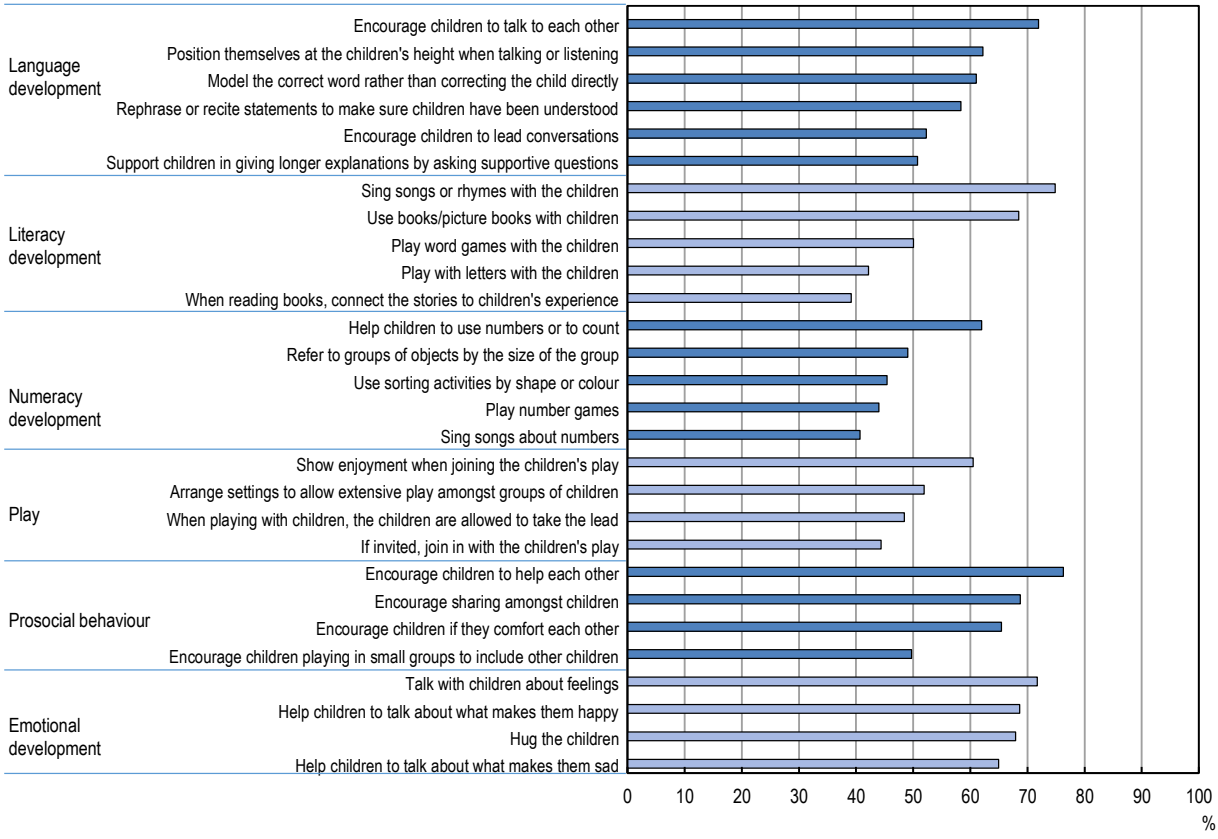
When reporting on practices used with the target group of children, more than 60% of staff report that they "always or almost always" calm children and help them to follow the rules (Figure 2.3). On average, more than 40% of the staff in pre-primary education centres report that they "always or almost always" present activities that extend children's abilities or give different activities to suit different children's level of development.

A smaller proportion of staff report that they "always or almost always" use practices such as adapting activities to differences in children's cultural background or explaining how a new activity relates to

children's to lives. This may reflect an intention to treat all children in the same way or suggest a need for staff to be better prepared to work with a diversity of children (see Chapter 3).

Figure 2.2. Practices facilitating language, literacy, numeracy and socio-emotional development

Percentage of pre-primary education (ISCED 02) staff indicating that the following practices apply "a lot" to staff in the centre, average of participating countries



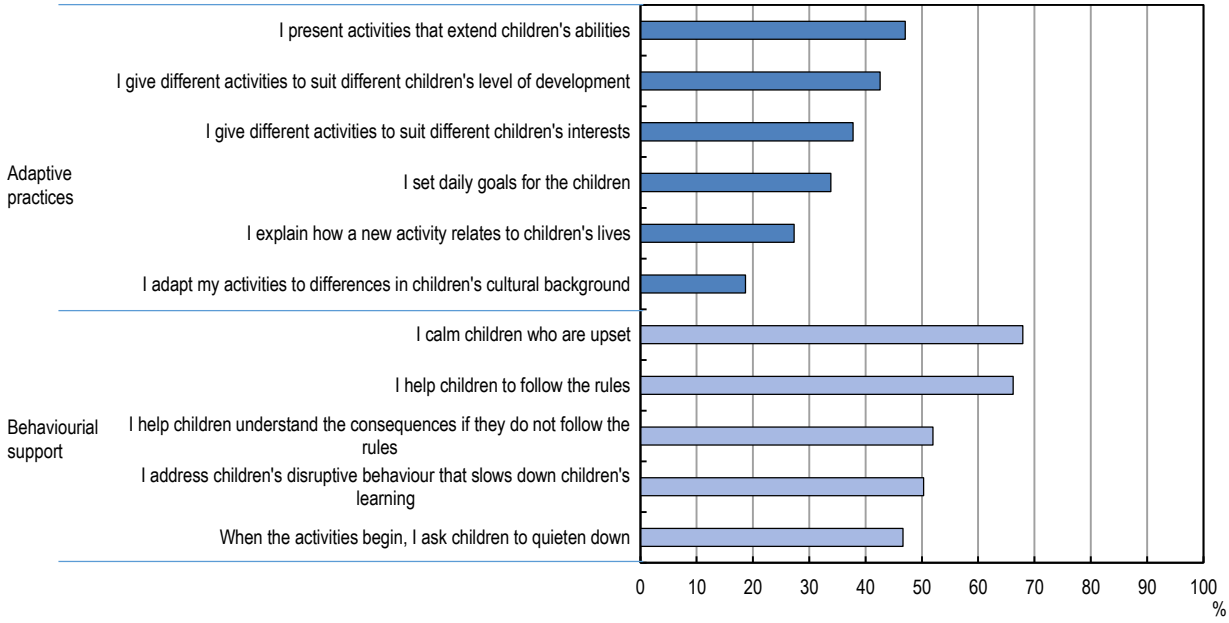
Source: TALIS Starting Strong 2018 database.

StatLink https://doi.org/10.1787/888934010185

Countries can influence the use and quality of practices by staff by establishing guidelines or curriculum frameworks that encourage high-quality practices, raising the awareness of the multiple aspects of children's learning, development and well-being, and providing help to implement those practices. National or sub-national authorities in charge of ECEC responded to a questionnaire on policies to ensure high quality in ECEC. Their answers shed light on how governments attempt to shape practices through the curriculum framework. In a majority of countries participating in TALIS Starting Strong and completing this policy questionnaire, the curriculum framework provides guidance on the holistic development, learning and well-being goals for children, as well as guidance to teachers on implementation of the curriculum (Figure 2.4). In a smaller number of participating countries, the curriculum provides guidance on the skills, knowledge, competencies or attitudes to be fostered or on the specific material to be used. This finding is in line with staff reporting in TALIS Starting Strong that they less broadly use practices putting stronger emphasis on literacy and numeracy.

Figure 2.3. Practices for group organisation and individual support to children

Percentage of pre-primary education (ISCED 02) staff indicating that they "always or almost always" use the following practices when working with the target group of children, average of participating countries

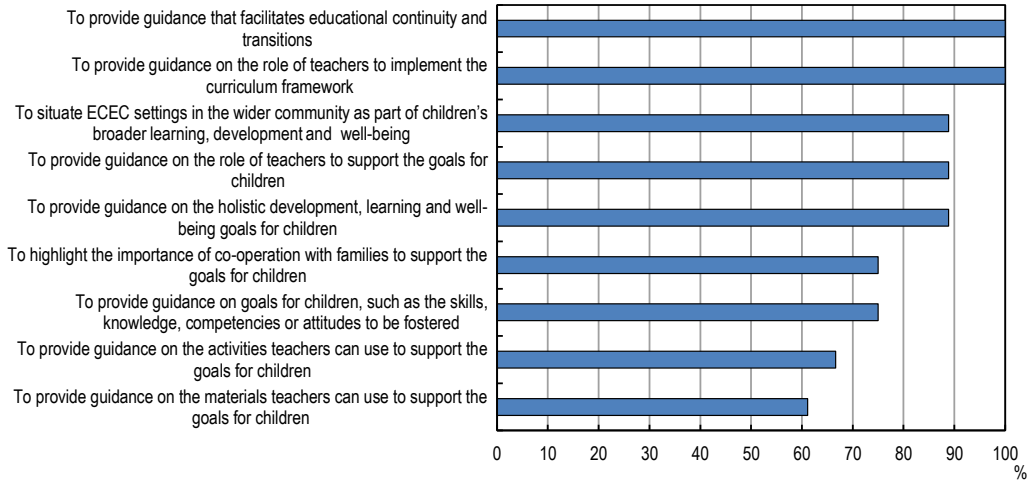


Source: TALIS Starting Strong 2018 database.

StatLink https://doi.org/10.1787/888934010204

Figure 2.4. Stated goals in the curriculum framework

Percentage of countries participating in TALIS Starting Strong for which each statement applies, pre-primary education



Note: Each curriculum framework receives a score of 1 if the statement applies and of 0 if the statement does not apply. For countries with several curriculum frameworks, the information is averaged at the country level. For Germany, the information covers the following regions: Bavaria, Berlin, Brandenburg, and North Rhine Westphalia. The figure shows the average score across the nine countries participating in TALIS Starting Strong.

Source: OECD (2019[28]), "OECD Network on Early Childhood Education and Care: Quality beyond Regulations survey", *internal document*, OECD, Paris.

StatLink https://doi.org/10.1787/888934010223

Similarities and differences in practices used by staff of different countries

Among the practices to support literacy and numeracy development and language stimulation, in all countries except Japan, singing songs or rhymes with the children is the first or second practice for which the largest shares of staff report that the practice applies “a lot” to the centre at the pre-primary education level (Table 2.1). For other practices, there are significant differences between countries. Helping children to use numbers or to count is a top practice in Chile and Israel and staff positioning themselves at the children’s height when talking or listening appears among the top practices in Japan and Korea. In centres for children under age 3, practices for which the largest shares of staff report that the practice applies “a lot” to the centre are the same in the four participating countries: singing songs or rhymes with the children and using books/picture books with children.

Table 2.1. Top three practices to support literacy, numeracy and language development

Among the practices to support literacy, numeracy and language development, the three practices for which the largest percentage of staff report that the practice applies “a lot” to the ECEC centre

	Encourage children to talk to each other	Position themselves at the children's height when talking or listening	Rephrase or recite statements to make sure children have been understood	Model the correct word rather than correcting the child directly	Use books/ picture books with children	Sing songs or rhymes with the children	Help children to use numbers or to count	Refer to groups of objects by the size of the group
Pre-primary education (ISCED 02)								
Chile					3	2	1	
Germany*	2				3	1		
Iceland	3				2	1		
Israel	2					1	3	
Japan	3	1	2					
Korea		2			3	1		
Norway	2			3		1		
Turkey					2	1		3
Denmark**	1			3		2		
Centres for children under age 3								
Germany*	3				2	1		
Israel		3			2	1		
Norway				3	2	1		
Denmark**				3	2	1		

* Estimates for sub-groups and estimated differences between sub-groups need to be interpreted with care. See Annex B for more information.
** Low response rates in the survey may result in biases in the estimates reported and limit the comparability of the data.
Note: A total of 16 practices are considered for the ranking for pre-primary-education centres and 14 practices for centres for children under age 3, corresponding to questions 31, 32 and 33 of the staff TALIS Starting Strong questionnaire.
Source: TALIS Starting Strong 2018 database (Table D.2.1).

StatLink https://doi.org/10.1787/888934010565

Among the practices to support emotional development and prosocial behaviour and play, which broadly aim to facilitate socio-emotional development, staff of most countries agree on the top practices that apply to their centres (Table 2.2). At the pre-primary education level, in all countries except Japan, encouraging children to help each other is the practice for which the largest share of staff report that it applies "a lot". There is also broad agreement on the other top practices. In centres for children under age 3, similar practices are ranked at the top, with hugging children also being reported as a top practice in three participating countries.

Table 2.2. Top three practices to support socio-emotional development

Among the practices to support prosocial behaviour, emotional development and play, the three practices for which the largest percentage of staff report that the practice applies "a lot" to the ECEC centre

	Show enjoyment when joining the children's play	Encourage sharing amongst children	Encourage children to help each other	Encourage children if they comfort each other	Hug the children	Talk with children about feelings	Help children to talk about what makes them happy	Help children to talk about what makes them sad
Pre-primary education (ISCED 02)								
Chile		2	1				3	
Germany*			1	2		3		
Iceland			1	2	3			
Israel		2	1	3				
Japan	1					2		3
Korea			3		1	2		
Norway		3	1	2				
Turkey		2	1				3	
Denmark**			1			2		3
Centres for children under age 3								
Germany*			1	2	3			
Israel			3	2	1			
Norway		3	2	1				
Denmark**			1		2	3		

* Estimates for sub-groups and estimated differences between sub-groups need to be interpreted with care. See Annex B for more information.
** Low response rates in the survey may result in biases in the estimates reported and limit the comparability of the data.
Note: A total of 12 practices are considered for the ranking for pre-primary-education centres and 10 practices for centres for children under age 3, corresponding to questions 29 and 30 of the staff TALIS Starting Strong questionnaire.
Source: TALIS Starting Strong 2018 database (Table D.2.1).

StatLink https://doi.org/10.1787/888934010584

To organise activities with the target group of children, among the practices for behavioural support, the two top practices in all countries and in both pre-primary education centres and centres for children under age 3 are calming children and helping them to follow the rules (Table 2.3). Differences across countries appear for the third practice most broadly reported as used “always or almost always” by staff in their work with the target group of children. In terms of adaptive practices to ensure individual support for learning and development, the top practice in several countries is presenting activities that extend children’s abilities, which does not necessarily entail a lot of individualisation of practices to children’s needs (Table 2.4). However, in all countries except Turkey, giving different activities to suit different children’s levels of development or interest is among the top three adaptive practices. This result holds for both pre-primary education centres and centres for children under age 3.

Table 2.3. Top three practices for behavioural support

Among the behavioural practices, the three practices for which the largest percentage of staff report that they have “always or almost always” used the practice in their work with the target group

	I help children to follow the rules	I calm children who are upset	When the activities begin, I ask children to quieten down	I address children's disruptive behaviour that slows down other children's learning1	I help children understand the consequences if they do not follow the rules
Pre-primary education (ISCED 02)					
Chile	2	1	3		
Germany*	2	1		3	
Iceland	2	1		3	
Israel	1	2			3
Japan	2	1	3		
Korea	1	2			3
Norway	2	1		3	
Turkey	1	2			3
Denmark**	2	1		3	
Centres for children under age 3					
Germany*	2	1	3		
Israel	2	1	3		
Norway	2	1		3	
Denmark**	2	1	3		

1. For staff in centres for children under age 3, the item is "I have to cope with children's disruptive behaviour that interferes with other children's experiences".
* Estimates for sub-groups and estimated differences between sub-groups need to be interpreted with care. See Annex B for more information.
** Low response rates in the survey may result in biases in the estimates reported and limit the comparability of the data.
Note: A total of five practices are considered for the ranking for pre-primary-education centres and for centres for children under age 3, corresponding to questions 41 g) to 41 k) of the staff TALIS Starting Strong questionnaire.
Source: TALIS Starting Strong 2018 database (Table D.2.2).

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Table 2.4. Top three adaptive practices

Among adaptive practices, the three practices for which the largest percentage of staff report that they have "always or almost always" used the practice in their work with the target group

	I set daily goals for the children	I explain how a new activity relates to children's lives	I give different activities to suit different children's interests	I give different activities to suit different children's level of development	I present activities that extend children's abilities
Pre-primary education (ISCED 02)					
Chile	2		3		1
Germany*			3	2	1
Iceland			3	2	1
Israel			3	2	1
Japan	3		1	2	
Korea	3		1	2	
Norway			1	2	3
Turkey	2	3			1
Denmark**			3	2	1
Centres for children under age 3					
Germany*			3	2	1
Israel			3	2	1
Norway			1	2	3
Denmark**			3	1	2

* Estimates for sub-groups and estimated differences between sub-groups need to be interpreted with care. See Annex B for more information.
** Low response rates in the survey may result in biases in the estimates reported and limit the comparability of the data.
Note: A total of six practices are considered for the ranking for pre-primary-education centres and for centres for children under age 3, corresponding to questions 41 a) to 41 f) of the staff TALIS Starting Strong questionnaire.
Source: TALIS Starting Strong 2018 database (Table D.2.2).

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Overall, when countries are compared according to the top three practices rather than by the percentages of the reports, staff appear to rank practices in the same way, and in the end countries' answers show some similarities. A common feature across countries is that larger percentages of staff report broad use of several practices facilitating socio-emotional development rather than of several practices supporting literacy and numeracy development. However, there are variations across countries in this pattern. Considering specifically the gap between the percentages of staff in centres for pre-primary education indicating that "encourage children to talk to each other" and "play number games" apply "a lot", staff in Iceland, Japan and Norway appear to focus on some practices rather than others, while this is less the case in Chile, Korea and Turkey (Figure 2.5).

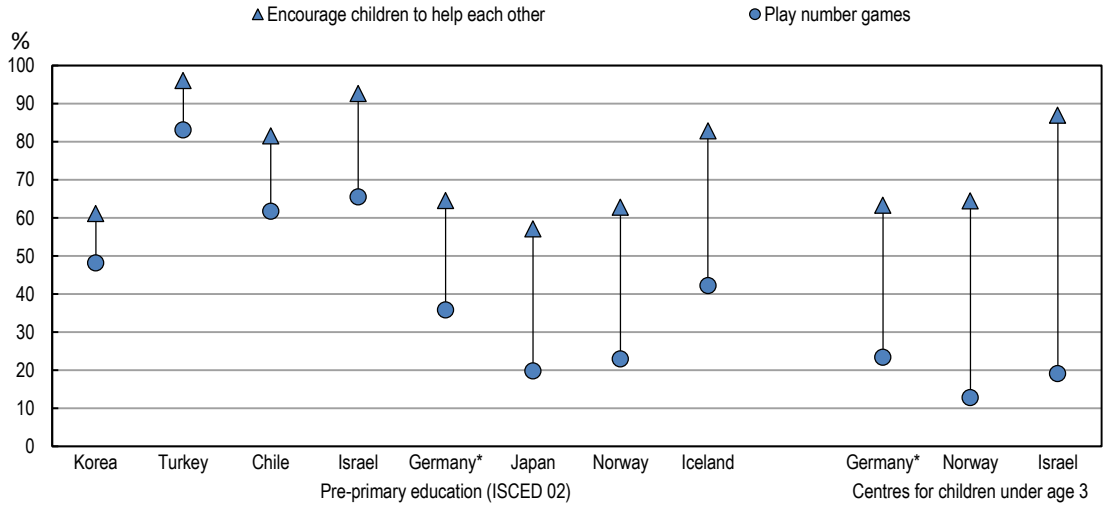
To learn more about interactions between staff and children, TALIS Starting Strong includes questions on practices used by staff to address concrete daily work situations. These questions allow respondents to answer with more than one suggestion because, in a real-life professional context, staff may use multiple

strategies to approach a concrete situation. In particular, the following two situations are considered that relate to different aspects of quality:

- Supporting prosocial behaviour: Two 3-year-old children are independently playing with building blocks. Child A has taken almost all the building blocks and is building things. Child B is shy, looks a bit sad and is struggling with his/her constructions. What would you do?
- Supporting child-directed play: Suppose that five 3-year-old children are playing with different toys of their choosing. In an ideal situation, where you could choose what to do during this time, what would you do?

Figure 2.5. Gap in the use of practices facilitating numeracy and socio-emotional development

Percentage of staff indicating that the practice applies "a lot" to staff in the centre



* Estimates for sub-groups and estimated differences between sub-groups need to be interpreted with care. See Annex B for more information.
Note: *Countries are ranked according to the percentages of staff indicating that the two following practices apply "a lot" to staff in the centre "Encourage children to talk to each other" and "Play number games".*
Source: TALIS Starting Strong 2018 database (Table D.2.1).

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Among the practices to support prosocial behaviour, staff of most countries agree on the two practices that they "would probably do" or "would definitely do" in the concrete situation (Table 2.5). At the pre-primary education level, in all countries except Japan and Korea, a combination of encouraging the children to share and encouraging them to build something together are the practices which the largest share of staff report they would use. There is also broad agreement that focusing only on solutions that do not promote interaction between the children, for example by dividing the toys or addressing the emotional needs of only one child, would not be the chosen practices to address this situation. In centres for children under age 3, similar practices are ranked at the top. This finding points to a similar approach to practices in countries, as observed from questions on practices used by staff at the centre level or by staff with the target group of children.

Table 2.5. Top three practices used by staff in a concrete daily work situation to support prosocial behaviour

Among the practices to support prosocial behaviour, the three practices for which the largest percentage of staff report that they "would probably do this" or "would definitely do this" in a concrete situation

	Divide blocks in equal piles	Help child B	Encourage children to build together	Talk to child A about Bs feelings	Encourage A to share with B
Pre-primary education (ISCED 02)					
Chile			2	3	1
Germany*			1	3	2
Iceland			2	3	1
Israel			1	3	2
Japan		3		1	2
Korea			3	2	1
Norway			2	3	1
Turkey			1	3	2
Denmark**			1	3	2
Centres for children under age 3					
Germany*			2	3	1
Israel			2	3	1
Norway			2	3	1
Denmark**			1	3	2

* Estimates for sub-groups and estimated differences between sub-groups need to be interpreted with care. See Annex B for more information.
** Low response rates in the Survey may result in biases in the rank order reported.
Note: The work situation is the following: "Two 3-year-old children are independently playing with building blocks. Child A has taken almost all the building blocks and is building things. Child B is shy, looks a bit sad and is struggling with his/her constructions. What would you do?". A total of five practices were included in the ranking for pre-primary education centres and centres for children under age 3, corresponding to question 25 of the staff TALIS Starting Strong questionnaire.
Source: TALIS Starting Strong 2018 database.

StatLink https://doi.org/10.1787/888934010641

Among the practices to support child-directed play, the pattern of suggestions from staff is not fully clear, as staff are more likely to choose many complementary options to address this situation (Table 2.6). These complementary options vary along the continuum, from not interfering when children play to participating in the play while still allowing the children to take the lead. For example, at the pre-primary education level in Chile, Israel, Korea and Turkey, large percentages of staff choose all options for approaching this specific situation. In contrast, in Denmark (with low response rates), Germany and Iceland, large percentages of ECEC staff would choose not to interfere or just to ask questions and provide suggestions. In centres for children under age 3, staff in most countries agree that practices of minimal interference in children's play would be their choice for this particular situation.

These findings show that most staff consider that they themselves do use most of these practices or that these practices are used "a lot" at the centre level. However, this corresponds to the staff's view. While staff are busy all day interacting with children, the child's perspective can be very different from the staff's perspective and from the group average. Children's interactions with staff on an individual basis or as part of small group can vary in quality throughout the day (Pianta, Downer and Hamre, 2016[13]). Countries can establish guidelines or curriculum frameworks that encourage practices to foster interaction between staff and children and to put children at the centre of such interactions (Box 2.1).

Table 2.6. Top three practices used by staff in a concrete daily work situation to support child-directed play

Among the practices to support child-directed play, the three practices for which the largest percentage of staff report that they "would probably do this" or "would definitely do this" in a concrete situation

	Play with them following their lead	Let them play by themselves	Contribute by asking questions	Encourage them to play together	Contribute by providing new ideas
Pre-primary education (ISCED 02)					
Chile	3		1		2
Germany*		1		3	2
Iceland		1	2		3
Israel		3	1		2
Japan	1		2		3
Korea	2	3			1
Norway	2		3		1
Turkey		2	1		3
Denmark**		1	2		3
Centres for children under age 3					
Germany*	3	1			2
Israel	3		1		2
Norway	1	3			2
Denmark**		3	2		1

* Estimates for sub-groups and estimated differences between sub-groups need to be interpreted with care. See Annex B for more information.
** Low response rates in the Survey may result in biases in the rank order reported.
Note: The work situation is the following: "Suppose that five 3-year-old children are playing with different toys of their choosing. In an ideal situation where you could choose what to do during this time, what would you do?". A total of five practices were included in the ranking for pre-primary education centres and centres for children under age 3, corresponding to question 26 of the staff TALIS Starting Strong questionnaire.
Source: TALIS Starting Strong 2018 database.

StatLink https://doi.org/10.1787/888934010660

Box 2.1. Establishing guidelines for activities and practices through curriculum frameworks

ECEC activities and practices or pedagogy can be shaped by a country's curriculum framework. A high-quality curriculum would contain a balanced and planned provision of different types of activities, aiming to support the development of different sets of skills (e.g. cognitive and socio-emotional skills) (Pianta et al., 2005[6]; Sim et al., 2019[17]; Sylva et al., 2004[22]). Recent studies have shown that curriculum quality is related to child outcomes in the short term (Leseman et al., 2017[29]) and later in life (Ansari and Purtell, 2018[30]).

Germany

In Germany, where ECEC systems are decentralised, a national framework is in place, the Common Framework of the *Länder* for Early Education in ECEC Centres (*Gemeinsamer Rahmen der Länder für die frühe Bildung in Kindertageseinrichtungen*), which specifies that ECEC staff must respect the individual personality of each child. There are also 16 curricular frameworks at *Länder* level that are more specific.

In Berlin, the curriculum framework embedded in the Early Years Programme (*Berliner Bildungsprogramm für Kitas und Kindertagespflege)* sets out quality requirements and quality criteria that must be implemented by all publicly funded early-years centres and family day-care services. This curriculum frames the

pedagogical tasks of practitioners in terms of strengthening the potential of all children and their families, in a manner that takes children's rights into account. For example, in a brochure for parents, an everyday activity in an early-years centre is described as a learning environment where children are encouraged to experiment, reach their own conclusions and develop an understanding of the results that reflects their own particular stage of development. Staff help children and offer explanations, support and motivation whenever needed, while letting children engage in activities by themselves. The curriculum guidelines encourage staff to discuss ideas with children, explain what is happening, support children in expanding their linguistic knowledge and skills, speak to children about different shapes and colours and discuss various materials and preferences.

Australia

In Australia, the National Quality Framework requires ECEC services to use an approved learning framework to inform their educational programme. Some material provided by the central government, such as the Educators' Guide to the Early Years Learning Framework (2010[31]), supports ECEC centres in implementation of the framework. The Guide covers elements of process quality, including ways to have meaningful interactions with children, support their play and cultural identity, and develop partnerships with families and communities. For example, regarding play, it asks educators to talk about and reflect on the degree to which children are involved in various types of play and the conditions that extend or limit their involvement. It also suggests assessing play and proposes experimenting with different roles in play, such as directing play or becoming a co-player.

Turkey

Staff knowledge, competences and skills are shaped by their initial education, training and experience and influence their pedagogical practices, as does the monitoring of process quality (Wall, Litjens and Taguma, 2015[32]). As part of the Turkish Preschool Education Programme, representatives of the ministry, academics, staff and experts from different sectors participate in developing and updating the curriculum framework. Teachers are informed about the components of process quality in mandatory professional development activities before and after the educational year. Teacher training activities also include visits to schools, where school principals and supervisors guide teacher practice according to good examples. Documentation and other sources of support to improve process quality are available online.

Finland

The 2019 Finnish Guidelines and Recommendations for Evaluating the Quality of Early Childhood Education and Care (Vlasov et al., 2019[33]) present a set of quality indicators for ECEC. The indicators are divided into structural and process-related factors of quality at the national level, the local level and the level of pedagogical activities. Process-related indicators include aspects of peer interaction and group atmosphere, such as a focus on group togetherness and belonging and support for versatile friendships.

Sources: Pianta, R. et al. (2005[16]), "Features of Pre-Kindergarten programs, classrooms, and teachers: Do they predict observed classroom quality and child-teacher interactions?", http://dx.doi.org/10.1207/s1532480xads0903_2; Sim, M. et al. (2019[17]), "Starting Strong Teaching and Learning International Survey 2018 Conceptual Framework", https://dx.doi.org/10.1787/106b1c42-en; Sylva, K. et al. (2004[22]), *Technical paper 12: Final report - Effective pre-school education*, Institute of Education University of London; Leseman, P. et al. (2017[29]), *Effectiveness of Dutch targeted preschool education policy for disadvantaged children*, http://dx.doi.org/10.4337/9781786432094.00019; Ansari, A. and K. Purtell (2018[30]), "Absenteeism in Head Start and children's academic learning", https://doi.org/10.1111/cdev.12800; Australian Government Department of Education, Employment and Workplace Relations (2010[31]), "Educators: Belonging, Being & Becoming", https://www.acecqa.gov.au/sites/default/files/acecqa/files/National-Quality-Framework-Resources-Kit/educators_guide_to_the_early_years_learning_framework_for_australia_2.pdf; Wall, S., I. Litjens and M. Taguma (2015[32]), *Early Childhood Education and Care Pedagogy Review: England*, https://www.oecd.org/education/early-childhood-education-and-care-pedagogy-review-england.pdf; Vlasov, J. et al. (2019[33]), *Guidelines and Recommendations for Evaluating the Quality of Early Childhood Education and Care*, https://karvi.fi/app/uploads/2019/03/FINEEC_Guidelines-and-recommendations_web.pdf.

Engaging with parents and guardians

Because parents play a critical role in children's learning, development and well-being, ECEC staff can engage with parents in two major ways. First, staff can raise parents' awareness of the importance of activities in the centre and get their support for what is happening, to ensure that children develop good feelings about early education. Second, staff can directly help parents in their interactions with their children. As the characteristics of parents (such as their level of education) are important predictors of children's development, staff can also try to target some parents in particular, to ensure that all children benefit from the best learning and development opportunities.

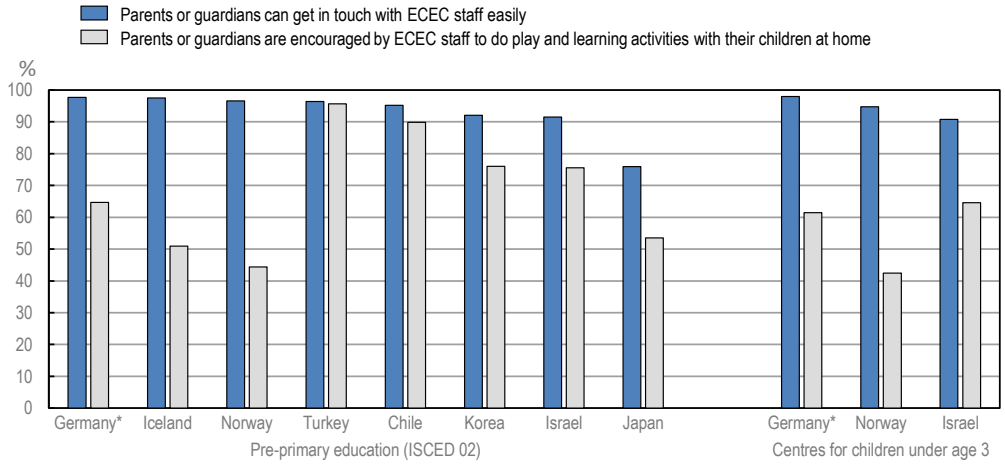
Staff's perspective on engaging with parents and guardians

TALIS Starting Strong builds on the fact that the interactions between children and parents are at the core of children's' learning, development and well-being and that ECEC can play a role in these interactions. The Survey asks staff to indicate the extent to which a number of practices to engage parents/guardians are well established in their centre. These parent-engagement practices include informal options for parents to easily get in touch with staff, options to be informed on a regular basis about children's daily activity or about their development, as well as more active forms of parental engagement, such as encouraging parents to do play and learning activities with their children.

Very high percentages of ECEC staff across all countries in pre-primary education centres report that practices to engage with parents/guardians are well established in their centre (Figure 2.6), particularly through parents getting in touch with staff easily (from 76% in Japan to 98% in Germany). Moreover, high percentages of ECEC staff report that, in their centre, parents are informed about children's development, learning and well-being (from 83% in Japan to 96% in Chile), as well as about daily activities (from 76% in Israel to 92% in Norway) (Table D.2.3). In centres for children under age 3, practices to engage families are even more common than in centres for older children.

Figure 2.6. Practices used by staff to facilitate engagement of parents or guardians

Percentage of staff who report that the following practice describes "well" or "very well" how they engage with parents or guardians at this ECEC centre



* Estimates for sub-groups and estimated differences between sub-groups need to be interpreted with care. See Annex B for more information.
Note: *Countries are ranked according to the percentage of staff reporting that the practice "Parents or guardians can get in touch with ECEC staff easily" applies "very well" or "well" to the centre.*
Source: TALIS Starting Strong 2018 database (Table D.2.3).

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Leaders' perspective on engaging with parents and guardians

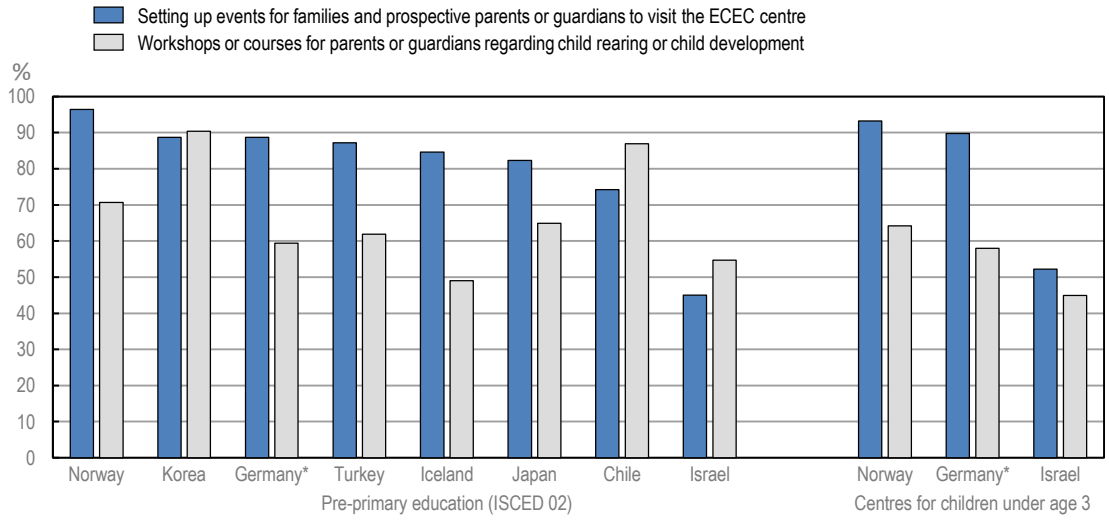
A large percentage of staff (albeit smaller than for other activities) report that they encourage parenting activities, such as doing play and learning activities with their children at home. In Iceland, Germany and Norway, smaller percentages of staff consider that this type of parenting activity is "well" or "very well" established in their centre than other activities to engage parents.

TALIS Starting Strong also asks leaders to report on whether some concrete activities were offered to parents or guardians during the 12 months prior to the Survey. There is more variation in leaders' reports of centre support for parent/guardian engagement and participation than in staff reports, both across countries and across activities (Figure 2.7).

In all participating countries, with the exception of Israel, the majority of leaders in pre-primary education centres report setting up events for families and prospective parents or guardians to visit the centre. Workshops or courses regarding child-rearing or child development, which can influence interactions between children and parents, seem to be common in Chile, Korea and Norway, but less so in other countries, and they are generally not common in centres for children under age 3. These results follow the same direction as those reported by staff. It appears that parents are frequently in contact with staff or learn about the centre, but activities aiming to help parents in their interactions with children are less widespread. This pattern is to some extent also observed in centres for children under age 3.

Figure 2.7. Activities provided by the centre to facilitate engagement of parents or guardians

Percentage of leaders who report that the centre provided the activity over the 12 months prior to the Survey



* Estimates for sub-groups and estimated differences between sub-groups need to be interpreted with care. See Annex B for more information.
Note: *Countries are ranked according to the percentage of leaders reporting "Setting up events for families and prospective parents or guardians to visit the ECEC centre" were organised over the 12 months prior to the Survey.*
Source: TALIS Starting Strong 2018 database (Table D.2.4).

StatLink https://doi.org/10.1787/888934010280

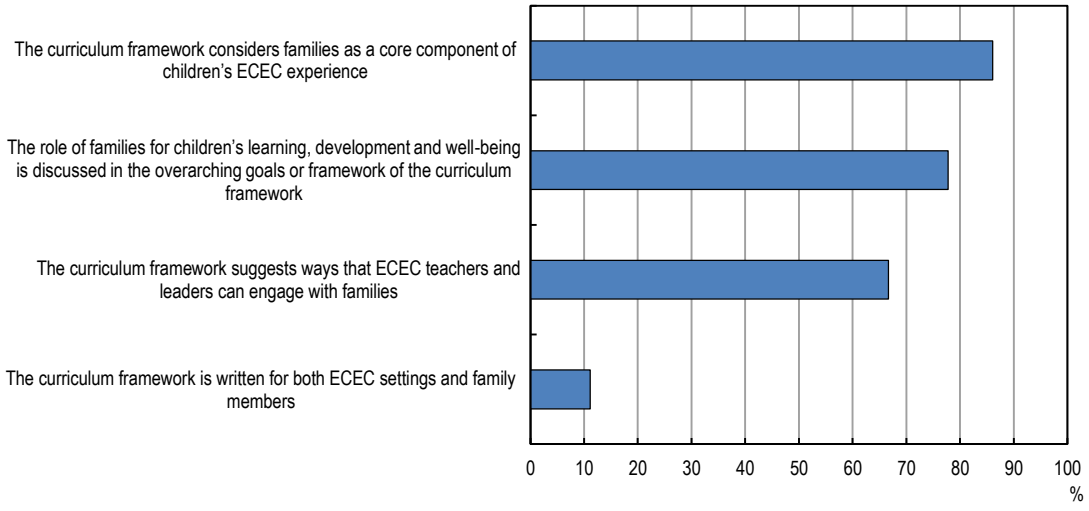
Countries can influence the engagement of parents by incorporating this aspect in curriculum frameworks and encouraging some practices in particular. The responses of national or sub-national authorities in charge of ECEC to a questionnaire on policies to ensure high quality in ECEC sheds light on how governments attempt to lead staff or centres to engage parents through the curriculum framework. In a

majority of countries participating in TALIS Starting Strong, the curriculum frameworks consider families as a core component of children's ECEC experience (Figure 2.8). However, in a more limited number of countries, the curriculum suggests ways for ECEC teachers and leaders to engage parents.

Parents can also engage in the operation of the centre or in management decisions. This is not directly linked to children, but it can help parents become more committed to what is happening in the centre and can thereby indirectly affect children's learning, development and well-being. Reports from TALIS Starting Strong indicate that meetings to allow parents to contribute to centre management decisions occur in Chile, Iceland, Korea, Norway and Turkey, but less so in Germany, Israel and Japan (Table D.2.4). In most participating countries, with the exception of Germany and Japan, a smaller percentage of leaders report that they engage parents in the operation of the centres. This pattern is also observed in centres for children under age 3. These findings may point to different types of centre management (see Chapter 5).

Figure 2.8. Inclusion of families in the curriculum framework

Percentage of countries participating in TALIS Starting Strong for which the following statements apply, pre-primary education



Note: Each curriculum framework receives a score of 1 if the statement applies and of 0 if the statement does not apply. For countries with several curriculum frameworks, the information is averaged at the country level. For Germany, the information covers the following regions: Bavaria, Berlin, Brandenburg, and North Rhine Westphalia. The figure shows the average score across the nine countries participating in TALIS Starting Strong.
Source: OECD (2019[28]), "OECD Network on Early Childhood Education and Care: Quality beyond Regulations survey", *internal document*, OECD, Paris.

StatLink https://doi.org/10.1787/888934010299

The level of children's commitment to aspects that matter in their life depends on the extent to which they can actively participate and contribute to decision-making (Hilppö et al., 2016[34]) (Box 2.2). TALIS Starting Strong asks leaders to state how much they believe that centres provide opportunities for children to actively participate in decisions. In all countries, except Israel for centres for children under the age of 3, a majority of leaders "agree" or "strongly agree" that the centres provide opportunities for the children to participate in decisions (Figure 2.9).

Box 2.2. Approaches to engage children in ECEC settings

Over the last decades, children's views have been increasingly taken into account for shaping their own learning. This approach stems from the United Nations Convention on the Rights of the Child (1989), as well as from research highlighting the importance of children's active participation in pedagogies and education (Bandura et al., 2001[35]; Ebbeck et al., 2013[36]; Einarsdottir, 2007[37]; Hilppö et al., 2016[34]; Lipponen, Kumpulainen and Hilppö, 2013[38]). Research on ECEC curriculum confirms the importance of children's perspectives, not only through their participation in activities, but also through their active input in decision-making (Brostöm, 2010[39]; Clark, McQuail and Moss, 2003[40]; Sommer, Pramling-Samuelsson and Hundeide, 2010[41]). Behind these notions lies the view of children as active agents in their own lives (Lipponen, Kumpulainen and Hilppö, 2013[38]; Strandell, 2010[42]).

Listening to children and their experiences helps to better understand the challenges they face, to improve the support given by parents, preschools and schools, to increase children's self-esteem and to foster social competence (Clark, McQuail and Moss, 2003[40]). It can also help ECEC staff and management reflect on their own practice and aspects such as the design of indoor and outdoor spaces (Pramling Samuelsson and Asplund Carlsson, 2008[43]). To foster children's participation, some countries have specified the right of children to participate in the design of their curriculum frameworks (Denmark, Norway, and Wales) and/or in their education acts (Finland, Norway and Sweden) (OECD, 2017[44]).

Norway

The Norwegian kindergarten (ECEC) places itself within the Nordic social-pedagogical tradition, which sees the child as an active participant in the learning processes. Inspired by the United Nations Convention on the Rights of the Child, Norway introduced a section in the Kindergarten Act (2005) giving children in kindergarten "the right to express their views on the day-to-day activities of the kindergarten" (OECD, 2011[21]). The holistic approach is reflected in the Kindergarten Act's purpose statement, which reflects the view that developing pupils' knowledge, skills and attitudes is of great importance to their ability to master their own lives and participate successfully in work and social life (OECD, 2017[44]).

Germany

In the principles of elementary education in Brandenburg, (*Grundsätze elementarer Bildung in Einrichtungen der Kindertagesbetreuung im Land Brandenburg*), pedagogical staff are encouraged to put children's interests and natural curiosity at the centre of their work. The educational processes of children are supported and challenged at the highest possible level, through a demanding material and spatial organisation of the day-care centre and through pedagogical interactions based on the wishes of each individual child, as well as on the educational goals of the adult. Sustainable learning is assumed to happen mostly when the learner is interested in the subject matter. In a day-care facility that works successfully with this approach, regular observation of the children, evaluation of these observations and development of individual curricula are part of everyday life for every child.

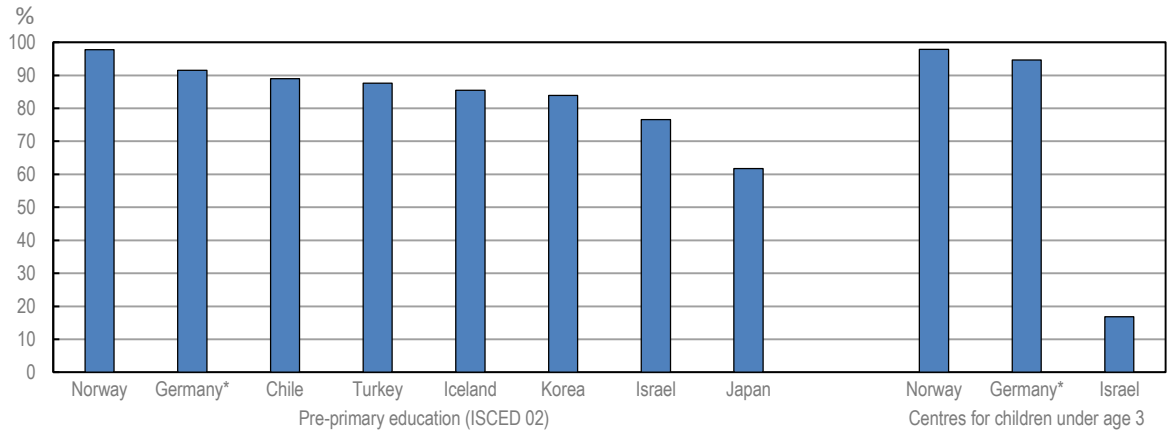
In the principles of education for children age 0-10 in day-care facilities and primary schools in North Rhine-Westphalia, (*Bildungsgrundsätze für Kinder von 0 bis 10 Jahren in Kindertagesbetreuung und Schulen im Primarbereich in Nordrhein-Westfalen*), the framework stipulates how adults can guide and support children's self-education and self-formation in active interaction with their environment, based on their life experience.

Sources: Hilppö, J. et al. (2016[34]), "Children's sense of agency in preschool: a sociocultural investigation", http://dx.doi.org/10.1080/09669760.2016.1167676; Ebbeck, M. et al. (2013[36])(2013), "Children's Voices: Providing Continuity in Transition Experiences in Singapore", https://doi.org/10.1007/s10643-012-0556-3; Lipponen, L., K. Kumpulainen and J. Hilppö (2013[38]), *Varhaiskasvatuksen pedagogiikka (Want, I can, I am able: Children's sense of agency in preschool)*, Vastapaino, Tampere; Einarsdottir, J. (2007[37]), *Children's voices on the transition from preschool to primary school*, Open University Press, McGraw Hill, Maidenhead; Bandura, A. et al. (2001[35]), "Self-efficacy beliefs as shapers of children's aspirations and career trajectories", https://doi.org/10.1111/1467-

8624.00273; Brostöm, S. (2010[39]), *A Voice in Decision Making young children in Denmark*, Trentham Publisher, Stoke-on-Trent; Clark, A., S. McQuail and P. Moss (2003[40]), *Exploring the Field of Listening to and Consulting with Young Children*, Department of Education and Skills Research, Nottingham; Sommer, D., I. Pramling-Samuelsson and K. Hundeide (2010[41]), *Child Perspectives and Children's Perspectives in Theory and Practice*, Springer, New York; Strandell, H. (2010[42]), "From structure–action to politics of childhood: sociological childhood research", https://doi.org/10.1177/0011392109354240; Pramling Samuelsson, I. and M. Asplund Carlsson (2008[43]), "The playing learning child: Towards a pedagogy of early childhood", https://doi.org/10.1080/00313830802497265; OECD (2017[44]), *Starting Strong V: Transitions from Early Childhood Education and Care to Primary Education*, http://dx.doi.org/10.1787/9789264276253-en; OECD (2011[21]), *Starting strong III: A Quality Toolbox for Early Childhood Education and Care*, http://dx.doi.org/10.1787/9789264123564-en.

Figure 2.9. Opportunities for children's participation in decisions

Percentage of leaders who "agree" or "strongly agree" that the centre provides opportunities for children to actively participate in decisions



* Estimates for sub-groups and estimated differences between sub-groups need to be interpreted with care. See Annex B for more information.
Note: *Countries are ranked in descending order of the percentage of leaders agreeing that their centre provides opportunities for children to actively participate in decisions.*
Source: TALIS Starting Strong 2018 database.

StatLink https://doi.org/10.1787/888934010318

Process quality in TALIS Starting Strong

TALIS Starting Strong gathers information from ECEC staff and centre leaders on their interactions with children and parents that are known from the research literature to enhance children's development and well-being. The objective is to learn about the quality of these interactions or about process quality. Using a statistical approach, the information contained in answers to questions on practices used by staff with children and parents (as presented in the previous sections) can be grouped into indicators capturing the major dimensions of process quality included in TALIS Starting Strong.

Indicators of process quality

Several indicators are built for each of the dimensions covered in TALIS Starting Strong, using part of the information on practices presented in the previous sections. Those indicators are (Figure 2.10; Table 2.7):

- Facilitating language, literacy, and numeracy development: Two indicators build on practices used at the centre level as reported by staff: facilitating literacy development; and facilitating numeracy development. These include several practices to immerse children in literacy and numeracy activities and to also offer opportunities for cognitive development. Practices to facilitate language development do not lead to an indicator reaching metric invariance (see Annex C).
- Facilitating socio-emotional development: Two indicators build on practices used at the centre level as reported by staff: facilitating emotional development (which includes several practices on helping children to talk about feelings); and facilitating prosocial behaviour (which includes practices to encourage children to care about others). Practices to organise and encourage play do not lead to an indicator reaching metric invariance (see Annex C).
- Group organisation and individual support: Two indicators build on practices used by staff in their work with the target group of children: adaptive practices (which include several practices to engage children depending on their backgrounds, interests and needs); and behavioural support (which includes practices to ensure children's behaviour is supportive to learning and development).
- Facilitating the engagement of parents/guardians: One indicator builds on practices used at the centre level as reported by staff. It covers the extent to which parents/guardians are informed about their children, but also are supported in their activities with them.

Figure 2.10. Dimensions of process quality covered by TALIS Starting Strong

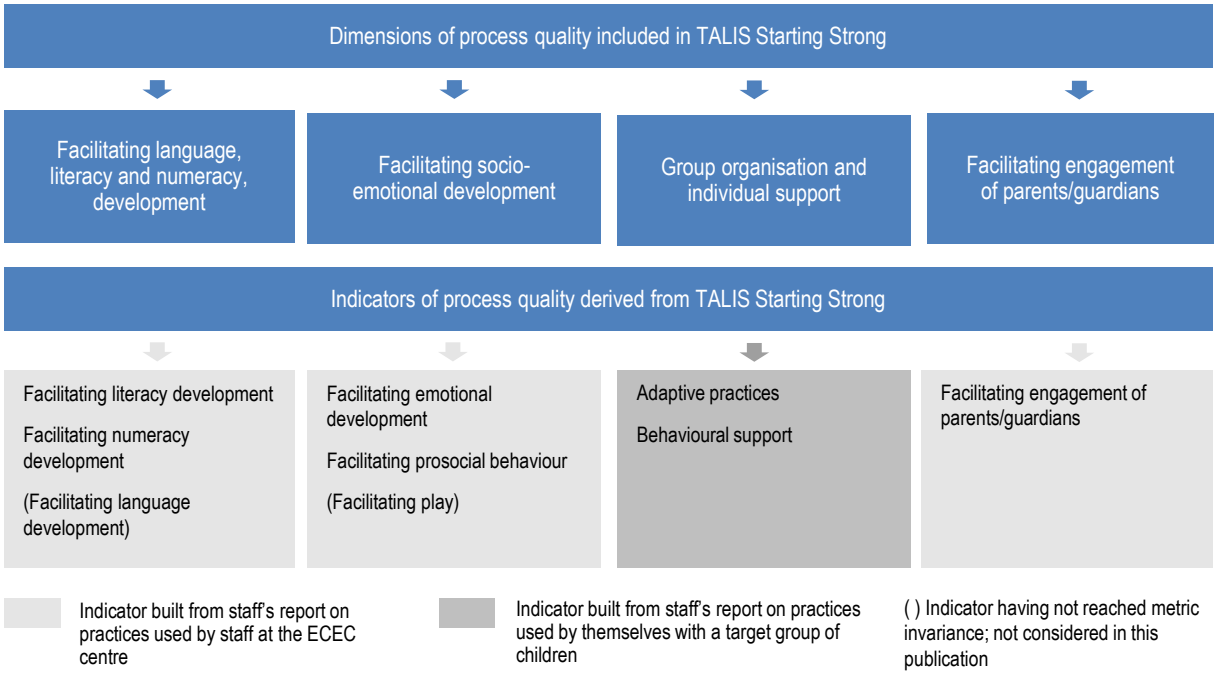


Table 2.7. Indicators of process quality developed in TALIS Starting Strong

Dimension	Indicator	Practices
Facilitating literacy and numeracy development (Practices used at the centre level, according to staff)	**Facilitating literacy development**	Play word games with the children, Play with letters with the children, Sing songs or rhymes with the children
	Facilitating numeracy development	Use sorting activities by shape or colour, Play number games, Sing songs about numbers, Help children to use numbers or to count, Refer to groups of objects by the size of the group
Facilitating socio-emotional development (Practices used at the centre level, according to staff)	**Facilitating emotional development**	Hug the children, Talk with children about feelings, Help children to talk about what makes them happy, Help children to talk about what makes them sad
	Facilitating prosocial behaviour	Encourage sharing among children, Encourage children to help each other, Encourage children playing in small groups to include other children, Encourage children if they comfort each other
Group organisation and individual support (Practices used by staff with a target group of children)	**Behavioural support**	I help children to follow the rules, I calm children who are upset, When the activities begin, I ask children to quieten down, I address children's disruptive behaviour that slows down other children's learning[1], I help children understand the consequences if they do not follow the rules
	Adaptive practices	I set daily goals for the children, I explain how a new activity relates to children's lives, I give different activities to suit different children's level of development, I give different activities to suit different children's interests, I adapt my activities to differences in children's cultural background
Facilitating engagement of parents/guardians (Practices used at the centre level, according to staff)	**Staff engagement with parents and guardians**	Parents or guardians can get in touch with ECEC staff easily, Parents or guardians are informed about the development, well-being and learning of their children on a regular basis, Parents or guardians are informed about daily activities on a regular basis, Parents or guardians are encouraged by ECEC staff to play and do learning activities with their children at home

1. Not considered for staff in centres for children under age 3.
Note: This table shows the practices that are included in the indicators of process quality used in this publication.
Source: TALIS Starting Strong 2018 database.

Because of their statistical properties, the indicators of process quality cannot be compared across countries (see Annex C). However, through statistical analysis, these indicators can be related to several aspects to better understand the determinants of process quality.

The relationship between various dimensions of process quality

The use of a variety of practices aiming to foster children's literacy and numeracy development, children's socio-emotional development and parents' or guardians' engagement can ensure children's overall development and well-being. TALIS Starting Strong provides insight on the issue of whether staff in different countries tend to explore all the dimensions of practices or specialise in some of them.

On average in participating countries at the pre-primary education level, staff who report that practices to support numeracy development are largely used in the centre also report that practices to support literacy development are largely used (Table 2.8). The correlation is smaller, but still sizeable, between practices that facilitate emotional development and those that facilitate prosocial behaviour.

The correlations are smaller between different dimensions of process quality, such as between facilitating literacy development and facilitating emotional development or between facilitating numeracy development and facilitating prosocial behaviour. These findings suggest that practices to support literacy or numeracy development are not always used in conjunction with practices to facilitate emotional development or prosocial behaviour.

Table 2.8. Relationship between and within dimensions of process quality

Correlation between indicators of process quality used at the centre level according to staff

	Numeracy	Emotional Development	Prosocial Behaviour	Parent Engagement
Literacy	0.81	0.44	0.41	0.32
Numeracy		0.45	0.43	0.32
Emotional Development			0.62	0.30
Prosocial Behaviour				0.29

Note: All correlation coefficients are statistically significant.
Source: TALIS Starting Strong 2018 database.

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The correlations between practices facilitating parental engagement and practices facilitating literacy and numeracy development or practices facilitating socio-emotional development are even smaller in most countries. Overall, the findings suggest that, in most countries, staff could be better supported to adopt a wider diversity of practices, combining parental engagement with activities more directed to the child, which in turn would help foster children's development in all its complex and intertwined dimensions.

Professional beliefs

Staff and leaders' beliefs regarding development and learning shape their practice and relationships with children. TALIS Starting Strong asks staff to indicate the extent to which they believe that certain skills or abilities are of high importance in preparing children for the future. These skills or abilities can be grouped into two major categories: 1) the foundational cognitive skills that are valued in schools and further education (such as children's reading, writing, and numeracy skills); and 2) those referred to as 21st century skills that encompass a range of cognitive and socioemotional skills valued more broadly in societies and by the labour market (such as children's ability to think creatively or to co-operate easily with others).

Preparing children for the future

Staff in pre-primary education centres consider that 21st century skills (such as children's abilities to co-operate easily with others, to inquire and explore based on their own curiosity and to think creatively) are the skills and abilities that are the most important for young children to develop (Table 2.9). On average, 86.5% of staff across countries agree on the "high importance" of developing children's ability to co-operate easily with others in order to prepare them for life in the future. With exception of Japan and Korea, the largest majority of staff also highly value children's oral language skills (Table D.2.5), followed by creativity, curiosity and motor skills.

Pre-primary education staff from different countries have diverse views on the importance of foundational cognitive skills that are valued in schools and further education, such as reading, writing and numeracy skills (Table D.2.5). Large percentages of staff in Chile and Turkey, and to a lesser extent in Iceland and Israel, value numeracy and reading, while small percentages of staff in Denmark (with low response rates), Japan, Korea and Norway accord high value to those skills. Skills related to science and technology tend to be less valued by staff in pre-primary education centres across countries (Figure 2.11), reflecting limited availability of or access to adequate ICT materials, potential gaps in ECEC training on practices to develop those skills at an early age (Chapter 3) or beliefs that they are best developed at a later age.

Table 2.9. Top three staff beliefs about skills and abilities that will prepare children for life in the future

Beliefs for which the highest percentage of staff report they are "of high importance" for the centre to develop

	Children's oral language skills	Children's physical and motor skills (e.g. physical exercises, dancing, playing musical instruments)	Children's ability to think creatively[1]	Children's ability to co-operate easily with others	Children's ability to inquire and explore based on their own curiosity
Pre-primary education (ISCED 02)					
Chile	1		3	2	
Germany*	1	3			2
Iceland	2		3	1	
Israel	2		3	1	
Japan	3			1	2
Korea			3	1	2
Norway	2			1	3
Turkey	2		1		3
Denmark**	2			1	3
Centres for children under age 3					
Germany*	1			3	2
Israel	2	3		1	
Norway	2			1	3
Denmark**	1			2	3

1. Not considered for staff in centres for children under age 3.
* Estimates for sub-groups and estimated differences between sub-groups need to be interpreted with care. See Annex B for more information.
** Low response rates in the survey may result in biases in the estimates reported and limit the comparability of the data.
Note: A total of 11 beliefs are included in the ranking for pre-primary education centres and 4 beliefs for centres for children under age 3, corresponding to question 21 of the staff TALIS Starting Strong questionnaire.
Source: TALIS Starting Strong 2018 database (Table D.2.5).

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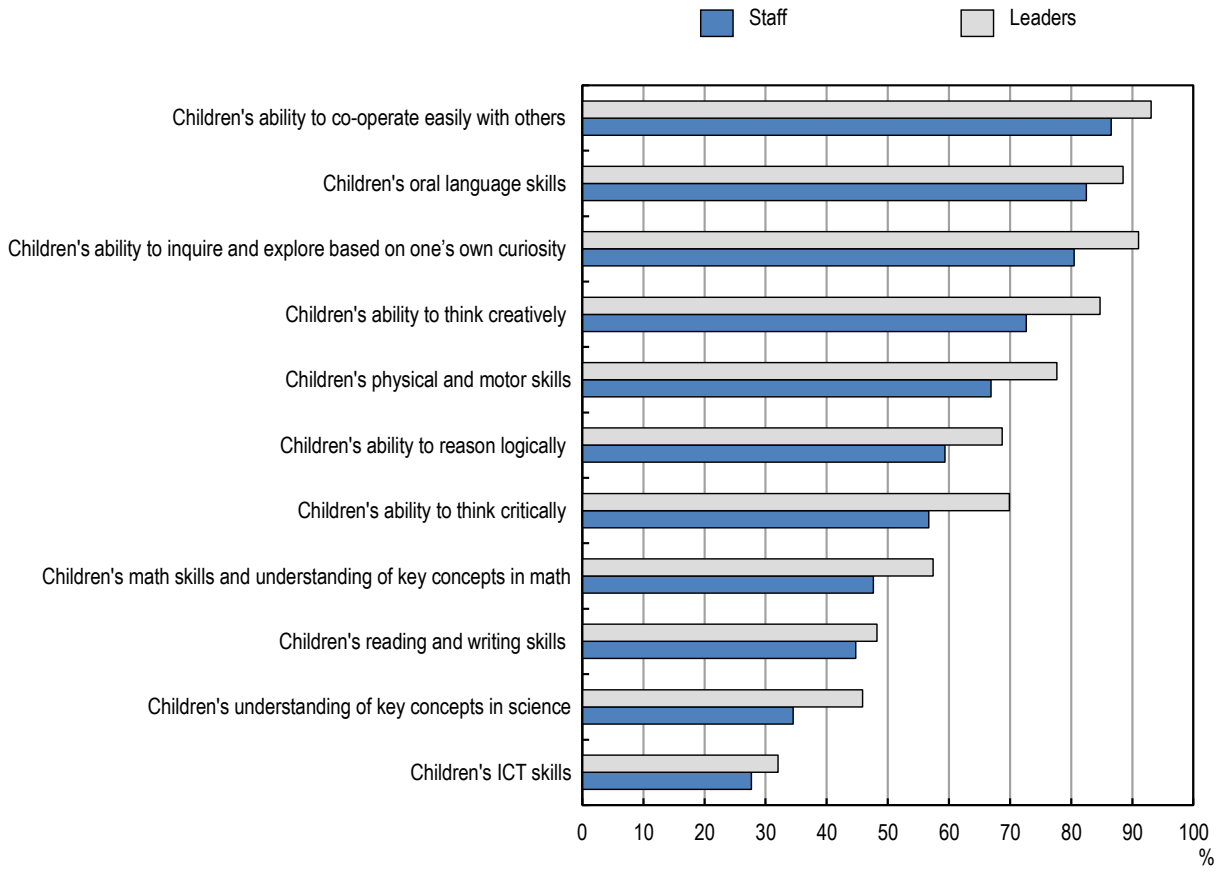
The Survey's question on beliefs of staff working with children under age 3 only included four skills or abilities that are considered applicable to children of this age (oral language, motor skills, ability to co-operate and curiosity). For these four skills, staff in centres for children under age 3 tend to value most highly the same skills as staff in pre-primary education centres (Table 2.9). Moreover, in all countries where the distinction between teachers and assistants can be made, there is a shared view between teachers and assistants on the most important skills to develop for the future in ECEC centres (Table D.2.5).

TALIS Starting Strong also asks leaders to indicate the extent to which they believe that these same skills or abilities are of high importance in preparing children for life in the future. In general, rates of importance for all skills or abilities tend to be somewhat higher for leaders in all countries, with the exception of Turkey. In Turkey, reading, numeracy and science are more valued by staff than by leaders (Figure 2.11).

Figure 2.11. Beliefs of leaders and staff about skills and abilities that will prepare children for life in the future

Percentage of leaders and staff reporting that it is "of high importance" for the centre to develop the ability or skill, pre-primary education (ISCED 02), average of participating countries



Note: Leaders who routinely engage in staff duties, in addition to their work as leaders, are included in both the leader and staff categories.
Source: TALIS Starting Strong 2018 database (Tables D.2.5 and D.2.6).

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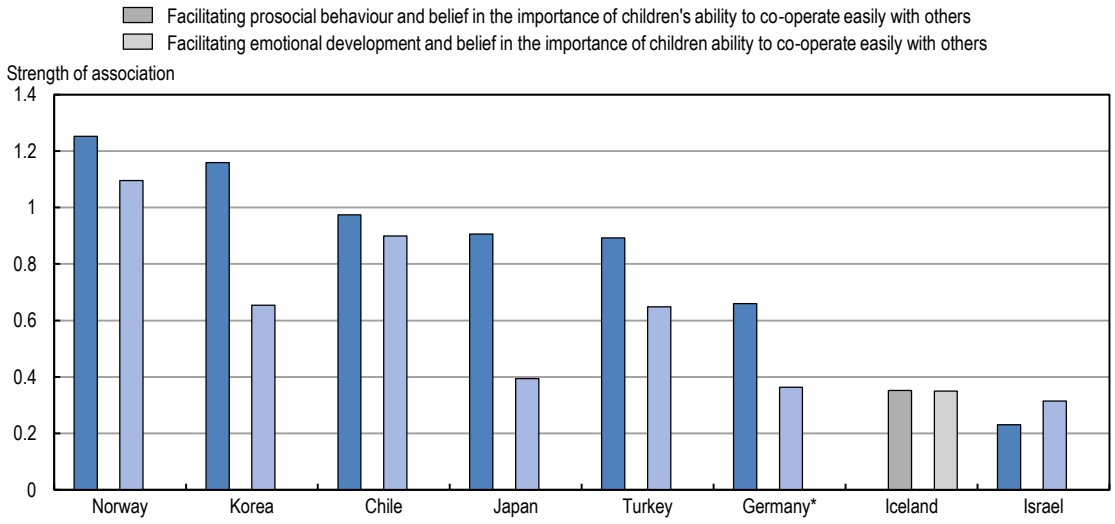
Compared to staff, a larger share of leaders accord high value to children's skills related to science and technology. These are the skills for which the difference between leaders' and staff's views is most pronounced, highlighting the potential for support, training and guidance of staff to align centre priorities.

Professional beliefs and practices

Staff beliefs regarding development and learning can shape their practices. Pre-primary education staff reporting that it is "of high importance" to develop children's ability to co-operate easily with others also report that their centres adopt practices facilitating prosocial behaviour and emotional development (Figure 2.12). The association is statistically significant for all countries except Iceland.

Figure 2.12. Relationship between beliefs on 21st century skills and practices facilitating socio-emotional development at the centre level

Strength of the association between staff-reported beliefs in the importance of children's ability to co-operate easily with others and practices to facilitate prosocial behaviour and emotional development at the centre level, pre-primary education (ISCED 02)



* Estimates for sub-groups and estimated differences between sub-groups need to be interpreted with care. See Annex B for more information.
Notes: Coefficients from the OLS regressions of the indicator "Facilitating prosocial behaviour" and of the indicator "Facilitating emotional development" on the item "Importance of children's ability to co-operate easily with others in the future". Other variables in the regression include: staff educational attainment; training to work with children; experience; years of experience; role in the target group; working hours; contractual status; number of children in the target group (quartiles); number of staff per child working with the target group (quartiles); percentage of children from socio-economically disadvantaged homes in the target group; centre urban/rural location; and public/private management. The computation of the number of children in the target group and of the number of staff per child working with the target group, are explained in Box 2.3. See Annex C for more details on variables included in the regression model. Statistically significant results are in blue.
Countries are ranked in descending order of the strength of association between the "Importance of children's ability to co-operate easily with others for life in the future" and "Facilitating prosocial behaviour".
Source: TALIS Starting Strong 2018 database (Table D.2.7).

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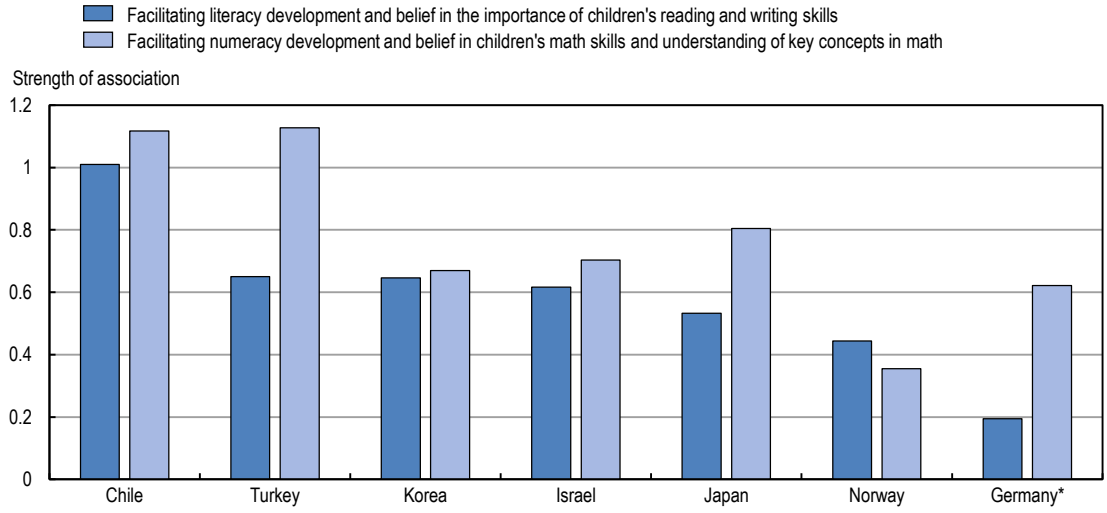
Similarly, staff who believe it is important to develop reading and writing skills also report that specific practices putting stronger emphasis on literacy (e.g. playing word games or playing with letters) are used in the centre (Figure 2.13). The same is true for beliefs in the importance of developing early numeracy skills. Pre-primary staff who report that it is of high importance to develop numeracy skills also report common use in their centres of practices such as playing number games and helping children to use numbers or to count and sorting activities by shape or colour. Associations between beliefs and practices in these domains are strong for all countries and are generally found to be stronger for numeracy than literacy, with the exception of Norway.

Overall, the findings suggest that, in most countries, beliefs can shape practices. If staff believe in the importance of establishing socio-emotional and cognitive skills at an early age, they are more likely to report the use of practices that facilitate the development of these skills. Training staff on the importance of facilitating children's learning, development and well-being in multiple dimensions is a way to ensure that staff use a well-diversified set of practices.

Figure 2.13. Relationship between beliefs on foundational cognitive skills and practices to facilitate literacy and numeracy development at the centre level

Strength of the association between staff-reported beliefs in the importance of reading, writing and math skills and practices to facilitate literacy and numeracy development at the centre level, pre-primary education (ISCED 02)



* Estimates for sub-groups and estimated differences between sub-groups need to be interpreted with care. See Annex B for more information.
Notes: Coefficients from the OLS regressions of the indicator "Facilitating literacy learning" on the item "Importance of children's reading and writing skills for life in the future" and of the indicator "Facilitating numeracy learning" on the item "Importance of children's math skills and understanding of key concepts in math for life in the future". Other variables in the regression include: staff educational attainment; training to work with children; experience; years of experience; role in the target group; working hours; contractual status; number of children in the target group (quartiles); number of staff per child working with the target group (quartiles); percentage of children from socio-economically disadvantaged homes in the target group; centre urban/rural location; and public/private management. The computation of the number of children in the target group and of the number of staff per child working with the target group, are explained in Box 2.3. See Annex C for more details on variables included in the regression model. Statistically significant results are in blue.
Countries are ranked in descending order of the strength of association between the "Importance of children's reading and writing skills for life in the future" and "Facilitating literacy development".
Source: TALIS Starting Strong 2018 database (Table D.2.7).

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The organisation of activities with a group of children

The organisation of activities in ECEC varies a lot across countries. In some countries, all children of the centre can have activities together, with several staff members involved. In other countries, activities are organised with small groups of children and a more limited number of staff. The organisation of activities also depends on the size of the ECEC centre and the age of the children. This is quite different from primary education, where most countries organise learning and development activities around classes of children. In some countries, activities for the oldest children in pre-primary education can take place with groups of children that are closer to the concept of a school class, but this is not a general pattern for this level of education. For these reasons, the notion of a group of children and its characteristics can correspond to very different realities depending on countries, centres and ages of children.

The size of the group of children that staff are working with can affect the type of practices that will be used and, in the end, the quality of interactions between children and staff (OECD, 2018[14]). TALIS Starting Strong asks staff to indicate the number of boys and girls in the target group (the first group of children

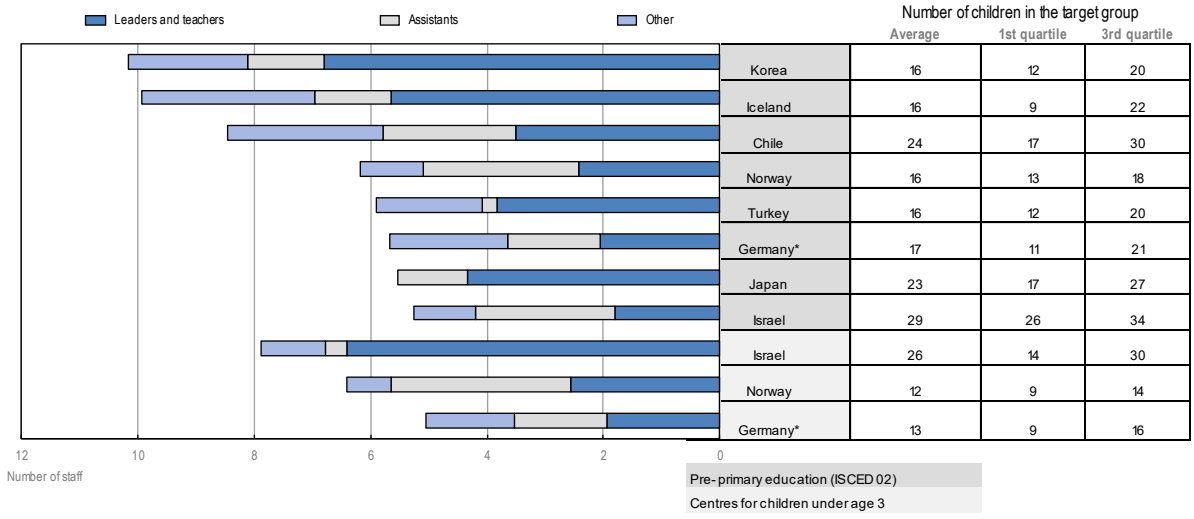
they were working with on the last working day before the day of the Survey) and their age (Box 2.3). The Survey also asks about the types and frequencies of practices used by staff with the same group of children. It is, therefore, possible to relate practices to the size and composition of the group of children.

Size of the group of children and number of staff with the group

The size of the target group of children in pre-primary education centres varies between around 16 children on average in Germany, Iceland, Korea, Norway and Turkey to more than 20 in Chile, Israel and Japan (Figure 2.14). The size of the target group is slightly smaller in centres for younger children than in centres for older children, but those numbers hide the fact that most countries implement quite different regulations on the size of groups for children under age 1 and 1-or-2 year-olds. There are also large variations in the number of children in the target group within countries. For instance, the average number of children per target group in pre-primary centres is 16 in Iceland, Korea, Norway and Turkey, but there is more in-country variation in Iceland than in the other three countries.

Figure 2.14. Number of children and staff working with the same target group on the same day

Staff reports on the type of staff and the number of children in the target group, average across staff reports



* Estimates for sub-groups and estimated differences between sub-groups need to be interpreted with care. See Annex B for more information.
Notes: The computation of the number of children and the number of staff in the target group, as well as the interpretation of these indicators, are explained in Box 2.3. "Other" includes staff for individual children, staff for special tasks, interns and others.
Countries are ranked according to the number of staff working with the same target group of children on the same day.
Source: TALIS Starting Strong 2018 database (Tables D.2.8 and D.2.9).

StatLink https://doi.org/10.1787/888934010394

TALIS Starting Strong also asks respondents about the number of adults who were working with the same target group on that day. Those adults may not have been working with the group of children at the same time, and the group of children may have changed over the day, as some children only attend for part of the day. This information gives an indication of the number of staff a child in the target group might have seen over the day as part of activities within the group. The number of staff working with the same target group of children on the same day reflects the number of adults children may interact with and can affect the dynamics of activities proposed to children. In pre-primary education centres, it is close to six staff members in Germany, Japan, Norway and Turkey and more than eight staff members in Chile, Iceland and Korea. Staff include teachers and assistants, but also a large share of adults belonging to other

categories, such as staff for individual children, staff for specific tasks and interns. For children under age 3, the number of staff is slightly higher than in pre-primary education centres in Germany and Israel and slightly lower in Norway. These differences across countries partly stem from differences in the organisation of groups, with some countries, such as Germany and Korea, adopting flexible types of organisation with mixed-age groups of children and multiple staff members in the same room (Box 2.4).

The information on the size of the group and the number of staff working with the same group on the same day can be combined to derive an indicator of the number of adults per child working with the same target group on the same day. This indicator reflects the extent to which children can be in contact with a small or large number of staff as part of their daily learning and development activities in a group. This concept differs from the regulatory ratio of staff to children or the number of children per staff observed at the centre level (Box 2.3). There is large variation across countries in the average number of staff per child working with the same target group on the same day, ranging from two to three staff members per ten children in Israel and Japan to almost nine staff members per ten children in Iceland in pre-primary centres (Figure 2.15). In centres for younger children, the number of staff per child working with the same target group on the same day is slightly higher.

In pre-primary education centres, children's age in the target group in all countries is around age 4, with the exception of Korea (around age 3.5) and Turkey (around age 5) (Table D.2.9). Like Korea, Denmark (with low response rates) has slightly younger groups compared to the other countries. In Korea, some ECEC centres serve children age 0-5 and groups of younger children are together with groups of older children with several teachers in the same space.

Box 2.3. Number of children and staff in the target group

TALIS Starting Strong asks staff to take the example of the target group (the first group of children they were working with on the last working day before the day of the Survey). Respondents indicate the category that best represents their role when working with this group of children (leaders, teachers, assistants, staff for individual children, staff for special tasks, interns and other staff), as well as the number of girls and boys who made up the group.

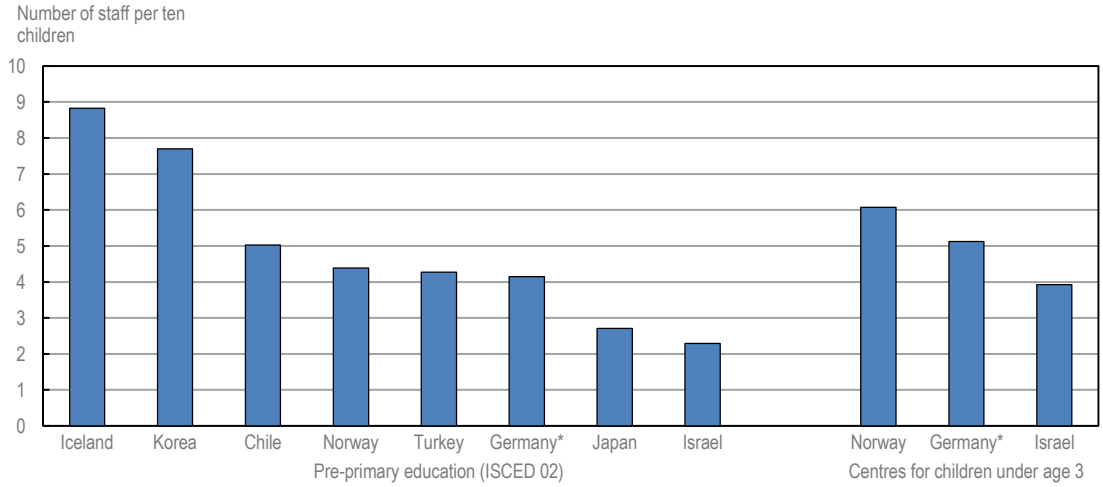
This information is used to derive three indicators: 1) the number of children per target group; 2) the number of staff working with the same target group on the same day; and 3) the number of staff per child working with the same target group on the same day.

The number of staff per child with the same target group on the same day refers to the number of staff working with the same target group, regardless of their role, divided by the number of children in the target group. Because the number of staff per individual child is very low, when specific examples are cited for comparative purposes, they are presented as "number of staff per ten children", which is obtained by multiplying the number of staff per child by ten.

The number of staff per child working with the same target group on the same day reflects a specific situation and is, therefore, different from the number of staff per child at the centre level. Staff may be working with the same target group at different moments of the day and not together, or may work part-time. Children in the same group may also change over the day into different group compositions, and children's attendance hours of children can differ. This concept also differs from the regulated maximum numbers of children per staff member, as that could include some restrictions on the staff to be included (depending on their qualifications or role) and can be specific to the age group of children.

As there is no indicator clarifying which target group each staff member referred to, several staff members may have referred to the same target group. This can result in a bias, as some target groups may be over-represented in the data.

Figure 2.15. Average number of staff per ten children working with the same target group on the same day



* Estimates for sub-groups and estimated differences between sub-groups need to be interpreted with care. See Annex B for more information.
Note: The computation of the number of staff per ten children working with the same target group, as well as the interpretation of this indicator, are explained in Box 2.3.
Source: TALIS Starting Strong 2018 database.

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Box 2.4. Flexible or fixed groups of children

ECEC settings can use different approaches to group organisation and activity settings to structure children's time throughout the day, and this is likely to play a role in the type of opportunities created for interaction. In particular, the amount of time that children are expected to engage in small-group routines or free play can have a major role in the ways children interact with the teacher, relate to each other and learn (Booren, 2013[45]; Cabell, 2013[46]; Early et al., 2010[47]; Fuligni, 2012[48]; Howes et al., 2008[4]).

ECEC settings may organise groups in a fixed approach, assigning a specific group of children to a specific group of staff, mimicking the more traditional classroom approach of later schooling. Children in the fixed group follow a common routine, which may involve more structured time, as well as open choice in different classroom corners or activities. Groups organised in this way are generally, but not always, homogenous in age.

This is the case in Chile and Israel. In densely populated areas of Turkey, independent kindergartens (*Bağımsız anaokulu*) for 3-5 year-olds are organised with two groups of children in the same class, one in the morning and one in the afternoon, with two different teachers in a type of dual shift. Staff-protected time, separated from their contact time with children, builds on this dual-shift approach to ensure that teachers have enough time to plan activities for children.

Alternatively, ECEC settings may take a flexible approach to activities, balancing free play and structured activities, while accommodating children's interests. Children in a flexible group setting may experience different groups of peers and staff throughout the day. This is sometimes described as an open-concept approach to pedagogical practices (Wall, Litjens and Taguma, 2015[32]). Children can

choose the activities they want to participate in, which are usually offered in different rooms in the ECEC centre.

This is the case in some centres in Germany, where there are no classrooms as such, but instead rooms with areas for construction play, reading, playing with dolls and creative activities. Academic learning activities, such as language learning, are typically embedded in everyday activities (Wall, Litjens and Taguma, 2015[32]). In these settings, ECEC is provided in mixed-age groups, which may cover a span from age 1 until school enrolment age. This gives children the opportunity to learn from those older than they are and for older children to take responsibility for younger children.

Sources: Fuligni, A. (2012[48]), "Activity settings and daily routines in preschool classrooms: Diverse experiences in early learning settings for low-income children", http://dx.doi.org/10.1016/j.ecresq.2011.10.001; Howes, C. et al. (2008[4]), "Ready to learn? Children's pre-academic achievement in pre-Kindergarten programs", http://dx.doi.org/10.1016/j.ecresq.2007.05.002; Booren, L. (2013[45]), "Observations of children's interactions with teachers, peers and tasks across preschool classroom activity settings", http://dx.doi.org/10.1080/10409289.2010.548767; Cabell, S. (2013[46]), "Variation in the effectiveness of instructional interactions across preschool classroom settings and learning activities", http://dx.doi.org/10.1016/j.ecresq.2013.07.007; Early, D. et al. (2010[47]), "How do pre-kindergarteners spend their time? Gender, ethnicity, and income as predictors of experiences in pre-kindergarten classrooms", https://doi.org/10.1016/j.ecresq.2009.10.003; Wall, S., I. Litjens and M. Taguma (2015[32]), *Early Childhood Education and Care Pedagogy Review: England*, https://www.oecd.org/education/early-childhood-education-and-care-pedagogy-review-england.pdf.

Size of the group of children and practices

For each country, answers from staff on the number of children per group leads to a distribution that can be divided into quarters with equal frequencies of group size. It is then possible to compare answers from staff working with a relatively small group compared to the country distribution (first quarter) to those from staff working with a relatively large group of children for that country (fourth quarter).

On average in participating countries, pre-primary education staff working with a relatively large group of children are more likely to report that they "always or almost always" ask the children to quieten down when activities begin or address children's disruptive behaviour that slows down other children's learning (Figure 2.16). For other practices, no statistically significant differences emerge. When the whole range of practices for behavioural support is considered and when other factors are accounted for through a regression analysis, increasing the size of the group of children from the first quarter to the fourth quarter is significantly statistically associated with more practices for behavioural support in Chile, Korea and Israel at pre-primary education level and in Denmark (with low response rate) in centres for children under age 3 (Table D.3.6). In those three countries, there is also a positive relationship between increasing the size of the group of children from the first to the fourth quarter and adaptive practices, such as explaining how a new activity relates to children's lives or giving different activities to suit different children's interests.

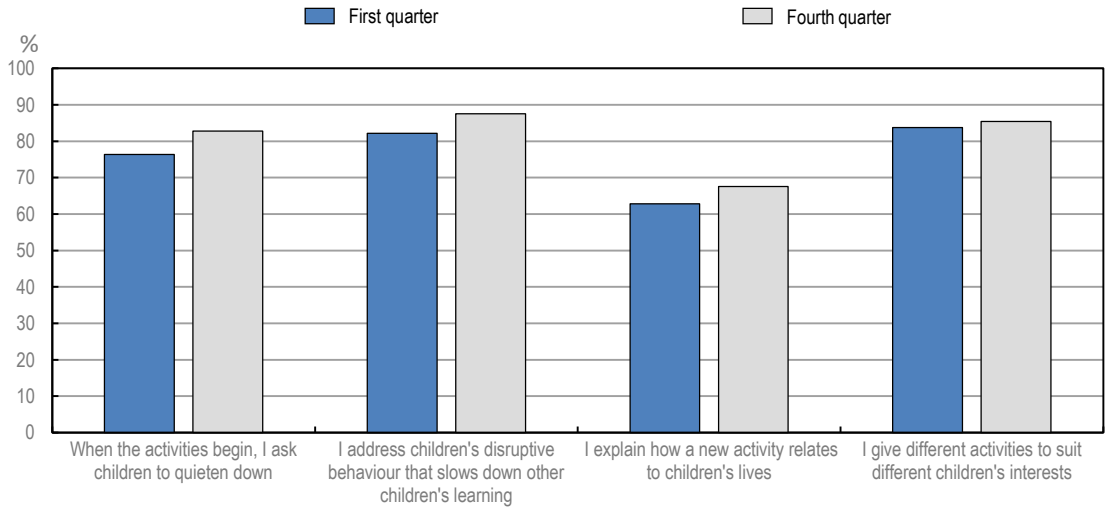
Behavioural support and adapting practices to individual needs can be positive for children's learning and development. However, investing greater time in these practices may also imply that staff have less time to focus on other activities. Among the countries for which the relationship between the size of the target group and practices is statistically significant, the average number of children per target group is relatively large in Chile and Israel. In contrast, in Japan, the average number of children per target group is large, but the size of the group of children and practices for group organisation and individual support do not appear to be significantly statistically related.

These results are obtained after accounting for staff's educational background and preparation to work with children. They show that staff with similar education and training more frequently use practices for behavioural support (in Chile, Denmark [with low response rates], Israel and Korea) and adapt their practices to individual needs (in Denmark [with low response rates], Germany, Israel and Turkey) when they are with bigger groups of children. However, there is also a positive relationship between staff's education and training and the use of those practices (see Chapter 3). Having too many children in the

group is also a source of stress for large percentages of staff in some countries (see Chapter 3). Pending further investigation, the policy implication seems to be that in countries with large groups of children, staff need to be particularly well educated and trained. Some countries could also investigate the need to reduce the size of groups, especially in centres where staff work with large groups of children.

Figure 2.16. Adapting practices to differences in the size of the group of children

Percentage of pre-primary education (ISCED 02) staff who "always or almost always" use the following practices, for staff working with relatively small target groups of children (first quarter) and relatively large target groups of children (fourth quarter), average across participating countries



Source: TALIS Starting Strong 2018 database.

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Equity and diversity: beliefs and practices

In the way they interact with children in their daily experience, staff can support children's learning and development, building on children's strengths and areas for growth. For children from socio-economically disadvantaged homes, those with special needs or those whose family language or cultural background is different from that of the majority of children at the ECEC centre, individualised interactions with staff can smooth the transition to ECEC and ensure children are able to benefit from rich environments for learning, development and play. The literature suggests that high-quality ECEC can be particularly advantageous for these different groups of children (Arnold and Doctoroff, 2003[49]; Gambaro, Stewart and Waldfogel, 2014[50]; Heckman, 2006[51]).

TALIS Starting Strong makes it possible to learn about the characteristics of children in the group and the percentage of staff working with different group composition, depending on children's backgrounds and needs. It also enables investigation of how staff practices may differ depending on the characteristics of the group of children.

Group composition

TALIS Starting Strong identifies four groups of children who may particularly benefit from specialised attention from staff related to differences in their socio-economic or cultural background or related to special needs:

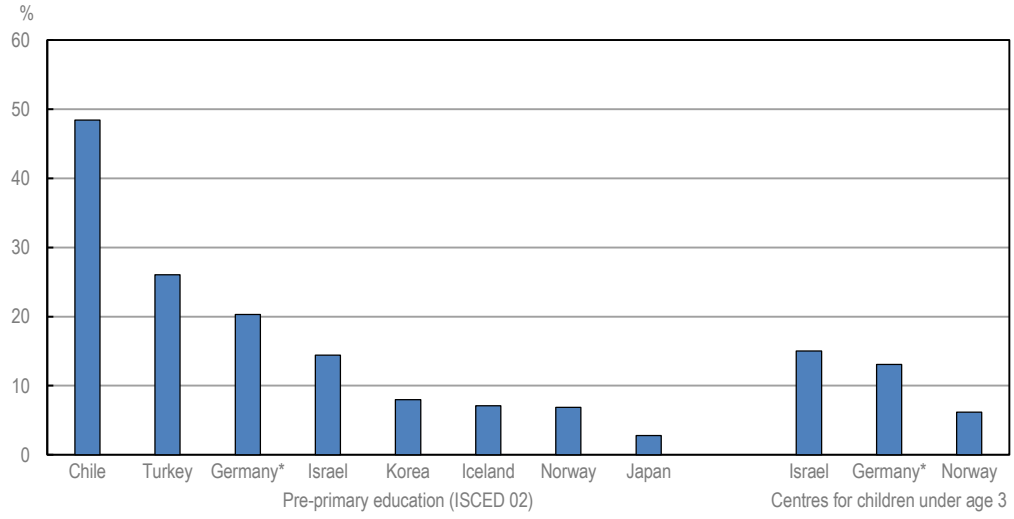
- Children from socio-economically disadvantaged homes: Children from homes lacking the necessities or advantages of life, such as adequate housing, nutrition or medical care.
- Children whose first language is different from the language(s) used in the ECEC centre.
- Children with special needs: Children for whom a special learning need has been formally identified because they are cognitively, physically or emotionally disadvantaged.
- Children who are refugees: Children who, regardless of legal status, fled to another country seeking refuge from war, political oppression, religious persecution or natural disaster. However, as the Survey does not adequately capture variation across countries of the percentage of children in the target group who are refugees, this group is not discussed in this chapter.

The Survey asks staff to estimate the broad percentage (none, 1% to 10%, 11% to 30%, 31% to 60%, more than 60%) of these types of children in the target group.

A threshold of 10% is used to identify groups of children that can be considered homogenous in terms of socio-economic background. The percentage of staff working with target groups with 11% or more children from socio-economically disadvantaged homes varies quite a lot across countries (Figure 2.17). At pre-primary education level, in Iceland, Japan, Korea and Norway, fewer than 10% of staff report working with groups with a share of children from socio-economically disadvantaged homes above this threshold. This percentage amounts to 14% in Israel, from 20% to 26% in Germany and Turkey, and 48% in Chile.

Figure 2.17. Group concentration of children from socio-economically disadvantaged homes

Percentage of staff reporting that the target group includes 11% or more children from socio-economically disadvantaged homes



* Estimates for sub-groups and estimated differences between sub-groups need to be interpreted with care. See Annex B for more information.
Source: TALIS Starting Strong 2018 database.

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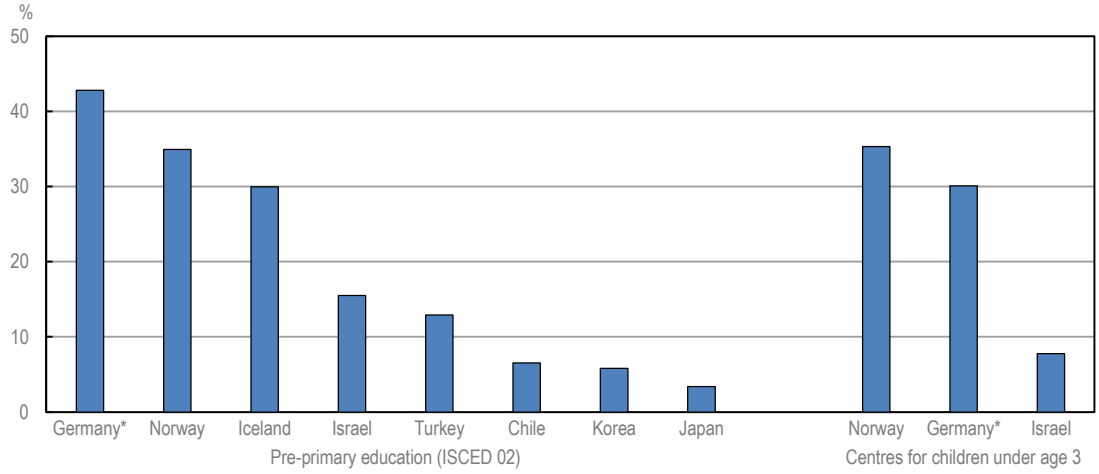
Differences across countries in the percentage of staff working with large shares of children from socio-economically disadvantaged homes most likely reflect different levels of poverty in participating countries. For some countries, this percentage could appear low and not fully reflect the perceived reality. TALIS Starting Strong defines children from socio-economically disadvantaged homes by using a concept of absolute poverty, according to which disadvantaged homes are homes lacking basic living standards. In many advanced economies with a range of social benefits and medical insurance, not so many households would fall into this category. These differences can also reflect differences in social protection and welfare systems across countries that determine the various forms of support for children and families and can influence children's age of enrolment in ECEC.

Finally, differences could emerge from inequalities in access to ECEC within countries depending on children's socio-economic background. International studies show enrolment in ECEC is generally not evenly distributed across population subgroups. Specifically, children with immigrant parents, children from low-income families and children from non-native speaking families are less likely to attend ECEC than their native-born, more affluent or native-speaking counterparts (Brandon, 2004[52]; Buriel and Hurtado-Ortiz, 2000[53]; Crosnoe, 2007[54]; Magnuson, Lahaie and Waldfogel, 2006[55]; Shuey and Kankaraš, 2018[27]). Features of access, such as availability of care, quality of care and convenience, explain some of these differences. However, research points to cultural preferences and values as also contributing to differences in participation in ECEC across groups (Yoshikawa, 2011[56]). In many OECD countries, children from socio-economically disadvantaged homes attend ECEC for a shorter period of time than advantaged children (OECD, 2017[57]). However, in countries participating in TALIS Starting Strong, this gap is small, except in Turkey and, to some extent, in Chile (see Chapter 4).

The presence of children whose first language is different from the language(s) used in the centre can also affect the use of practices by staff. In Germany, Iceland and Norway, over a third of staff report working with groups at pre-primary education level that include 11% or more children with a different first language (Figure 2.18). In contrast, in Chile, Japan and Korea, a small share of staff work with groups with 11% or more children whose first language is different from the language(s) used in the centre. In the participating countries, the share of staff working with groups with 11% or more children with a different first language is slightly lower in centres for children under age 3 than in pre-primary centres, except in Norway. The differences suggest that entry into ECEC may be delayed until pre-primary level for children whose first language is different from the language(s) used in the centre.

Figure 2.18. Group concentration of children whose first language is different from the language(s) used in the centre

Percentage of staff reporting that the target group includes 11% or more children whose first language is different from the language(s) used in the centre



* Estimates for sub-groups and estimated differences between sub-groups need to be interpreted with care. See Annex B for more information.
Source: TALIS Starting Strong 2018 database.

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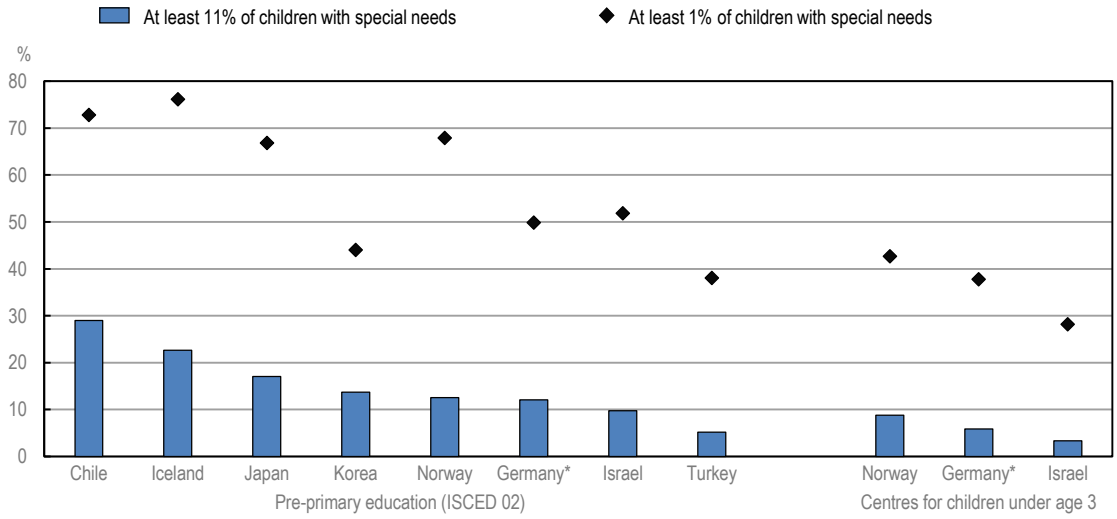
The enrolment of children with special needs in ECEC can foster their development and facilitate the intervention of specialised staff. At pre-primary level, in Chile, Denmark (with low response rates) and Iceland, more than 20% of staff report working with groups with more than 11% of children with special needs, while this percentage is at 5% in Turkey (Figure 2.19). It is also lower than 10% in countries with data for children under age 3. There are several possible reasons for these variations across countries. They could reflect differences in the countries' inclusion policies regarding children with special needs, in the number and level of training of professionals available to diagnose the needs and integrate children in ECEC or in parental perceptions of quality of practices.

Differences in the percentages of staff indicating that they work with groups with at least 1% of children with special needs (likely much below the actual share of young children with special needs) may shed light on those aspects. At pre-primary level, 60% to 70% of staff report working with groups with 1% or more children with special needs in Chile, Denmark (with low response rates), Iceland, Japan and Norway, but the percentage is lower in Germany, Israel, Korea and Turkey. In centres for children under age 3, the percentage is much lower, suggesting a lower enrollment or lack of identification of children with special needs. In Norway, for pre-primary education centres, the percentage of staff reporting that they work with groups with at least 1% of children with special needs is high, but the percentage of staff reporting that they work with groups with at least 11% of children with special needs is relatively low. This finding may indicate that children with special needs are enrolled in ECEC and identified, but not grouped together.

Figure 2.19. Group concentration of children with special needs

Percentage of staff reporting that the target group includes at least 1% or 11% of children with special needs



* Estimates for sub-groups and estimated differences between sub-groups need to be interpreted with care. See Annex B for more information.
Note: *Countries are ranked according to the percentage of target groups with more than 11% of children with special needs.*
Source: TALIS Starting Strong 2018 database.

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Adapting practices to children's needs and diversity

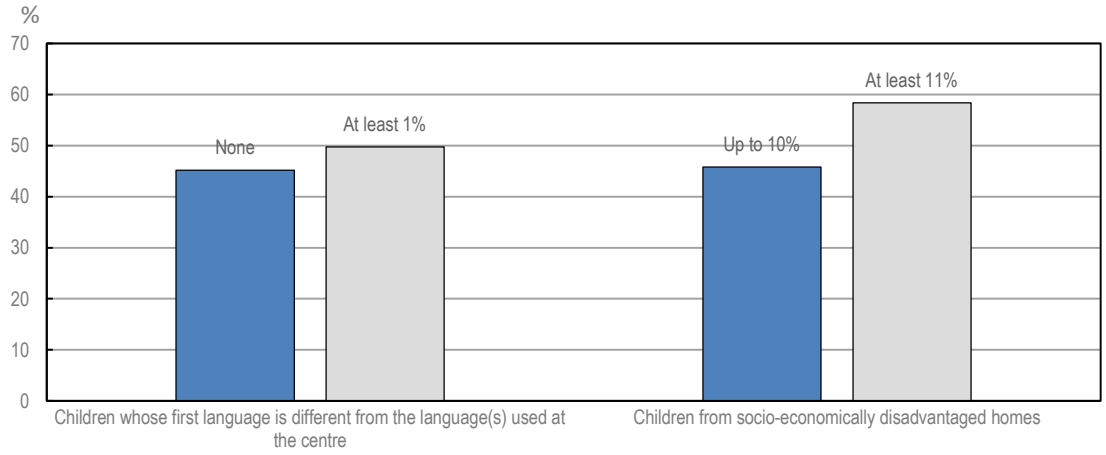
There are several ways for staff to adapt their practices to the strengths and needs of individual children. A first general approach consists of intensifying the use of practices that broadly foster children's development and well-being. A second general approach consists of adopting specific practices to ensure better inclusion of these children in the classroom or playground and to stimulate their development and well-being.

For ECEC to address children's unique needs related to their socio-economic or language and cultural background or their special needs, staff can intensify the use of practices fostering children's development with more diverse groups of children. At the same time, some of these practices can be more difficult to use with a diverse group of children, or staff may not be sure of how to appropriately adapt their practices.

TALIS Starting Strong provides evidence that staff adapt their practices to the characteristics of children in the group. The percentage of staff reporting that they always or almost always adapt their activities to differences in children's cultural background is higher for staff working with a larger percentage of children whose first language is different from the language(s) used in the centre or who are from socio-economically disadvantaged homes (Figure 2.20). When other factors are accounted for, the relationship between adaptive practices and the percentage of children from socio-economically disadvantaged homes is positive for most countries, although it is not always statistically significant (Table D.3.6).

Figure 2.20. Adapting activities to differences in children's cultural background

Percentage of pre-primary education (ISCED 02) staff who report that they "always or almost always" adapt their activities to differences in children's cultural background, by characteristics of children in the target group, average across participating countries



Note: For children whose first language is different from the language(s) used at the centre, the reference is set to "None" as at least one child in a group of any size could make a difference in terms of practice.
Source: TALIS Starting Strong 2018 database.

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Attitude towards diversity at the centre level

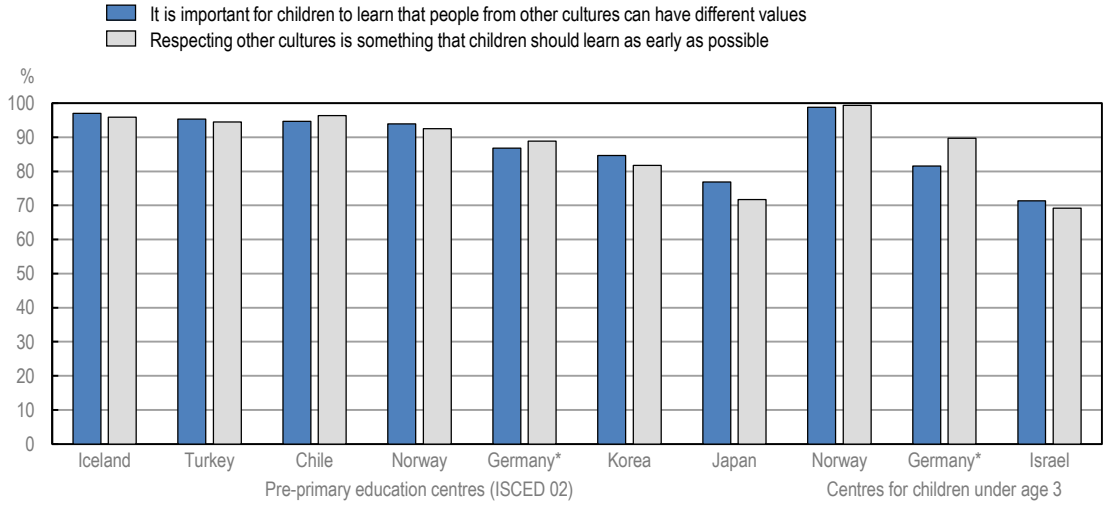
Among the practices and activities that can be developed for better inclusion of all children, TALIS Starting Strong asks leaders about staff beliefs regarding the importance of addressing multicultural diversity in the centres and asks staff about the use of practices valuing and acknowledging diversity in the group of children. The literature suggests that practices emphasising the equality of children and not referring exclusively to the dominant culture limit discrimination and lead to better integration of children from different cultures.

The attitude of staff and their beliefs in relation to diversity can shape their practices with children. However, asking staff about a sensitive issue such as their beliefs on the importance of equity can result in respondents answering in a manner that will be viewed favourably by others, because of desirability pressure. To at least partly overcome this bias in responses, TALIS Starting Strong follows TALIS (OECD, 2019[2]), asking leaders approximately how many of the staff in their centre ("none or almost none", "some of them", "many" or "all or almost all") would agree with a series of statements. For example, leaders report on the levels of agreement among their staff on the importance of addressing multicultural diversity in the centres by getting children to learn that people from other cultures can have different values or to respect other cultures.

Generally, a very high percentage of leaders in pre-primary education centres and centres for children under age 3 report that "many" or "all or almost all" of their staff agree that it is important for children to learn that people from other cultures can have different values and that respecting other cultures is something that children should learn as early as possible (Figure 2.21). Japan, with lower diversity in its population than other participating countries, also shows the lowest percentages of staff agreement, as perceived by leaders.

Figure 2.21. Beliefs about multicultural and diversity approaches in the centres

Percentage of leaders who report that "many" or "all or almost all" staff would agree with the following statements



* Estimates for sub-groups and estimated differences between sub-groups need to be interpreted with care. See Annex B for more information.
Notes: The relevant questions were not administered to leaders of pre-primary education centres (ISCED 02) in Israel.
Countries are ranked according to the percentage of leaders who report that "all or almost all" staff would agree with the statement that "It is important for children to learn that people from other cultures can have different values".
Source: TALIS Starting Strong 2018 database (Table D.2.10).

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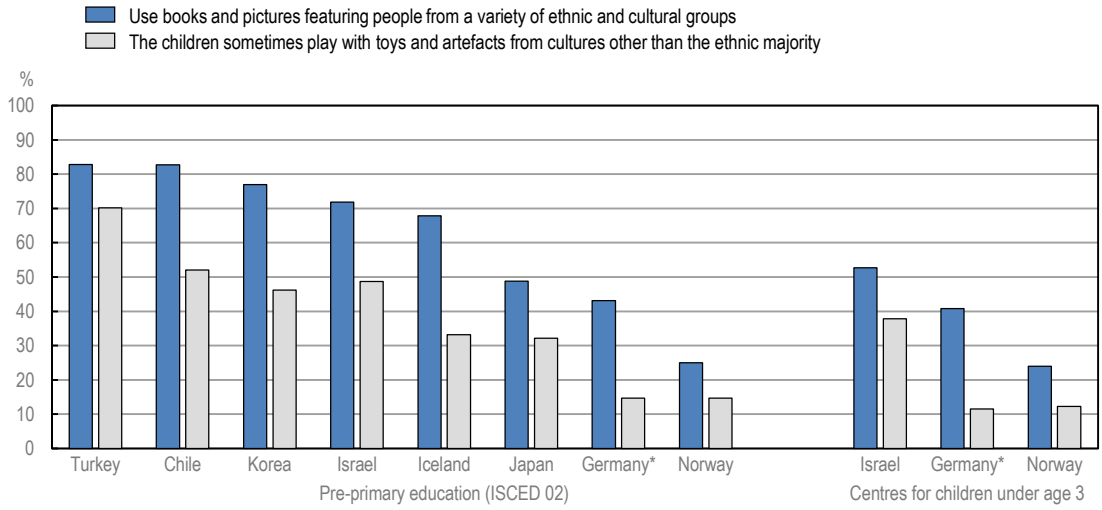
TALIS Starting Strong also asks staff about the extent to which diversity activities and practices happen in their centre as part of daily interactions with children. On average, a majority of staff in pre-primary centres report that it is more common for centres to provide diverse materials (such as books, pictures or toys showing people from different ethnic/cultural groups) than to organise activities emphasising what people from different ethnic and cultural groups have in common (Figure 2.22, Table D.2.11). According to staff, it is also less common for centres to facilitate children's play with toys and artefacts from cultures other than the ethnic majority. The same pattern holds for centres for children under age 3.

Overall, these findings suggest that there is broad recognition at the centre level of the importance of adopting a multicultural and gender-diversity approach. However, this recognition does not always translate into the use of specific approaches to emphasise the equity of ECEC. This may reflect an intention to treat all children in the same way, indicate limited availability of or access to adequate resources or suggest a need for staff to be better prepared to work with a diverse group of children (see Chapter 3). Some countries have made efforts to better integrate the topic of diversity in the curriculum (Box 2.5).

Figure 2.22. Multicultural and diversity approaches used in daily interactions with children

Percentage of staff reporting that the following activity or practice happens "to some extent" or "a lot" in their centre



* Estimates for sub-groups and estimated differences between sub-groups need to be interpreted with care. See Annex B for more information.
Note: *Countries are ranked according to the percentage of staff who report that using books and pictures featuring people with a variety of ethnic and cultural groups happens "to some extent" or "a lot" in their centre.*
Source: TALIS Starting Strong 2018 database (Table D.2.11).

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Box 2.5. Approaches to diversity

Cultural values and languages are a key aspect of quality ECEC. Because ECEC centres are becoming more culturally diverse, with children from different backgrounds and home environments, acknowledging the need for multicultural and multilingual curriculum approaches is important for effective programmes. Settings and activities can be designed to accommodate different approaches to young children's learning. The wide range of cultures, communities and settings in which young children grow up makes it essential to engage different stakeholders in developing and refining curricula and other ECEC resources and to adapt these documents to local or cultural circumstances when needed (OECD, 2011[21]).

New Zealand

New Zealand's educational framework is exemplary in its attempt to acknowledge the importance of different cultural backgrounds, validate the role of minorities and preserve languages and cultures that might otherwise disappear (Wall, Litjens and Taguma, 2015[32]). The national curriculum, *Te Whāriki*, which is applicable to all ECEC settings, aims to promote holistic, continuous development from birth to school starting age. The New Zealand curriculum is written in two languages, English and Māori, whose messages complement one another. It provides both general instructions and specific instructions for distinctive contexts, including the Māori immersion and Pasefika programmes, which are targeted to specific cultural groups with the goal of cultural preservation. Each ECEC service is required to develop its own programme, following the national curriculum framework. How the

curriculum is implemented depends on teachers, parents and whānau, the extended family, which, in Māori culture, is considered to play a crucial role in a child's life (Coalition of Child Care Advocates of BC, 2007[58]).

Norway

In Norway, the revised Framework Plan emphasises diversity and mutual respect. It states that ECEC centres "shall use diversity as a resource in their pedagogical practices and support, empower and respond to the children according to their respective cultural and individual circumstances". To support ECEC staff in their work with diversity, the Norwegian Directorate for Education and Training has provided guides, webinars and short films online on language diversity as well as on Sami culture and identity.

Sources: OECD (2011[21]), *Starting strong III: A Quality Toolbox for Early Childhood Education and Care*, http://dx.doi.org/10.1787/9789264123564-en; Wall, S., I. Litjens and M. Taguma (2015[32]), *Early Childhood Education and Care Pedagogy Review: England*, https://www.oecd.org/education/early-childhood-education-and-care-pedagogy-review-england.pdf; Coalition of Child Care Advocates of BC (2007[58]), *Good governance of child care: What does it mean? What does it look like?*, http://www.cccabc.bc.ca/cccabcdocs/governance/ggcc_combined.pdf.

Conclusion and policy implications

This chapter presents findings from TALIS Starting Strong on the practices staff report using with children, the organisation of activities with a group of children, the extent to which staff and leaders are exposed to a diversity of children and how they adapt practices to ensure that all children benefit from ECEC experiences.

In most countries, large percentages of staff report that most of the practices included in the survey are used to a large extent in their centre. However, staff use specific practices that emphasise literacy and numeracy to a lesser extent. With a group of children, activities for behavioural support are more commonly used than practices to adapt to children's needs or background, while most teachers work with a diversity of children. These findings may not necessarily point to something that can or needs to be changed. Activities with young children require a lot of behavioural support, and a slow immersion in literacy and numeracy is needed at this age. However, if some factors are preventing staff from adopting a holistic approach to children's learning, development and well-being, this needs to be addressed by policies. This chapter puts forward a number of factors related to practices. They provide indications on the main policy areas to support the use of a range of practices to foster all dimensions of learning, development and well-being for all children.

Policy approaches can include:

1. **Supporting staff in the use of a broad range of practices to explore all the dimensions of children's development:** The chapter shows that staff beliefs are strongly related to their practices. Pre-service and in-service education and training for staff can shape those beliefs. Policies can ensure that education and training programmes for staff lead to a common understanding of developmentally appropriate ways to support children's learning and lay foundations for the development of future skills and abilities.
2. **Preparing staff to work with large groups of children and facilitating interactions as part of small groups of children:** With a larger group of children, staff bring more support to children's behaviour and, to some extent, adapt their practices more to children's individual needs. This finding has two policy implications. The first is to ensure that well-trained staff are allocated to larger groups of children. The second is to investigate the possibility to adopt flexible organisation

of activities and practices over the course of the day to ensure that staff interact with small groups of children in at least some moments during the day. With small groups of children, staff can to concentrate on the full range of activities that enhance children's learning, development and well-being.

3. **Better engaging parents:** There could be many benefits from engaging parents in ECEC for children's development. In all countries, parents are engaged in several ways, but this engagement could be deepened, particularly by using contacts between the ECEC workforce and parents as a bridge to children's development at home. Policy implications include better reflecting the importance of engaging parents in curriculum frameworks, providing guidelines to staff on how to engage with parents and, more generally, better preparing staff to make the most of their links with parents.
4. **Ensuring that all children benefit from ECEC:** TALIS Starting Strong shows that many staff work with diverse groups of children. Staff adapt their activities to children's language or cultural background. Most leaders report that respecting other cultures is a shared value. However, in almost all participating countries, a majority of staff do not, for example, frequently use toys representing other cultures. Providing concrete opportunities to young children to get a better understanding of the diversity of cultures can be effective in the integration of all children. In many ways, policies can ensure better integration of all children in ECEC. This chapter points to the need to value the diversity of cultures through incorporating this issue in curriculum frameworks, guidelines to staff and material for children. Preparing staff to work with a diversity of children is also crucial (see Chapter 3).

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3 Teachers, assistants and leaders and the quality of early childhood education and care

This chapter describes the early childhood education and care workforce, including both staff and leaders. It examines the age distribution and gender distribution of the workforce, as well as their pre-service training and opportunities for ongoing professional development. The chapter also gives a profile of the working conditions reported by staff, including their contractual status, working hours, sources of work-related stress and job satisfaction. Recognising that interactions between children and staff are crucial to the quality of early childhood settings, the chapter explores how characteristics of the workforce are associated with process quality.

The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

Key messages

- Women dominate the early childhood education and care (ECEC) workforce. Across all countries participating in TALIS Starting Strong, 95% of pre-primary education staff and 96% of staff in centres serving children under age 3 are women.
- Staff in the ECEC field have typically completed education beyond secondary school, with Japan, Korea and Turkey having the highest rates of ECEC staff with post-secondary education. Training specifically to work with children is not universal, ranging from 64% of staff in Iceland to 97% of staff in Germany. Overall education levels mask differences within some countries between staff who work as teachers and those who work as assistants.
- Staff with more education, particularly training specifically to work with children, and more responsibility in the target group report adapting their practices in order to facilitate children's learning, development and well-being (meaning that they tailor their approach in the classroom or playroom to individual children's development and interests).
- Ongoing professional development is one of the most promising ways to promote high-quality interactions between staff and children, encourage staff to learn about pedagogical innovations and support career progression. In all countries, a majority of staff (more than 75%) report having participated in professional development activities within the 12 months prior to the Survey, with particularly strong rates of participation in Korea and Norway. The content of this ongoing training often focuses broadly on child development and staff report a strong need for specific professional development focused on working with children with special needs.
- Online courses or seminars are an important component of professional development for pre-primary staff in several countries, including Chile, Israel, Korea and Turkey. In-person professional development activities are even more prevalent, except in Korea where these two types of training are equally common.
- Staff who may need it the most tend to participate less in professional development activities. Staff with a bachelor's degree or equivalent or higher are more likely to participate in professional development than their colleagues with lower levels of pre-service education.
- The most common barrier to participation in professional development activities across countries is a lack of staff to compensate for absences. Other barriers to professional development are more context-specific. For example, a lack of time related to family responsibilities is among the top three barriers for staff in Japan and Norway and in Israel's sector serving children under age 3.
- Staff in several countries report using more adaptive practices when they feel that ECEC staff are more valued by society. However, staff in all countries report feeling more valued by the children they serve and their parents or guardians than by society in general. Satisfaction with salaries is low. Even so, staff report high levels of overall job satisfaction, although staff in Japan and Korea report somewhat lower job satisfaction than staff in other countries.
- Lack of resources is a major source of work-related stress among ECEC staff. For centre leaders, a primary source of work-related stress is having too much administrative work associated with their jobs.
- Leaders of ECEC centres are influential in creating positive working conditions. They tend to have high levels of education and high rates of participation in professional development activities.

Introduction

The Starting Strong Teaching and Learning International Survey (TALIS Starting Strong) 2018 offers an international comparison of the characteristics of ECEC staff and leaders across the participating countries. Both staff and leaders were asked to provide information on themselves, their education, their work experience and the kinds of training they received in the process of becoming early childhood professionals. The Survey also covered opportunities for and barriers to ongoing professional development. TALIS Starting Strong gives staff and leaders the opportunity to provide insights into their current working conditions in terms of employment status and working hours, as well as job satisfaction and sources of work-related stress.

The ECEC workforce is at the core of the quality of ECEC. Staff and leaders can profoundly shape children's learning, development and well-being through their everyday interactions. Preparing staff to work with children, ensuring they can adapt their knowledge and skills to new needs, and attracting and retaining a high-quality workforce, are key challenges most countries face.

The goal of this chapter is to provide a comprehensive profile of staff and leaders working in the field of ECEC, both in the pre-primary education sector (Chile, Denmark, Germany, Iceland, Israel, Japan, Korea, Norway and Turkey) and in centres serving children under age 3 (Denmark, Germany, Israel and Norway). This profile includes basic characteristics such as gender, age and education, but also participation in and need for professional development, labour market status, sources of work-related stress and job satisfaction. Recognising that interactions between children and staff are crucial to the quality of these early childhood settings and are influenced by multiple aspects of the profession, the chapter explores how staff characteristics, education and training, and working conditions are associated with staff reports of process quality. The chapter then focuses on leaders and their background and opportunities for ongoing professional development. It closes with attention to equity in the distribution of staff serving socio-economically diverse children.

Findings from the literature on the early childhood education and care workforce and process quality

The demographic characteristics of the ECEC workforce are important for several reasons. First, a notable gender gap exists in the field, with far fewer males than females working in early childhood settings (Peeters, Rohrmann and Emilsen, 2015[1]). These gender differences are also evident among primary-school educators and also, to a lesser extent, in secondary schools (OECD, 2014[2]; OECD, 2019[3]), suggesting that the teaching profession is gendered beyond the ECEC sector. Although staff gender may not have a direct influence on children's experiences of quality in ECEC, the gender-divided workforce can reinforce traditional views of the roles of men and women, shaping young children's perspectives and expectations for themselves and their peers (Bauchmüller, Gørtz and Rasmussen, 2014[4]; Sumsion, 2005[5]).

Second, the age distribution of the ECEC workforce is valuable to help policy makers understand the extent to which young people are attracted to the field, as well as the proportion of the workforce that is nearing retirement. Years of experience are typically closely linked with the staff age, as older staff and leaders tend to have been in the ECEC field for longer. Findings from the early childhood literature are mixed with regard to the importance of staff work experience for enhancing quality in education and care settings (OECD, 2018[6]). However, evidence from school sector literature suggests there may be a non-linear trend between years of experience and student achievement, with each additional year of teacher experience being especially important during a teacher's first few years in the profession (Harris and Sass, 2011[7]). Although the goals of ECEC often differ from those of later schooling, the first few years of working in

ECEC may also be a time of learning the profession and mastering practices to support young children's learning, development and well-being.

Higher pre-service education among staff is associated with higher quality of interactions between staff and children (known as process quality) in ECEC settings (Manning et al., 2017[8]; OECD, 2018[6]). The exact level of staff education required to enhance quality is unclear, as most studies find a positive correlation between educational attainment and process quality, rather than specific improvements in process quality from one level of staff education to another (e.g. vocational training compared to bachelor's level training). However, increases in teacher training beyond secondary education (ISCED level 3) appear important for improvements in early childhood quality (Lin and Magnuson, 2018[9]). The focus and content of training for early childhood professionals likely also contributes to the quality of early education and care settings, for example whether the training focused on early childhood or specifically prepared staff to work in ECEC settings. The existing evidence in this area is inconclusive as there is a lack of systematic information on the type of pre-service training this workforce receives (Epstein et al., 2016[10]; OECD, 2018[6]).

Professional development or in-service training for ECEC staff is related to both better process quality and stronger learning and development for children (OECD, 2018[6]). Staff who participate in ongoing professional development are especially likely to provide more support for language and literacy development among children in their classroom or playroom. This may be related to a strong focus on this content area in many in-service training programmes (Markussen-Brown et al., 2017[11]). Professional development activities that use a coaching model or offer a clear feedback component as part of training are more effective in changing staff practices than programmes that lack these individualised aspects (Egert, Fukkink and Eckhardt, 2018[12]; Eurofound, 2015[13]). However, there is variability across countries and across contexts (e.g. types of early childhood settings) in the effectiveness of professional development, requiring further research to understand how investments in professional development can be most impactful for enhancing process quality (Slot, Lerkkanen and Leseman, 2015[14]).

Professional development can also help mitigate negative associations between staff stress and their interactions with young children (Sandilos et al., 2018[15]). Increasing public attention to the role of early education and care in building strong foundations for children's futures and rising expectations of parents on the quality of services may put pressure on staff (Jennings and Greenberg, 2009[16]; OECD, 2017[17]). This pressure, coupled with the low professional status and low salaries of ECEC staff compared to other professions, can contribute to staff burnout and diminish their capacity to engage in warm and responsive interactions with children (Madill et al., 2018[18]).

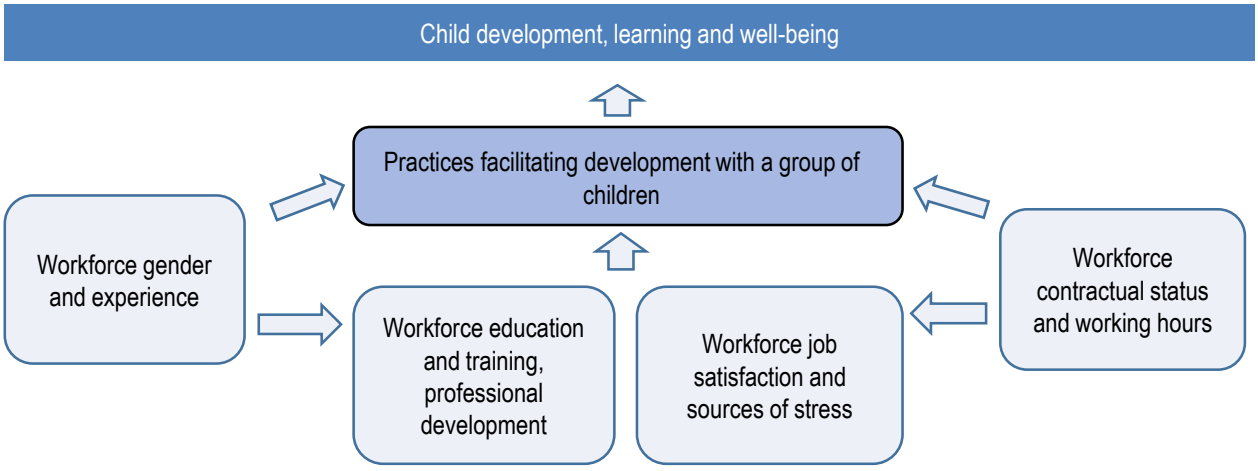
Job quality is important to ensure employee well-being and can be considered to comprise three aspects: labour market security; quality of the working environment; and earnings quality (Cazes, Hijzen and Saint-Martin, 2016[19]). Earnings quality tends to be low for ECEC staff, which may be detrimental for process quality (OECD, 2018[6]). The quality of the working environment for ECEC staff is only partially reflected in the research literature. Although staff stress is negatively associated with provision of high-quality education and care, very little data exist to understand how common workplace stress is in early childhood settings, how satisfied staff are with their jobs or the number of hours staff spend at work in this field. Regarding labour market security, staff turnover rates are seen as a common challenge in the ECEC sector (OECD, 2019[20]). Yet, how staff in the ECEC sector fare in terms of labour market security, including their contractual status and likelihood of permanent employment, is not well understood.

Leaders in ECEC centres have a central role in shaping working conditions for their staff (Sim et al., 2019[21]). Leaders' abilities to create working conditions that promote staff well-being and enhance process quality depend on the training, resources and support that leaders themselves receive. For example, leaders' participation in ongoing mentoring is associated with increases in observed process quality in their centres (Ressler et al., 2015[22]). Yet, as with job quality in ECEC, more research is needed to better

understand the characteristics and background of leaders that can best support quality and young children's learning, development and well-being.

Data from TALIS Starting Strong offer insights on staff perceptions of their own practices in several areas of process quality (see Chapter 2 for an overview). This chapter focuses on aspects of the workforce that the literature suggests are important for process quality and that are captured in TALIS Starting Strong (Figure 3.1).

Figure 3.1. The relationship between the workforce and process quality in TALIS Starting Strong



Workforce composition and pre-service training

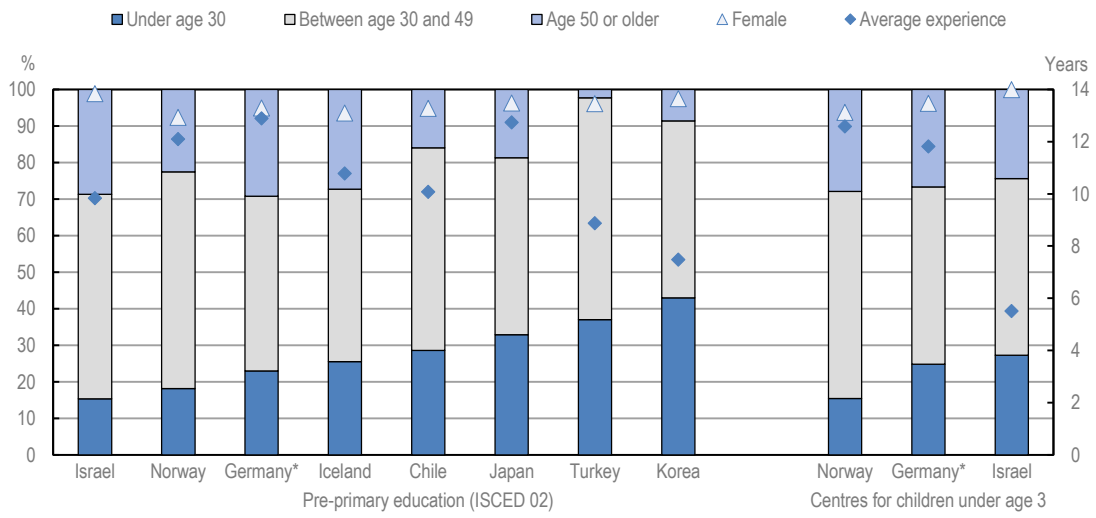
Understanding who works in ECEC settings is a major contribution of TALIS Starting Strong. ECEC systems are diverse, serving children at a wide range of developmental stages and addressing multiple goals around child learning, development and well-being. The composition of the workforce in terms of gender, age, experience and educational background is fundamental for identifying those who are attracted to ECEC as a profession and those who are likely to stay in the field. As ECEC is a rapidly growing area for government investment, few countries have regularly updated comprehensive information on their ECEC workforce. TALIS Starting Strong provides this overview for participating countries and also enables cross-country comparisons of the characteristics of staff and leaders.

In all participating countries, the vast majority of ECEC staff are female. The Nordic countries participating in the Survey have some of the highest rates of male participation as staff in early childhood education and care, although even in these cases fewer than 15% of staff are male. In contrast, 99% of staff in Israel are female in both pre-primary education and centres for children under age 3 (Figure 3.2).

Across countries, the greatest share of staff is between age 30 and age 49. Korea and Turkey depart from other countries with a larger share of staff under age 30 and a smaller share of staff above age 50. Staff age is also reflected in the years of experience they bring to the field. A majority of staff have more than five years of experience as an ECEC staff member. Yet, variation across countries is substantial, with three times more staff in centres for children under age 3 in Israel reporting less than five years of experience in the field than their colleagues in Norway, for example (Tables D.3.1 and D.3.2).

Figure 3.2. Characteristics of early childhood education and care staff

Staff reports of their gender, age and years of experience in early childhood education and care



* Estimates for sub-groups and estimated differences between sub-groups need to be interpreted with care. See Annex B for more information.
Note: *Countries are ranked in ascending order of the percentage of staff under age 30.*
Source: TALIS Starting Strong 2018 Database (Tables D.3.1 and D.3.2).

StatLink https://doi.org/10.1787/888934010717

Educational attainment

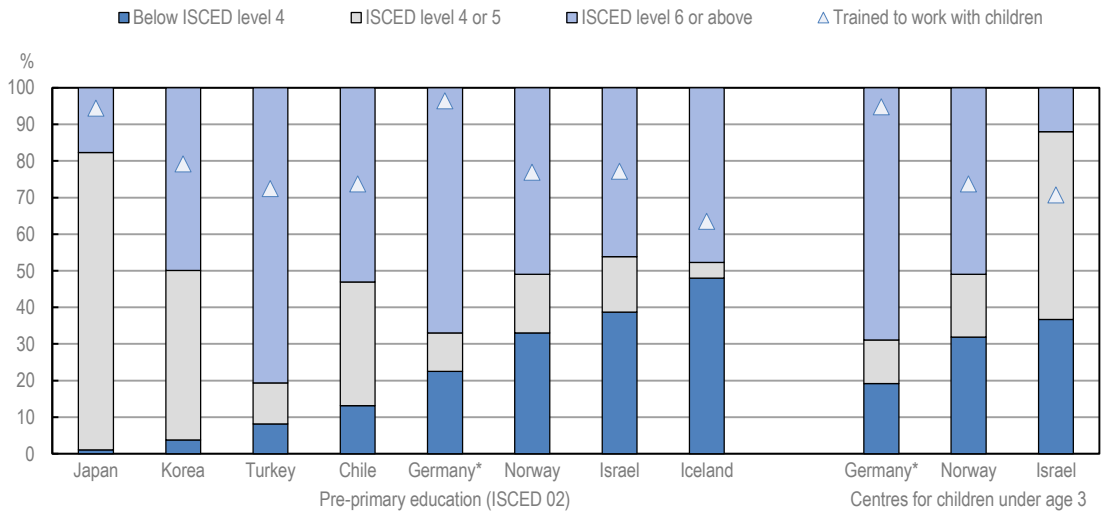
Providing education and care to young children requires specialised knowledge, skills and abilities. Pre-service training programmes can help future ECEC staff to develop competencies around understanding child development and how to support learning, development and well-being in early childhood. When pre-service training focuses specifically on preparing staff to create environments with rich, individualised interactions with children in their care, process quality can be enhanced in ECEC settings. Most countries have minimum requirements for staff to enter the ECEC profession. However, these requirements can vary depending on the staff role (e.g. teacher or assistant) and alternative pathways into the profession may be possible (see Box 3.1). TALIS Starting Strong provides a profile of the educational attainment of staff, including the different educational pathways that are possible for those working as teachers and those working as assistants, when relevant for particular countries.

In all participating countries, a majority of staff report having at least some post-secondary education (ISCED level 4 or above). This is important, given the benefits for ECEC quality seen among staff with education beyond secondary school (Lin and Magnuson, 2018[9]) (Figure 3.3). However, the educational profiles of staff vary quite substantially across countries. In Iceland, almost half of the ECEC workforce have not completed any post-secondary education, while in Japan a majority of staff have training at the tertiary level (ISCED level 4/5), and very few have a bachelor's degree or equivalent or higher (ISCED level 6 or above). In contrast, among all participating countries, Turkey has the highest percentage of ECEC staff with a bachelor's degree or equivalent or higher (see Annex A for further details).

Whether staff are trained specifically to work with children, which is also important for ECEC quality, is somewhat separate from their level of educational attainment. For example, in Japan, where vocational education and training programmes are most common for ECEC staff, nearly all staff are trained specifically to work with children. Germany, where staff often complete a vocationally-oriented bachelor's equivalent (see Box 3.1), and Japan have the highest rates of staff with this type of targeted training. In Turkey, where education at the level of a bachelor's degree or equivalent or higher is most typical for ECEC staff, more than a quarter of staff do not have training specifically to work with children. In Iceland, where almost half the workforce is highly educated and the other half only has secondary education, a third of staff lack specific training to work with children.

Figure 3.3. Educational attainment of staff and content of pre-service training

Staff reports of their highest level of education and whether they received training specifically to work with children



* Estimates for sub-groups and estimated differences between sub-groups need to be interpreted with care. See Annex B for more information.
Notes: Respondents in the "Below ISCED level 4" group are those whose highest education is at a secondary level or below. Respondents in the "ISCED level 4 or 5" group are those whose highest education is beyond secondary schooling but less than a bachelor's degree (or equivalent), including post-secondary non-tertiary education (generally vocationally oriented) and short-cycle tertiary education. Respondents in the "ISCED level 6 or above" group are those whose highest education is at the level of a bachelor's degree or equivalent or higher.
Countries are ranked in ascending order of the percentage of staff below ISCED level 4.
Source: TALIS Starting Strong 2018 Database (Tables D.3.1, D.3.2 and D.3.3).

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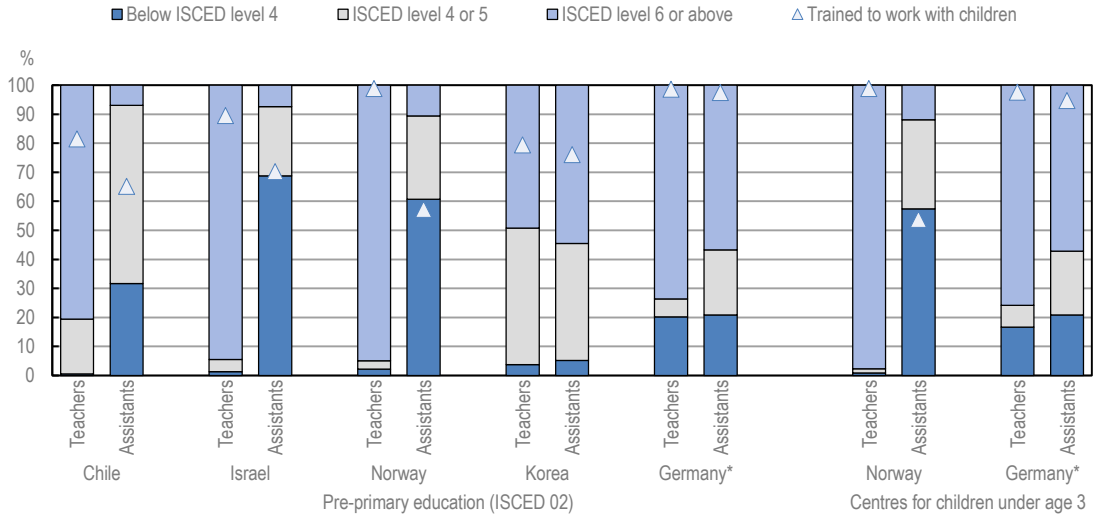
In some countries, teachers and assistants differ greatly in their educational background, according to the initial distinction in staff roles made to determine participation in TALIS Starting Strong (see Reader's Guide). For instance, in Chile, Denmark (with low response rates), Germany, Israel and Norway, it is more typical for pre-primary education teachers to have a bachelor's degree or equivalent or higher (ISCED level 6 or above) than for assistants to reach this level of educational attainment. Similarly, teachers in centres serving children under age 3 are more likely to have a bachelor's degree or equivalent or higher than are assistants in Denmark (with low response rates), Germany and Norway (Figure 3.4).

Similarly, teachers are more likely than assistants to have training specifically to work with children in the pre-primary sector in Chile, Denmark (with low response rates), Israel and Norway and in centres serving children under age 3 in Denmark (with low response rates) and Norway. Notably, teachers and assistants in Germany (in both the pre-primary sector and centres serving children under age 3) do not differ in having this type of training and, despite differences in their educational attainment compared with teachers, a large proportion of assistants in Germany have the equivalent of a bachelor's degree or above. Furthermore, in Korea, teachers and assistants do not differ in either aspect of their pre-service training.

Figure 3.4. Educational attainment of teachers and assistants and content of pre-service training

Staff reports of their highest level of education and whether they received training specifically to work with children, by teachers and assistants[1]



1. Teachers and assistants are distinguished based on the initial identification of staff members who were eligible to participate in TALIS Starting Strong 2018. This distinction between teachers and assistants is not used for Iceland, Japan, Turkey and Israel's sector serving children under age 3. See the Reader's Guide for more information.

* Estimates for sub-groups and estimated differences between sub-groups need to be interpreted with care. See Annex B for more information.

Notes: Respondents in the "Below ISCED level 4" group are those whose highest education is at a secondary level or below. Respondents in the "ISCED level 4 or 5" group are those whose highest education is beyond secondary schooling but less than a bachelor's degree (or equivalent), including post-secondary non-tertiary education (generally vocationally oriented) and short-cycle tertiary education. Respondents in the "ISCED level 6 or above" group are those whose highest education is at the level of a bachelor's degree or equivalent or higher.

Countries are ranked in ascending order of the percentage of teachers below ISCED level 4.

Source: TALIS Starting Strong 2018 Database (Tables D.3.1, D.3.2 and D.3.3).

StatLink https://doi.org/10.1787/888934010755

Box 3.1. Pathways to a career in the early childhood education and care workforce

In **Germany**, for staff to work as teachers in ECEC settings, the equivalent of a bachelor's degree (ISCED level 6) is typically required (OECD, 2019[23]). This training is often fulfilled through a vocationally-oriented bachelor's equivalent focused on child pedagogy. There are also some exceptions: in some *Länder*, ECEC staff may work as teachers if they have completed a relevant vocational education and training programme (ISCED level 4), have worked in the field for at least two years and have completed sufficient professional development hours related to pedagogy. In TALIS Starting Strong, approximately 65% of teachers report that their highest level of education is the vocationally-oriented bachelor's degree equivalent (ISCED level 6). In contrast, only around 4% of teachers report an academically focused bachelor's degree in pedagogy or child pedagogy. This rate has held constant over recent years, despite a growing number of universities that offer this type of academic qualification at bachelor's level (Oberhuemer, 2014[24]). Staff shortages in the field, as well as dissatisfaction with salaries among staff with academic bachelor's degrees, complicate efforts to encourage greater professionalisation of the workforce through higher education (Oberhuemer and Schreyer, 2017[25]).

One effort to address ECEC staff shortages, the Skilled Labour Initiative for Attracting Talent and Retaining Professionals in ECEC, centres on paid practice-integrated vocational training/apprenticeships (OECD, 2019[26]). This approach to vocational training provides a stipend, which is not usually the case in educator training programmes, to encourage more young people to pursue a career in ECEC. Interest in the programme is strong throughout Germany, with more applicants than the programme can accommodate (BMFSFJ, 2019[27]). Starting in 2019, the Good Day Care Act allows *Länder* to apply for funding from the federal government to improve ECEC in up to ten areas, including support for ECEC staff training (BMFSFJ, 2019[28]).

Since 2009, **Iceland** has required pre-primary teachers to have training at master's level (ISCED level 7). Furthermore, the Preschool Act of 2008 states that two-thirds of staff working with children in ECEC should be qualified teachers. Yet, teachers' salaries do not necessarily reflect this level of educational requirement, and shortages of qualified staff contribute to municipalities appointing staff without the required training to fill roles as teachers (OECD, 2019[23]; Statistics Iceland, 2017[29]). As the demand for pre-primary education places is greater than the supply, the need for qualified staff is particularly acute (Skoglun, 2018[30]).

To address these staff shortages, the Minister of Education, Science and Culture initiated a five-year action plan for 2019-24 (Ministry of Education Iceland, 2019[31]). This action plan includes paid internships and study grants for students in their final year of teacher training to assist them to complete their education on time and encourage them to enter the teaching profession as soon as possible after graduating. Students participating in the paid internships also receive on-site mentoring from experienced teachers. The Ministry is simultaneously providing funding to major universities to offer a three-semester course for experienced teachers to prepare them to engage in this type of mentoring. Finally, the action plan includes legislation on teacher education and recruitment (effective from the start of 2020) to adopt a competence framework and introduce a teacher licence based on competence.

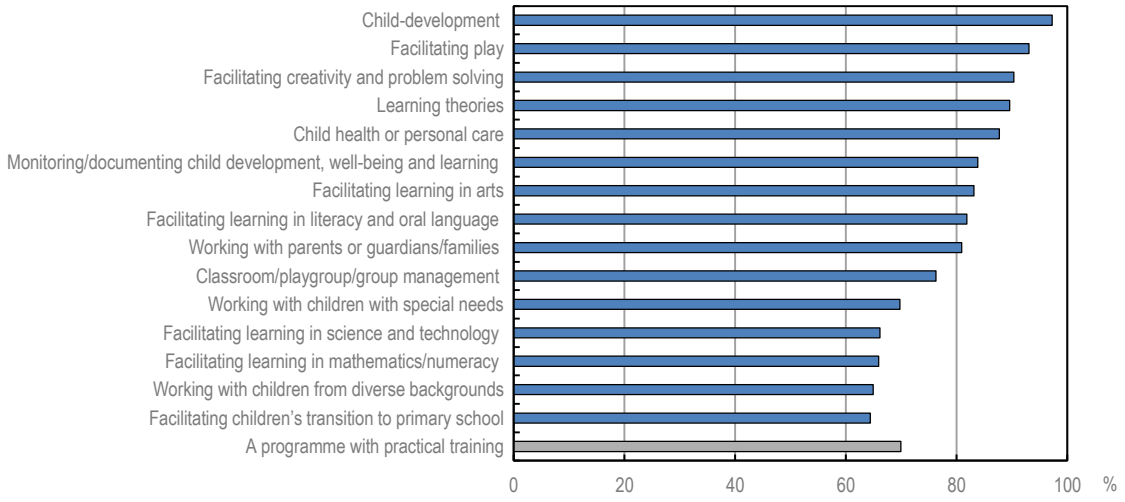
Note: This material was supplemented by additional inputs sent by the national authorities in Germany and Iceland, respectively.
Sources: BMFSFJ (2019[27]), *Specialists' Offensive for Educators: First daycare receives a certificate from the new federal program*; BMFSFJ (2019[28]), *The Good KiTa Law - More quality and less fees*; Ministry of Education Iceland (2019[31]), *Many teachers: actions in education*; Oberhuemer (2014[24]), *Access and quality issues in early childhood education and care: The case of Germany*; Oberhuemer and Schreyer (2017[25]), *Germany – ECEC Workforce Profile*; OECD (2019[23]), *Education at a Glance 2019: OECD Indicators*, https://doi.org/10.1787/f8d7880d-en; OECD (2019[26]), *Good Practice for Good Jobs in Early Childhood Education and Care: Eight policy measures from OECD countries*, https://oe.cd/pub/ecec2019; Skoglun (2018[30]), Iceland country profile 2018 Early Childhood Education and Care (ECEC); Statistics Iceland (2017[29]), *Fewer children and staff in pre-primary schools*.

Content of pre-service training

Among pre-primary education staff who received training specifically to work with children, the content areas covered by this training are broad. Nearly all staff (both teachers and assistants) receive training on child development (e.g. socio-emotional, motor, cognitive or self-regulation). In contrast, slightly less than two-thirds of pre-primary education staff report receiving training to work with children from diverse backgrounds (e.g. multicultural, economically disadvantaged, religious) or training on facilitating children's transitions to primary school (Figure 3.5; Tables D.3.4 and D.3.5).

Figure 3.5. Content of pre-service training to work with children

Average percentage of pre-primary education staff who received training in each of the following content areas and practical training as part of their formal education to work with children[1]



1. Data are available only for staff who received training specifically to work with children.
Source: TALIS Starting Strong 2018 Database.

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There is substantial variability across countries on whether these areas are part of initial training for pre-primary staff. For instance, training on facilitating children's transitions to primary school is nearly universal among staff in Turkey (90%), but only half of staff in Iceland report receiving pre-service training on this. Similarly, training in facilitating learning in science and technology is quite common in Norway (89%), but less than half of staff report this type of training in Chile, Iceland and Japan. Differences in pre-service training across countries tend to be even more pronounced among staff working in centres serving children under age 3.

Another aspect of pre-service training that may be important in preparing staff for their work with young children is practical training (i.e. hands-on experience as part of the training programme). Among staff who received training to work with children, there is considerable variation in whether practical training was also part of their training programme. Practical training is included for almost all staff in Japan, but for fewer than half of staff in Chile. Within countries that surveyed staff in both pre-primary settings and centres serving children under age 3, practical training is reported at similar rates by staff in both settings (Table D.3.3).

The relationship between process quality and staff characteristics and educational background

Many factors contribute to process quality in ECEC, as well as to the ways in which staff report on process quality. This section focuses on staff characteristics and their educational background, and their associations with two aspects of process quality when working with the target group. The first aspect of process quality examined is the adaptive practices staff use to facilitate children's development, learning and well-being in a broad range of areas, including both socio-emotional and cognitive domains. The second aspect is staff use of behavioural support, encompassing practices to ensure children's behaviour is supportive of learning, development and well-being in the classroom or playroom (see Chapter 2 for more details on these two aspects of process quality).

To examine the assumption that staff characteristics matter for how they report on process quality in the target group, regression analyses were conducted. Each of the two aspects of process quality is regressed on staff characteristics, while also taking into account aspects of the target group itself and aspects of the centre (see Annex C for details on the regression models and Table D.3.6). This analytic approach allows an examination of variability in process quality within countries, as well as comparisons across countries of the workforce characteristics that are associated with process quality.

In Chile and Iceland, pre-primary staff with ten years or more experience in the field of ECEC report that they more often adapt their practices in the classroom or playroom in order to meet the learning, development and well-being needs of all children, compared to staff with less experience. This is also the case among staff in centres serving children under age 3 in Germany.

Compared to pre-primary staff with a bachelor's degree or equivalent or higher, pre-primary staff with less education report using fewer adaptive practices in Chile, Germany and Israel. This is also the case for staff in centres serving children under age 3 in Germany. In contrast, in Turkey, pre-primary staff with less education report more frequently adapting their practices according to the needs of the children in their classroom or playroom than their peers with the equivalent of a bachelor's degree or higher (ISCED level 6).

In addition, compared to their colleagues who do not have training specifically to work with children, staff who do have this type of training report adapting their practices more to support all children's learning, development and well-being in pre-primary centres in Chile, Israel, Japan, Korea and Turkey, as well as in centres serving children under age 3 in Israel (Figure 3.6). As the percentage of staff who received training to work with children is relatively low in these countries (except for Japan), these results suggest that this type of training is one area that contributes to process quality in most countries. However, it is important to consider the self-reporting nature of the TALIS Starting Strong data. Staff who receive training specifically to work with children may also be more aware of the need to adapt their approaches and practices to learning, development and well-being requirements of the children in their classroom or playroom.

The role staff have in the target group is associated with their reports of the adaptive practices they use. Staff who report that they act as the leader or teacher in the target group report greater use of these adaptive practices than staff who report that they act as an assistant or in a more specialised role (e.g. working with an individual child). This is the case in pre-primary centres in Chile, Israel, Japan and Korea, as well as for centres serving children under age 3 in Denmark (with low response rates) and Israel.

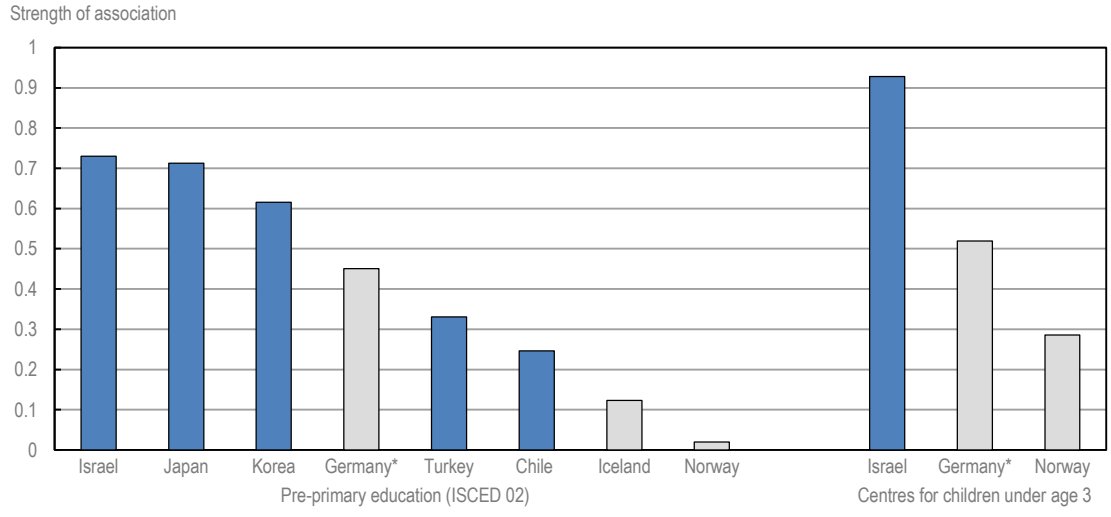
Turning to the practices staff use to provide behavioural support in the target group, there are fewer consistent links with staff characteristics and education, compared to the findings for staff adapting their practices. Nonetheless, compared to pre-primary staff with a bachelor's degree or higher, pre-primary staff with less education report using more behavioural supports in Germany and Iceland. In contrast, in Israel's centres serving children under age 3, compared to staff with the equivalent of a bachelor's degree or higher, staff with less education report using fewer behavioural supports in their target groups.

Furthermore, in both Iceland and Turkey, staff who have between five and ten years of experience in ECEC report using fewer behavioural supports than staff who have ten years' experience or more.

Together, these findings support and extend the literature on the role of staff background and training for enhancing process quality in ECEC settings. Notably, some findings reflect trends in multiple countries, while others highlight strong associations for process quality with staff characteristics and educational attainment in only a few countries. For instance, more experienced pre-primary staff in Chile, Iceland and Turkey, as well as more experienced staff in centres serving children under age 3 in Germany, report different use of practices in their target groups than their less experienced colleagues. In these countries, policies to support staff with less and more experience to work together and learn from one another may be meaningful to enhance process quality for young children. In contrast, a trend towards engaging in more practices related to process quality is seen across many countries among staff who received training specifically to work with children.

Figure 3.6. Strength of association between staff use of adaptive practices and their training specifically to work with children

Staff reports of their use of adaptive practices, staff who received training specifically to work with children compared to staff who did not receive this training



* Estimates for sub-groups and estimated differences between sub-groups need to be interpreted with care. See Annex B for more information.
Notes: Coefficients from the OLS regression of the indicator "Adaptive practices" on having received training to work with children. Other variables in the regression include: staff educational attainment; experience; role in the target group; working hours; contractual status; number of children in the target group (quartiles); number of staff per child in the target group (quartiles); percentage of children from socio-economically disadvantaged homes in the target group; centre urban/rural location; and public/private management. See Annex C for more details on variables included in the regression model.
Statistically significant coefficients are marked in blue (see Annex C).
Countries are ranked in descending order of the unstandardised regression coefficients.
Source: TALIS Starting Strong 2018 Database (Table D.3.6).

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It was not possible to explore the associations between process quality and staff gender due to the small number of male staff members across countries. This situation underscores the importance of countries encouraging gender equity in ECEC, particularly given staff shortages in many places (see Box 3.1).

Workforce professional development: Needs and content, barriers and support

Continuous professional development is one of the most promising ways to enhance process quality in ECEC settings. As an integral part of the professionalisation of the ECEC workforce, understanding the needs of ECEC staff is essential to inform policies on and provision of professional development that can best support quality. Staff participating in TALIS Starting Strong reported on their participation in professional development activities in the 12 months prior to the Survey, including the content and format of any such activities (e.g. attending courses, receiving coaching). Staff also reported on the areas in which they have the greatest need for further professional development, incentives to participate in professional development and barriers to their participation in ongoing training.

Participation in professional development

In all countries, a majority of staff (more than 75%) report having participated in professional development activities within the 12 months prior to the Survey. In-person attendance at a course or seminar is most typical, but participation in online courses or seminars is an important component of professional development in the pre-primary sector in several countries, including Chile, Israel, Korea and Turkey. Korea stands out with participation in in-person and online professional development activities occurring at similar rates (Table D.3.7).

Despite overall strong rates of participation in professional development, there are differences in participation related to staff background, both across and within countries. Across countries, there is variability in participation in professional development among staff with less than a bachelor's degree or equivalent, ranging from 66% in pre-primary settings in Israel to nearly universal participation in Korea. Within countries, staff with higher levels of pre-service education (equivalent to ISCED level 6 or above) are more likely to report participation in professional development activities in the previous year than their colleagues with lower pre-service educational attainment in most countries (Figure 3.7). Thus, as in other sectors, staff who may have the greatest need for in-service training to complement their pre-service training are the least likely to access ongoing professional development (OECD, 2013[32]). This situation may be related to staff preferences (for example, more educated staff may enjoy engaging in ongoing training) or to contractual and role differences within centres (for example, staff with more education may have more responsibilities and requirements for ongoing training). In either case, policies can support more balanced access to ongoing professional development by requiring participation from staff at all levels, as well as by supporting this participation in equitable ways.

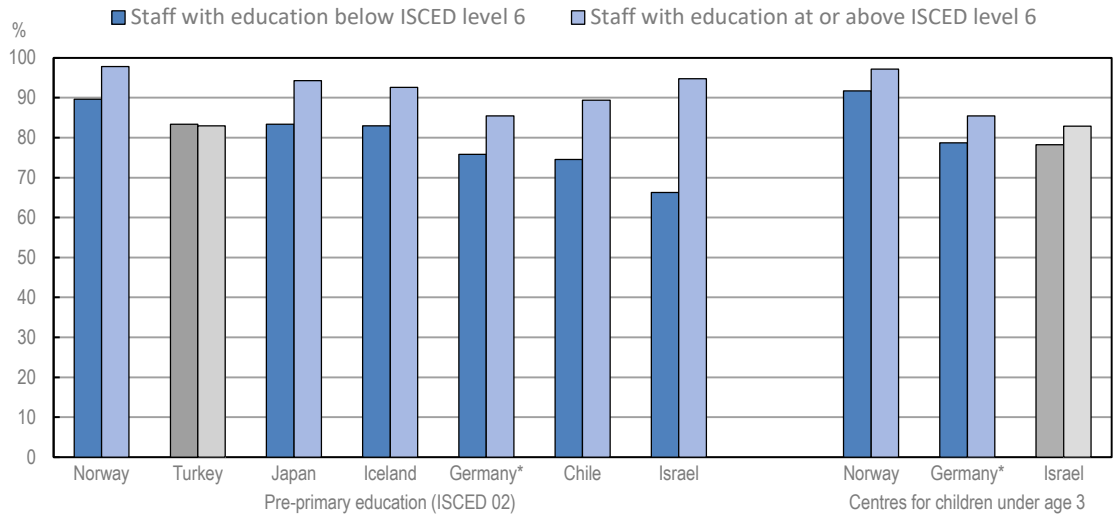
Professional development needs

Across countries, with the exception of Korea, staff report a high level of need for professional development on working with children with special needs. Notably, this finding mirrors results for the professional development needs reported by lower secondary teachers, suggesting a growing awareness across levels of the education system of the importance of this topic (OECD, 2019[3]).

Working with dual/second language learners is another area where staff in multiple countries participating in TALIS Starting Strong report a strong need for ongoing training. Other common areas of need for professional development include: working with children from diverse backgrounds (e.g. multicultural, economically disadvantaged or religious); working with parents or guardians/families; general child development (e.g. socio-emotional, motor, cognitive or self-regulation); and facilitating creativity and problem solving (Table 3.1).

Figure 3.7. Participation in professional development activities by pre-service educational attainment

Staff reports of participation in professional development for those who have a bachelor's degree or equivalent or higher (ISCED level 6 or above) compared to staff with lower educational attainment



* Estimates for sub-groups and estimated differences between sub-groups need to be interpreted with care. See Annex B for more information.
Notes: Statistically significant differences are marked in blue (see Annex C).
Results for Korea are not displayed, due to the small number of staff who did not participate in any professional development activities in the 12 months prior to the Survey.
Countries are ranked in descending order of the percentage of staff with educational attainment below a bachelor's degree or equivalent (ISCED level 6) who participated in professional development in the 12 months prior to the Survey.
Source: TALIS Starting Strong 2018 database.

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In a few places (pre-primary settings in Denmark [with low response rates], Germany and Korea, and centres serving children under age 3 in Denmark [with low response rates], Germany and Norway), staff who report working with a larger proportion of children with special needs (i.e. 11% or more children in the target group) report a greater need for professional development in this area. However, in other places, there is no association between the proportion of children with special needs in the target group and staff interest in this topic for ongoing training (Table D.3.10). This finding suggests that staff may notice a need for additional training even when working with a small number of children with special needs or as preparation for the possibility of serving children with special needs throughout their careers.

In several countries, staff who report working with more children whose first language is different from the language(s) used in the centre (i.e. 11% or more children in the target group whose first language is different from the language(s) used at the ECEC centre) also report a greater need for professional development on working with dual/second language learners. This is the case for staff in pre-primary settings in Denmark (with low response rates), Germany, Iceland, Israel, Japan and Norway, as well as for staff in centres serving children under age 3 in Denmark (with low response rates), Germany and Norway. The percentage of staff working with groups with 11% or more children whose first language is different from the language(s) used in the centre is particularly high in Germany, Iceland and Norway (Chapter 2, Figure 2.18). Notably, in a few countries, reported needs for professional development are also higher in additional areas (e.g. working with parents, working with children from diverse backgrounds) among staff working with more children whose first language is different from the language(s) used in the centre than among staff working with fewer such children (Table D.3.10).

Table 3.1. Top three professional development needs

Professional development content categories where staff most often reported a "high level of need," among 16 options[1]

	Child-development	Facilitating play	Facilitating creativity and problem solving	Facilitating learning in literacy and spoken language	Facilitating children's transition from ECEC to primary school[2]	Working with parents or guardians/ families	Working with children with special needs	Group management	Working with children from diverse backgrounds	Working with dual/second language learners
Pre-primary education (ISCED 02)										
Chile					3		1			2
Germany						3	1			2
Iceland							1	3		2
Israel	3		2				1			
Japan	3					2	1			
Korea		3	1			2				
Norway							1		3	2
Turkey[3]			3				1		2	
Denmark*				2			1			3
Centres for children under age 3										
Germany	3					2	1			
Israel	2		3				1			
Norway							1		3	2
Denmark*							1		3	2

1. Content categories that were not ranked among the top three professional development needs in any country are not shown. These categories include: Child health or personal care (e.g. hygiene); Facilitating learning in literacy and spoken language; Facilitating learning in science and technology; Facilitating learning in arts; Learning theories (e.g. socio-cultural, behavioural, cognitive, constructivist); and Facilitating children's transitions from ISCED level 01 to ISCED level 02 (asked only of staff in centres serving children under age 3).
2. Only pre-primary education (ISCED level 02) staff were asked about facilitating children's transition from ECEC to primary school.
3. In Turkey only 15 options were presented. Staff were not asked about their need for professional development related to working with dual/second language learners.
* Low response rates in the survey may result in bias in the estimates reported and limit comparability of the data.
Source: TALIS Starting Strong 2018 Database (Tables D.3.8 and D.3.9).

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Content of professional development and alignment with needs

The content of professional development staff received in the 12 months prior to the Survey is only partially aligned with their reported needs. For example, in contrast to the strong reported need for ongoing training to work with children with special needs, only in Japan is this content area among the top three covered in recent professional development activities (Table 3.2). Instead, child development (e.g. socio-emotional, motor, cognitive or self-regulation) and facilitating play are among the most commonly covered content areas in staff professional development activities. Staff in several countries report an ongoing need for training on child development, regardless of their participation in professional development on this topic. This suggests that staff are interested in continuing to develop their knowledge and skills in this foundational area.

Table 3.2. Top three content areas covered by professional development in the past year

Staff report of content covered in professional development activities, among 16 options[1]

	Child development	Facilitating play	Facilitating creativity and problem solving	Facilitating learning in literacy and spoken language	Working with parents or guardians/ families	Working with children with special needs	Monitoring/ documenting child development, well-being and learning	Child health or personal care (e.g. hygiene)
Pre-primary education (ISCED 02)								
Chile	1	2	3					
Germany	1				2		3	
Iceland	2	3		1				
Israel	1	3	2					
Japan	1	2				3		
Korea	2	3						1
Norway	1	2	3					
Turkey[2]	1	2						3
Denmark*	1	2		3				
Centres for children under age 3								
Germany	1				2		3	
Israel	1	2	3					
Norway	1		3	2				
Denmark*	1	2		3				

1. Content categories that were not ranked among top three content areas covered by professional development in the past year in any country are not shown. These categories include: Facilitating learning in mathematics/numeracy; Facilitating learning in science and technology; Facilitating learning in arts; Facilitating children transitions from ISCED level 01 to ISCED level 02 (asked only of staff in centres for children under age 3); Facilitating children's transition from ECEC to primary school (asked only of staff in pre-primary education [ISCED level 02]); Learning theories (e.g. socio-cultural, behavioural, cognitive, constructivist); Classroom/playgroup/group management; Working with children from diverse backgrounds (e.g. multicultural, economically disadvantaged, religious); and Working with dual/second language learners.
2. In Turkey only 15 options were presented. Staff were not asked about their participation in professional development related to working with dual/second language learners.
* Low response rates in the survey may result in bias in the estimates reported and limit comparability of the data.
Source: TALIS Starting Strong 2018 Database (Tables D.3.11 and D.3.12).

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Receiving ongoing training in a particular area may stimulate staff interest in continuing to receive related professional development opportunities. As a result, a reported need for professional development may not be the same as a lack of access to specific training opportunities. This idea is consistent with the broad participation in and ongoing need for training in child development. Similarly, findings from lower secondary teachers over a five-year period show increases in both the reported need for professional development on teaching students with special needs and the participation in training on this topic (OECD, 2019[3]). Thus, participation in professional development on a particular topic may be well aligned with staff needs, even if the reported need continues to be high. Even so, countries and professional development providers can be attentive to the needs reported by ECEC staff in order to ensure that relevant professional development opportunities are available to meet staff needs. For ECEC staff, increased provision of training opportunities on working with children with special needs must be considered.

With the exception of professional development activities focused on facilitating learning in literacy and oral language, other traditional academic areas are not among the top three content areas where staff report ongoing training. Therefore, it is not surprising that staff report engaging in more activities related to

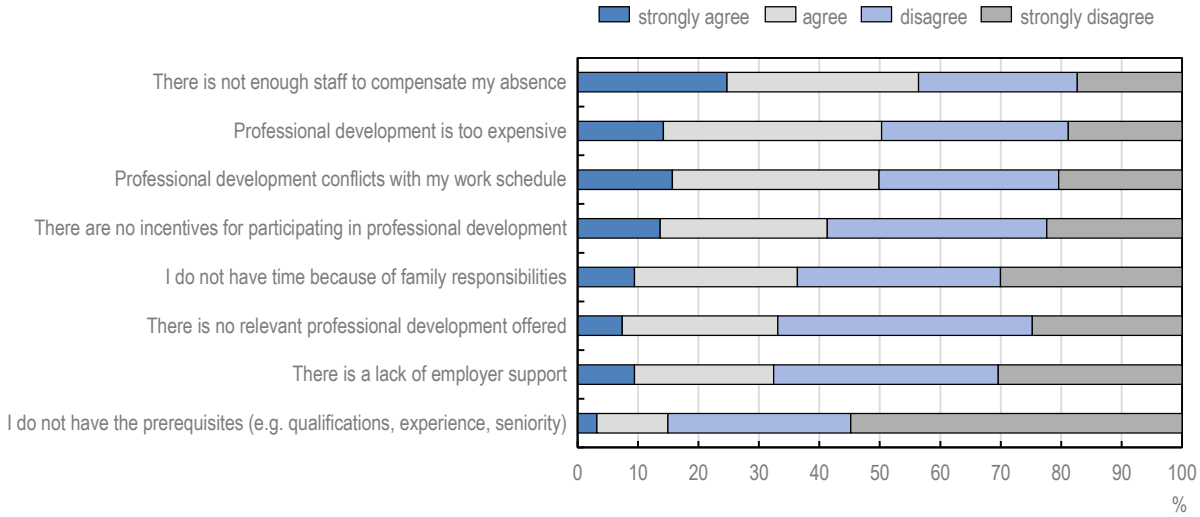
supporting children's learning and development in the areas of language and literacy than activities related to mathematics/numeracy and that they also place a lower value on developing children's skills or abilities in math, science and technology (see Chapter 2).

Barriers to and support for participation in professional development

The most prevalent barrier to participation in professional development for staff in both pre-primary education and in centres for children under age 3 is a lack of staff to compensate for absences. This is the number one barrier to participation in professional development in all countries and populations, except for Chile. In Chile, staff report that their top barrier is that professional development activities are too expensive, which is also a common barrier in other participating countries. Among pre-primary education staff, conflicts with work schedules are also among the top barriers to participation in ongoing professional development. Other common barriers across countries include professional development activities conflicting with work schedules and a lack of incentives for participation in such activities (Figure 3.8; Table D.3.13).

Figure 3.8. Barriers to participation in professional development

Average percentage of pre-primary education staff across countries who agree that the following are barriers to their participation in professional development



Note: *Response options are ranked in descending order of the percentage of staff who reported they "strongly agree" or "agree" that each is a barrier to their participation in professional development.*
Source: TALIS Starting Strong 2018 Database.

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Lower secondary teachers report that the top three barriers to their participation in professional development activities are conflicts with their work schedules, a lack of incentives for ongoing professional development and the cost of such activities (OECD, 2019[3]). These teachers were not asked about the availability of other staff to compensate for their absences during participation in professional development, but otherwise the parallels between the barriers to participation in professional development for lower secondary teachers and ECEC staff are striking. The similarity of responses from ECEC staff and lower secondary education teachers suggests that education systems as a whole can better address barriers to support staff and teachers to engage in continuous professional development, for instance by granting release time from their work with children or students. However, the ECEC sector faces the challenge of addressing staff shortages in order to facilitate greater time for staff participation in professional

development. This will require encouraging new staff to join the sector, as well as supporting ongoing learning among existing staff (see Box 3.1).

Additional barriers to participation in professional development tend to be more country-specific. For example, a lack of time related to family responsibilities is among the top three barriers for staff in pre-primary education in Japan and Norway and in centres serving children under age 3 in Israel and Norway. A lack of relevant professional development opportunities is among the top three barriers for staff in centres serving children under age 3 in Germany (Table D.3.13). However, in Germany, staff report fewer barriers to professional development overall, compared to other countries (Table D.3.14).

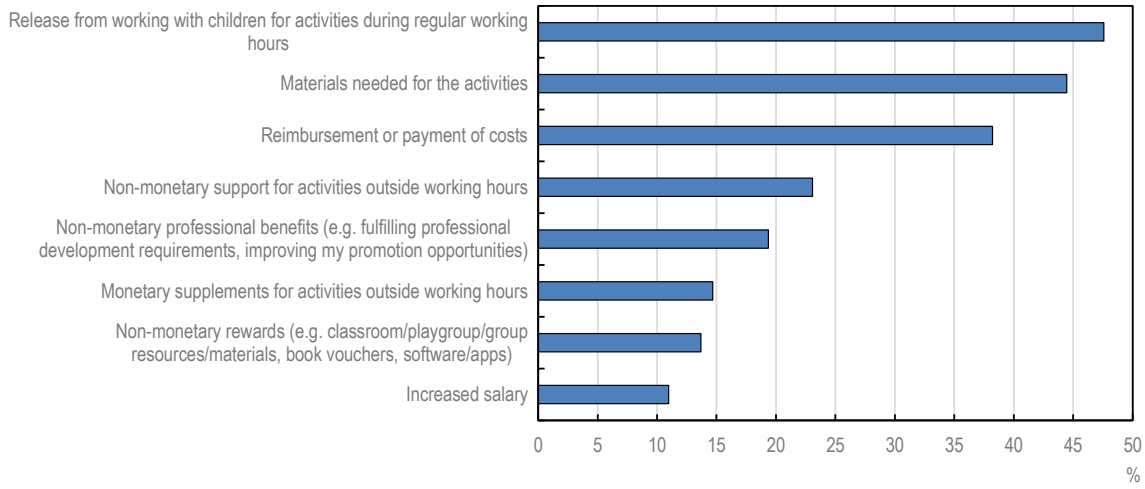
Providing adequate support for participation in professional development activities can help reduce the barriers staff face and also influence the type of professional development activities in which staff engage. Among staff who participated in some form of professional development in the 12 months prior to the Survey, TALIS Starting Strong asked about the types of support they had received. Release from working with children for activities during regular working hours is the most common support received across countries, although less than half of staff who participated in professional development in the past year benefitted from this. Direct support for participation in the professional development activity, such as providing the materials needed for the activities or payment of the costs of participation, are the next most common types of support, with less direct types of support (e.g. professional benefits or non-monetary rewards) being less common (Figure 3.9). Staff in centres serving children under age 3 report support for participation in professional development similar to that of their pre-primary colleagues, with the exception of Israel. In Israel, staff in centres serving children under age 3 generally report more support for their participation in professional development activities than staff in pre-primary settings, particularly around receiving materials needed for the activities and monetary supplements for activities outside working hours (Table D.3.15).

Consistent with the lower barriers to participation in professional development reported by staff in Germany, nearly all staff in Germany who participated in professional development in the 12 months prior to the Survey also report receiving some form of support for this. In contrast, 43% of staff in Turkey who participated in a professional development activity report that they received no support to do so. The specific types of support that staff receive also vary somewhat across countries. For instance, staff in Germany and Japan are more likely to report receiving release from working with children during regular working hours and reimbursement or payment of costs associated with the activity than staff in other countries. Although monetary incentives are less common overall, staff in Korea and Israel are the most likely to report receiving a salary increase related to their participation in professional development activities (Table D.3.15).

Receiving release time from working with children for professional development activities during regular working hours is particularly important for increasing the likelihood that staff will participate in the most common type of professional development, attending an in-person course or seminar. Beyond this, participation in different types of professional development is associated with some differences in the types of support received. Tailoring support to specific types of professional development is important for promoting participation in activities that have clear evidence of enhancing process quality, such as coaching with an external person. The types of support that are useful for this type of professional development may be very different from those that can encourage staff to further their education by participating in a qualification programme. TALIS Starting Strong data show that staff participating in coaching with an external person report receiving more non-monetary rewards (e.g. resources, materials, book vouchers or software/apps for their classrooms or playroom) than staff who do not participate in coaching. Among staff participating in a qualification programme (e.g. a degree programme), support in the form of increased salary is most common (Figure 3.10).

Figure 3.9. Support for participation in professional development

Average percentage of pre-primary staff across countries who participated in professional development in the previous year and received each of the following types of support

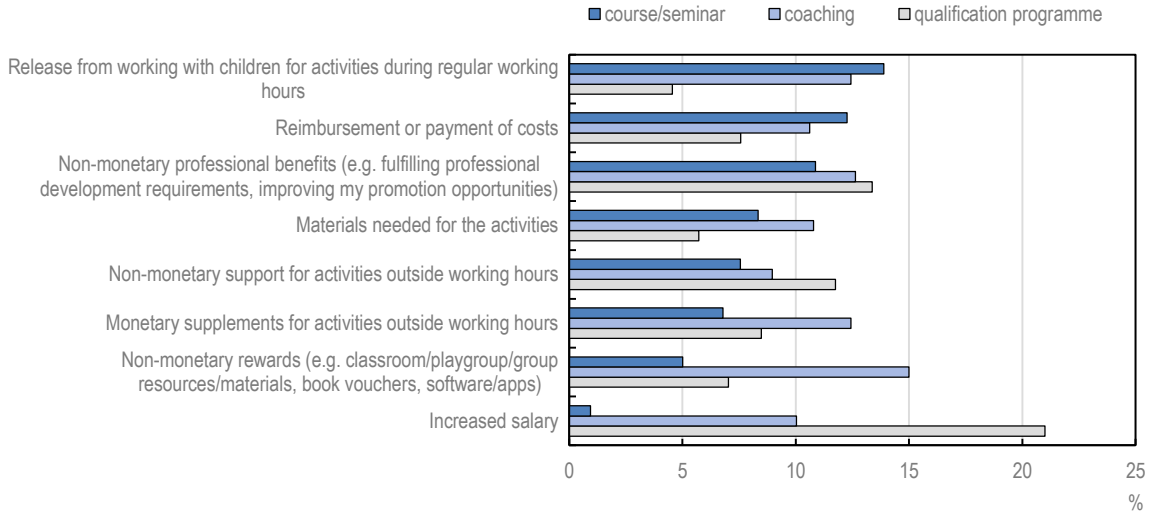


Note: Results are based on reports from staff who participated in at least one professional development activity in the 12 months prior to the Survey.
Source: TALIS Starting Strong 2018 Database.

StatLink https://doi.org/10.1787/888934010888

Figure 3.10. Participation in professional development activities by support received

Average differences in pre-primary education staff reports of their participation in three types of professional development by whether or not each of the following types of support for participation in professional development were available



Notes: Results are based on reports from staff who participated in at least one professional development activity in the 12 months prior to the Survey.
Support types are ranked in descending order of the difference in participation in a course or seminar.
Source: TALIS Starting Strong 2018 Database

StatLink https://doi.org/10.1787/888934010907

Working conditions for early childhood education and care staff

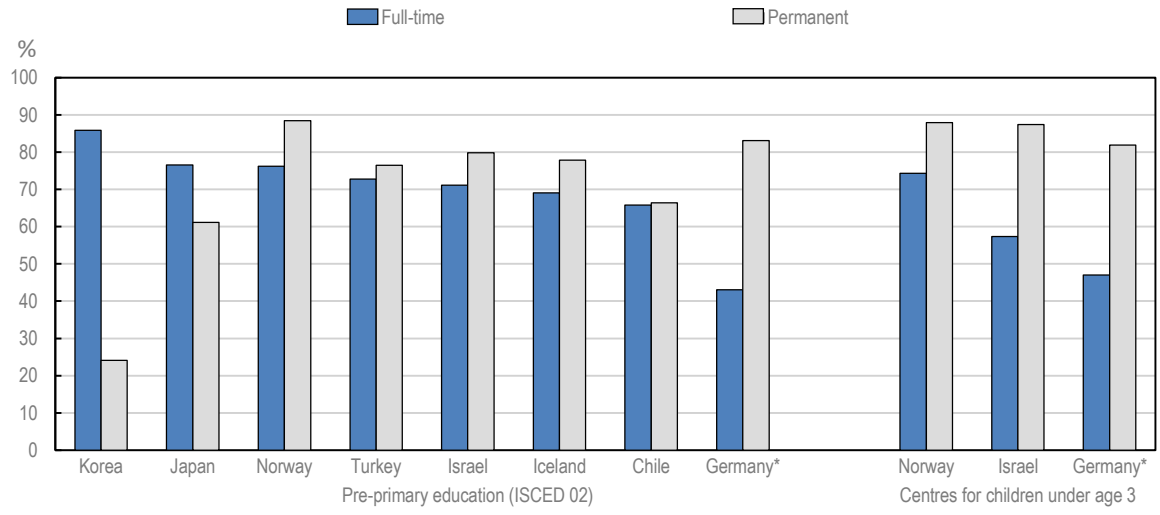
The OECD Job Quality Framework (Cazes, Hijzen and Saint-Martin, 2016[19]) is a useful tool for understanding the major dimensions of job quality in the ECEC sector. The Framework identifies three objective, measurable dimensions of job quality: labour market security; quality of the working environment; and earnings quality. Together, these dimensions inform labour market participation and performance within a given sector. For the field of ECEC, the stability of the labour force and the commitment and ability of staff to provide children with high-quality environments are critical. Thus, it is also critical to understand staff perceptions of job quality. TALIS Starting Strong offers ECEC staff an opportunity to share their perspectives on job satisfaction and sources of work-related stress. These reports can be understood in the context of staff employment characteristics (i.e. contractual status and working hours), as well as in relation to process quality.

Labour market security: Contractual status and working hours

TALIS Starting Strong data show that ECEC staff working hours are variable across countries, with part-time positions being most common in Denmark (with low response rates) and Germany and in centres in Israel serving children under age 3, and least common in Korea. A majority of ECEC staff in all countries have permanent contracts, with the exception of Korea, where fixed-term contracts are most common (Figure 3.11).

Figure 3.11. Staff contractual status and working hours

Percentage of staff with permanent contracts and full-time working hours



* Estimates for sub-groups and estimated differences between sub-groups in the TALIS Starting Strong 2018 data need to be interpreted with care. See Annex B for more information.
Note: *Countries are ranked in descending order of the percentage of full-time staff.*
Source: TALIS Starting Strong 2018 Database (Tables D.3.1 and D.3.2).

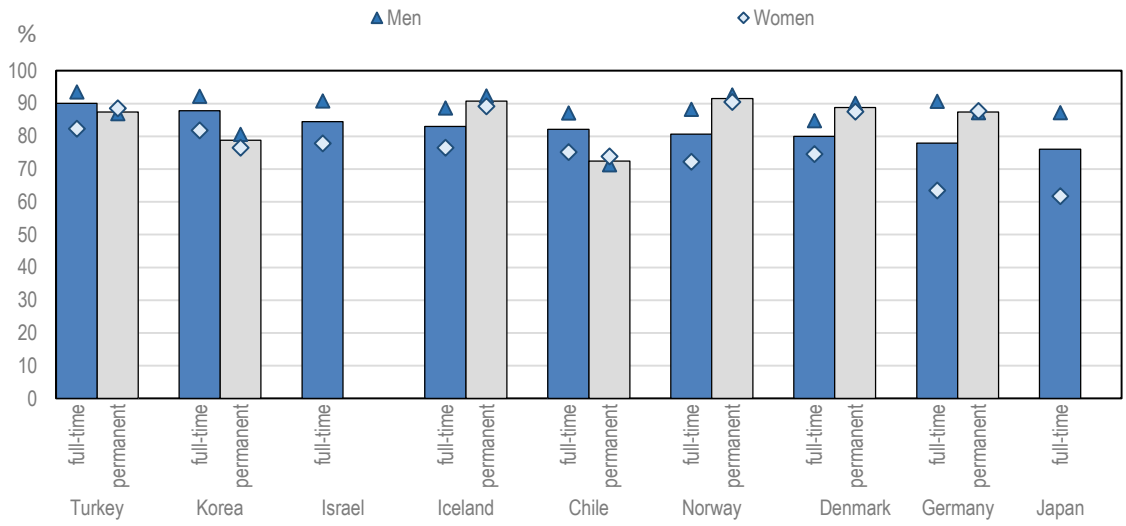
StatLink https://doi.org/10.1787/888934010926

In several countries (Chile, Denmark [with low response rates], Germany, Iceland, Israel and Turkey), ECEC staff have somewhat lower rates of full-time employment both compared to the overall labour force and compared to women specifically. The comparison to women in the overall workforce is meaningful, given that the vast majority of ECEC staff are women (Figure 3.12). Part-time working hours may represent some degree of preference among ECEC staff, particularly if they are seeking to balance family demands with work (OECD, 2019[33]). However, the TALIS Starting Strong data cannot disentangle staff preferences for part-time or full-time working hours from the availability of these different schedules and a centre's expectations or requirements of its staff.

In some countries (Iceland, Korea and Turkey), ECEC staff have somewhat lower rates of permanent employment than the overall labour force. Lower labour market security can make it difficult to attract new staff or retain existing staff. Moreover, for workers who do not have permanent contracts, well-being can be compromised (Cazes, Hijzen and Saint-Martin, 2016[19]), and these employees may also have access to fewer opportunities for job advancement, such as through professional development.

Figure 3.12. Labour force contractual status and working hours

Percentage of the overall labour force with permanent contracts and full-time working hours (2018)



Notes: Data on the percentage of permanent contracts for the overall labour force is not available for Israel or Japan.
Countries are ranked in descending order of the percentage of full-time workers.
Source: OECD (2019[34]), *OECD Labour Force Statistics (database)*, https://stats.oecd.org (accessed on 11 July 2019).

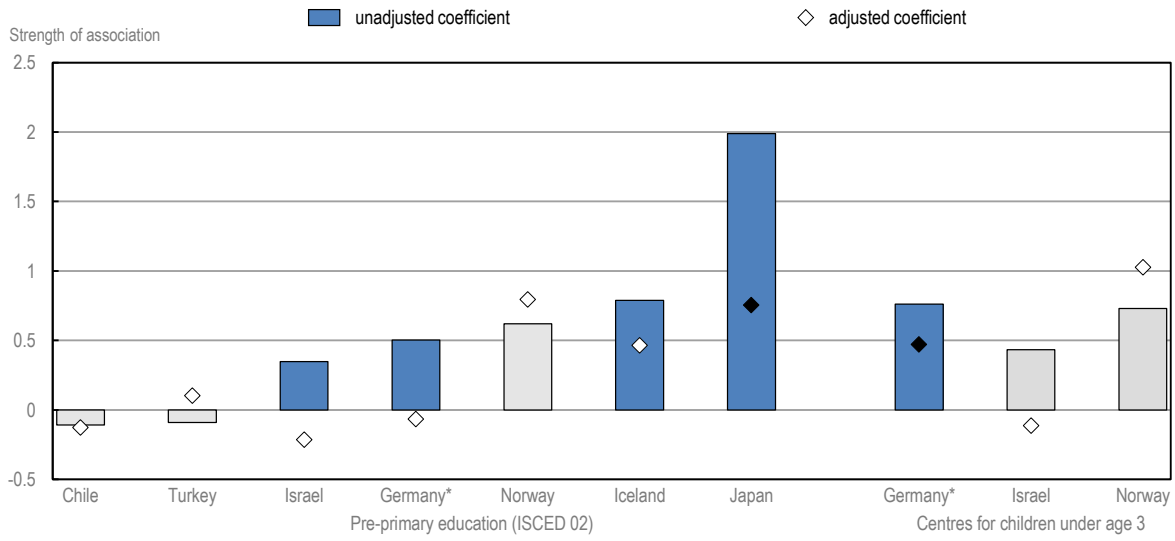
StatLink https://doi.org/10.1787/888934010945

In several countries participating in TALIS Starting Strong, staff who have fixed-term contracts are less likely to have participated in professional development activities in the 12 months prior to the Survey than their colleagues who have permanent contracts (Table D.3.16). This is the case in the pre-primary sector in Germany, Iceland, Israel and Japan and the sector for children under age 3 in Germany (Figure 3.13, unadjusted coefficients). However, when staff and centre characteristics are accounted for, particularly staff education and pre-service training, only in Japan's pre-primary sector and in centres serving children under age 3 in Germany are staff with fixed-term contracts less likely to participate in professional development than their colleagues with permanent contracts (Figure 3.13, adjusted coefficients). This pattern of findings suggests that in these countries and sectors, the type of contract staff members receive (i.e. permanent or fixed term) may determine their opportunities for ongoing professional development in

addition to other staff characteristics (e.g. pre-service educational attainment). In these places, staff with fixed-term contracts would benefit from targetted opportunities to engage in professional development.

Figure 3.13. Strength of association between participation in professional development and contractual status

Staff reports of their participation in professional development activities in the 12 months prior to the Survey for staff who have a permanent contract versus those who do not



* Estimates for sub-groups and estimated differences between sub-groups need to be interpreted with care. See Annex B for more information.
Notes: Results for Korea are not displayed, due to the small number of staff who did not participate in any professional development activities in the 12 months prior to the Survey.
Coefficients from the logistic regression of the indicator "Participation in professional development" on having a permanent contract. The results from this bivariate model are displayed as the unadjusted coefficients. Other variables in the regression for the adjusted coefficients include: staff educational attainment; training to work with children; experience; role in the target group; working hours; number of children in the target group (quartiles); number of staff per child in the target group (quartiles); percentage of children from socio-economically disadvantaged homes in the target group; centre urban/rural location; and public/private management. See Annex C for more details on variables included in the regression model.
Statistically significant coefficients are marked in blue/black (see Annex C).
Countries are ranked in ascending order of the unstandardised, unadjusted regression coefficients.
Source: TALIS Starting Strong 2018 Database (Table D.3.16).

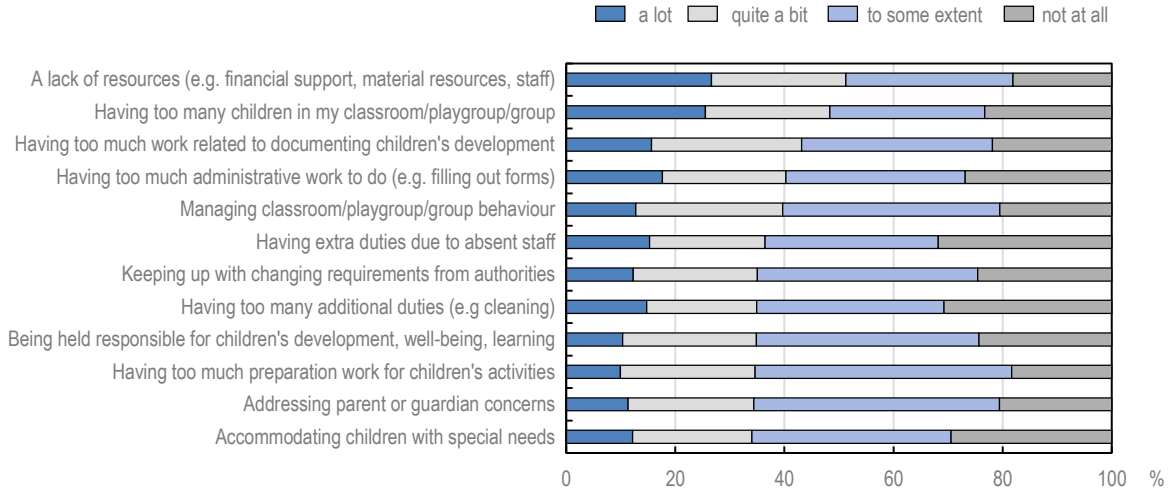
StatLink https://doi.org/10.1787/888934010964

Quality of the working environment: Sources of work-related stress and job satisfaction

Among sources of work-related stress that staff rate as causing them "a lot" of stress, a lack of resources is among the top three across all countries, for both pre-primary education and centres serving children under age 3. Another common source of work-related stress across countries is having too many children in the classroom/playroom. Other sources of work-related stress vary across countries. For example, staff in Iceland report comparatively little stress related to documenting children's development, and staff in Korea report comparatively high stress from having too much administrative work (Table D.3.17). Staff generally do not perceive their workload related to preparing for activities with children or being held responsible for children's development as key sources of work-related stress (Figure 3.14).

Figure 3.14. Staff sources of work-related stress

Average percentage of pre-primary education staff who report that the following are a source of stress in their work



Note: *Response options are ranked in descending order of the percentage of staff who rated them as "a lot" or "quite a bit" a source of stress.*
Source: TALIS Starting Strong 2018 Database.

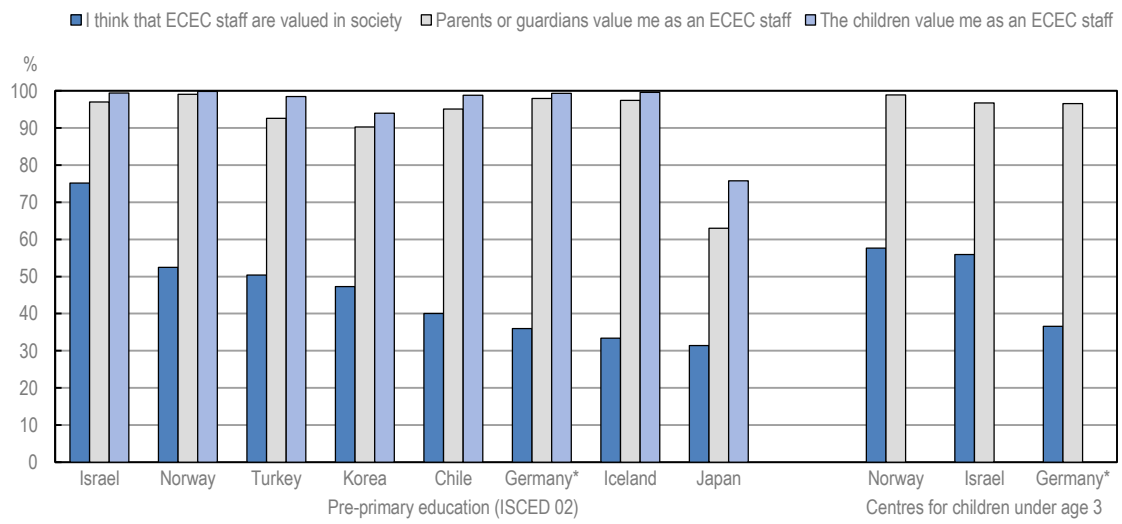
StatLink https://doi.org/10.1787/888934010983

With regard to job satisfaction, a majority of staff in all countries report feeling valued by the children and parents or guardians they serve. However, in all countries, staff reports of feeling valued by society are much lower (Figure 3.15). Feeling valued by specific children or parents may be more concrete for ECEC staff than feeling valued by society in general, and therefore their responses to these items may not be directly comparable. Yet, the generally high levels of job satisfaction, including the fact that most staff "agree" or "strongly agree" with the statement "All in all, I am satisfied with my job" (Table D.3.18), are in contrast to the views reported for feeling valued by society. Furthermore, ECEC staff tend to agree more that they are valued in society than primary school teachers. On average across six countries, only 35% of primary teachers agreed that the teaching profession is valued by society (OECD, 2014[2]).

The most common reason staff give for why they would leave their job is retirement (Figure 3.16). This is the also the case for staff in centres serving children under age 3. However, there is considerable cross-country variability in staff reasons for leaving their job. For instance, in Japan the most typical reason why staff might leave their job is to attend to family responsibilities. In Germany and Korea, it is more common for staff to anticipate that they would leave their job to resolve health-related issues (e.g. physical and/or psychological burnout). In contrast, nearly a quarter of staff in Iceland report that they are likely to leave their job in ECEC to take a job in another sector (Table D.3.19).

Figure 3.15. Staff feelings of being valued by children, families and society

Average percentage of staff who "agree" or "strongly agree" with each of the following statements

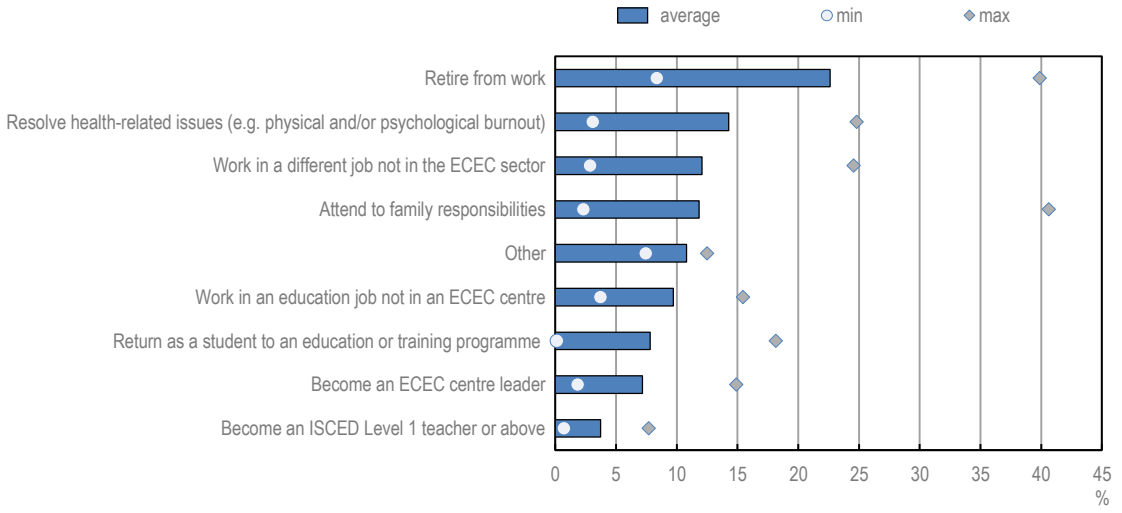


* Estimates for sub-groups and estimated differences between sub-groups need to be interpreted with care. See Annex B for more information.
Notes: Staff in centres serving children under age 3 were not asked the extent to which they feel valued by the children they serve.
Countries are ranked in descending order of the percentage of staff agreeing that ECEC staff are valued in society.
Source: TALIS Starting Strong 2018 Database (Table D.3.18).

StatLink https://doi.org/10.1787/888934011002

Figure 3.16. Most likely reasons to leave the ECEC staff role

Average pre-primary education staff reports across countries of the single most likely reason to leave their job as ECEC staff and minimum and maximum percentages observed across countries



Source: TALIS Starting Strong 2018 Database (Table D.3.19).

StatLink https://doi.org/10.1787/888934011021

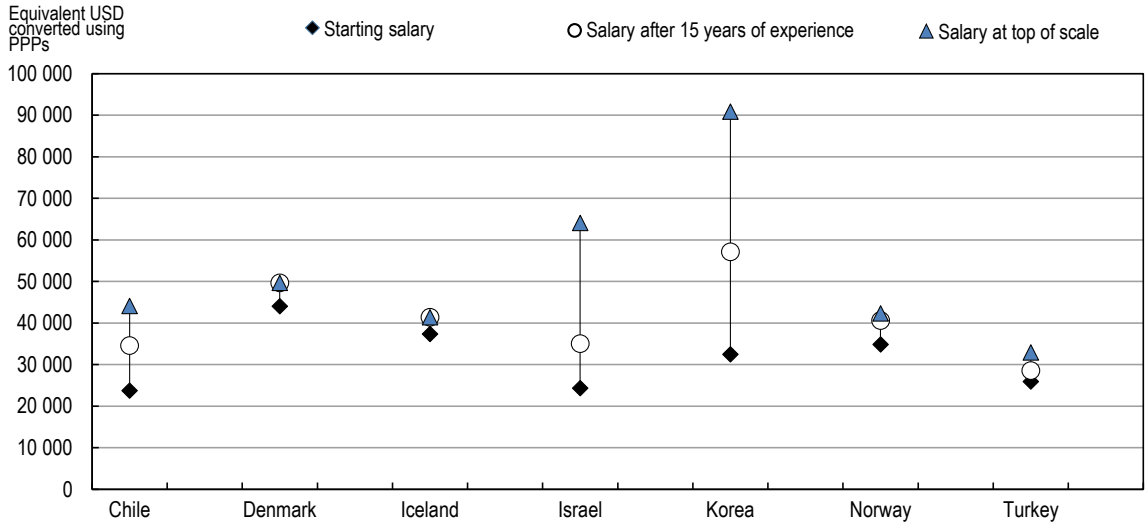
Earnings quality

Staff perceptions of being valued by society are likely shaped, at least in part, by the salaries they receive. In all countries, fewer than two in five staff members report being satisfied with their salary (Table D.3.18). Across OECD countries, pre-primary education teachers earn only 78% of the salaries of full-time, full-year workers with tertiary education (ISCED levels 5 to 8) in other fields (OECD, 2019[23]). Given the diversity of educational backgrounds among ECEC staff, as well as the number of ECEC staff who do not work full-time, some salary differences may be due to characteristics of the workforce and their labour contracts. However, teachers in primary and secondary education also tend to earn less than workers in other fields with comparable levels of education. Given that teachers' salaries tend to increase as they work in progressively higher levels of the education system and that teachers in lower secondary settings view improving salaries as a priority (OECD, 2019[3]), it is not surprising that ECEC staff are not satisfied with their salaries.

Salary progression can help retain workers. If ECEC staff have opportunities to improve their earnings over the course of their careers in the field, it may encourage them to continue working in this area. In contrast, when pay scales are compressed, staff may consider whether changing jobs for another field offers better earnings potential. However, smaller differences in salaries among staff may contribute to stronger collegiality among co-workers, enhancing the quality of relationships in ECEC settings. Across countries participating in TALIS Starting Strong with available data on salary progressions, several countries have compressed wage scales for pre-primary education staff (Denmark, Iceland, Norway and Turkey), while other countries show more opportunities for salary growth across a career in pre-primary education (Chile, Israel and Korea) (Figure 3.17).

Figure 3.17. Pre-primary staff statutory salaries at different points in staff careers (2018)

Annual statutory salaries of staff in public institutions based on the most prevalent qualifications at different points in staff careers, in equivalent USD converted using purchasing power parity



Note: Data are not available for Germany and Japan.
Source: OECD (2019[23]), *Education at a Glance 2019: OECD Indicators*, https://doi.org/10.1787/f8d7880d-en.

StatLink https://doi.org/10.1787/888934011040

The relationship between process quality, professional development and working conditions

This section investigates the relationship between process quality and professional development, contractual status, and working hours and working conditions. It explores the associations between these variables and the aspects of process quality that staff report when working with the target group, while also accounting for aspects of the target group itself and aspects of the centre (see Annex C for details on the regression models and Table D.3.20). The importance of continuous professional development for supporting process quality is well-documented in the research literature, and to some extent this is also the case for the importance of supporting teacher well-being. TALIS Starting Strong contributes an international perspective to understanding these associations and also brings valuable information on how ECEC labour markets support process quality.

Participation in professional development

Staff who participated in professional development during the year prior to the Survey generally report more use of adaptive practices in the target group. The exact type of professional development linked to staff adapting their practices varies across countries. Participation in in-person courses or seminars is linked to staff using more adaptive practices in pre-primary settings in Chile and Iceland and in centres serving children under age 3 in Germany and Israel. Consistent with the existing research on the value of coaching, this type of professional development is associated with greater use of adaptive practices in pre-primary settings in Israel and Korea and in centres serving children under age 3 in Norway. In addition, on-site coaching by an external person is associated with greater staff use of behavioural support practices in the target group in pre-primary settings in Iceland and in centres serving children under age 3 in Denmark (with low response rates) and Norway. Finally, participation in a qualification programme is associated with greater use of adaptive practices in Israel's pre-primary sector (Table D.3.20).

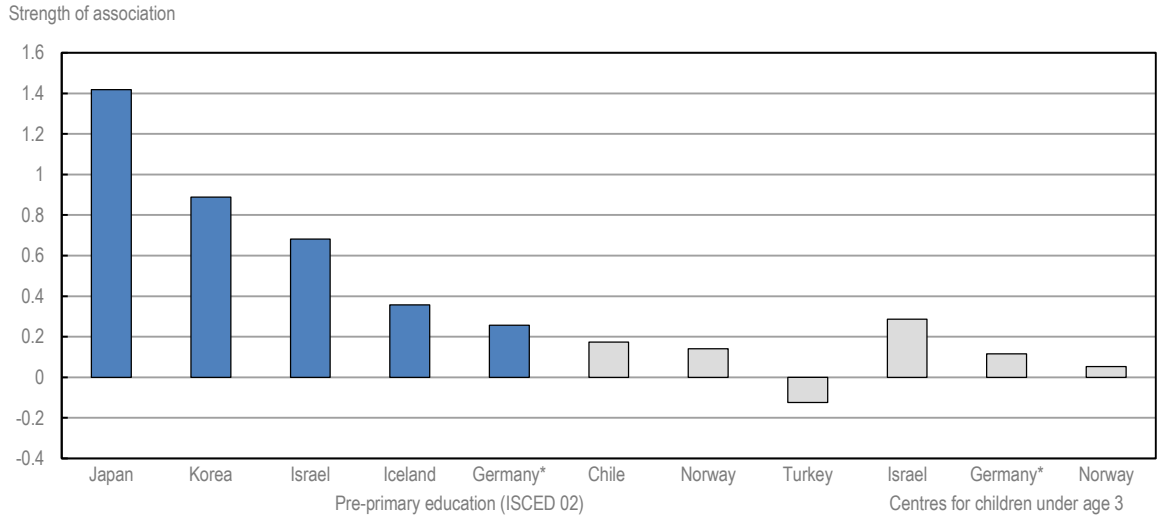
Overall the findings suggest that participation in professional development activities can support staff in adapting their practices in the classroom or playroom, but that these associations are not uniform either across or within countries. Some reasons for these differences may be related to the specific content and goals of the training, the availability of and participation in other types of professional development activities, as well as the frequency and duration of participation in professional development. Moreover, the TALIS Starting Strong data are cross-sectional and cannot determine whether staff who participate in professional development activities are more likely to report greater use of adaptive practices, or whether staff who engage in more of these practices are simply more likely to participate in ongoing professional development.

Contractual status and working hours

In the pre-primary sector, staff who work full-time report using more adaptive practices to support the learning, development and well-being of children in the target group than staff who work part-time in many countries, including Germany, Iceland, Israel, Japan and Korea (Figure 3.18). Similarly, in the pre-primary sectors in Germany and Israel, staff who work full-time report using more behavioural support practices in the target group than their colleagues who work part-time. One potential explanation for these findings is that full-time staff have more time to engage in these behaviours than staff who work only part-time. Staff contractual status is not consistently associated with reports of either adaptive practices or behavioural support practices in the target group. These associations are not observed in centres serving children under age 3 (Table D.3.20).

Figure 3.18. Strength of association between use of adaptive practices and working hours

Staff reports of their use of adaptive practices for staff who work full-time compared to staff who work part-time



* Estimates for sub-groups and estimated differences between sub-groups in the TALIS Starting Strong 2018 data need to be interpreted with care. See Annex B for more information.

Notes: Coefficients from the OLS regression of the indicator "Adaptive practices" on working full-time hours. Other variables in the regression for the adjusted coefficients include: staff educational attainment; training to work with children; experience; role in the target group; contractual status; number of children in the target group (quartiles); number of staff per child in the target group (quartiles); percentage of children from socio-economically disadvantaged homes in the target group; centre urban/rural location; and public/private management. See Annex C for more details on variables included in the regression model.

Statistically significant coefficients are marked in blue (see Annex C).

Countries are ranked in descending order of the unstandardised regression coefficients.

Source: TALIS Starting Strong 2018 Database (Table D.3.20).

StatLink https://doi.org/10.1787/888934011059

Sources of work-related stress and job satisfaction

Consistent with theory and the limited body of past research, staff well-being appears to matter for their use of specific practices with children. Staff in several countries report using more adaptive practices when they feel that ECEC staff are more valued by society. These countries include the pre-primary sector in Chile, Germany, Japan and Korea and the sector serving children under age 3 in Denmark (with low response rates), Israel and Norway (Table D.3.20).

In pre-primary settings in Iceland and Israel, staff who report more stress from having too many children in the classroom or playroom report using fewer adaptive practices, holding the size of their target groups equal. This finding may reflect that staff limit the amount they engage in more individualised practices when they feel more stressed by the number of children they are working with, regardless of the size of their target groups in comparison to their colleagues.

Staff who report more stress from having too many children in the classroom or playroom also report using more behavioural support practices, again holding the size of their target groups equal. This is the case in pre-primary settings in Germany, Japan, Korea and Turkey, and in centres serving children under age 3 in Denmark (with low response rates). Staff who feel more stressed by the size of their groups may feel the need to provide more targeted support for children's behavioural self-regulation (e.g. asking children to quieten down when activities begin) in order to address the learning and developmental needs of all the children in the group.

Across all countries and levels of ECEC with the exception of pre-primary staff in Norway, staff report more stress from having too many children in the classroom or playroom when they are working in target groups with more children (Table D.3.21). Yet, this additional stress does not translate into different practices among staff in all countries, after accounting for staff characteristics and other aspects of the target group and centre (Table D.3.20). ECEC systems can consider ways to identify and manage stress among staff members to ensure high quality for all children, and particularly in those countries where staff stress is associated with their practices in the target group (i.e. pre-primary settings in Germany, Iceland, Israel, Japan, Korea and Turkey and settings serving children under age 3 in Denmark [with low response rates]). ECEC leaders can have a central role in supporting their staff and reducing overall work-related stress.

Leaders in early childhood education and care centres

Leaders in ECEC centres are influential in creating positive working conditions and supporting staff to engage in continuous professional development activities. Moreover, leaders' educational background is associated with children's learning, development and well-being (Melhuish et al., 2006[35]). Leaders in the early childhood field are often required to take on many roles in their centres, from providing pedagogical and administrative leadership to fulfilling responsibilities for staff who are on leave or attending professional development activities. In some centres, leaders also engage in regular pedagogical work with children, adding to their many responsibilities and requiring careful balancing of their time.

Leaders with multiple roles (i.e. those who are also directly working with children, like other staff members) represent approximately 28% of the leaders in TALIS Starting Strong. As such, they are represented in the data from both staff reports and leader reports (see the Reader's Guide for more information). This section focuses on data from leader reports, describing the demographic and educational background of leaders in the ECEC sector, as well as their opportunities for professional development and their perceptions of the quality of their work environment.

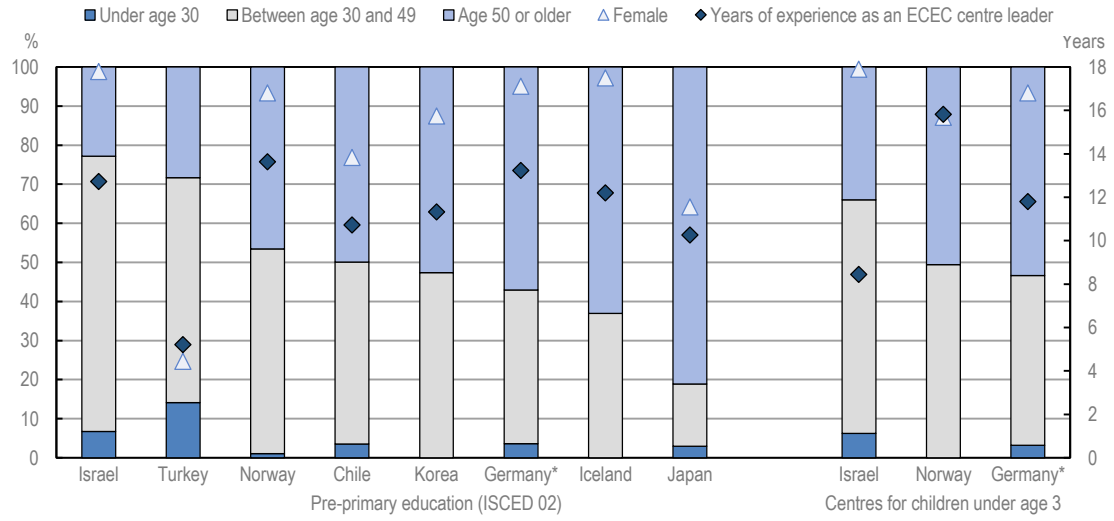
Leaders' characteristics, education and professional development

Across countries, the gender distribution among ECEC leaders varies slightly more than among ECEC staff. Consistent with the low representation of males among staff, in Israel 99% of leaders are female, and the percentage of female leaders is also high in Denmark (with low response rates), Germany, Iceland, Korea, and Norway. For example, leaders in Israel have staff duties and work directly with children. In contrast, leaders in Turkey are generally not former teachers and are sometimes also primary school leaders, as ECEC centres are often co-located with primary schools (see Chapter 4), and they typically do not have a pedagogical role in their centres. The gender imbalance between staff and leaders in Turkey is a trend seen in other countries at other levels of education: women tend to dominate the teaching workforce while men more often hold leadership roles (i.e. as principals). Yet, women are still more likely to hold leadership roles in ECEC than in other levels of education (OECD, 2019[3]). In countries with strong representation of men in ECEC leadership roles (Chile, Japan and Turkey), greater attention is needed to counter perceptions of caring for young children as women's work, but leadership as men's work.

In most countries, a majority of leaders are age 50 or older, with the greatest share of leaders in this age group in Japan and the fewest in Israel's pre-primary sector. The majority of leaders have extensive experience (ten years or more) in the field of ECEC, except in Turkey where slightly less than half of leaders report this level of experience (Table D.3.22). Experience specifically as leaders is somewhat more variable, with the average ranging from approximately 5 years in Turkey to over 15 years in centres serving children under age 3 in Norway (Figure 3.19).

Figure 3.19. Leaders' characteristics

Leaders' reports of their gender, age and years of experience as leaders in early childhood education and care



* Estimates for sub-groups and estimated differences between sub-groups need to be interpreted with care. See Annex B for more information.
Note: *Countries are ranked in ascending order of the percentage of leaders age 50 or older.*
Source: TALIS Starting Strong 2018 Database (Table D.3.22).

StatLink https://doi.org/10.1787/888934011078

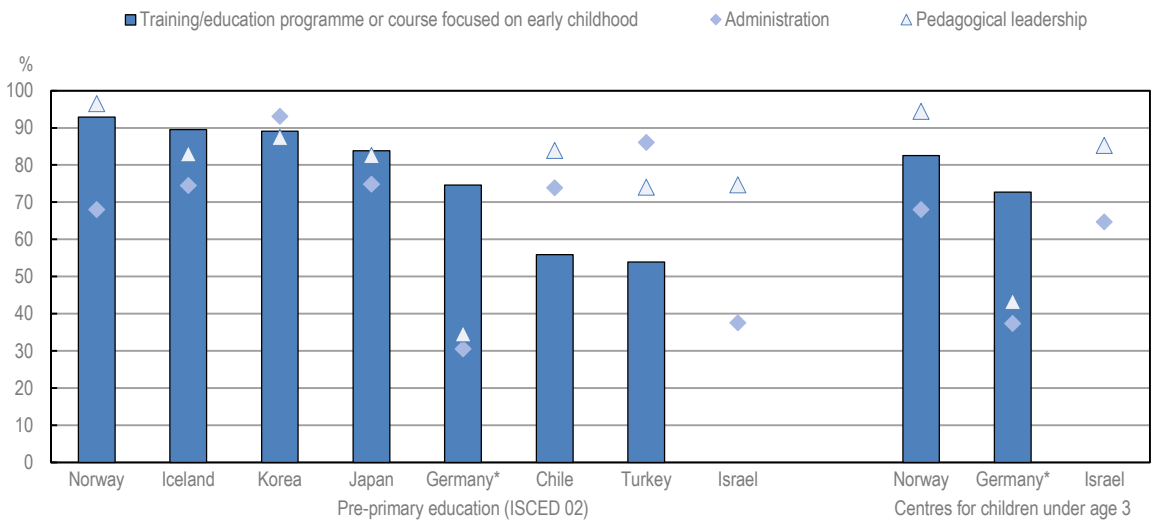
Leaders in ECEC settings tend to have formal education at the level of a bachelor's degree or equivalent or above. Exceptions to this include Japan and Israel's sector serving children under age 3, where a substantial minority of leaders report that their highest education level is post-secondary schooling, but less than a bachelor's degree (i.e. ISCED level 4 or 5) (Table D.3.22). In some instances, this may reflect that staff who take on leadership roles seek additional education to support them in their new responsibilities.

Training for leaders focused on early childhood is common across all countries, although it is not universal. In Chile and Turkey, only slightly more than half of leaders have training focused on early childhood, while in Norway's pre-primary education sector more than nine in ten leaders have this type of training. Training in pedagogical leadership is also fairly common across countries, while training in administration is least consistently reported by leaders of early childhood education and care centres, except in Korea and Turkey, where training in administration is the most common of the three types. In Germany, fewer than half of leaders report training in either pedagogical leadership or administration (Figure 3.20).

Nearly all leaders participated in some form of professional development in the 12 months prior to the Survey. In most countries, at least three-quarters of leaders participated in a professional development course or an in-person seminar. Exceptions to this are Germany and Japan, where participation in such courses is somewhat lower and it is more common for leaders to attend conferences where ECEC staff, leaders or researchers present their research (Table D.3.24).

Figure 3.20. Elements included in leaders' formal education

Percentage of leaders who report the following topics were included in their formal education or training



* Estimates for sub-groups and estimated differences between sub-groups need to be interpreted with care. See Annex B for more information.
Notes: In Israel, leaders were not asked whether their education or training programme focused on early childhood.
Countries are ranked in descending order of the percentage of leaders whose training/education programme or course focused on early childhood.
Source: TALIS Starting Strong 2018 Database (Table D.3.23).

StatLink https://doi.org/10.1787/888934011097

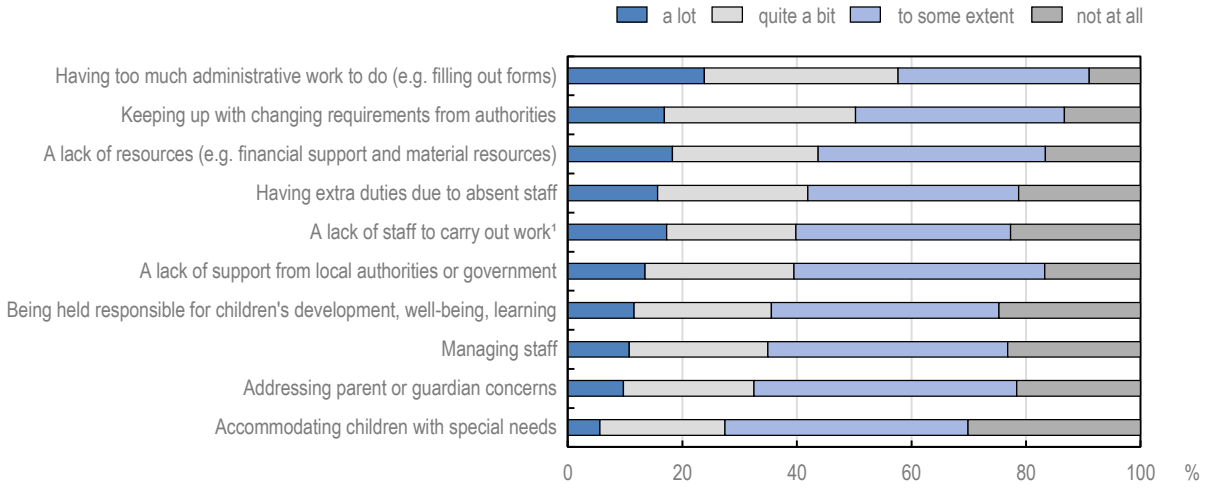
Quality of the working environment for leaders

Across countries, leaders are most likely to report that having too much administrative work is a source of work-related stress. High rates of work-related stress are also reported around changing requirements from authorities, a lack of resources (e.g. financial support and material resources) and a lack of staff to carry out work (Figure 3.21). In addition to these overall patterns, variation exists between countries. For example, leaders in Germany report that having extra duties due to absent staff is an important source of stress, while leaders in Japan report less stress in this area. Even within countries, sources of work-related stress can vary considerably. In Israel, too much administrative work is a greater source of stress in the pre-primary sector than in centres serving children under age 3 (Table D.3.25). (See Chapter 5 for further details on country-specific sources of work-related stress among leaders.)

Among leaders, a similar pattern to that seen among staff emerges with regard to feeling valued by society relative to satisfaction with support from the staff with whom they work and parents or guardians (Figure 3.22). Leaders are generally satisfied with the support they receive from staff at their centres and with the support received by parents or guardians. However, fewer leaders "agree" or "strongly agree" that ECEC staff are valued in society. Leaders' feelings of ECEC staff being valued by society tend to be similar or more positive than those of staff, with the exception of Germany (both pre-primary settings and centres serving children under age 3) and Israel's centres for children under age 3, where staff views are somewhat more favourable. As with staff, satisfaction with salaries also tends to be low among leaders, but overall satisfaction with their jobs is high even so (Table D.3.26).

Figure 3.21. Sources of work-related stress for early childhood education and care leaders

Average percentages of pre-primary education leaders who report that the following are a source of stress in their work

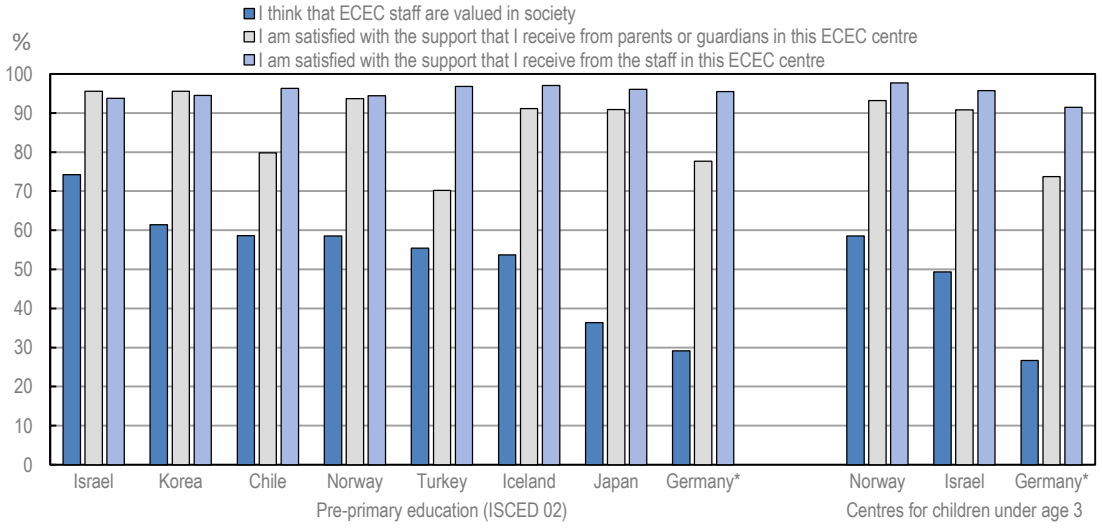


1. This question was not administered in Israel.
Note: *Response options are ranked in descending order of the percentage of leaders who rated them as "a lot" or "quite a bit" a source of stress.*
Source: TALIS Starting Strong 2018 Database.

StatLink https://doi.org/10.1787/888934011116

Figure 3.22. Leaders' job satisfaction

Percentage of leaders who "agree" or "strongly agree" with the following statements



* Estimates for sub-groups and estimated differences between sub-groups need to be interpreted with care. See Annex B for more information.
Note: *Countries are ranked in descending order of the percentage of leaders agreeing that ECEC staff are valued in society.*
Source: TALIS Starting Strong 2018 Database (Table D.3.26).

StatLink https://doi.org/10.1787/888934011135

Equity focus: Staff in target groups

In the schooling sector, teachers with lower qualifications often teach in schools that serve more disadvantaged students (OECD, 2014[36]). Despite numerous differences in staff qualifications and funding and governance of ECEC compared to the schooling sector (see Chapter 5), sources of social inequality present in schooling systems may also affect ECEC systems. Inequalities at the centre level are explored in Chapter 4 and are examined here at the level of the target group. Regression analysis is used to examine multiple characteristics of staff and target groups simultaneously, to better understand the distribution of the ECEC workforce across target groups with 11% or more children from socio-economically disadvantaged homes compared to target groups with a lower proportion of socio-economically disadvantaged children (Table D.3.27). This approach is particularly useful for understanding factors that may contribute to inequities among children within countries.

Pre-primary staff in Chile, Denmark (with low response rates) and Turkey, as well those in centres in Norway serving children under age 3, are more likely to have higher education attainment when working in target groups with 11% or more children from socio-economically disadvantaged homes, than their colleagues working in groups with a lower proportion of socio-economically disadvantaged children. However, staff in Turkey and those in centres in Israel serving children under age 3 tend to have less experience (fewer than ten years) when working in groups with a higher proportion of disadvantaged children.

In several countries, including pre-primary settings in Iceland, Israel, Japan and Korea and settings serving younger children in Denmark (with low response rates) and Germany, the number of staff per child in the target group is higher in groups comprised of 11% or more children from socio-economically disadvantaged homes than in groups with a lower proportion of socio-economically disadvantaged children. The number of staff per child in the target group refers to the total number of staff working with the group, regardless of their role, divided by the total number of children in the target group. The finding suggests that children in target groups with more socio-economically disadvantaged children may be exposed to more adults during their time in the group. Such situations could be supportive of children's learning and development if they lead to higher-quality interactions between staff and children or if the staff members have different roles (e.g. provide music lessons or other specialised programming) and the transitions between staff members are organised and expected. But exposure to a greater number of adults could also suggest that children's opportunities to build strong relationships with individual staff members are more limited than in groups with fewer adults.

Conclusion and policy implications

This chapter presents findings from TALIS Starting Strong on backgrounds, educational attainment, ongoing professional development and working conditions for staff and leaders. It examines the ways in which staff characteristics are associated with their use of specific practices in the target group, as well as how staff resources are distributed across groups of children from different socio-economic backgrounds.

The training experiences of staff within and across countries are mixed, related to both pre-service qualifications and ongoing professional development. Pre-service training is associated with staff support for process quality in their target groups, as well as their likelihood of participation in professional development activities. Therefore, ensuring access to targeted and ongoing training opportunities for all staff is a key area where policy can enhance process quality in ECEC settings.

Policy approaches can include:

1. **Supporting staff participation in training programmes focused on working with young children:** Staff with training specifically to work with children adapt their practices as needed, meaning they tailor their approach in the classroom or playroom to individual children's development and interests. Policies can encourage pre-service training programmes to provide this specialised training in order to increase the supply of ECEC staff who are prepared to address children's individual needs and interests. For example, Turkey has a highly educated ECEC workforce with room to improve the specialised expertise of ECEC staff by providing more training specifically on working with young children.

   Given the multiple educational pathways that exist to prepare staff for a career in ECEC, as well as staff shortages in many countries, ongoing professional development in this area should be a priority and a requirement for all new staff members. Moreover, in light of the shortage of male staff in the ECEC field across countries, encouraging multiple educational pathways to become an ECEC staff member may help address the gender imbalance by creating more opportunities for men to join this workforce. Supplementing these different educational pathways with specific training for new staff members on working with young children is important to ensure both process quality and diversity among staff in ECEC. Countries like Korea, where participation in professional development is nearly universal regardless of staff educational background, can ensure that all new staff, regardless of their educational attainment, receive training on working with young children. In Japan, a large majority of staff are relatively highly educated and have received practical training to work with children, but participation in professional development could be strengthened, as it is associated with more staff support for process quality.
2. **Providing ongoing professional development and support for participation to all staff:** Participation in professional development activities is linked with better process quality. However, staff with higher levels of pre-service education are more likely to access professional development than their colleagues with lower levels of education. To address this inequity, policies can require all staff, regardless of educational background, to engage in ongoing training opportunities. In pre-primary settings such as in Chile or Israel where staff education is strongly linked with their roles in the centre (i.e. teacher or assistant), this type of requirement could also help ensure that all staff members who work with children receive ongoing training.

   Without reducing barriers and providing appropriate supports for staff to engage in professional development, a requirement to participate is not sufficient. Staff shortages are a primary barrier to participation. It is therefore necessary to address these shortages to encourage greater engagement in ongoing training, as well as offering more flexible forms of professional development, such as mentoring and collaboration among staff. These more flexible forms of professional development can encourage learning among staff with different educational backgrounds and levels of experience and can be integrated into regular centre routines, to balance the need for ongoing training with available staffing and financial resources. Creating or fostering incentives for participation in professional development can also help encourage staff to pursue these opportunities.
3. **Ensuring that staff have access to good working conditions, including salaries that reflect their expertise:** Staff who believe that ECEC staff are valued in society report adapting their practices more often to meet the needs and interests of children in their target groups, while staff who report more stress from the number of children in their classroom or playroom report adapting their practices less often. Improving working conditions can support process quality. One way to address work-related stress for staff is to ensure manageable group sizes, so that staff have adequate time and resources to engage in high-quality interactions with every child in their care. However, this option can be costly and reducing group size is only one of the spending priorities in the sector. Another option is to ensure staff are prepared to work with the number of children they

will likely engage with in their classrooms or playrooms. Furthermore, additional staff members or staff-in-training (e.g. apprentices, interns) can act as assistants to ensure that staff have opportunities to engage individually with children. Policies that support leaders to identify and manage stress among their staff can also benefit process quality, particularly in pre-primary settings in Iceland and Israel, where staff stress related to group size is not always dependent on the number of children in the target group.

ECEC staff salaries are among the lowest in the education sector while many countries struggle to attract and retain high quality candidates to work in ECEC. However, most countries have limited room for increased public expenditure. Building and retaining a high quality workforce in the ECEC sector requires a holistic and co-ordinated approach with staff salaries being only one element. Other important elements include opportunities for professional development and a review of the cost-efficiency of the expenditures in the sector to ensure that staff have opportunities to progress in their careers and achieve earnings commensurate with their education and expertise.

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4 Structural features of early childhood education and care centres and quality

This chapter presents findings from the Starting Strong Teaching and Learning International Survey (TALIS Starting Strong) 2018 on the characteristics of early childhood education and care centres: where the centres are located, what types of centres exist, how many staff they employ and which children they serve. It explores how centre characteristics are associated with characteristics of staff, such as their qualifications, as well as practices in the centre. These practices include support for children's development across different domains, as well as activities in response to children's diverse cultural backgrounds. Since the transition from pre-primary education to primary school is a key milestone in a child's educational path, the chapter also explores practices in support of smooth transitions and how they relate to centre characteristics.

The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

Key messages

- Centre leaders have an overall positive view on the neighbourhood where their centres are located, but there are also negative perspectives, depending on the country. For instance, except in Japan and Norway, more than one in eight centre leaders per country report that there is litter lying around in the neighbourhood of their pre-primary education centre.
- Across the countries participating in TALIS Starting Strong, early childhood education and care (ECEC) centres are most commonly characterised as stand-alone buildings, except in Turkey where co-location with primary schools is the most common arrangement. In several countries, co-location with primary schools is associated with more frequent meetings and communication with primary school staff and transition-related activities for parents and guardians.
- Across the participating countries, large pre-primary education centres with 80 or more children are most common in Germany, Japan and Iceland (more than 25% of centres). The size of centres varies a lot within countries, especially in Korea and Turkey. But in Israel's pre-primary system, centre size is equivalent to group size and very homogenous. Most pre-primary education centres also serve children under age 3, indicating age-integrated services in many countries.
- The number of ECEC staff per child (defined as the total number of staff working in a centre, regardless of their role, divided by the total number of children enrolled) in pre-primary centres shows major differences across participating countries. The average number of staff per ten children is around two in pre-primary centres in Germany, Israel, Japan and Turkey, while it is above four in Chile and Norway. The number of staff per child is slightly higher in centres for children under age 3.
- Across countries, the number of staff per child tends to become less favourable as the size of the centres increases, indicating that having more children is not proportionally matched with a greater number of staff. This difference in the number of staff per child between larger and smaller pre-primary centres is particularly big in Chile and Korea, while it is comparatively small in Germany, Iceland and Japan.
- In addition to variations within countries in the number of staff per child, the share of highly qualified staff also varies across centres. There is little indication that the structural conditions of ECEC centres exacerbate inequities for children from socio-economically disadvantaged homes, but the data suggest that countries do not systematically provide enhanced structural conditions (e.g. higher staff qualifications or a more favourable number of staff per child) in centres with more children from such homes.
- More than a third of centres in Germany, Iceland and Norway have 11% or more children whose first language differs from of the language(s) used in the centre, while this is rare in Japan and Korea. In Chile, Germany and Iceland, staff in pre-primary centres with more children who have a different first language also report a greater use of activities related to children's diversity.
- On average, in all participating countries, leaders of ECEC centres indicate that for every around 15 staff members working in the centre at least 1 has permanently left the pre-primary centre in the previous year. This share increases to around 1 out of 5 staff members in pre-primary centres in Japan, Iceland and Korea and almost 1 out of 3 in Israel's centres for children under age 3.

Introduction

The Starting Strong Teaching and Learning International Survey (TALIS Starting Strong) 2018 offers an internationally comparative picture of ECEC centres across the participating countries. Leaders are asked to report information on the characteristics of their centres and, along with staff, they give insights on the work with children.

This chapter seeks to provide an overview of the different types of ECEC centres across pre-primary education (Chile, Denmark, Germany, Iceland, Israel, Japan, Korea, Norway and Turkey) and for children under age 3 (Denmark, Germany, Israel and Norway) and of how the different characteristics of centres relate to policy and practice. It first describes the characteristics of ECEC centres that tend to be beyond the reach of policy makers responsible for ECEC (e.g. the size of the surrounding city and the features of the neighbourhood). It then considers aspects that can be more directly influenced by ECEC policy, namely which children are attending what centres and where certain types of staff work. Next, it explores the association between these structural aspects and the reports on practices in the centres (see Figure 4.1). The chapter then takes stock of the extent to which these different aspects interact and create equitable learning and well-being environments for all children. It closes with conclusions and policy implications of the analysis.

Figure 4.1. Framework for the analysis of centre characteristics associated with practices and process quality in TALIS Starting Strong

Insights from research and policy evidence

Centre characteristics, such as the number of staff per child, the level of staff qualifications, the features of the centre location and working conditions for staff are important preconditions for fostering child development in ECEC settings. The literature suggests that these structural features of centres may have indirect links to children's development and learning by affecting the quality of the interactions between staff and children in a dynamic reciprocal process (Sim et al., 2019[1]).

Aspects such as the ratio of children to adults, group size and staff pre-service qualifications have been used as key components of strategies for improving ECEC quality (OECD, 2018[2]), with many countries raising the standards and extending regulations. These structural aspects have also received considerable attention from researchers. Despite strict regulations and accumulated knowledge, there is still variation

across centres in these characteristics, which may be a function of regional and local policies, overpopulation in certain regions or fluxes of migration. Other features, such as the composition of the centre (e.g. the proportion of children from disadvantaged backgrounds) and the location of the centre (e.g. urban or rural, in a school or a stand-alone building) or the quality of the neighbourhood are underexplored in international comparative research, but they do frame policy efforts to regulate and improve equity and quality.

To enhance the understanding of how structural features influence process quality, it is important to contextualise process quality by examining features beyond the classroom or playroom, at centre or community levels (Slot, 2018[3]). TALIS Starting Strong 2018 therefore considers a wide range of structural characteristics in ECEC settings, including proxies for the most familiar indicators, namely the number of staff per child and staff pre-service qualifications, as well as centre and community characteristics that may also influence the quality of learning and well-being environment (Sim et al., 2019[1]).

Centre location

Centres located in urban settings have been found to differ in many aspects from centres in rural areas. For example, higher child-to-staff ratios were found for infant groups in rural areas in the United States (Anderson and Mikesell, 2017[4]; Maher, Frestedt and Grace, 2008[5]). Urban centres in China have been found to receive more funding and attract more qualified staff (Hu et al., 2016[6]; Hu et al., 2014[7]). In some countries, there is less availability of ECEC in rural areas (OECD, 2017[8]). These limitations of staffing and access in rural areas may in, turn, lead to lower-quality interactions between staff and children (Hu et al., 2016[6]; Maher, Frestedt and Grace, 2008[5]). Conversely, in one observational study, higher-quality interactions between staff and children have been found in rural or suburban areas of Portugal, possibly because staff working in rural areas experience lower levels of stress than staff in urban areas (Barros et al., 2016[9]).

Neighbourhoods are considered an important social context for children, as they provide access to resources and opportunities that contribute to child development and well-being (Anderson, Leventhal and Dupéré, 2014[10]; Shuey and Kankaraš, 2018[11]). The physical location of the centre may affect the relationships children develop with the people, neighbourhood and institutions surrounding them. Children's experience is enriched when the ECEC centre fosters and supports real-life interactions with the outside world (i.e. parks, museums, swimming pools, greeting in the neighbourhood). A recent review suggests that social, economic and cultural characteristics of children's neighbourhoods are related to child developmental outcomes (Minh et al., 2017[12]). Features such as how parents perceive safety, the density of social networks, the economic characteristics of the neighbourhood or the quality of neighbourhood outdoor areas (e.g. parks and playgrounds) have been shown to exert unique effects on children and families (Christian et al., 2015[13]; Minh et al., 2017[12]). Correlational and experimental studies have also found that the effects of the neighbourhood socio-economic conditions on child development are particularly important during early childhood (Anderson, Leventhal and Dupéré, 2014[10]; Chetty, Hendren and Katz, 2016[14]; Webb et al., 2017[15]).

The neighbourhood context is also associated with aspects of ECEC. Neighbourhood characteristics have been shown to vary together with the supply and availability of centre-based ECEC, as well as with families' likelihood of using it (Dupere et al., 2010[16]; Shuey, E. A. and Leventhal, T., 2018[17]). The neighbourhood environment has also been linked to the observed quality of ECEC. Several correlational studies have found that ECEC process quality is lower in economically disadvantaged neighbourhoods (Burchinal, M. et al., 2008[18]; Hatfield, B. E. et al., 2015[19]; McCoy, D. C., et al., 2015[20]). Thus, the neighbourhood context is likely to shape families' access to high-quality ECEC.

ECEC centres play a key role in creating connections between children and communities and in strengthening their relationships (OECD, 2011[21]; Sanders, 2003[22]). Research suggests that a strong connection between ECEC centres, families and communities may be particularly important for children in

disadvantaged circumstances or facing vulnerable moments, such as transitions (OECD, 2017[23]). Co-operation between ECEC centres and wider social services can contribute to more adequately respond to what children actually need in terms of their overall development and to address the multiple needs of families (Van Tuijl and Leseman, 2013[24]; Weiss, Caspe and Lopez, 2008[25]).

Co-operation among early-years services and other services can also support smooth transitions from ECEC to school (OECD, 2017[23]). In many societies, transitions involve changes in the expectations, rules and types of activities in which children are engaged, and many children may not easily adjust to those changes (OECD, 2017[23]). Well-prepared transitions may be critically important for children from disadvantaged backgrounds, who are at greater risk of lack of consistency between home, ECEC and schools. Co-operation among services can be crucial to ensure smooth transitions and to enhance the likelihood of positive outcomes for all young children (OECD, 2017[23]).

Although there has not been extensive study of the issue, there is some correlational evidence suggesting that centres located in schools provide higher process quality than independently functioning centres (Pianta et al., 2005[26]; Slot, Lerkkanen and Leseman, 2015[27]). It is possible that staff from the ECEC centre and the elementary school collaborate more and that curriculum, methods and culture are more aligned (OECD, 2018[2]). At the same time, research indicates that when pre-primary education and primary school practices and curricula become too integrated, there is a risk of “schoolification” (Moss, 2013[28]; OECD, 2017[23]). This can blur the boundaries between early childhood education and more formal primary education (Dahlberg and Lenz-Taguchi, 1994[29]; Moss, 2013[28]). But staff conditions in ECEC centres located in schools may differ in other aspects, such as qualification levels or salaries, that need to be considered (OECD, 2018[2]).

Enrolling young children from disadvantaged backgrounds in high-quality ECEC is a key policy lever to mitigate social inequalities (OECD, 2017[8]). However, in many countries, there are cultural and social barriers in availability or accessibility for disadvantaged families (OECD, 2018[2]), and the participation of children from disadvantaged backgrounds in ECEC is considerably lower than for other children. In addition, studies investigating relations between ethnic classroom composition and process quality showed that observed process quality is lower in classrooms with higher proportions of ethnic minority or multilingual children (Kuger et al., 2015[30]; Leu and Schelle, 2009[31]; LoCassale-Crouch et al., 2007[32]; Slot, Lerkkanen and Leseman, 2015[27]; Slot, 2018[3]; Tonyan and Howes, 2003[33]). Still, other correlational studies found no associations (Cadima, Aguiar and Barata, 2018[34]; Justice et al., 2008[35]) or even positive associations between observed process quality and a higher share of disadvantaged children (Slot et al., 2017[36]), possibly reflecting the targeted policies in place in those particular countries.

Centre staff and stability

Regarding the number of staff per child, the size of the centre and its relation to process quality, evidence at the centre level is scarcer than at the classroom/playroom level. The limited evidence at the centre level tends to favour smaller centres (OECD, 2018[2]). In one study, the authors found an association between smaller centres and organisational support, in terms of educators’ perceived autonomy and opportunities to participate in decision-making (Ho, Lee and Teng, 2016[37]). In the schooling sector, the ideal school size has been a topic of debate. Although there is research suggesting economic benefits from increased size (Ready, Lee and Welner, 2004[38]), other studies favour smaller schools in several dimensions (Leithwood and Jantzi, 2009[39]). Research suggests that, in smaller schools, teachers tend to have more positive attitudes about their responsibility for students' learning (Lee and Loeb, 2000[40]), interpersonal relationships among students and teachers are fostered, and the sense of community is higher (Ahn and Brewer, 2009[41]). Smaller schools also appear to foster a culture of teacher collaboration (Leithwood and Jantzi, 2009[39]). Smaller schools have been also linked with higher levels of observed emotional, organisational and instructional quality in first-grade classrooms (Cadima, Peixoto and Leal, 2014[42]). Regarding staff training, it is widely accepted that a well-trained and knowledgeable workforce is critical

for a high-quality ECEC programme (Sim et al., 2019[1]) and is likely to be an important factor in determining child development and learning (Sheridan, 2009[43]) (see Chapter 3).

Importantly, highly qualified staff may not be equally distributed across centres (Guarino, Santibanez and Daley, 2006[44]). Research also points out that highly qualified staff can positively influence the staff working with them who do not have the same high qualifications. Some studies have found that the observed process quality of lower-qualified staff is higher when they are working alongside highly trained staff (Barros et al., 2018[45]; Sammons, 2010[46]). This highlights the importance of staff composition at the centre.

Stability in care has also been found to be strongly and consistently positively related to child outcomes (Loeb et al., 2004[47]). High turnover rates disrupt the continuity of care, and hinder staff's abilities to provide safe, healthy and good learning environments for children, which in turn leads to poorer child outcomes. Centres with low staff turnover rates have staff that engage in more appropriate and attentive interactions with children, while children in centres with high turnover rates spend less time engaged in meaningful activities (Moon and Burbank, 2004[48]; Whitebook, Howes and Phillips, 1990[49]). When staff members regularly change within a group of children, staff and children are less able to develop stable relationships, and nurturing, stimulating interactions take place less often (Canadian Council on Learning, 2006[50]). Unfortunately, other studies find that ECEC centres often experience turnover rates exceeding 40% annually, undermining the quality of care (Huntsman, 2008[51]; Moon and Burbank, 2004[48]).

The place of early childhood education and care centres

The diversity of participating countries is reflected in where ECEC centres are located and how they differ in size. These aspects, as reported by centre leaders, contextualise the working environment for staff and the learning and well-being environment for children.

Box 4.1. Understanding ECEC centre characteristics through TALIS Starting Strong

TALIS Starting Strong provides a unique perspective on the structural characteristics of ECEC centres, based on the reports of ECEC centre leaders (defined as the individuals with the most responsibility for administrative, managerial or pedagogical leadership of the centre). This means that the information is a first-hand account of what centres look like, where they are and to what extent their characteristics are seen as favourable for working with and bringing up young children. At the same time, this information provides only an approximation of the actual characteristics in the field. For instance, centre leaders may have limited knowledge of the precise demographics of their location or may not be familiar with all the characteristics of certain groups of staff and children. Depending on the country, they may or may not have access to precise administrative records to inform their responses to the questionnaires. While only one person per centre (the centre leader, as defined above) was invited to respond to the TALIS Starting Strong Leader Questionnaire, there may in practice be multiple individuals in leadership roles in the centre, as suggested by the data on centres' human resources for some countries. For all of these reasons, the information provided by the Survey should be seen as complementary to administrative data.

Note: For further information, please refer to the TALIS Starting Strong 2018 Technical Report (OECD, 2019[52]).

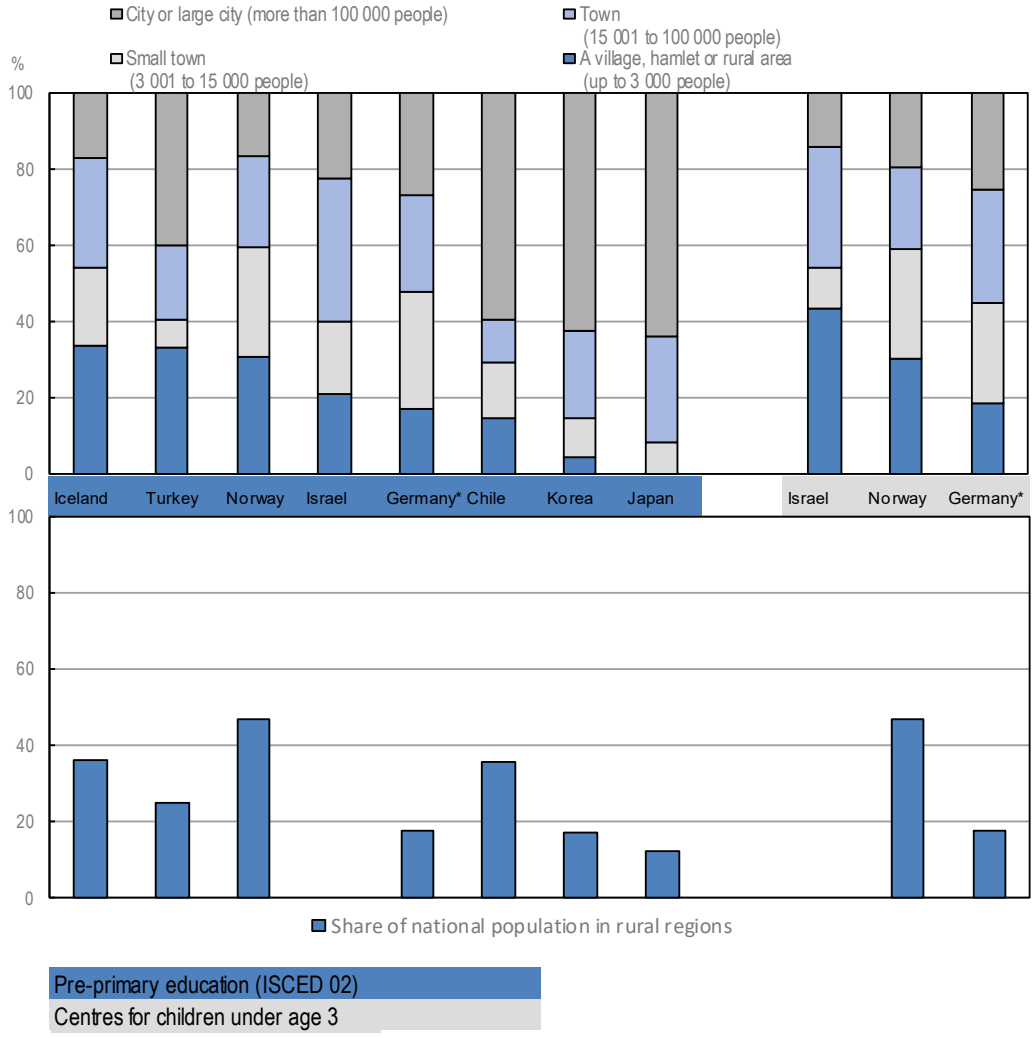
Centres in rural and urban areas

TALIS Starting Strong data show that ECEC centres are spread across rural and urban areas (see Figure 4.2 for more information on the data). In Chile, Japan, and Korea, the majority of pre-primary education centres for children are located in towns (more than 15 000 people), or cities (more than

100 000 people). In Iceland and Norway, the largest share of centres are located in villages, hamlets, rural areas or small towns (up to 15 000 people) (Figure 4.2). This trend largely reflects the regional distribution of countries' populations more generally. Countries with the largest share of ECEC centres in smaller locations (up to 3 000 people) in TALIS Starting Strong, for instance, are also among those with the highest share of population living in rural regions in general (OECD, 2019[53]).

Figure 4.2. Early childhood education and care centre in rural and urban areas

Percentage of ECEC centres situated in the following locations, according to leaders, and share of national population in rural regions according to administrative data



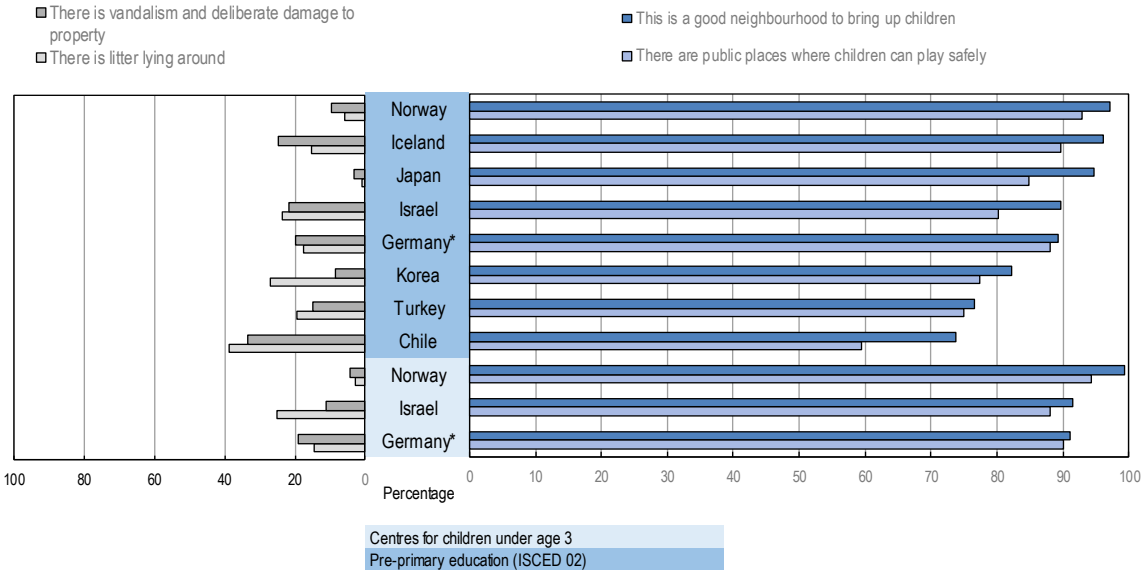
* Estimates for sub-groups and estimated differences between sub-groups need to be interpreted with care. See Annex B for more information.
Notes: The OECD regional typology used to identify the share of national population in rural regions is primarily based on a criterion which identifies rural communities according to population density. A community is defined as rural if its population density is below 150 inhabitants per km^2 (500 inhabitants for Japan and Korea to account for the fact that the national population density exceeds 300 inhabitants per km^2).
For Israel, data on the share of the national population in rural regions are not available.
Countries are ranked in descending order of the percentage of centres that are located in a village, hamlet or rural area (up to 3 000 people).
Sources: TALIS Starting Strong 2018 Database (Table D.4.1) and OECD (2019[53]), *National Area Distribution for Data on Share of National Population in Rural Regions (Year of Reference: 2014)*, https://dx.doi.org/10.1787/34f4ec4a-en (accessed on 7 May 2019).

StatLink https://doi.org/10.1787/888934011154

Across countries, the vast majority of leaders of pre-primary education centres “agree” or “strongly agree” that their centre is in a neighbourhood that is a good place to bring up children. In Chile, although there is also a high percentage of centre leaders who consider their neighbourhood a good place to bring up children, more than one-third of leaders do not consider that there are public spaces where children can play safely. In the countries with data for both levels of education, a positive view by leaders of the neighbourhood environment is generally consistent across pre-primary centres and centres for children under age 3 (Figure 4.3).

Figure 4.3. The neighbourhood of early childhood education and care centres

Percentage of ECEC leaders who “agree” or “strongly agree” with the following statements



* Estimates for sub-groups and estimated differences between sub-groups need to be interpreted with care. See Annex B for more information.
Note: *Countries are ranked in descending order of the average share of leaders who “agree” or “strongly agree” that the neighbourhood of the centre is good to bring up children.*
Source: TALIS Starting Strong 2018 database (Table D.4.2).

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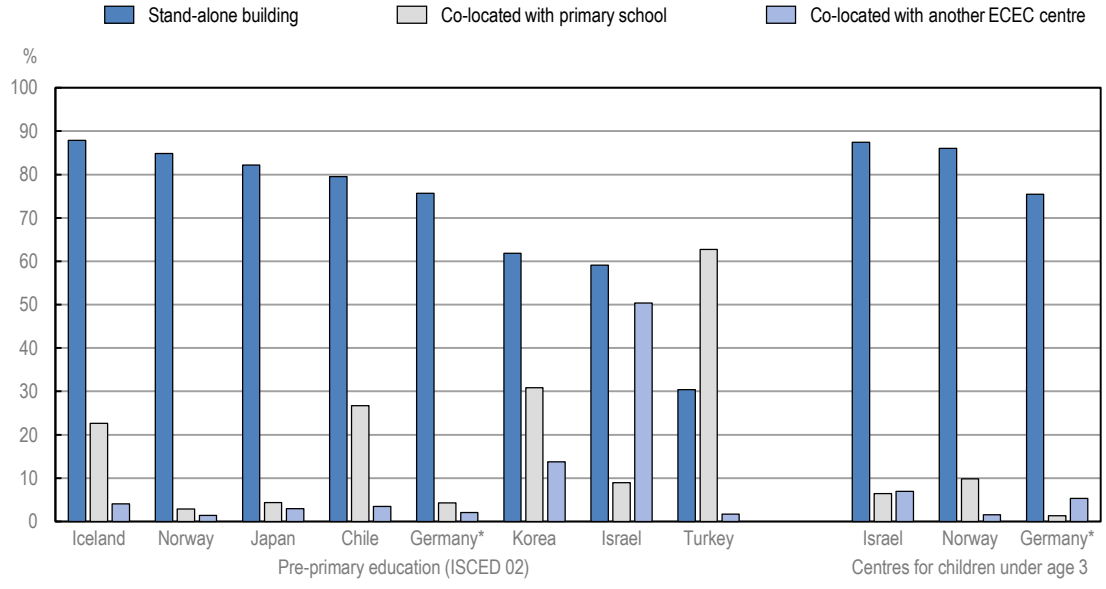
There are also neighbourhood characteristics that may pose a challenge to the efforts of ECEC centres and parents to provide a favourable learning and well-being environment for children. Countries differ in the extent to which centres may be exposed to environments unfavourable to children. Except in Japan and Norway, more than one in ten centre leaders per country “agree” or “strongly agree” that there is litter lying around in the neighbourhood of their pre-primary education centre. Looking at the prevalence of vandalism and deliberate damage to property, a similar pattern can be found, with this issue being reported by more than one in ten leaders in all countries and across levels, except in Japan, Korea and Norway (Figure 4.3; Table D.4.2). Leaders’ perceptions of the neighbourhood can vary depending on whether their centres are in more rural areas or more urban locations. For instance, leaders in pre-primary centres in villages, hamlets, rural areas or small towns of 15 000 people or less in Korea show a higher share of agreement with the statement that there are places in the neighbourhood where children can play safely than leaders in cities with a bigger population, while in Israel and Norway, pre-primary leaders in cities are more likely to report that there are places in the neighbourhood where children can play safely than leaders in rural areas or small towns (Table D.4.3).

Centre buildings

TALIS Starting Strong also asks centre leaders about other characteristics of their centre's location, for instance whether it is a stand-alone building (i.e. the building contains the ECEC centre only), whether it is co-located with a primary school and/or co-located with another ECEC centre. In all countries except Turkey, the majority of pre-primary education centres are in stand-alone buildings (see Table D.4.1; Figure 4.4). In Turkey, almost two-thirds of centres are co-located with primary schools. Co-location with primary schools also applies to more than 20% of pre-primary centres in Chile, Iceland and Korea. Co-location with another ECEC centre is rare in most countries. However, in Israel, half of all pre-primary education centres are co-located with another ECEC centre, which should be seen in the context of each centre being relatively small and consisting of a single group of children. Co-location with another ECEC centre is uncommon for centres for children under age 3 in Israel. In Denmark (with low response rates), Germany, and Norway, the physical location of the centres is similar across centres for children under age 3 and in pre-primary education (see Table D.4.1; Figure 4.4).

Figure 4.4. Locations and buildings of early childhood education and care centres

Share of ECEC centres situated in the following locations or buildings, according to leaders



* Estimates for sub-groups and estimated differences between sub-groups need to be interpreted with care. See Annex B for more information.
Note: *Countries are ranked in descending order of the percentage of centres that are stand-alone buildings. Categories are not mutually exclusive.*
Source: TALIS Starting Strong 2018 database (Table D.4.1).

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In some cases, co-location reflects how countries' ECEC systems are designed and governed more broadly (see also Annex A). In countries with so-called integrated systems, ECEC for children aged around 0-5 is governed by the same authority and regulatory framework, while in countries with so-called split systems, different authorities are in charge for different age groups, such as 0-2 and 3-5 (OECD, 2015[54]; OECD, 2017[8]). For instance, Israel's pre-primary education centres consist of single classrooms or playrooms, which explains why there could be an interest in locating multiple settings in the same place (see Box 4.2). In Turkey, the pre-primary education system is very much aligned with primary education provision, which is reflected by the fact that the two levels are commonly in the same location.

In a few countries, there are statistically significant differences in the prevalence of stand-alone buildings in small towns and other locations with no more than 15 000 people, compared to towns and cities with a larger population. In Germany, stand-alone buildings are more common in such smaller places, both for pre-primary education and for centres for children under age 3. This is also the case for Israel's centres for children under age 3. In Iceland, stand-alone pre-primary education centres are more common in bigger towns and cities (Table D.4.4).

Box 4.2. Policy and governance context for the characteristics of early childhood education and care centres

Centre characteristics are closely linked to the overall organisation of ECEC systems and the sector's workforce (Chapter 5). For example, Israel, Japan and Norway take very different approaches to how ECEC is provided, which are reflected in leader and staff responses to TALIS Starting Strong (see Annex A of this report for an overview of the systems of all countries participating in TALIS Starting Strong).

Israel

In Israel, pre-primary education centres for children aged 3-5 are very small in international comparison. This is because each classroom or playroom with a regulated maximum of 35 children, who may have different ages within the pre-primary age bracket, is organised as a separate centre. As a result, the main pedagogical staff member in the room is also the leader of the centre (as defined for TALIS Starting Strong), and the number of staff of each centre is very small. However, these pre-primary centres tend to cluster together in the same location more than in other countries. They may also be co-located with primary schools. The provision for this age group is under the responsibility of the Ministry of Education, while centres for children under age 3 are under the responsibility of the Ministry of Labour, Welfare and Social Affairs.

For the youngest children, centres tend to be larger in terms of the number of both children and staff. This is related to the fact that those centres include several groups or classes at three levels: 1) infant class; 2) young toddler class; and 3) toddler class. The total size of each centre varies depending on the number of classes. Contrary to the practice in some other countries participating in TALIS Starting Strong, there are many children under age 1 in Israel's ECEC centres, which implies different demands on centres and staff.

Norway

In Norway, ECEC centres differ greatly in size. In line with the integrated governance under the Ministry of Education and Research, centres often encompass both pre-primary provision and services for children under age 3. It is possible, but rare that centres are co-located with primary schools or other ECEC centres. Given that one-year parental leave is common, there are few children under age 1, but participation is high from then onwards. There are three distinct main staff categories: centre leaders, pedagogical leaders (teachers) and assistants. While staff in the first two categories are required to complete a three-year bachelor degree for ECEC teachers, there are no qualification requirements for assistants. While regulations concerning staff-child and teacher-child ratios depend on children's age (over or under 3 years), the types of staff working with children under and above age 3 are the same, also in terms of training requirements and pay.

Japan

In Japan, pre-primary education is provided by kindergartens for children aged 3-5, serving 40% of the child population (under the responsibility of the Ministry of Education, Culture, Sports, Science and Technology), but also by daycare centres for children aged 0-5, serving 36% of this age group (under the responsibility of the Ministry of Health, Labour and Welfare), as well as integrated centres for ECEC for the same age group, for 10% of children (under the responsibility of the Cabinet Office). The less common municipal-level childcare services for fewer than 20 children mainly target children aged 0-2 and are not covered by TALIS Starting Strong. Co-location with primary schools or other ECEC centres is rare. However, the introduction of settings for ECEC as a combination of daycare centres and kindergarten was a step towards more integrated provision of ECEC. In principle, staff working in kindergartens are required to hold a license to work as kindergarten teachers, while staff in integrated centres for ECEC have to hold this license and the qualification as nursery teachers required for daycare centres.

Note: This material was supplemented by additional inputs sent by the national authorities in Israel, Japan and Norway, respectively.
Source: OECD (2019[55]), "OECD Network on Early Childhood Education and Care: Quality beyond Regulations Survey", *Internal document*, OECD, Paris.

Characteristics and number of children in early childhood education and care centres

With increasing rates of participation in ECEC, the composition of the children served in those centres also increasingly reflects the diversity of the population in each country. The different needs of children of different backgrounds and different ages imply different requirements for policies and practices. In TALIS Starting Strong, centre leaders provide estimates of the share of children from different (albeit not mutually exclusive) groups in their centres.

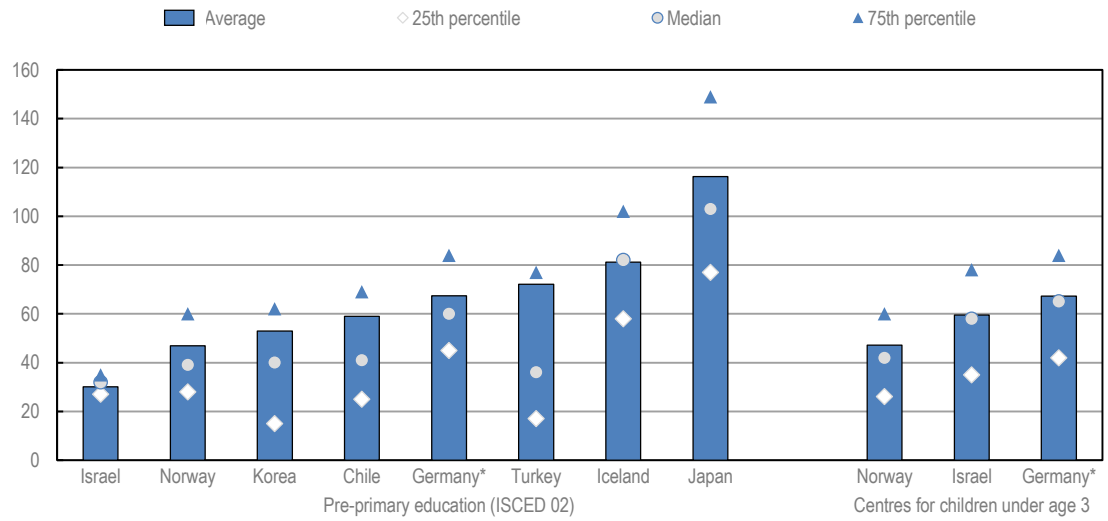
The number of children in centres

The size of ECEC centres shapes both the working environment and professional contacts for staff, as well as children's everyday experience. The average size of pre-primary education centres, measured as the number of all children enrolled in the centre, varies greatly across countries. For instance, the average pre-primary education centre in Japan is around four times larger than the average centre in Israel. This should be seen in the context of more centres in Japan covering a wider age span and centres in Israel being strictly limited in terms of size (see Box 4.2). The number of children in pre-primary education centres also varies greatly within countries. For instance, the biggest 25% of pre-primary centres in Korea and Turkey are four times larger than the smallest 25%. In other countries the top 25% are still around twice as big as the bottom 25%, except in Israel where there is little variation (Figure 4.5). These variations also imply that demands on leaders and the physical infrastructure of centres differ.

In Denmark (with low response rates), Germany and Norway, which have integrated ECEC systems, the average number of children is similar across centres for children under age 3 and pre-primary education centres. In Israel, with a split system, the average number of children in centres for children under age 3 is roughly double that of centres for older children (see Box 4.2).

Figure 4.5. Size of early childhood education and care centres

Average number of children per centre, according to leaders



* Estimates for sub-groups and estimated differences between sub-groups need to be interpreted with care. See Annex B for more information.
Note: *Countries are ranked in ascending order of the average number of children per centre.*
Source: TALIS Starting Strong 2018 database (Table D.4.5).

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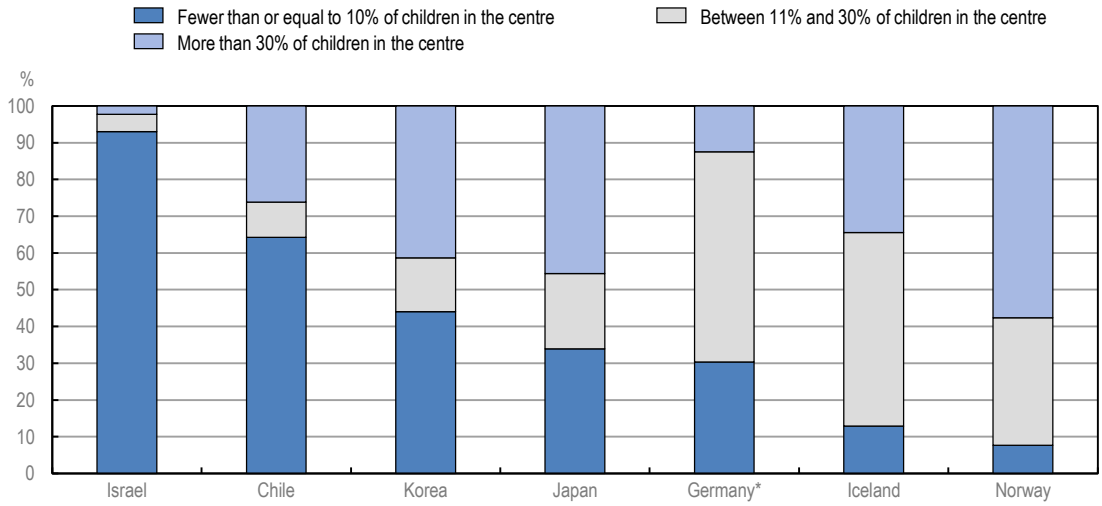
Centres can generally serve children of a large age span, in particular in countries with integrated systems. TALIS Starting Strong provides information on centres with different age compositions (Figure 4.6). Most pre-primary education centres in the majority of participating countries also serve children under age 3, indicating age-integrated services in many countries. But this integration of different age groups within centres does not necessarily imply age-integrated groups. Groups of children within centres may be organised by children's age, but mixed-age groups are also common in some countries (see also Box 4.2 and Chapter 2).

In Norway, the majority of centres for pre-primary education report having at least 30% of children under age 3, reflecting the countries' integrated system. Similarly, in Japan and Korea, such a high share of younger children can also be found in more than four out of ten centres, but there is also a relatively high percentage of centres with few children under age 3 in these countries. In Japan, this can be explained by the parallel presence of age-integrated and split settings. Korea also has a split system, with overlapping age coverage in different types of settings. In Germany, which has an integrated system, and Iceland, which provides integrated centre-based ECEC, more than half of pre-primary education centres include some children who are under age 3 (between 11% and 30%). In contrast, in Chile and Israel, the majority of pre-primary centres include few children under age 3, which also reflects the structure of their ECEC system in general (Figure 4.6; Box 4.2; see Annex A).

Figure 4.6. Pre-primary education centres serving younger children

Percentage of pre-primary centres that serve children under age 3, by share of children under age 3, according to leaders



* Estimates for sub-groups and estimated differences between sub-groups need to be interpreted with care. See Annex B for more information.
Note: *Countries are ranked in descending order of the share of pre-primary education centres that have 10% or less of children under age 3.*
Source: TALIS Starting Strong 2018 database.

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Table 4.1. Context of countries' early childhood education and care settings

Age coverage of settings that were included in the TALIS Starting Strong data analysed for this report
Age coverage of settings that were not included in the TALIS Starting Strong data analysed for this report

Country	Name of ECEC settings	Age coverage of settings and curricula							Targeting to specific group
		<1	1	2	3	4	5	6	
Chile	Public Kindergarten (local services public education, municipal departments and municipal corporations)	*For all settings and levels:* - Curricular Bases of Early Childhood Education - Framework for Good Teaching at Early Childhood Education - Decree 53 (materials) - Decree 315 (infrastructure)							Children from 60% most vulnerable homes
	JUNJI Kindergarten								
	Integra Kindergarten								
	JUNJI VTF Kindergarten and Integra CAD Kindergarten								
	Private Kindergarten						Decree 373: transition to primary school		Children of working mothers, financed by their employers as per legal obligation
	Public preschool and school								
	Co-financed preschool and school								
	Private preschool and school								
Denmark	Kindergarten								
	Nursery	The pedagogical curriculum							
	Home-based day care								
	Integrated day care								
Germany[1]	ECEC centre for all age groups 0-6/school entry	*Curricula are under the responsibility of the Länder in Germany and have hence been omitted from this table.*							
	ECEC centre for children under 3								
	ECEC centre for children over 3 to 6/school entry								
	Family day care								
	Pre-primary classes								
Iceland	Preschool	The Icelandic national curriculum guide for preschools							
	Home-based childcare								
Israel[2]	Publicly managed (formal) kindergartens				Language and Literacy Basics, Mathematics, Physical Training, Science and Technology, Life Skills				
	Privately managed (unofficial) kindergartens								Some privately managed kindergartens are targeted to the Ultra-Orthodox population
	Day-care centre	Early Childhood Education and Care							
	Family day-care centre								
Japan	Kindergarten				National Curriculum Standards for Kindergarten				
	Day-care centre	National Curriculum Standards for Day-Care Centre							
	Integrated centre for early childhood education and care	National Curriculum Standards for Integrated Centre for Early Childhood Education and Care							
Korea	Kindergarten				Nuri curriculum				
	Childcare centres	Standard childcare curriculum							
Norway	Kindergarten		Framework Plan for Kindergartens						
	Family kindergarten								
Turkey	Independent kindergarten								
	Nursery classroom				Pre-school Education Programme for 37-78 months				
	Practice classroom								
	Early childhood care and education	Education programme for 0-36 months							
	Crèche, day care centre								
	Special education preschool				Special pre-school education programme for 37-78 months				Children with special needs
	Special early childhood education	Special early childhood education programme for 0-36 months							

1. In Germany, curricula are under the responsibility of the Länder and have hence been omitted from this table. There is a Common Framework for Early Education in ECEC Settings adopted by the education and youth affairs ministers of the Länder which summarises the core statements of the 16 curricula of the Länder.
2. Ultra-orthodox kindergartens are part of privately-managed kindergartens, but their data is also not analysed for this report.
Note: Settings and age groups with lighter colours are either not included in the TALIS Starting Strong data analysed for this report or the data collection did not focus on the age group concerned. See Annex A for further information on curriculum coverage and ECEC settings in participating countries.
Source: OECD (2019[55]), "OECD Network on Early Childhood Education and Care: Quality beyond Regulations Survey", *Internal document*, OECD, Paris.

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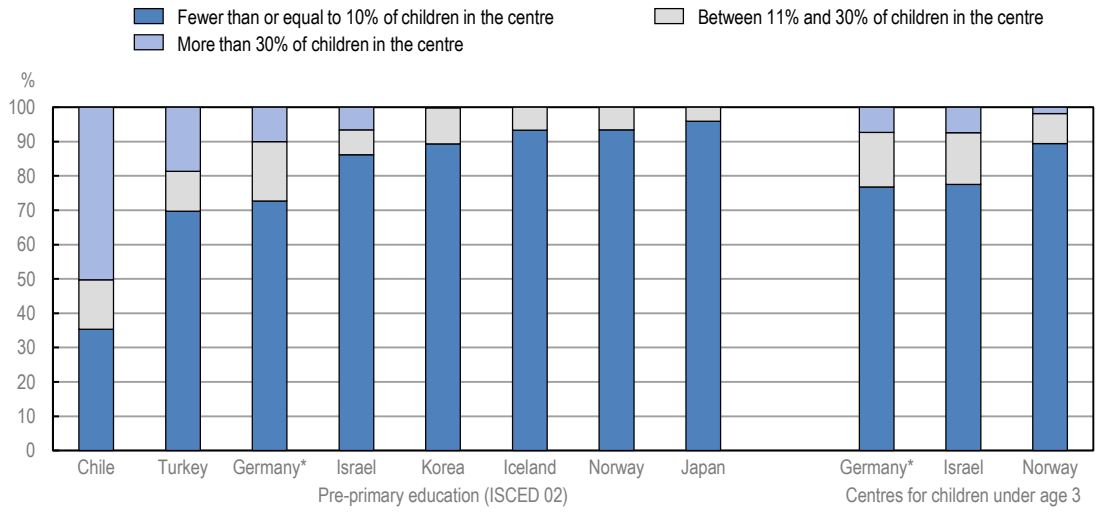
Characteristics of children in ECEC centres

The share of children with different characteristics and backgrounds in ECEC centres matters for staff's everyday practices. For instance, some children may have special educational needs, may have a first language that differs from the language(s) used in the centre, may be refugees and may come from socio-economically disadvantaged homes (see also Chapter 2).

In all countries except Chile, the majority of leaders in pre-primary centres consider that their centres have 10% or less of children from socio-economically disadvantaged homes (i.e. children from homes lacking the necessities or advantages of life, such as adequate housing, nutrition or medical care). In Iceland, Japan and Norway, fewer than one centre in ten report a higher share (11% or more) of children from socio-economically disadvantaged homes, but this is the case in more than a quarter of centres in Germany and Turkey. In Chile, more than half of centres report having above 30% of children from such homes (Figure 4.7). In centres for children under age 3, the percentage of centres with a high share of children from socio-economically disadvantaged homes is low in the four countries covered. As noted in Chapter 2, differences across countries in the percentage of children from socio-economically disadvantaged homes are related to cross-country differences in the socio-economic composition of the population and different rates of enrolment of those children, although there may be discrepancies between leaders' perceptions and administrative data.

Figure 4.7. Concentration in centres of children from socio-economically disadvantaged homes

Percentage of centres who serve the following shares of children from disadvantaged homes, according to leaders



* Estimates for sub-groups and estimated differences between sub-groups need to be interpreted with care. See Annex B for more information.
Note: *Countries are ranked in ascending order of the share of centres with 10% or less of children from socio-economically disadvantaged homes.*
Source: TALIS Starting Strong 2018 Database (Table D.4.6).

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Box 4.3. Policies for providing access to minority and disadvantaged children and supporting them

The potential for high-quality ECEC provision to level the ground for children who may come from socio-economically disadvantaged homes or are yet to learn the main language spoken in the country has been a key rationale for expanding access to ECEC in many countries. The increased participation of children from such backgrounds also means that centres need to respond to their needs. Among other countries, Chile, Germany and Denmark have taken various measures in this respect.

Chile

Chile has seen a considerable expansion of ECEC over the past decades (OECD, 2017[56]). From 2005 to 2013, participation in ECEC more than doubled for 3-year-olds (from 23% to 51%) and almost doubled for 4-year-olds (from 42% to 83%). However, coverage of ECEC continues to be highly uneven in Chile, with lower participation rates in rural and lower income areas (OECD, 2015[57]; MINEDUC, 2017[58]). Efforts to increase coverage of ECEC include a national strategy focusing on rural, urban or low-income neighbourhoods (OECD, 2015[57]). The Chile Grows with You programme (*Chile Crece Contigo*) was designed to provide personalised support to families from disadvantaged backgrounds and offer comprehensive services for socially vulnerable children from birth to school entry (Peralta, 2011[59]; Vegas and Santibañez, 2010[60]). The programme refers at-risk children to ECEC centres, refers parents to services to enhance parenting skills and offers targeted grants for children from the 60% most socio-economically disadvantaged households in Chile, in collaboration with Chile's social protection system (*Chile Solidario*) (Government of Chile, 2017[61]). To maximise ECEC access for families from disadvantaged backgrounds, Chile has extended opening hours in some ECEC centres funded by some providers. Chile is also encouraging year-round availability of services (Bertram and Pascal, 2016[62]).

Germany

In Germany, the enrolment of children with an immigrant background in ECEC is lower than for other children, especially among 0-3 year-olds (Statistisches Bundesamt, 2017[63]). Inclusion and diversity practices towards children from minority backgrounds are decided by ECEC providers. To better serve the needs of those children, the Federal Ministry of Family Affairs, Senior Citizens, Women and Youth has launched several initiatives. For instance, since 2016 the federal programme Language-Day-Care (*Bundesprogramm Sprach-Kitas*), targets ECEC centres with high shares of children who require additional support for their language development. Building on the experience of a previous programme on language development, this programme seeks to further implement the concept of language education in daily routines as well as promote inclusive pedagogy and collaboration between families and ECEC centres. In addition, it provides funds for staff of so-called expert services (*Fachberatung*) who mentor ECEC teams in the area of language promotion in ECEC settings so that in the period from 2017 to 2020 about 7 000 additional part-time positions are expected to be created (Federal Ministry of Family Affairs, Senior Citizens, Women and Youth, n.d.[64]). Another programme, the Access to Day-Care Programme (*Bundesprogramm Kita-Einstieg*) is providing co-ordination, staff and additional financial supplements to support about 1 000 different offers across around 150 locations between 2017 and 2019. This could, for instance, enable the organisation of a family hiking day, where families and day care staff get to know each other while exploring the neighbourhood by foot, learn about local institutions and ECEC options. This offer targets families who have recently arrived in the neighbourhood or are socio-economically disadvantaged (Federal Ministry of Family Affairs, Senior Citizens, Women and Youth, n.d.[65]).

Denmark

Since 2001, Denmark's Act on Day Care requires municipalities to ensure ECEC provision for all children between the age of 26 weeks and the start of primary school. Low-income families and/or families who are experiencing social disadvantage, are entitled to up to 100% fee subsidy. A legislative amendment was introduced in July 2019,

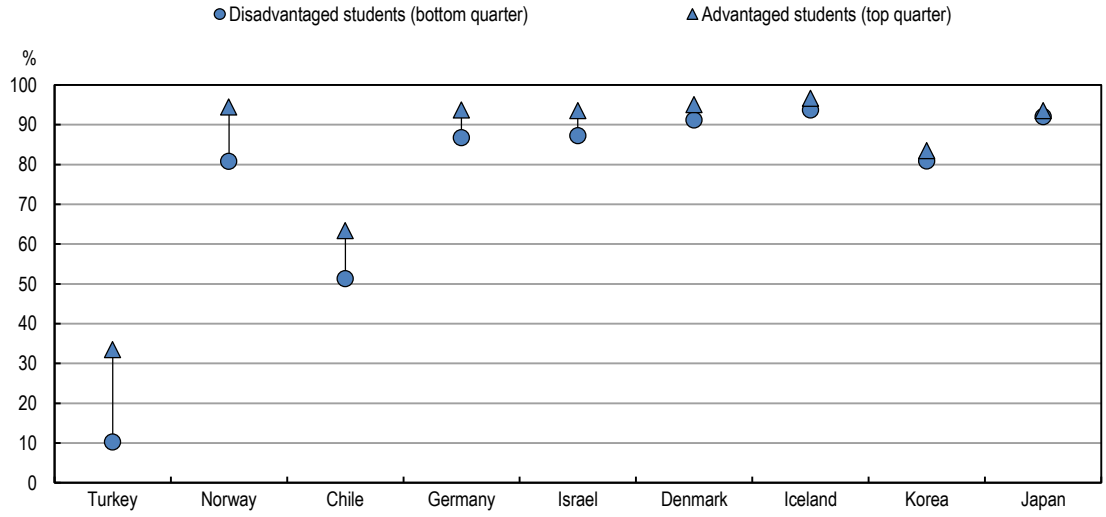
to ensure children from disadvantaged residential areas attend ECEC settings where the Danish language is spoken and that practices are focused on children's well-being, learning, education and development. The Mandatory Learning Programme was established as a new ECEC service to ensure that all children who meet the criteria for the Programme are enrolled in an ECEC setting from age 1. Eligible children are required to take up a place in an ECEC offering the programme for 25 hours a week. Enrolment and attendance in the Programme is a precondition for parents to receive child welfare benefits unless they can prove their ability to support their children's Danish language skills and development at home.

Note: This material was supplemented by additional inputs sent by the national authorities in Chile, Denmark and Germany, respectively.
Sources: OECD (2017[56]), *Education in Chile*, https://dx.doi.org/10.1787/9789264284425-en; OECD (2015[57]), *The ABC of Gender Equality in Education: Aptitude, Behaviour, Confidence*, https://dx.doi.org/10.1787/9789264229945-en; MINEDUC (2017[58]), *Revisión de las políticas educativas en Chile desde 2004 a 2016* [Review of Educational Policies in Chile from 2004 to 2016: Chile National Report], Peralta (2011[59]), Early childhood education and public care policies in Chile: A historical perspective to analyze the present, https://doi.org/10.1007/2288-6729-5-1-17; Vegas and Santibañez (2010[60]), The promise of early childhood development in Latin America; Government of Chile (2017[61]), *¿Qué es Chile Crece Contigo (ChCC)?* [Chile Grows With You], www.crececontigo.gob.cl/acerca-de-chcc/que-es; Bertram and Pascal (2016[62]), *Early childhood policies and systems in eight countries: Findings from IEA's early childhood education study*; Statistisches Bundesamt (2017[63]), Betreuungsquote von Kindern unter 6 Jahren mit und ohne Migrationshintergrund in Kindertagesbetreuung am 1. März 2018 nach Ländern, [Daycare rates for children under 6 with and without a migration background in daycare on 1 March 2018 by country], http://www.destatis.de/DE/Themen/Gesellschaft-Umwelt/Soziales/Kindertagesbetreuung/Tabellen/betreuungsquote-migration-unter6jahren-2018.html;jsessionid=870136CD8B2D2AC0F4143012946A27BC.internet732; Federal Ministry of Family Affairs, Senior Citizens, Women and Youth (n.d.[64]), *Bundesprogramm 'Sprach-Kitas: Weil Sprache der Schlüssel zur Welt ist'*, [Federal Programme 'Language Daycare': Because Language is the Key to the World], https://kita-einstieg.fruehe-chancen.de; Federal Ministry of Family Affairs, Senior Citizens, Women and Youth (n.d.[65]), *Bundesprogramm Kita-Einstieg: Bruecken bauen in fruehe Bildung*, [Federal Daycare Entry Program: Building bridges in early education], https://sprach-kitas.fruehe-chancen.de/programm/ueber-das-programm; OECD (2019[55]), "OECD Network on Early Childhood Education and Care: Quality beyond Regulations Survey", *Internal document*, OECD, Paris; European Commission/EACEA/Eurydice (2019[66]), *Key Data on Early Childhood Education and Care in Europe – 2019 Edition. Eurydice Report*, http://dx.doi.org/10.2797/966808.

TALIS Starting Strong data does not allow identification of differences in participation in ECEC among different population groups, but such differences may persist in the countries analysed. Data from the OECD's Programme for International Student Assessment (PISA) shows that the share of 15-year-old students reporting that they attended ECEC for two years or more differs between students from disadvantaged and advantaged backgrounds (Figure 4.8). Among the countries participating in TALIS Starting Strong, PISA 2015 suggests that this difference was largest in Chile, Germany, Israel, Norway and Turkey. These different data sources underline the continued importance of measures to ensure equal access to ECEC for all children (Box 4.3).

Figure 4.8. Percentage of 15-year-old students who had attended preschool for two years or more, by socio-economic status

Early childhood education (ISCED 0), 2015



Notes: Disadvantaged and advantaged students are defined according to the index of economic, social and cultural status of the OECD's Programme for International Student Assessment (PISA).

Countries and economies are ranked in descending order of the differences between the percentage of socio-economically advantaged and disadvantaged students who had attended preschool for two years or more.

Sources: OECD (2017[8]), *Starting Strong 2017, Key OECD Indicators on Early Childhood Education and Care*, https://doi.org/10.1787/9789264276116-en; OECD (2019[67]), *PISA Online Education Database*, http://www.oecd.org/pisa/data/ (accessed on 24 January 2019).

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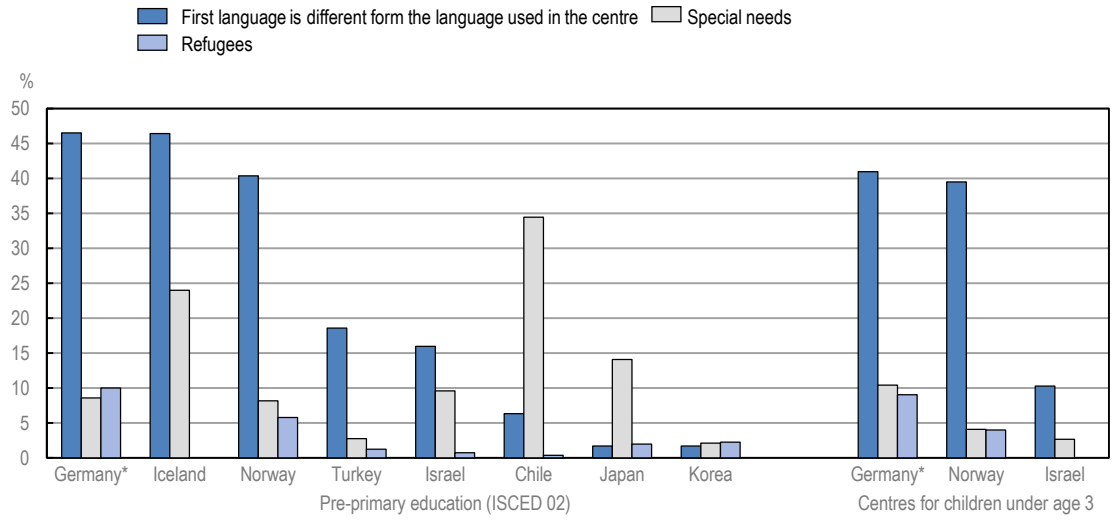
There are important differences between countries with regard to the shares of children in ECEC centres whose first language is different from the language(s) used in the centre. In Denmark (with low response rates), Germany, Iceland and Norway, more than a third of the pre-primary centres have 11% or more of children with a different first language. In contrast, in Japan and Korea, the share of centres with large proportions of such children is small.

Centres reporting a sizable share of refugees are rare in participating countries. Only in pre-primary settings in Denmark (with low response rates), Germany and Norway do more than 5% of centres report that they serve 11% or more of children who are refugees. Differences are small between pre-primary education centres and centres for children under age 3 for both the share of children whose first language is different from the language(s) used in the ECEC centre and the share of refugees (Figure 4.9).

In all participating countries, leaders in the majority of centres report that they have 10% or less of children with special needs (those for whom a special learning need has been formally identified). However, in Chile, Denmark (with low response rates) and Iceland, more than a fifth of pre-primary centres report a higher share of children with special needs. The share of centres with many such children is also small in centres for children under age 3. As noted in Chapter 2, there may be a number of reasons for these variations, such as differences in countries' policies concerning the inclusion of those children and the identification and definition of special needs (see e.g. Cullen (2003[68])).

Figure 4.9. Concentration in centres of children with different characteristics

Percentage of ECEC centres that serve 11% or more of children with the following characteristics, according to leaders



* Estimates for sub-groups and estimated differences between sub-groups need to be interpreted with care. See Annex B for more information.
Notes: Centre leaders may not always be familiar with the precise national or international definition of refugees and/or special needs. This may lead to discrepancies between leader reports and administrative data.
Countries are ranked in descending order of the share of 11% or more of children whose first language is different from the language(s) used in the centre.
Source: TALIS Starting Strong 2018 Database (Table D.4.6).

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The ability of staff to meet the needs of children can be influenced not only by their level of education and training but also by the availability and the stability of staff human resources at the centre. TALIS Starting Strong provides an opportunity to explore the indicators concerning the composition and roles of staff at the centre, the number of staff per child, and staff attrition across participating countries.

Composition of staff in centres

The roles and composition of staff in centres can create different working environments. TALIS Starting Strong asked leaders to report on the number of leaders, teachers, assistants and other staff in their centres. Participating countries vary with regard to the different staff roles common in their centres (Figure 4.10). Although variations in working time of individual staff cannot be captured, TALIS Starting Strong provides an indication of the types of staff with whom children interact in their centres.

Although national terms vary and more fine-grained divisions of responsibilities may be in place on the ground, the internationally defined roles of teachers and assistants are relatively clearly reflected in leaders' reports on their centre's staff in Chile, Denmark (with low response rates), Germany, Israel's pre-primary sector, Korea and Norway. Teachers are defined as having the most responsibility for the group of children in the classroom or playroom, while assistants have a more supporting role. However, in Iceland, national staff roles cannot be clearly distinguished according to those two international staff role divisions, and in Japan, Turkey and centres for children under age 3 in Israel, there are no (or too few) assistants (corresponding to the international definition used during the identification of staff members) eligible for participation in TALIS Starting Strong (see Reader's Guide). In those countries, leaders' reports on the breakdown of those roles should, therefore, be treated with caution. Teachers in Israel's pre-primary

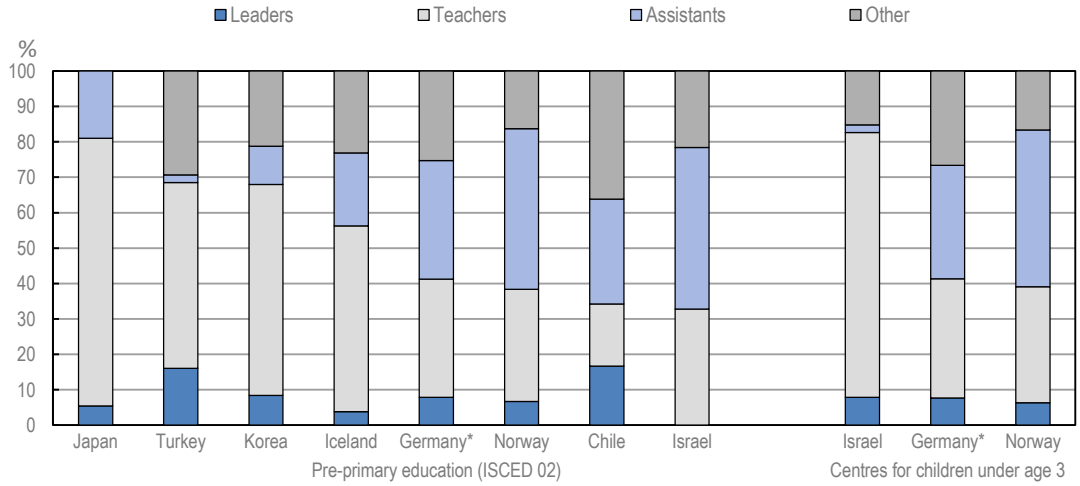
education centres are, due to the small and uniform size of their centres, simultaneously the leaders of their settings (see Box 4.2).

When comparing leaders' reports of the share of assistants to the share of staff identified as either leaders or teachers, (i.e. the individuals who have the most responsibility for the centre or a group of children), Chile, Germany, Israel and Norway, for example, report a roughly similar size of the two groups in pre-primary centres (Figure 4.10). The reported share of assistants is considerably lower in pre-primary centres in Japan, Korea and Turkey and Israel's centres for children under age 3. Chile and Turkey stand out, with centre leaders reporting more than one leader on average per centre (3 in Chile and 1.6 in Turkey); Denmark (with low response rates) also follows this pattern. This indicates that leadership functions might be explicitly shared by multiple individuals, some of whom may also be taking on duties as staff working directly with children.

There is also great variation across countries in the distribution of other staff roles. In Chile, there is a relatively high number of staff other than leaders, teachers and assistants, such as staff working with individual children, staff for special tasks (such as leading special activities like physical education or music) or interns. In Denmark (with low response rates), Germany and Norway, the total number and distribution of staff does not vary across pre-primary centres and centres for children under age 3, which is consistent with the integration of these two levels of education in their ECEC systems. In contrast, Israel has the smallest total number of staff in pre-primary centres, while there are considerably more staff per centre in centres for children under age 3 (Figure 4.10; Table D.4.7). This difference aligns with the fact that those centres are part of the same system in Germany and Norway, while Israel's provision is marked by different governance depending on the level concerned and a unique system of pre-primary education centres (see Box 4.2)

Figure 4.10. Human resources in centres

Share of teachers, leaders, assistants and other staff in ECEC centres, according to leaders



* Estimates for sub-groups and estimated differences between sub-groups need to be interpreted with care. See Annex B for more information.
Notes: In Iceland, national staff roles cannot be clearly distinguished according to the international staff role divisions of "teacher" and "assistant". In Japan, Turkey and centres for children under age 3 in Israel, there are no (or too few) assistants (corresponding to the international definition used during the identification of staff members) eligible for participation in TALIS Starting Strong (see Reader's Guide). The breakdown of those roles reported by leaders should therefore be treated with caution. There are no leaders reported for Israel's pre-primary education centres, as centres correspond to individual classrooms or playrooms, for which the roles of "leader" and "teacher" cannot be separated.
Countries are ranked in the average number of teachers and leaders per centre.
Source: TALIS Starting Strong 2018 database (Table D.4.7).

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Box 4.4. Number of staff and children in the centre

TALIS Starting Strong asks leaders to indicate the number of staff in different categories working in their ECEC centres (leaders, teachers, assistants, staff for individual children, staff for special tasks, interns and other staff) and the number of girls and boys enrolled in the centre.

This information is used to derive several indicators describing the staff and children in the centre: 1) the share of different types of staff working at the centre (i.e. leaders, teachers, assistants and other staff); 2) the number of teachers and leaders compared to the total number of staff at the centre; 3) the number of children at the centre; 4) the number of staff per child at the centre.

The number of staff per child at the centre refers to the total number of staff working in a centre, regardless of their role, divided by the total number of children enrolled. Because the number of staff per individual child is very low, when specific examples are cited for comparative purposes, they are presented as "number of staff per ten children". If the centre covers ISCED level 02 and provision for children under the age of 3, children and staff at both levels are considering in those numbers.

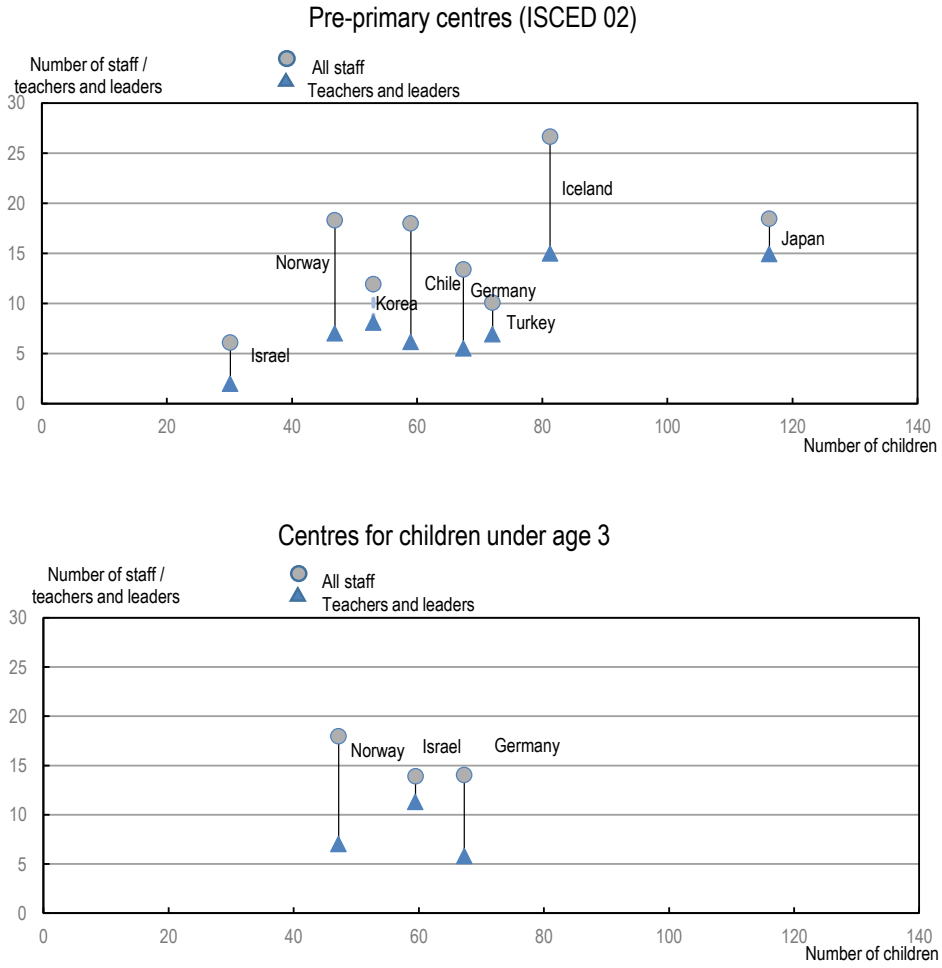
These indicators differ from administrative data capturing similar constructs, for instance because TALIS Starting Strong data does not allow differentiation between part-time and full-time employment at the centre level. Furthermore, regulations often refer to staffing requirements at the group or classroom/playroom level, rather than for the centre as a whole. Additional details on the computation of these indicators can be found in the Reader's Guide and Annex C.

Number of staff in centres

The average number of leaders, teachers, assistants and other staff working in ECEC centres reported by centre leaders varies greatly across countries. Iceland stands out as having the largest average number of staff per centre (Figure 4.11). The average number of staff per centre is also comparatively high in Chile, Japan and Norway. The differences in the average number of staff per centre across countries only loosely parallel the differences in the average number of children per centre. Iceland tends to have large centres on average and a relatively high number of staff, while the average size of centres is even larger in Japan, but the average number of staff is not higher.

Figure 4.11. Average number of staff and children in centres

Average number of staff and children in pre-primary centres and centres for children under age 3, according to leaders



Note: In Iceland, national staff roles cannot be clearly distinguished according to the international staff role divisions of "teacher" and "assistant". In Japan, Turkey and centres for children under age 3 in Israel, there are no (or too few) assistants (corresponding to the international definition used during the identification of staff members) eligible for participation in TALIS Starting Strong (see Reader's Guide). The breakdown of those roles reported by leaders should therefore be treated with caution. There are no leaders reported for Israel's pre-primary education centres, as centres correspond to individual classrooms or playrooms, for which the roles of "leader" and "teacher" cannot be separated.
Source: TALIS Starting Strong 2018 database (Tables D.4.5 and D.4.7).

StatLink https://doi.org/10.1787/888934011344

Using leader reports to compute the number of staff per child in the centre (see Box 4.4), TALIS Starting Strong shows major differences across participating countries. “Number of staff per child” refers to the total number of staff working in a centre, regardless of their role, divided by the total number of children enrolled. Because the number of staff per individual child is very low, for comparative purposes, data are presented as “number of staff per ten children”. The average number of staff per ten children is around two in pre-primary centres in Germany, Israel, Japan and Turkey, while it is above four in Chile and Norway. Germany and Norway have a similar but slightly more favourable number of staff per child in their centres for children under age 3. In Israel, there are more staff per child in centres for children under age 3 than in pre-primary centres (Figure 4.12). Although these statistics do not consider differences in part-time and full-time employment, they do suggest major differences in how many staff shape children’s daily ECEC experience and provide an indication of the average level of human resources available to support each child’s learning, development and well-being.

By computing differences, it is possible to examine whether the variation within countries of the number of staff per child can be explained by a number of factors: 1) rural location versus urban location; 2) the extent to which leaders report that there are public spaces available for children to play safely; 3) the size of centres; 4) whether or not the centres are located in the same place as primary schools; and 5) whether or not there is 11% or more of children from socio-economically disadvantaged homes in the centre.

Across countries, TALIS Starting Strong results show that the number of staff per child is significantly different between pre-primary centres in the largest quarter of centre size as compared to the lowest quarter of centre size in all countries except Denmark (low response rates) and in centres for children under age 3 in Israel (Figure 4.13). These findings suggest that having more children at the centre is not proportionally compensated by increased numbers of staff. Yet, regardless of centre size, one staff member may assume a key role for the entire centre, for example in the case of leaders, contributing to having a smaller number of staff per child in bigger centres.

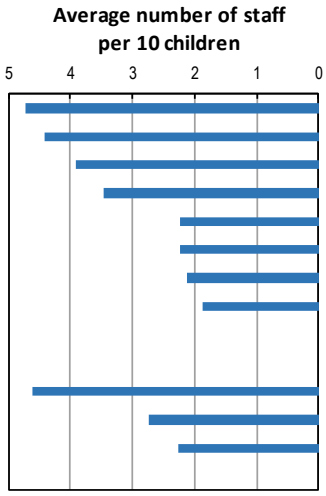
In Chile and Iceland, the number of staff per child is lower in centres located in towns or cities of more than 15 000 people than in centres in more rural locations. In contrast, in Turkey, the number of staff per child is higher in centres located in towns or cities of more than 15 000 people (Figure 4.12). However, in most countries, this number tends to be similar across centres.

Other factors do not appear to be linked to the number of staff per child across countries. In particular, centres with a large percentage of children from disadvantaged homes do not, on average, have a different number of staff per child than centres with a smaller percentage of these children.

Figure 4.12. Number of staff per ten children in centres, by centre characteristics

Statistically significant differences in the average number of staff per ten children in centres related to centres characteristics, results based on leader reports

+	Positive difference
-	Negative difference
	Difference is not significant
	Missing values



	Difference by centre characteristics				
	City-rural area[1]	There are public places where children can play safely in the neighbourhood: agree - disagree[2]	Centre size: top quarter - bottom quarter[3]	Centre co-located with school – Centre not co-located with school[4]	Concentration of children from socio-economically disadvantaged homes: high - low[5]
Pre-primary education (ISCED 02)					
Chile	-		-		
Norway			-		
Korea			-		
Iceland	-		-		
Israel		+	-		
Turkey	+		-		
Germany*			-		
Japan			-		
Denmark**					
Centres for children under age 3					
Norway			-		
Israel					
Germany*			-		
Denmark**					

1. "City" refers to locations with more than 15 000 people, and "rural area" refers to locations with up to 15 000 people.
2. Refers to centres for which leaders either "agree/strongly agree" or "disagree/strongly disagree" that there are public places for children to play safely in the neighbourhood.
3. Quarters refer to 25% of ECEC centres inside a country. The lowest quarter refers to the 25% of ECEC centres for which the statistics obtained are the lowest (i.e. the 25% of centres within a country that register the lowest number of children), while the top quarter refers to the 25% of centres for which the statistics are the highest (i.e. the 25% of centres within a country that register the highest number of children).
4. "Co-located with school" refers to centres that share their location with a primary school.
5. "Socio-economically disadvantaged homes" refers to homes lacking the basic necessities or advantages of life, such as adequate housing, nutrition or medical care. A "high" share is considered to be 11% or more, a "low" share less than or equal to 10%.
* Estimates for sub-groups and estimated differences between sub-groups need to be interpreted with care. See Annex B for more information.
** Low response rates in the survey may result in bias in the estimates reported and limit comparability of the data.
Note: Missing data are due to small sample sizes for the analysis.
Source: TALIS Starting Strong 2018 Database (Table D.4.8).

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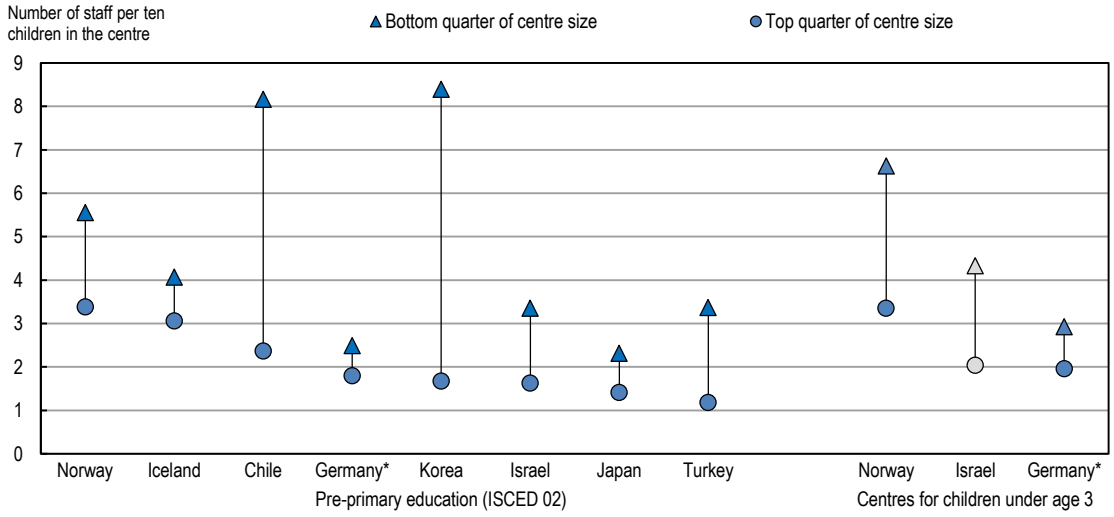
Figure 4.13. Number of staff per ten children in centres, according to centre size

Average number of staff per ten children in ECEC centres, by centre size quartiles, according to leaders



* Estimates for sub-groups and estimated differences between sub-groups need to be interpreted with care. See Annex B for more information.
Notes: Statistically significant differences are marked in blue.
Countries are ranked in ascending order of the number of staff per ten children in the top quarter in terms of centre size.
Source: TALIS Starting Strong 2018 database.

StatLink https://doi.org/10.1787/888934011382

Qualified staff can offer educational and organisational strategies that help centres provide better learning and working environments and, in turn, attract other qualified staff (Barros et al., 2018[45]; Sammons, 2010[46]). Understanding the distribution of staff resources across centres is informative for ensuring equity and quality in the ECEC system. This section puts staff resources (discussed in more detail in Chapter 3) in context by exploring differences across varying characteristics of centres.

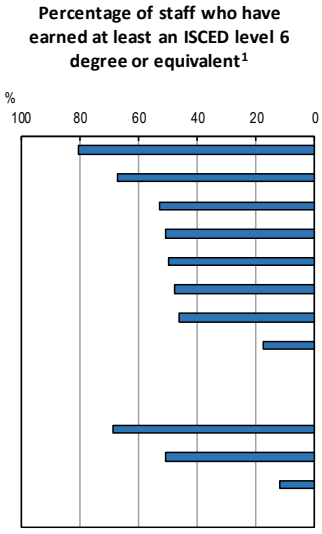
Staff qualifications at the centre level can be described in TALIS Starting Strong through the share of staff reporting that they have high education levels (at least ISCED level 6, a bachelor's degree or equivalent) compared to those with lower levels of educational attainment. By computing the differences, it is possible to examine whether the variation in the percentage of highly educated staff across centres can be related to the following characteristics of centres: 1) rural location versus urban location; 2) the extent to which leaders report that there are public spaces available for children to play safely; 3) the size of centres; and 4) whether or not the centres are located in the same place as primary schools.

In Chile and Israel, the percentage of staff with high qualifications (i.e. equivalent to or above a bachelor's degree) is higher in pre-primary centres co-located with primary schools, compared to centres that are not, although this co-location is less common in Israel than in Chile (Figure 4.14). Also in Chile, the share of highly qualified staff is higher in centres with fewer staff per child, suggesting that in centres in which there are more staff per child, the qualifications of the additional staff tend to be lower, compared to centres with fewer staff per child. This may indicate a potential trade-off or compensation between employing more staff and employing highly qualified staff. Similarly, in Israel for both levels of ECEC, larger centres tend to have a smaller share of highly qualified staff. Other than these differences, the distribution of qualified staff does not vary consistently with centre's geographical location or neighbourhood (Figure 4.14).

Figure 4.14. Staff's educational attainment, by centre characteristics

Statistically significant differences in the average percentage of highly qualified staff in centres related to centres characteristics, results based on staff reports

+	Positive difference
-	Negative difference
	Difference is not significant
	Missing values



	Difference by centre characteristics					
	City-rural area[2]	There are public places where children can play safely in the neighbourhood: agree - disagree[3]	Centre size: top quarter - bottom quarter[4]	Number of staff per child in the centre: top quarter - bottom quarter[5]	Centre co-located with school – Centre not co-located with school[6]	Concentration of children from socio-economically disadvantaged homes: high - low[7]
Pre-primary education (ISCED 02)						
Turkey						
Germany*						
Chile				-	+	
Norway						
Korea						
Iceland						
Israel			-		+	
Japan						
Denmark**						
Centres for children under age 3						
Germany*						
Norway						
Israel			-			
Denmark**						

1. Education categories are based on the International Standard Classification of Education (ISCED 2011).
2. "City" refers to locations with more than 15 000 people, and "rural area" refers to locations with up to 15 000 people.
3. Refers to centres for which leaders either "agree/strongly agree" or "disagree/strongly disagree" that there are public places for children to play safely in the neighbourhood.
4. Quarters refer to 25% of ECEC centres inside a country. The lowest quarter refers to the 25% of ECEC centres for which the statistics obtained are the lowest (i.e. the 25% of centres within a country that register the lowest number of children), while the top quarter refers to the 25% of centres for which the statistics are the highest (i.e. the 25% of centres within a country that register the highest number of children).
5. Quarters refer to 25% of ECEC centres inside a country. The lowest quarter refers to the 25% of ECEC centres for which the statistics obtained are the lowest (i.e. the 25% of centres within a country that register the lowest number of staff per child while the top quarter refers to the 25% of centres for which the statistics are the highest (i.e. the 25% of centres within a country who register the highest number of staff per child).
6. "Co-located with school" refers to centres that share their location with a primary school.
7. "Socio-economically disadvantaged homes" refers to homes lacking the basic necessities or advantages of life, such as adequate housing, nutrition or medical care. A "high" share is considered to be 11% or more, a "low" share less than or equal to 10%.
* Estimates for sub-groups and estimated differences between sub-groups need to be interpreted with care. See Annex B for more information.
** Low response rates in the survey may result in bias in the estimates reported and limit comparability of the data.
Note: Missing data are due to small sample sizes for the analysis.
Source: TALIS Starting Strong 2018 Database (Table D.4.9).

StatLink https://doi.org/10.1787/888934011401

Staff leaving their centres

The share of staff leaving their ECEC centres matters for the stability of relations among staff and between staff and children. Leaders participating in TALIS Starting Strong reported on the number of staff who left the ECEC centre in the year prior to the Survey, which can be related to the total number of staff at the centre at the time leaders responded to the Survey (see also Annex C).

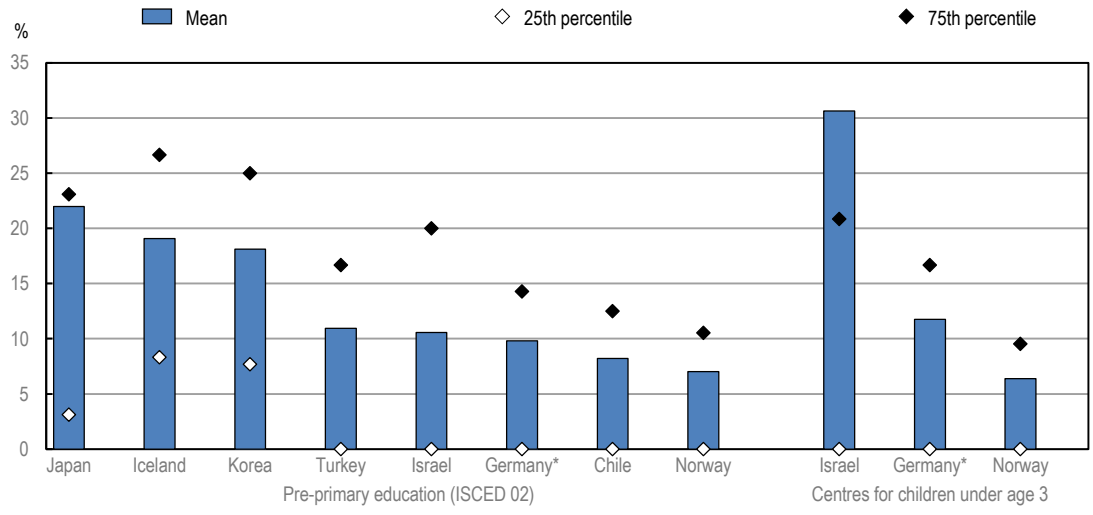
In Iceland, Japan and Korea, leaders reported that approximately one staff per every five staff members at the time of the Survey left the ECEC centre in the previous year. In Israel's centres for children under age 3, the proportion is almost one-third. However, in the rest of the countries, in both pre-primary centres and centres for children under age 3, only around one staff member per ten current staff left their centre in the previous year (Figure 4.15).

Looking beyond averages, in many countries, there are also a sizable number of centres with either very high shares of staff leaving or no staff leaving at all. In Chile, Denmark (with low response rates), Germany, Israel, Norway and Turkey, no staff left in the previous year in at least a quarter of pre-primary centres. This is also true across all countries for centres for children under age 3. At the same time, in a quarter of the centres in Iceland, Israel (at both levels of ECEC), Japan and Korea, at least one in five staff members left in the previous year (Figure 4.15).

There are few rural-urban variations with regard to staff leaving their centres. In Germany, centres for children under age 3 in towns and cities (over 15 000 people) show higher proportions of staff having left in the previous year than centres in more rural areas (see Table D.4.11). Opposite associations appear in Turkey, where centres in rural areas or small towns (15 000 people or less) have higher proportions of staff who left the centre in the previous year.

Figure 4.15. Share of staff leaving their early childhood education and care centres

Average share of staff who left their ECEC centre in the previous year, according to leaders



* Estimates for sub-groups and estimated differences between sub-groups need to be interpreted with care. See Annex B for more information.
Notes: The percentage of staff who left the ECEC centre in the past year is calculated as the number of staff who permanently left the centre in the previous year divided by the total number of staff at the centre at the time of data collection. See Annex C for more information.
Countries are ranked in descending order of the percentage of staff who left the ECEC centre in the previous year.
Source: TALIS Starting Strong 2018 database (Table D.4.10).

StatLink https://doi.org/10.1787/888934011420

Staff practices in ECEC centres can foster children's learning, development and well-being when they are of high quality (Anders, 2015[69]; Barros et al., 2016[9]; Howes et al., 2008[70]). TALIS Starting Strong uses a rich set of indicators of process quality, including practices used by staff at the centre level that are at the core of children's' development and well-being: facilitating emotional development; prosocial behaviour; literacy development; and numeracy development (see Chapter 2 for a discussion of indicators of process quality). TALIS Starting Strong also gathers information on ECEC staff practices to facilitate parent/guardian engagement that are known from the research literature to enhance children's development and well-being.

Staff practices, and overall equity and quality in the ECEC system, can be affected by contextual features, such as centre location in urban or rural areas (Anderson and Mikesell, 2017[4]; Maher, Frestedt and Grace, 2008[5]; Hu et al., 2016[6]; Hu et al., 2014[7]), co-location with primary schools (Pianta et al., 2005[26]; Slot, Lerkkanen and Leseman, 2015[27]) or centre size (OECD, 2018[2]). Staff practices with children and their parents are framed by social, cultural and organisational aspects that influence their interpretation, occurrence and effectiveness (McCoy et al., 2016[71]). TALIS Starting Strong provides an opportunity to contextualise process-quality practices at centres by examining the associations between staff practices and a set of centre characteristics. Understanding specific contextual influences of staff practices helps to identify whether there is a need for targeted approaches or (re)allocation of resources to optimise equity.

Regression analyses were performed to see how the different dimensions of process quality vary according to centre characteristics, namely the urban and physical location of the centre and centre size. The centre characteristics of interest can relate to one another and to other staff characteristics. Thus, the analyses were performed through an estimation of the associations of interest, holding all other characteristics constant (see Annex C). This way, it is possible to understand whether a specific centre feature is important for process quality, even after accounting for the effects of other centre or staff characteristics.

Centre characteristics and process quality

The literature suggests that several centre characteristics can be linked to process quality. TALIS Starting Strong makes it possible to isolate the effect of different centre characteristics (e.g. geographical location, co-location with a primary school and centre size) from effects of other factors (e.g. the role of staff in the target group, the number of staff per child in the centre and the percentage of children from socio-economically disadvantaged homes) to explore their link to process quality. As summarised in Table 4.2, associations between centre characteristics and process quality are often specific to individual countries.

Location of the centre and dimensions of process quality

Staff practices in centres located in urban environments can differ from those in centres in rural areas. TALIS Starting Strong results show that there are differences in process quality according to geographic location only in Norway in centres for children under age 3. In Norway, in centres at this level, staff in urban areas report more use of practices to facilitate children's prosocial behaviour than staff in rural areas. In other countries, practices related to process quality do not differ by centre geographic location.

The literature suggests that centres located in schools can provide higher process quality than independently functioning centres, possibly because of greater alignment on curriculum, pedagogical practices or culture between the ECEC centres and primary schools (Pianta et al., 2005[26]; Slot, Lerkkanen and Leseman, 2015[27]). However, TALIS Starting Strong results show that overall, when other factors are accounted for, there is no consistent link across countries between co-location with a primary school and staff practices. In pre-primary education centres, co-location is associated with more support for literacy development in Iceland, but with less support for parent/guardian engagement in Korea (see Table 4.2).

Table 4.2. Relationship between process quality practices and centre characteristics

Results based on staff reports

+	Positive association
-	Negative association
	Association is not significant
	Missing values or results not comparable

	City - rural area					Centre co-located with school – Centre not co-located with school					Centre size: top quarter - bottom quarter				
	Literacy development	Numeracy development	Prosocial behavior	Emotional development	Parent/ guardian engagement	Literacy development	Numeracy development	Prosocial behavior	Emotional development	Parent/ guardian engagement	Literacy development	Numeracy development	Prosocial behavior	Emotional development	Parent/ guardian engagement
Pre-primary education (ISCED 02)															
Chile															
Germany *															
Iceland						+							-		
Israel												+			
Japan															
Korea										-					
Norway															
Turkey															
Denmark**															
Centres for children under age 3															
Germany *													-		
Israel												+			
Norway			+												
Denmark**												-			-

* Estimates for sub-groups and estimated differences between sub-groups need to be interpreted with care. See Annex B for more information.
** Low response rates in the survey may result in bias in the estimates reported and limit comparability of the data.
Notes: Results from the OLS regression of each process quality indicator on centres' urban/rural and physical location and centre size (quartiles). Other variables in the regression include: staff educational attainment; experience; role in the target group; working hours; contractual status; number of staff per child in the centre (quartiles); percentage of children from socio-economically disadvantaged homes in the centre; and public/private management. See Annex C for more details on variables included in the regression model.
Statistically significant coefficients are marked in light blue (negative coefficient) or dark blue (positive coefficient) (see Annex C).
It is not possible to compare results for literacy development and emotional development across countries for centres serving children under age 3, due to the statistical properties of these indicators (see Annex C). Missing data are due to small sample sizes for the analysis.
Source: TALIS Starting Strong 2018 database (Table D.4.12).

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Centre size and dimensions of process quality

Centre size (in terms of number of children) can affect the working conditions of staff, which can in turn affect their practices (Ho, Lee and Teng, 2016[37]). TALIS Starting Strong results show that, in pre-primary centres in Iceland and in centres for children under age 3 in Germany, staff working in smaller centres (25th percentile) report using more practices to facilitate children's prosocial behaviour. In centres for children under age 3 in Denmark (with low response rates) staff in smaller centres report more practices to facilitate engagement of parents/guardians and numeracy development than staff working in larger centres (75th percentile). In contrast, in Israel, both in centres for children under age 3 and at pre-primary levels, staff in larger centres report more use of practices to facilitate children's numeracy development, although the centre size in Israel's pre-primary settings does not vary as much as in the other countries or in centres serving children under age 3. No other statistically significant associations between centre size and process quality emerged (see Table 4.2).

Centre characteristics and co-operation and transitions between pre-primary and primary education

In addition to process-quality practices in the centre, a strong connection between ECEC centres and communities is central to high-quality provision. Co-operation between ECEC centres, families and the broader community contributes to enhancing the consistency and coherence of practices to support children's development. Co-operation between ECEC centres and other community services can also be fundamental for smooth transitions to primary school, which can influence children's school trajectories and future positive outcomes (OECD, 2017[23]).

Communication with other centres in the local community

Co-operation with other centre leaders can promote innovation and allow broader professional development opportunities for staff. TALIS Starting Strong asks leaders how often they engage in communication and co-operation with other ECEC services in the local community. Across countries, communication with staff and leaders from other centres occurs at least monthly for the majority of participating centres. This is true for pre-primary centres and centres for younger children (Figure 4.16).

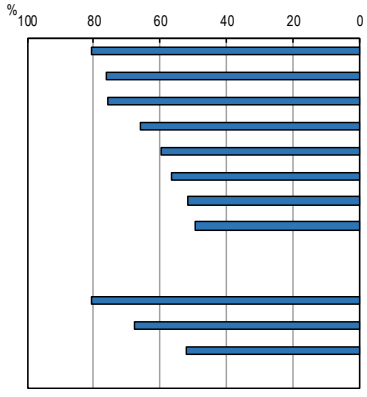
Communication of ECEC centres with staff/leaders from other centres is positively related to being in a city rather than in a rural area (Iceland), the quality of the neighbourhood environment (Israel for pre-primary centres) and a larger number of staff per child (Japan) (Figure 4.16). Being a large rather than a small centre is positively associated with communication practices in Iceland and in centres for children under age 3 in Germany; however, in Japan these communication practices are more common in smaller centres compared with larger centres. Co-location with a primary school appears to be associated with more communication practices in Japan, but less of these practices in Chile. In centres serving children under age 3 in Israel, a greater concentration of children from disadvantaged homes is associated with fewer of these communication practices.

Centre characteristics and practices to facilitate transitions to primary education

Ensuring a smooth transition for children to primary schools is an important task for ECEC centres and primary schools (OECD, 2017[23]; Sim et al., 2019[1]). Well-prepared transitions can help ensure that the benefits of ECEC endure and can improve equity in educational success. This implies that ECEC centres and schools should work together, but it is also linked to strong co-operation between stakeholders, such as families, boards of education, government offices and local authorities (Rimm-Kaufman and Pianta, 2000[72]). In TALIS Starting Strong, centre leaders report on the transition practices that ECEC centres put in place. Overall, a number of transition practices are organised with the co-operation of ECEC centres, although there is variation across countries in the share of centres that provide them.

Figure 4.16. Communication with staff/leaders from other centres, by centre characteristics

Results based on leader reports



	City-rural area[1]	There are public places where children can play safely in the neighbourhood: agree - disagree[2]	Centre size: top quarter - bottom quarter[3]	Number of staff per child in the centre: top quarter - bottom quarter[4]	Centre co-located with school – Centre not co-located with school[5]	Concentration of children from socio-economically disadvantaged homes: high - low[6]
Pre-primary education (ISCED 02)						
Norway						
Japan			-	+	+	
Israel		+				
Chile					-	
Iceland	+		+			
Korea						
Turkey						
Germany*						
Denmark**						
Centres for children under age 3						
Norway						
Israel						-
Germany*			+			
Denmark**						

+ Positive difference
- Negative difference
Difference is not significant
Missing values

1. "City" refers to locations with more than 15 000 people, and "rural area" refers to locations with up to 15 000 people.
2. Refers to centres for which leaders either "agree/strongly agree" or "disagree/strongly disagree" that there are public places for children to play safely in the neighbourhood.
3. Quarters refer to 25% of ECEC centres inside a country. The lowest quarter refers to the 25% of ECEC centres for which the statistics obtained are the lowest (i.e. the 25% of centres within a country that register the lowest number of children), while the top quarter refers to the 25% of centres for which the statistics are the highest (i.e. the 25% of centres within a country that register the highest number of children).
4. Quarters refer to 25% of ECEC centres inside a country. The lowest quarter refers to the 25% of ECEC centres for which the statistics obtained are the lowest (i.e. the 25% of centres within a country that register the lowest number of staff per child) while the top quarter refers to the 25% of centres for which the statistics are the highest (i.e. the 25% of centres within a country that register the highest number of staff per child).
5. "Co-located with school" refers to centres that share their location with a primary school.
6. "Socio-economically disadvantaged homes" refers to homes lacking the basic necessities or advantages of life, such as adequate housing, nutrition or medical care. A "high" share is considered to be 11% or more, a "low" share less than or equal to 10%.
* Estimates for sub-groups and estimated differences between sub-groups need to be interpreted with care. See Annex B for more information.
** Low response rates in the survey may result in bias in the estimates reported and limit comparability of the data.
Note: Missing data are due to small sample sizes for the analysis.
Source: TALIS Starting Strong 2018 Database (Table D.4.13).

StatLink https://doi.org/10.1787/888934011458

Regarding communication with primary school teachers, in all countries with sufficient data, more leaders of pre-primary centres report that this practice is taking place in their centre at least monthly when their centres are co-located with schools, compared to centres that are not co-located with primary schools (Figure 4.17). For these countries, it seems that co-location with primary schools facilitates communication across levels. In Chile, Iceland and Turkey, the percentage of leaders who report that in their centre there is at least monthly communication with primary school teachers is higher in rural areas (locations with up to 15 000 people) than in urban areas (with more than 15 000 people). The percentage of leaders reporting that they frequently use these practices is larger in small centres than in larger ones in Iceland, Korea and Turkey, while in Chile, these practices are more broadly used in large centres than in smaller centres. In Iceland and Norway, these practices are used more when there are more staff per child in the centre. In Chile, Iceland, Israel and Turkey, a larger percentage of leaders report that they communicate at least monthly with primary school teachers when centres have a larger share of children from socio-economically disadvantaged homes.

Regarding meetings with primary school staff, in Chile, Denmark (with low response rates), Germany, Iceland, Japan, Norway and Turkey, the majority of pre-primary centres hold such meetings (Figure 4.18). Regarding the provision of activities for parents or guardians to understand the transition issues their children may face (e.g. sessions about primary education, joint meetings with parents or guardians of primary school children), in six countries (Chile, Denmark [with low response rates], Germany, Korea, Norway and Turkey), more than half of pre-primary centres provide such activities, suggesting that parents are usually involved in practices that prepare children for the transition to primary school (Figure 4.19).

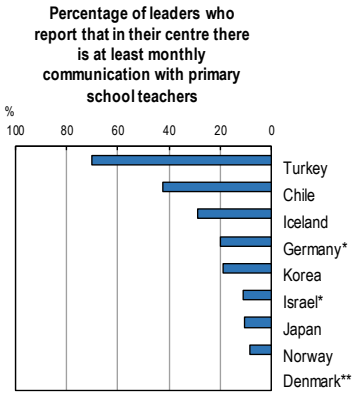
For holding meetings with primary school staff and activities for parents or guardians related to transitions, TALIS Starting Strong also shows associations between co-location with primary school. In Chile, Israel, Japan, Korea and Turkey, the percentages of centres that hold meetings with primary school staff are higher in centres co-located with a primary school (Figure 4.18). In Chile, Israel, Japan and Turkey, co-location is also positively associated with the provision of activities for parents or guardians (Figure 4.19), indicating a broader difference in practices. Co-location is relatively common in Chile, Korea and Turkey (see Figure 4.4). Factors other than co-location show fewer consistent linkages to transition practices across countries.

The co-location of ECEC centres with a primary school can facilitate the process of co-operation between ECEC centres and primary school staff, by making co-ordination less time-consuming. But ECEC centres and schools that do not share the same building may develop other strategies, such as initiatives to share child development information, organising joint training or creating collaborative professional learning groups (OECD, 2017[23]).

With regard to other specific transition practices, in Denmark (with low response rates), Germany, Iceland, Japan and Turkey, it is also very common to invite primary school teachers to observe the centre practices, reported by at least half of pre-primary leaders across those countries (Table D.4.16). Only a small proportion of centres work with local authorities to develop district-wide transition programmes across participating countries. However, this is a common practice in Denmark (with low response rates) and Norway, where it is used by almost nine in ten pre-primary centres, and also widespread in Turkey, where it is used by almost half of centres.

Figure 4.17. Communication between pre-primary centres and primary school teachers

Results based on pre-primary education leader reports



+	Positive difference
-	Negative difference
	Difference is not significant
	Missing values

	Difference by centre characteristics					
	City-rural area[1]	There are public places where children can play safely in the neighbourhood: agree - disagree[2]	Centre size: top quarter - bottom quarter[3]	Number of staff per child in the centre: top quarter - bottom quarter[4]	Centre co-located with school – Centre not co-located with school[5]	Concentration of children from socio-economically disadvantaged homes: high - low[6]
Turkey	-		-		+	+
Chile	-		+		+	+
Iceland	-		-	+	+	+
Germany*					+	
Korea			-		+	
Israel*					+	+
Japan					+	
Norway				+		
Denmark**					+	

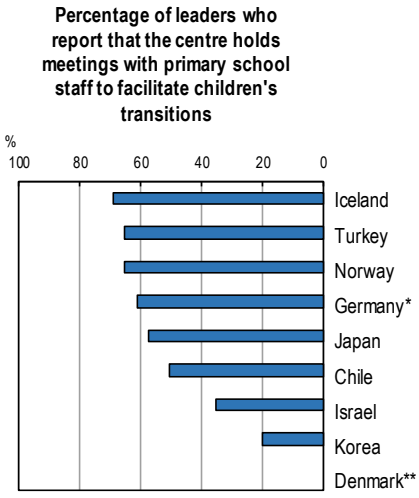
1. "City" refers to locations with more than 15 000 people, and "rural area" refers to locations with up to 15 000 people.
2. Refers to centres for which leaders either "agree/strongly agree" or "disagree/strongly disagree" that there are public places for children to play safely in the neighbourhood.
3. Quarters refer to 25% of ECEC centres inside a country. The lowest quarter refers to the 25% of ECEC centres for which the statistics obtained are the lowest (i.e. the 25% of centres within a country that register the lowest number of children), while the top quarter refers to the 25% of centres for which the statistics are the highest (i.e. the 25% of centres within a country that register the highest number of children).
4. Quarters refer to 25% of ECEC centres inside a country. The lowest quarter refers to the 25% of ECEC centres for which the statistics obtained are the lowest (i.e. the 25% of centres within a country that register the lowest number of staff per child) while the top quarter refers to the 25% of centres for which the statistics are the highest (i.e. the 25% of centres within a country that register the highest number of staff per child).
5. "Co-located with school" refers to centres that share their location with a primary school.
6. "Socio-economically disadvantaged homes" refers to homes lacking the basic necessities or advantages of life, such as adequate housing, nutrition or medical care. A "high" share is considered to be 11% or more, a "low" share less than or equal to 10%.
* Estimates for sub-groups and estimated differences between sub-groups need to be interpreted with care. See Annex B for more information.
** Low response rates in the survey may result in bias in the estimates reported and limit comparability of the data.
Note: Missing data are due to small sample sizes for the analysis.
Source: TALIS Starting Strong 2018 Database (Table D.4.14).

StatLink https://doi.org/10.1787/888934011477

Figure 4.18. Transition practices by centre characteristics: Hold meetings with primary school staff

Results based on pre-primary education leader reports

+	Positive difference
-	Negative difference
	Difference is not significant
	Missing values



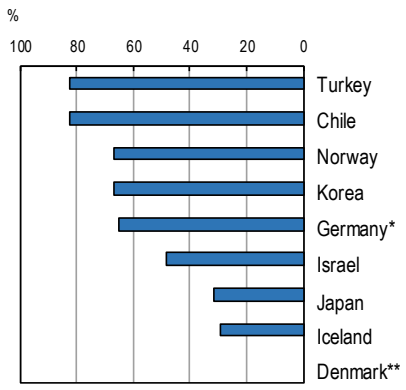
	Difference by centre characteristics					
	City-rural area[1]	There are public places where children can play safely in the neighbourhood: agree - disagree[2]	Centre size: top quarter - bottom quarter[3]	Number of staff per child in the centre: top quarter - bottom quarter[4]	Centre co-located with school – Centre not co-located with school[5]	Concentration of children from socio-economically disadvantaged homes: high - low[6]
Iceland						
Turkey				-	+	
Norway						
Germany*						
Japan			-	+	+	
Chile	-				+	+
Israel	-	-			+	+
Korea				-	+	
Denmark**						

1. "City" refers to locations with more than 15 000 people, and "rural area" refers to locations with up to 15 000 people.
2. Refers to centres for which leaders either "agree/strongly agree" or "disagree/strongly disagree" that there are public places for children to play safely in the neighbourhood.
3. Quarters refer to 25% of ECEC centres inside a country. The lowest quarter refers to the 25% of ECEC centres for which the statistics obtained are the lowest (i.e. the 25% of centres within a country that register the lowest number of children), while the top quarter refers to the 25% of centres for which the statistics are the highest (i.e. the 25% of centres within a country that register the highest number of children).
4. Quarters refer to 25% of ECEC centres inside a country. The lowest quarter refers to the 25% of ECEC centres for which the statistics obtained are the lowest (i.e. the 25% of centres within a country that register the lowest number of staff per child) while the top quarter refers to the 25% of centres for which the statistics are the highest (i.e. the 25% of centres within a country that register the highest number of staff per child).
5. "Co-located with school" refers to centres that share their location with a primary school.
6. "Socio-economically disadvantaged homes" refers to homes lacking the basic necessities or advantages of life, such as adequate housing, nutrition or medical care. A "high" share is considered to be 11% or more, a "low" share less than or equal to 10%.
* Estimates for sub-groups and estimated differences between sub-groups need to be interpreted with care. See Annex B for more information.
** Low response rates in the survey may result in bias in the estimates reported and limit comparability of the data.
Note: Missing data are due to small sample sizes for the analysis.
Source: TALIS Starting Strong 2018 Database (Table D.4.15).

StatLink https://doi.org/10.1787/888934011496

Figure 4.19. Transition practices by centre characteristics: Provide activities for parents or guardians to understand transition issues, by centre characteristics

Results based on leader reports



+	Positive difference
-	Negative difference
	Difference is not significant
	Missing values

	Difference by centre characteristics					
	City-rural area[1]	There are public places where children can play safely in the neighbourhood: agree - disagree[2]	Centre size: top quarter - bottom quarter[3]	Number of staff per child in the centre: top quarter - bottom quarter[4]	Centre co-located with school – Centre not co-located with school[5]	Concentration of children from socio-economically disadvantaged homes: high - low[6]
Turkey					+	
Chile					+	
Norway						
Korea						
Germany*						
Israel	-				+	
Japan			-	+	+	
Iceland						
Denmark**						

1. "City" refers to locations with more than 15 000 people, and "rural area" refers to locations with up to 15 000 people.
2. Refers to centres for which leaders either "agree/strongly agree" or "disagree/strongly disagree" that there are public places for children to play safely in the neighbourhood.
3. Quarters refer to 25% of ECEC centres inside a country. The lowest quarter refers to the 25% of ECEC centres for which the statistics obtained are the lowest (i.e. the 25% of centres within a country that register the lowest number of children), while the top quarter refers to the 25% of centres for which the statistics are the highest (i.e. the 25% of centres within a country that register the highest number of children).
4. Quarters refer to 25% of ECEC centres inside a country. The lowest quarter refers to the 25% of ECEC centres for which the statistics obtained are the lowest (i.e. the 25% of centres within a country that register the lowest number of staff per child) while the top quarter refers to the 25% of centres for which the statistics are the highest (i.e. the 25% of centres within a country that register the highest number of staff per child).
5. "Co-located with school" refers to centres that share their location with a primary school.
6. "Socio-economically disadvantaged homes" refers to homes lacking the basic necessities or advantages of life, such as adequate housing, nutrition or medical care. A "high" share is considered to be 11% or more, a "low" share less than or equal to 10%.
* Estimates for sub-groups and estimated differences between sub-groups need to be interpreted with care. See Annex B for more information.
** Low response rates in the survey may result in bias in the estimates reported and limit comparability of the data.
Note: Missing data are due to small sample sizes for the analysis.
Source: TALIS Starting Strong 2018 Database (Table D.4.17).

StatLink https://doi.org/10.1787/888934011515

Equity of early childhood education and care centres

Several countries participating in TALIS Starting Strong have many ECEC centres with sizable groups of children from socio-economically disadvantaged homes, with a first language different from the language(s) used in the centre and/or with special needs. This means that ECEC can be a stepping stone for giving a strong start to all children. But to fulfil this promise, centres need to be able to build on the strengths of all children and meet their needs. When looking at the extent to which the structural environment is facilitating or hampering this task, a mixed picture emerges.

Socio-economic equity: Relationship between centre characteristics and characteristics of the children at the centre

TALIS Starting Strong data provide an opportunity to investigate whether there are differences in contextual indicators in centres depending on the concentration of children from socio-economically disadvantaged homes. In most countries, the proportion of centres with a large share of children from socio-economically disadvantaged homes is similar across rural and urban areas. But there are some exceptions. In Germany, larger urban areas have more pre-primary education centres with high rates of children from socio-economically disadvantaged homes compared to more rural areas. This is also the case in centres for children under age 3 in Germany, Israel and Norway (Table 4.3).

In pre-primary centres in Israel, children from socio-economically disadvantaged homes tend to be concentrated in centres in neighbourhoods where leaders report less availability of public spaces for children to play safely. This suggests a less favourable context for learning and development. However, in Norway centre leaders at both levels of ECEC more often agree that there is availability of public spaces for children to play safely in the neighbourhood when they serve more children from socio-economically disadvantaged homes (Table 4.3).

For ECEC to facilitate the development of all children regardless of their socio-economic background, one approach could be to raise structural quality standards for the centres serving large proportions of children from less privileged homes. In practice, structural indicators like the number of staff per child at the centre level do not systematically vary with the share of children from socio-economically disadvantaged homes. However, in pre-primary education settings in Germany and centres serving children under age 3 in Israel and Norway, larger centres tend to serve more children from socio-economically disadvantaged homes than smaller centres (Table 4.3).

TALIS Starting Strong results also suggest that there is a similar distribution of staff with higher qualification levels (i.e. a bachelor's degree or equivalent or higher) across centres with low and high rates of children from socio-economically disadvantaged homes (see Figure 4.14). With regard to links to staff working conditions, the Survey finds that the share of staff leaving their positions is similar across centres with low and high shares of children from socio-economically disadvantaged homes across countries. However, in Iceland, the number of staff who permanently left the centre within the previous year is significantly lower in centres where the share of children from socio-economically disadvantaged homes is 11% or higher (compared to 10% or less). The opposite relation is found for pre-primary centres in Turkey. Thus, the Survey data does not suggest systematically greater levels of instability of staff contacts in centres with more children from socio-economically disadvantaged homes (Table D.4.11).

Overall, there is little indication that the structural conditions of ECEC centres exacerbate inequities, but there is also no indication that countries systematically provide enhanced structural conditions for children who may need them most.

Table 4.3. Difference in percentage of centres with 11% of more children from socio-economically disadvantaged homes, by centre characteristics

Results based on leader reports

+	Positive difference
-	Negative difference
	Difference is not significant
	Missing values

	Difference by centre characteristics		
	City-rural area[2]	There are public places where children can play safely in the neighbourhood: agree - disagree[3]	Centre size: top quarter - bottom quarter[4]
Pre-primary education (ISCED 02)			
Chile			
Turkey			
Germany	+		+
Israel		-	
Korea			
Iceland			
Norway		+	
Japan			
Denmark**			
Centres for children under age 3			
Germany	+		
Israel	+		+
Norway	+	+	+
Denmark**			

1. "Socio-economically disadvantaged homes" refers to homes lacking the basic necessities or advantages of life, such as adequate housing, nutrition or medical care. A "high" share is considered to be 11% or more, a "low" share less than or equal to 10%.
2. "City" refers to locations with more than 15 000 people, and "rural area" refers to locations with up to 15 000 people.
3. Refers to centres for which leaders either "agree/strongly agree" or "disagree/strongly disagree" that there are public places for children to play safely in the neighbourhood.
4. Quarters refer to 25% of ECEC centres inside a country. The lowest quarter refers to the 25% of ECEC centres for which the statistics obtained are the lowest (i.e. the 25% of centres within a country that register the lowest number of children), while the top quarter refers to the 25% of centres for which the statistics are the highest (i.e. the 25% of centres within a country that register the highest number of children).
* Estimates for sub-groups and estimated differences between sub-groups need to be interpreted with care. See Annex B for more information.
** Low response rates in the survey may result in bias in the estimates reported and limit comparability of the data.
Note: Missing data are due to small sample sizes for the analysis.
Source: TALIS Starting Strong 2018 database.

StatLink https://doi.org/10.1787/888934011534

Share of children from socio-economically disadvantaged homes and dimensions of process quality, co-operation and transition practices

Providing high-quality ECEC practices is a key policy lever to mitigate social inequalities (OECD, 2017[8]). There is research evidence that staff can effectively support children's learning and development through the use of high-quality practices (OECD, 2011[21]; Sylva et al., 2004[73]). But the literature has also found cultural and social barriers that make access to high-quality provision difficult for disadvantaged families (Kuger et al., 2015[30]; Leu and Schelle, 2009[31]; LoCassale-Crouch et al., 2007[32]; Slot, Lerkkanen and Leseman, 2015[27]; Slot, 2018[3]; Tonyan and Howes, 2003[33]). Co-operation between the ECEC centre and the wider community can be particularly important for children in socio-economically disadvantaged circumstances, contributing to addressing the multiple needs of families (Van Tuijl and Leseman, 2013[24]; Weiss, Caspe and Lopez, 2008[25]) and facilitating transitions from ECEC to school (OECD, 2017[23]). TALIS Starting Strong provides an opportunity to compare staff practices and centre practices that facilitate co-operation and transitions, according to the rates of children from socio-economically disadvantaged homes, using regression analysis (see Annex C).

Accounting for other factors, in pre-primary centres in Chile and Germany, staff report fewer practices to facilitate emotional development in their centres when there are higher shares of children from socio-economically disadvantaged homes, compared to centres with lower shares of such children (see Table D.4.12). In Chile and Japan, this is also the case for staff reports of practices to facilitate prosocial behaviour and, only in Chile, for practices to support the engagement of parents/guardians. In Denmark (with low response rates), staff report more practices to facilitate literacy development when there are higher shares of children from socio-economically disadvantaged homes, compared to centres with lower shares of such children. However, in most countries, staff report that process-quality practices are similar across centres with low and high shares of children from socio-economically disadvantaged homes.

Leaders of pre-primary centres in Chile, Iceland, Israel, and Turkey with higher rates of children from socio-economically disadvantaged homes report more communication with primary school teachers, compared to centres with lower shares of such children. Furthermore, a higher share of centres in Chile and Israel with high rates of children from socio-economically disadvantaged homes hold meetings with primary school staff (Figure 4.17; Figure 4.18).

Diversity activities, practices and beliefs in ECEC centres

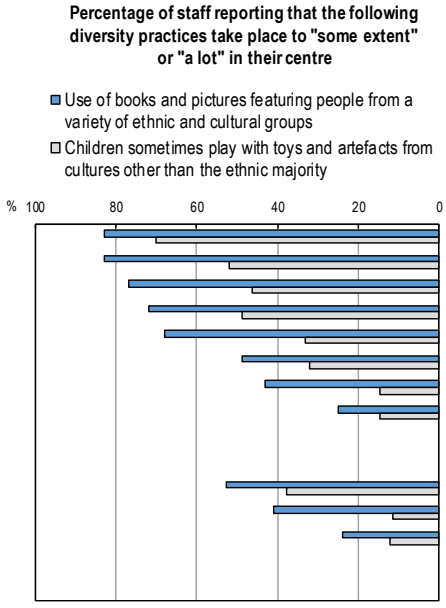
Staff practices adapted to children's diversity can contribute to more favourable opportunities for children's growth and well-being (Melhuish et al., 2015[74]; Sammons et al., 2002[75]). But within the context of ECEC, several aspects can affect how professionals deal with diversity and inclusiveness. TALIS Starting Strong provides an opportunity to examine whether reported staff diversity practices differ depending on the characteristics of the centre. Two indicators introduced in Chapter 2 are considered: 1) staff reports on the extent to which they use books and pictures featuring people from a variety of ethnic and cultural groups; and 2) the extent to which children play with toys and artefacts from cultures other than the ethnic majority.

In Denmark (with low response rates), Germany and Iceland, staff report more use of practices related to diversity in pre-primary centres located in towns and cities (more than 15 000 people), compared to centres in rural areas (15 000 people or less) (Tables D.4.18 and D.4.19). Also in Germany, where centres in towns are more likely to serve a large percentage of children from disadvantaged homes (Table 4.3), in centres for younger children located in towns and cities, staff report more frequently using books and pictures featuring people from a variety of ethnic and cultural groups than staff in centres in rural areas (Table D.4.18). In contrast, in Israel, staff in centres for children under age 3 report more frequent use of books and pictures featuring people from a variety of ethnic and cultural groups in rural areas than in towns and cities. In other countries, the use of diversity practices is similar across geographic locations.

Figure 4.20. Staff use of diversity practices, by characteristics of children in the centre

Results based on staff reports

+	Positive difference
-	Negative difference
	Difference is not significant
	Missing values



	Difference by centre characteristics			
	Use of books and pictures featuring people from a variety of ethnic and cultural groups		Children sometimes play with toys and artefacts from cultures other than the ethnic majority	
	High - low concentration of children from socio-economically disadvantaged homes[1]	High - low concentration of children whose home language is different from the centre language[2]	High - low concentration of children from socio-economically disadvantaged homes[1]	High - low concentration of children whose home language is different from the centre language[2]
Pre-primary education (ISCED 02)				
Turkey				
Chile		+		+
Korea				
Israel				-
Iceland		+		+
Japan				
Germany*		+		+
Norway				
Denmark**	+			
Centres for children under age 3				
Israel	-			
Germany*		+		+
Norway		+	+	
Denmark**				+

1. "Socio-economically disadvantaged homes" refers to homes lacking the basic necessities or advantages of life, such as adequate housing, nutrition or medical care. A "high" share is considered to be 11% or more, a "low" share less than or equal to 10%.
2. A "high" share of children whose first language is different from the language(s) used at the ECEC centre is considered to be 11% or more, a "low" share less than or equal to 10%.
* Estimates for sub-groups and estimated differences between sub-groups need to be interpreted with care. See Annex B for more information.
** Low response rates in the survey may result in bias in the estimates reported and limit comparability of the data.
Note: *Differences are reported if statistically significant for at least one of the two practices. There are no cases in which differences for both practices are statistically significant for a country and go in different directions.*
Source: TALIS Starting Strong 2018 database (Tables D.4.18 and D.4.19).

StatLink https://doi.org/10.1787/888934011553

TALIS Starting Strong suggests that practices in support of diversity tend to be found in centres that also show a greater share of children from diverse backgrounds (i.e. responding to the differences in the groups of children they serve). In pre-primary centres in Chile, Germany and Iceland, and in centres for children under age 3 in Germany, the percentage of staff reporting use of books/pictures and toys/artefacts from a variety of ethnic and cultural groups is higher for staff working with a larger percentage of children whose first language is different from the language(s) used in the centre. Similar patterns are observed at both levels of ECEC in Denmark (with low response rates) and in centres for children under age 3 in Norway, with more use of such materials occurring in centres serving a larger percentage of children from socio-economically disadvantaged homes as well (Figure 4.20). Yet, in pre-primary centres in Israel, the percentage of staff using such practices is higher in centres with low percentages of children whose first language is different from the language(s) used in the centre. In centres for children under age 3 in Israel,

the percentage of staff using such practices is higher in centres with low percentages of children from socio-economically disadvantaged homes.

Conclusion and policy implications

This chapter presents findings from TALIS Starting Strong on centre characteristics (i.e. where they are, what staff they employ and what children they serve). It explores ways in which centre characteristics are associated with staff characteristics and practices in the centre.

The data suggest that larger centres tend to have less favourable numbers of staff per child. However in most countries, such structural characteristics of centres vary little, for instance, between centres in rural locations and those in cities or between centres with more or fewer children from socio-economically disadvantaged homes. Centres with larger groups of children from socio-economically disadvantaged homes do not seem to receive more human resources, but there is evidence that, in many countries, children whose first language is different from the language(s) used in the centre are in centres with practices that take the diversity of children's backgrounds into consideration.

In several countries, co-location with primary schools is associated with more transition-related practices, such as co-operation with primary education staff and organisation of activities to help parents understand the transition issues, and there are also some instances where such pre-primary education centres tend to have more highly educated staff.

These insights provide food for thought for further policy development. Policy approaches can include:

1. **Ensuring that centres serving children from less favourable socio-economic backgrounds have the human resources to provide the best possible support to their development:** Those children tend to be in centres where leaders report less availability of public spaces where it is safe for children to play, indicating a less favourable context for learning and development. The Survey does not suggest that centres with a higher concentration of children from socio-economically disadvantaged homes consistently have less qualified staff or are otherwise of poorer structural quality. However, there is also no evidence of systematic measures to ensure that such centres receive additional or better qualified staff to support equal opportunities for children against the backdrop of potentially less favourable home and neighbourhood environments. As discussed in Chapter 3, ECEC staff qualifications matter, for instance, for their use of adaptive practices. Policy makers can consider whether structural conditions can be more sensitive to centres' specific contexts.
2. **Ensuring that larger centres have sufficient staff to support children's development across all domains:** The number of staff per child in ECEC centres becomes less favourable as the size of the centre increases across countries. There are certainly economies of scale to be had without jeopardising quality, and in both levels of ECEC in Israel, staff in larger centres even provide more support for numeracy development. However, in pre-primary centres in Iceland and centres for children under age 3 in Germany, TALIS Starting Strong data also suggests that there is less support for prosocial behaviour as centres get bigger. Children's daily experiences depend greatly on the number of staff available to engage with them. As many countries are under pressure to create more places in ECEC than ever, caution is warranted to ensure that quality is not being watered down in this process.
3. **Encouraging co-operation between staff and leaders of ECEC centres and schools to facilitate children's transitions from pre-primary to primary education:** Transitions are particularly important for children who have less support outside of their educational settings as they take the important step from ECEC to the different learning environment of primary schooling. Across several countries, there is evidence that co-location of ECEC centres with primary school

is linked with greater collaboration between staff at both levels and with further engagement of parents and guardians. However, in all countries except Turkey, only a minority of centres is co-located with primary schools. This implies that it is even more important to encourage co-operation between staff and leaders of ECEC centres and schools through a variety of approaches and to train staff to engage with parents to prepare children for those transitions. When building new ECEC centres, co-location with a primary school can be one of the options to consider for facilitating children's transition from ECEC to primary school, while ensuring age-appropriate practice across levels.

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5 Governance, funding and the quality of early childhood education and care

This chapter presents an overview of the funding and governance structure of early childhood education and care centres in countries participating in the Starting Strong Teaching and Learning International Survey (TALIS Starting Strong), using answers to the Survey and additional system-level data. TALIS Starting Strong explores centre leaders' perceptions on effective management and sources of work-related stress. The chapter also looks into the relationship between centre governance and staff's level of education, perceptions on spending priorities and support for professional development. It further examines the relationship between centre governance, funding and various dimensions of process quality, as well as how access to early childhood education and care for children with different socio-economic backgrounds relates to different centre governance and funding structures.

The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

Key messages

- In countries participating in TALIS Starting Strong, the majority of funding for early childhood education and care (ECEC) comes from the public sector (except in Japan and Turkey), and more than 90% of centres receive government funds. Parents are also involved in the funding of ECEC centres, with more than 60% of centres receiving funds from parents in all countries surveyed except Chile and Iceland.
- Staff across countries and levels of education concur that reducing group size, improving staff salaries and receiving support for children with special needs are highly important spending priorities. Staff in centres with a smaller number of staff per child (the total number of staff working in a centre, regardless of their role, divided by the total number of children enrolled) are more likely to see the reduction of group size as a highly important spending priority. Opportunities for high-quality professional development also appears as a top-three priority for staff, particularly in centres for children under age 3. Country-specific spending priorities include a need for investments in toys, material, outdoor facilities and centre buildings in Turkey and reducing ECEC staff administrative burden in Japan and Korea.
- The governance of ECEC centres is very diverse across countries and is sometimes split between different ministries or decentralised to regional and municipal administrative authorities. Most countries have developed minimum standards and monitoring practices to ensure a certain level of homogeneity in the provision of ECEC. However, monitoring efforts are uneven, despite widespread regulations. Monitoring activities tend to focus more on assessing the facilities and financial situation of centres than on process quality. Some leaders report that their centres are never evaluated on process quality, from less than 10% of leaders (in Israel for centres for children under age 3, Korea and Turkey) to more than 20% (in Germany, Japan and Norway in centres for children under age 3).
- In the majority of countries surveyed, most centre leaders and/or members of staff play a key role in shaping the centre's budget and human resources. They often report more involvement in these matters than other ECEC stakeholders, such as centre governing boards and higher administrative authorities. However, leaders often struggle to comply with regulations. Their main sources of stress are administrative workload and changing requirements from administrative authorities. Leaders also report that inadequate resources for the centre, staff absences and staff shortages are their main barriers to effectiveness.
- The ECEC sector relies more on private management than higher levels of education. The share of privately managed centres varies from 10% in Israel to 70% in Germany. Most of these centres, however, do not report aiming to generate a profit. Privately managed centres benefit from more autonomy, which means more responsibility for centre leaders and/or members of staff and centre governing boards in shaping the centre budget and human resources policies than in publicly managed centres.
- Staff and leaders in publicly and privately managed centres across countries do not show consistent variations in their levels of education. However, in several countries, including Chile and centres serving children under age 3 in Norway, staff in publicly managed centres report less diversified forms of support for professional development than those in privately managed centres.
- Publicly managed centres are significantly more likely to be located in more rural areas than privately managed centres in almost all countries surveyed, underlining the role of the public sector in ensuring equal access to ECEC settings throughout the national territory.

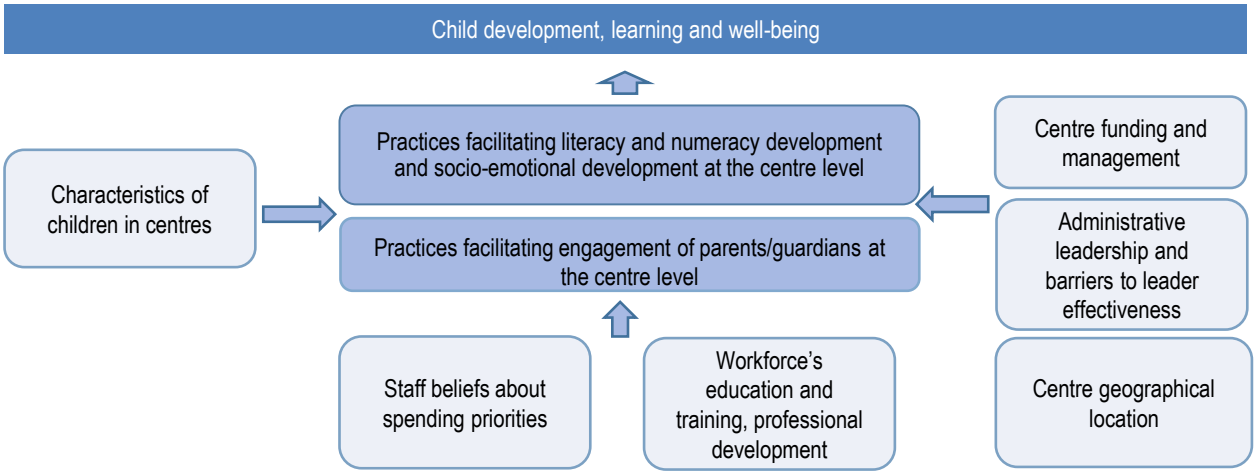
- The type of centre management (public or private) appears to be linked to some dimensions of process quality in four countries (Denmark [with low response rates], Germany, Iceland and Norway). Staff in publicly managed centres in these countries tend to make less use than staff in privately managed centres of practices facilitating children's learning and development and engagement of parents/guardians.
- In some countries, publicly managed pre-primary centres enrol larger percentages of children from socio-economically disadvantaged homes (Chile, Israel and Turkey) and children whose first language is different from the language(s) used in the centre (Norway and Turkey) than privately managed centres. These findings point towards a concentration of children with similar characteristics in the same type of centres.

Introduction

TALIS Starting Strong offers an international comparison of early childhood education and care (ECEC) systems. Centre leaders were asked to provide information about the funding, governance and ownership of ECEC centres, as well as their perceptions regarding issues in centre management and potential ways to address them. Centre staff provided information about themselves, such as their level of education and the support received for their professional development, which allows for comparison across centres relative to governance.

The goal of this chapter is to provide an overview of centre funding, governance and ownership in ECEC, both for pre-primary education (Chile, Denmark, Germany, Iceland, Israel, Japan, Korea, Norway and Turkey) and for centres serving children under age 3 (Denmark, Germany, Israel and Norway). The chapter first explores the issue of funding and governance in ECEC centres and then looks at the organisation of ECEC systems across participating countries. It contains insights from both national regulations and respondents' perceptions at the centre level. The chapter then discusses the relationship between centre governance and funding, as well as the relationship between governance and funding and the various dimensions of process quality. It ends by discussing the extent to which children who have different home environments, learning and development requirements are enrolled in centres with different governance and funding structures.

Figure 5.1. TALIS Starting Strong framework for the analysis of aspects of governance and funding affecting children's development



Insights from research and policy evidence

Aspects of governance and standards are among the most commonly used regulations for improving ECEC quality. Several studies have highlighted the decisive contribution of positive centre governance to process quality, while the structure and volume of ECEC funding are crucial in determining who can access early childhood education and under what conditions. Similarly, describing the regulatory environment of ECEC centres makes it possible to understand the division of responsibilities inside and outside ECEC settings, for instance regarding the definition of minimum standards.

Expenditure and sources of funding

In recent years, expenditure on ECEC has increased in line with studies highlighting its long-lasting benefits and a surge in attention from authorities (OECD, 2018[1]; OECD, 2018[2]). The high returns on investment for both individuals and society are demonstrated in longitudinal research in the United States (Heckman et al., 2010[3]; Campbell et al., 2008[4]). This body of studies makes a case for strong government investments as early as possible in children's lives to give them access to such services. However, government expenditure needs to be measured not only against progress in the number of places in ECEC, but also in light of how it affects quality.

Since the ECEC sector also relies more on local authorities than any other level of education, public funding often originates from diverse sources. In OECD countries, central governments account for about 40% of total public funding for ECEC centres after transfers, while the rest is administered at regional and local levels, with large variations in their respective roles across countries (OECD, 2017[5]). In comparison, central governments account, on average, for 56% of spending in primary, secondary and post-secondary non-tertiary levels of education (OECD, 2018[2]).

The type of public funding can also lead to different forms of delivery of ECEC. In Scotland, for example, the use of tax credits to help lower-income parents finance pre-primary education favoured the development of private settings, while direct financing meant that settings for children under age 3 developed mainly in the public sector (Cohen et al., 2018[6]).

The sharing of funding between public and private sources matters, both for ensuring equal access for all children and for determining the responsibilities of providing and assessing quality in provision of early childhood education.

Governance and management

The governance of ECEC systems designates the way ECEC is managed within the country and the bodies in charge of regulating it. Countries differ in the organisation of their institutions governing ECEC. Some rely on integrated ECEC systems, meaning that pre-primary education and centres for children under age 3 work under the supervision of the same ministry, while others have split systems with these two levels of education governed by different authorities (OECD, 2017[5]). Specific country cases show that the way these institutions are organised can matter for quality of ECEC, as they may facilitate providing a continuum of high-quality services across age groups. For instance, the transition from a split system to an integrated system in England, Scotland and Sweden led to beneficial effects in Sweden but had little influence in the other two countries (Cohen et al., 2018[6]). In addition, pre-primary education and education and care for children under age 3 are regularly subject to different regulations within countries, whether the system is integrated or not, most notably regarding the conditions of access to ECEC centres or the number of hours of entitlement (OECD, 2018[2]).

Hence, several levels of governance are generally involved in the provision, operation and supervision of ECEC centres at both national and local levels. This makes it key to clearly and consistently allocate responsibilities at the system level. These governance structures often mean that centres have to comply

with regulations from both national and local levels of government. However, collaboration with multiple stakeholders also allows for better tailoring of ECEC services to specific needs, for instance at the local level (Britto et al., 2014[7]; OECD, 2015[8]).

At the centre level, governance can be defined as management by the centre leader, including dimensions of administrative leadership (e.g. clear structure of governance, human resources and financial management). In South Africa, a study found quality of administrative leadership to be one of the main predictors of quality in ECEC, before factors such as child-staff ratio or staff qualifications (Biersteker et al., 2016[9]). Centre leaders may also influence the opportunities for professional development proposed to staff or encourage collegial decision-making, fair rewards and a supportive physical environment. In the United States, a study found that pedagogical and administrative leadership are significantly correlated with the level of quality attained in ECEC centres (Dennis and O'Connor, 2013[10]). These results make it crucial to understand the main determinants of positive leadership at the centre level. Leader training, for instance, is an important factor, as research highlights a link between a leader's qualifications and quality of the work environment (Sylva et al., 2004[11]).

Ownership and profit status

Between countries, there is a strong variation in the share of public and private provision in the ECEC sector. While some countries rely mostly on state-run provision, others favour networks of private settings more or less strictly framed by state regulations (OECD, 2017[5]). In some countries, many privately managed settings are mostly publicly funded, while in other countries, privately managed settings rely mostly on fees from parents/guardians.

Evidence shows mixed results of the type of centre management on process quality. Public pre-primary centres seemed to score better on process quality than their private counterparts in countries such as China, Portugal and the United States (Coley et al., 2016[12]; Hu et al., 2016[13]; Slot, Lerkkanen and Leseman, 2015[14]). But this difference was not found in Spanish ECEC centres, where private schools subsidised by public funds scored lower than public centres on infrastructure, but better on dimensions of care for children's needs (Sandstrom, 2012[15]). These gaps in quality scores between public and private settings can also be explained by divergent investment choices in the centres or different regulations applying to each type of setting, with public settings in China and the United States hiring more qualified staff (Coley et al., 2016[12]; Coley et al., 2016[12]).

Private centres, especially when they require fees from parents/guardians, may concentrate children from similar socio-economic backgrounds in the same settings. In the United States, a study of selection in ECEC centres found that children who are from minority and low socio-economic backgrounds and rural families were less likely to enrol in private settings (Coley et al., 2014[16]). Studies led in the Netherlands and the United States showed that children from disadvantaged backgrounds who attended preschool with a larger proportion of children from similar backgrounds displayed lower progress in language and literacy skills than similarly disadvantaged children in socio-economically mixed classrooms or playrooms (de Haan et al., 2013[17]; Schechter and Bye, 2007[18]). Some evidence demonstrates that lower observed levels of staff emotional support and classroom/playroom organisation could explain this association (Slot et al., 2017[19]).

Some ECEC centres may also aim to generate a profit. For-profit education settings raise controversial questions over their incentives and the quality of the service their offer. While proponents of for-profit ECEC argue that increased competition could foster quality in the field, critics underline that profits may not be invested in the improvement of the service, generating a deadweight loss (Boeskens, 2016[20]). In Canada and the United States, a study found that for-profit centres exhibited consistently lower quality due to differences in input choices (salaries, professional development, etc.), as compared to non-profit centres (Cleveland, 2008[21]; King et al., 2016[22]). However, these structural differences did not impact staff-child

interactions in centres for children under age 3 in Portugal and the United States, contrary to what was found for children in pre-primary settings (Barros and Aguiar, 2010[23]; King et al., 2016[22]).

Funding of the ECEC sector

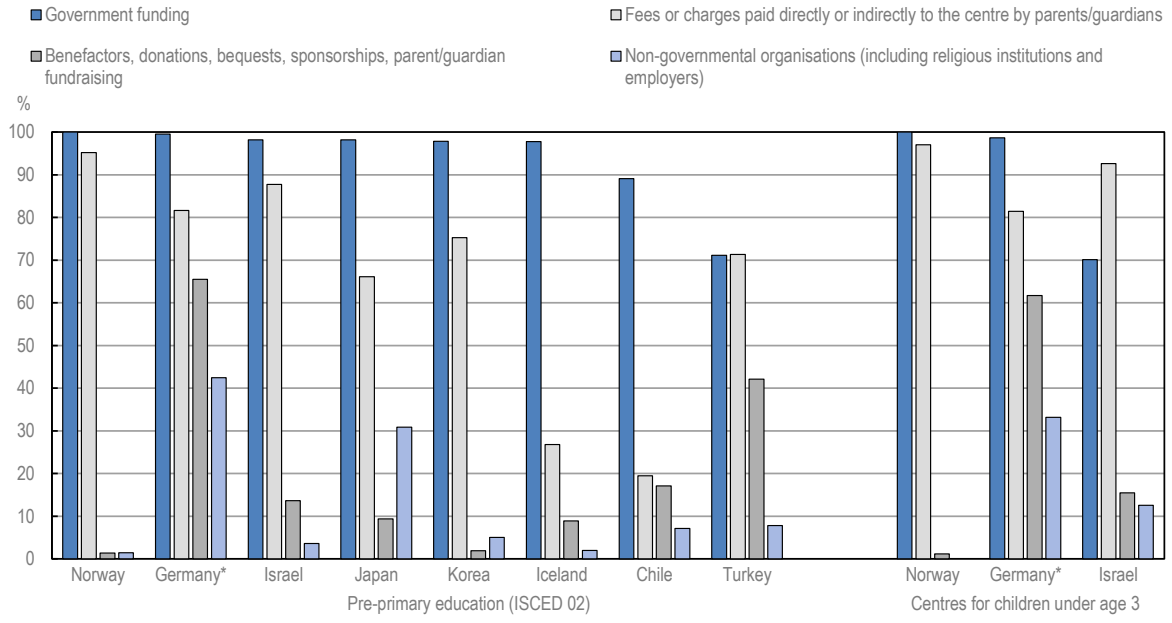
TALIS Starting Strong 2018 provides information on ECEC funding systems from the perspective of centre leaders, including their views on spending priorities. In addition to this information, system-level data make it possible to determine the main features of ECEC systems, to better understand how countries finance early childhood education, for instance regarding the variety of stakeholders involved in funding ECEC provision and the importance of their respective contributions.

Public and private sources of funding for ECEC centres

Centre leaders' responses to TALIS Starting Strong provide information on the share of centres that receive public funding. Results show that, in eight countries surveyed, nearly 90% or more of pre-primary education centres receive government funding (Figure 5.2). The exception at the pre-primary level is Turkey, with only 71% of centres declaring that they have received government funding over the previous 12 months. Centres for children under age 3 also appear widely supported by government funds in Denmark (with low response rates), Germany and Norway. In Israel, where responsibilities for the ECEC system are split between two ministries, only 70% of centres for children under age 3 report receiving public funds, while pre-primary centres widely benefit from government funding.

Figure 5.2. Sources of funding for ECEC centres

Percentage of ECEC centre leaders who responded that their centre received funding from the following sources over the past 12 months



* Estimates for sub-groups and estimated differences between sub-groups need to be interpreted with care. See Annex B for more information.
Note: *Countries are ranked in descending order of the share of centres that reported receiving government funding.*
Source: TALIS Starting Strong 2018 database (Table.D.5.1).

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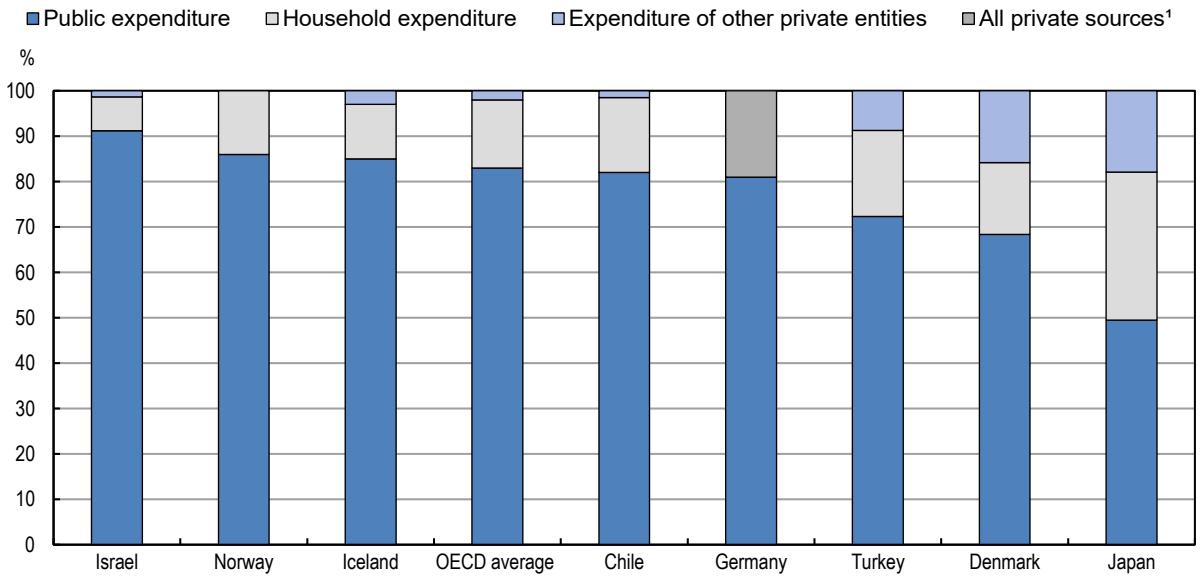
Although the large majority of ECEC settings benefit from public funding in participating countries, there are important variations across countries regarding the reliance of centres on fees paid directly or indirectly by parents/guardians. At the lower end of the distribution, only one in five centre leaders in Chile report that their centre relies on parent/guardian fees. At the higher end, almost all centres in Norway rely on fees from parents/guardians, which are fixed at the same maximum limit across publicly- and privately-managed centres (see Box 5.2).

Only a limited share of leaders report that their centres receive funding from non-governmental organisations (including religious institutions and employers) in most participating countries, with the exceptions of Germany and Japan, where around a third or more of centres rely on this source of income. A small share of leaders report that their centres receive funding from benefactors, donations, bequests, sponsorships and parents/guardians fundraising (including subsidies through non-profit ECEC providers), across participating countries. In Germany and Turkey, this type of funding is more common.

While TALIS Starting Strong provides information on the source of funds received by ECEC centres, additional system-level data is necessary to grasp the size of the contribution of each contributor to ECEC funding. The OECD education database shows that more than 80% of total expenditures on pre-primary education are publically funded across OECD countries (Figure 5.3). The share of public funding in total expenditure in pre-primary education is similar to the OECD average in Chile, Germany, Iceland and Norway. This share is higher than the OECD average in Israel. In Denmark, Japan and Turkey the share of public expenditure is below the OECD average. In Japan, public funding represents half of total expenditures for pre-primary education.

Figure 5.3. Distribution of public and private expenditure on ECEC settings in pre-primary education (2016)



1. Including subsidies attributable to payments to educational institutions received from public sources.
Notes: For Chile, the year of reference is 2017. For Denmark, the year of reference is 2015.
Countries are ranked in descending order of the proportion of public expenditures on educational institutions in pre-primary education.
Source: OECD (2019[24]), *OECD Online Education Database*, http://www.oecd.org/education/database.htm.

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In addition to the sources of funding, TALIS Starting Strong asks centre leaders whether their centre is publicly or privately managed (Box 5.1). The Survey shows that in most countries, there is no simple link between the type of management (public or private) and the sources of funding (public or private).

Box 5.1. Public and private centres in TALIS Starting Strong

A publicly-managed ECEC centre refers to an ECEC centre managed by a public education authority, government agency or municipality. A private setting is administered/owned directly or indirectly by a non-governmental organisation, private person or institution (e.g. church, synagogue or mosque, trade union, business). Private settings may be publicly subsidised or not.

Private publicly-subsidised settings operate completely privately but receive some or all of their funding from public authorities. If more than 50% of their core funding comes from government agencies, they can be considered government-dependent private ECEC settings.

Private non-publicly subsidised settings receive no funding from public authorities. They are financially independent and do not depend on national or local governments to finance their operations. Instead, they are funded by private sources, which can include tuition charges/enrolment fees, gifts and sponsoring.

Across participating countries, an important share of publicly managed centres report exclusively public funding (Figure 5.4 and Table D.5.1). This is the case for the majority of publicly managed centres in Chile, Denmark (with low response rates), Iceland and Korea, while ECEC centres in Germany, Israel, Norway and Turkey mostly benefit from at least one other source of revenue.

In the majority of countries participating in TALIS Starting Strong, there are privately managed ECEC centres exclusively funded by the public sector. In Chile, for example, more than 40% of leaders in privately managed centres report this situation. On the other hand, this percentage is at or below 4% in Germany, Norway and Turkey for pre-primary education and in most countries where centres for children under age 3 were surveyed (with the exception of Denmark, with low response rates). In Israel, 19% of privately managed centres in pre-primary education are exclusively funded by government sources, but the proportion of pre-primary education centres that are privately managed is small. In Germany and Norway, almost all private centres receive funding from both government and private sources for both pre-primary education (ISCED 02) and settings for children under age 3.

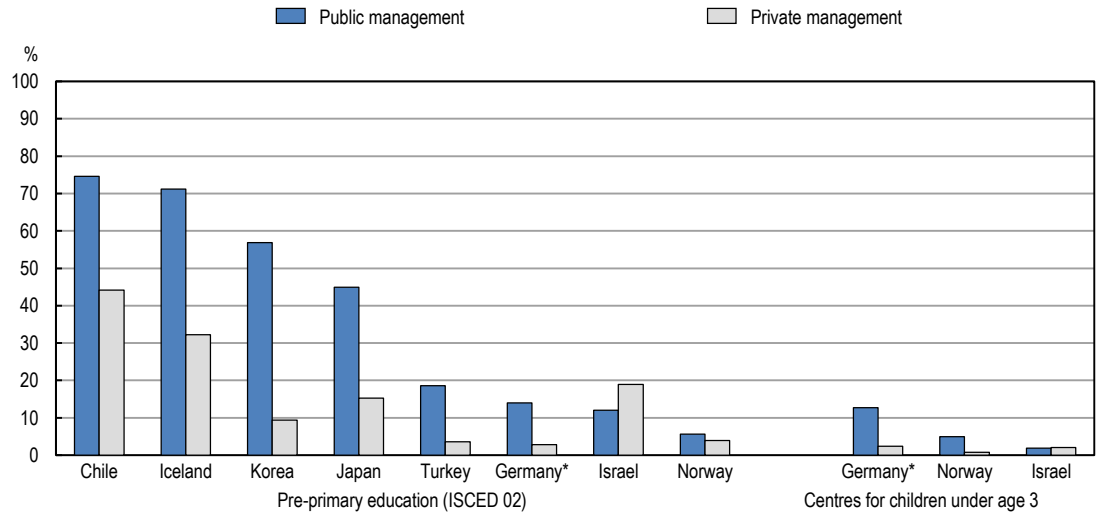
Chile is the only country surveyed where almost no publicly managed ECEC centres receive fees from parents/guardians, in line with the fact that almost three-quarters of publicly managed centres rely on public funding only (Table D.5.2). In all the other countries surveyed, between 22% (in Iceland) and 95% (in Norway for centres for children under age 3) of publicly managed centres declare receiving fees from parents/guardians. This share is higher in privately managed centres for all countries surveyed, with the exception of Israel.

Countries' expenditure on ECEC

In 2016, expenditures on pre-primary education (ISCED 02) amounted on average to 0.6% of Gross Domestic Product (GDP) in OECD countries, while expenditures on centres for children under age 3 (ISCED 01) represented 0.3% of GDP (Figure 5.5). Several countries participating in TALIS Starting Strong differ from this trend. For instance, Norway spends 2% of its GDP on both levels of ECEC, while Iceland spends 1.7% and Denmark 1.3%. On the other hand, Germany, Korea, Japan and Turkey are below the OECD average, although Japan and Korea only have data for pre-primary education.

Figure 5.4. Exclusively government-funded centres in the public and private sectors

Percentage of ECEC centre leaders who reported that their centre is exclusively funded by the government in public and private ECEC centres



* Estimates for sub-groups and estimated differences between sub-groups need to be interpreted with care. See Annex B for more information.
Note: *Countries are ranked in descending order of the share of exclusively government funded centres that are publicly managed.*
Source: TALIS Starting Strong 2018 database (Table.D.5.2).

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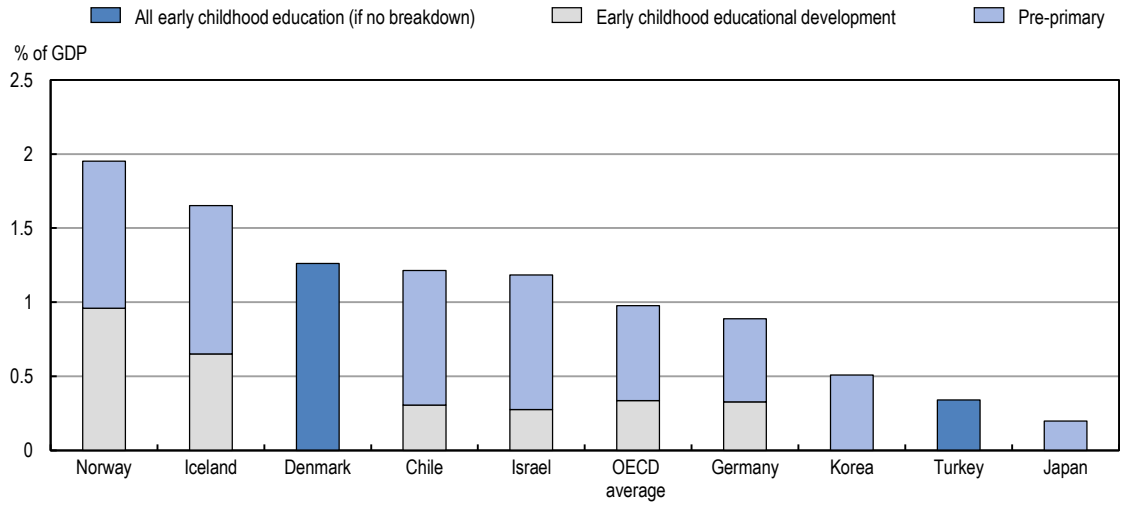
Figure 5.5. Expenditure on early childhood educational development (ISCED 01) and pre-primary education (ISCED 02)

Public and private institutions, as a percentage of GDP, 2016



Notes: Data on early childhood educational development are missing for Korea and Japan. For Chile, the year of reference is 2017. For Denmark, the year of reference is 2014.
Countries are ranked in descending order of total expenditure on early childhood education and care (ISCED 0) as a percentage of GDP.
Source: OECD (2019[25]), *Education at a Glance 2019: OECD Indicators*, Table B2.4, https://doi.org/10.1787/f8d7880d-en; OECD (2017[26]), *Education at a Glance 2017: OECD Indicators*, Table C2.3, http://dx.doi.org/10.1787/eag-2017-en.

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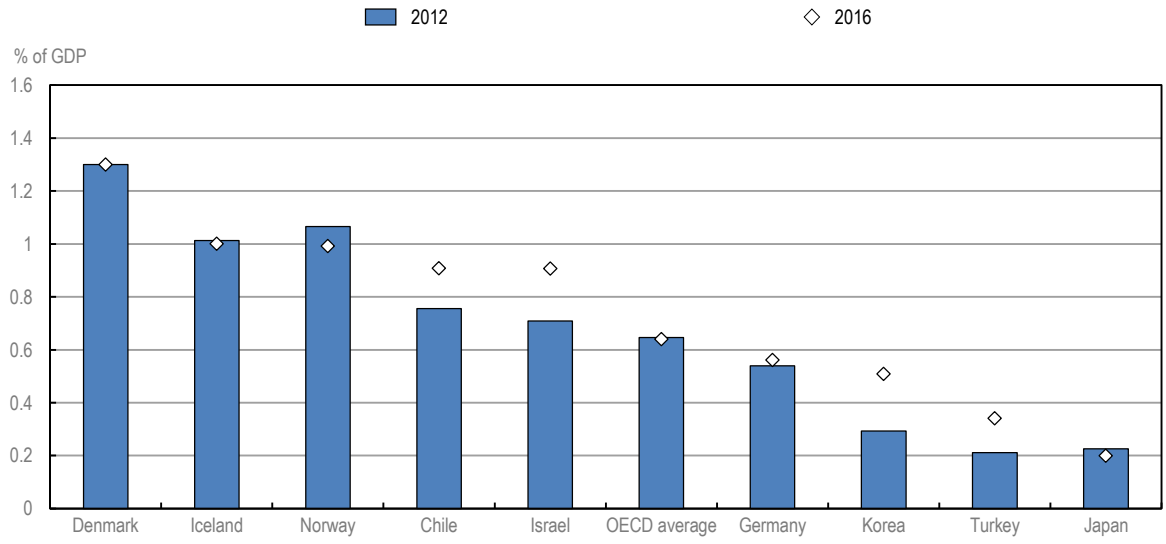
Investments in ECEC have been rather stable over the past few years among the countries surveyed, and almost all countries invest more per child in centres for children under age 3 than in pre-primary centres. From 2012 to 2016, the percentage of GDP invested in ECEC did not vary across OECD countries (0.6%). In participating countries, it has increased in Chile Israel, Korea, and Turkey. In Korea, investments in ECEC doubled over the span of four years. In other countries covered by the Survey, there were often no major changes in investments in ECEC as a percentage of GDP (Figure 5.6).

Figure 5.6. Change in expenditure on pre-primary education (ISCED 02) as a percentage of GDP

All public and private institutions



Notes: For Denmark, the reference years are 2012 and 2014. For Korea, the reference years are 2011 and 2016. For Denmark and Turkey, data are for ISCED 0.
Countries are ranked in descending order of expenditure as a percentage of GDP in 2016.
Source: OECD Online education database, http://www.oecd.org/education/database.htm.

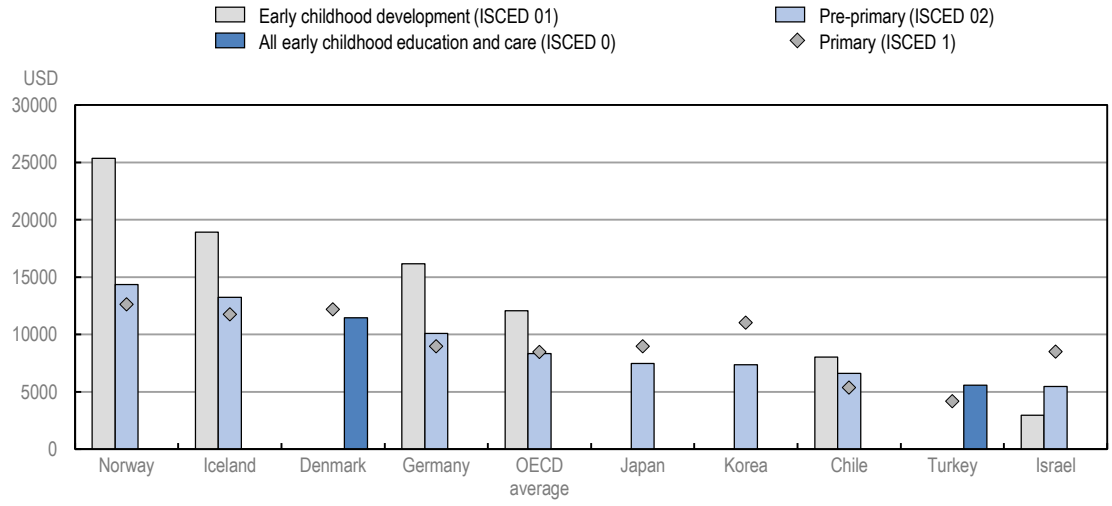
StatLink https://doi.org/10.1787/888934011648

In terms of ECEC annual expenditure per child, several countries participating in TALIS Starting Strong invest more than the OECD average (Figure 5.7). This is the case of Germany, Iceland, and Norway, where investment per child in centres for children under age 3 is above the OECD average of USD 12 080, and investment per child in pre-primary education is above the OECD average of USD 8 349. Other countries, such as Chile and Israel, invest less per child in pre-primary education than the OECD average.

In terms of differences between levels of education, expenditure per child is higher in centres for children under age 3 than for children in pre-primary education (ISCED 02) in Chile, Germany, Iceland and Norway, which can be explained by the higher costs of ECEC provision for very young children. This is also the case for OECD countries as a whole, where countries spend on average 45% more per child in centres for children under age 3 than in centres for children in pre-primary education. The only exception among TALIS Starting Strong countries with available data is Israel, where spending per child under age 3 is about half of the amount invested for each child in pre-primary settings.

Figure 5.7. Annual expenditure on early childhood educational institutions per child (2016)

In equivalent USD converted using purchasing power parities



Notes: Data on early childhood educational development are missing for Korea and Japan. For Chile, the year of reference is 2017. For Denmark, the year of reference is 2014.
Countries are ranked in descending order of annual expenditure per student by educational institutions for pre-primary education.
Sources: OECD (2019[25]), *Education at a Glance 2019: OECD Indicators*, Table B2.4, https://doi.org/10.1787/f8d7880d-en; OECD (2017[26]), *Education at a Glance 2017: OECD Indicators*, Table C2.3, http://dx.doi.org/10.1787/eag-2017-en.

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Spending priorities in ECEC centres

TALIS Starting Strong asks staff to indicate their investment preferences if the budget of the ECEC sector as a whole were to increase by 5%. Staff across countries and levels of education converge on the fact that reducing group size, improving staff salaries and receiving support for children with special needs are highly important spending priorities. For staff in centres for children under age 3, benefitting from high-quality professional development also appears as a top-three priority (Table 5.1).

Table 5.1 shows the three spending priorities which the largest shares of staff indicate are “of high importance”. The reduction of group sizes appears as a clear priority, mentioned among the top three for pre-primary education settings in every country surveyed except Chile and Turkey. Reducing group sizes also appears as the top priority in centres for children under age 3 in Denmark (with low response rates), Germany and Norway, and as the second priority in Israel. A regression analysis at the country level shows that staff working in centres where the number of staff per child is more favourable place less importance on reducing group size compared to staff in centres where the number of staff per child is less favourable. This is the case in Chile, Germany (for both levels of education), Iceland, Israel (for both levels of education) and Japan (Table D.5.3). This finding highlights the fact that staff reports on higher needs for the reduction of group sizes match with a reality corresponding to a less favourable number of staff per child at the centre level.

Staff salaries are also a topspending priority (appearing as a top-three priority in six countries at the pre-primary education level and in two countries for centres for children under age 3), as well as support for children with special needs (appearing as a top-three priority in six countries at the pre-primary education level and in three countries for centres for children under age 3). ECEC staff also report wishing to benefit from high-quality professional development, especially in centres for children under age 3, where

three of the four countries surveyed reported this item among their top three spending priorities. Supporting children from disadvantaged or migrant backgrounds is not among the top priorities in any of the participating countries.

Some country-specific patterns also appear, for instance in Turkey, where the importance of investing in buildings, facilities and material resources for children is emphasised. In Japan and Korea, staff also mention as their second main priority the reduction of staff's administrative load through the recruitment of more support staff, while this item is less of a priority in other countries.

Table 5.1. Top three staff spending priorities

Priorities ranked by the percentage of staff who responded that the following items were "of high importance" if, thinking about the ECEC sector as a whole, the budget were to increase by 5%

	Investing in toys, material, and outdoor facilities	Supporting children from disadvantaged or migrant backgrounds	Reducing group size by recruiting more ECEC staff	Improving ECEC buildings and facilities	Supporting children with special needs	Offering high quality professional development for ECEC staff	Improving ECEC staff salaries	Reducing ECEC staff's administrative load by recruiting more support staff
Pre-primary centres								
Chile					1	2	3	
Germany*			1		3		2	
Iceland			3		2		1	
Israel			1		3		2	
Japan			3				1	2
Korea			3				1	2
Norway			1		2	3		
Turkey	1			2		3		
Denmark**			1		2	3		
Centres for children under age 3								
Germany*			1		3		2	
Israel			2			3	1	
Norway			1		2	3		
Denmark**			1		2	3		

* Estimates for sub-groups and estimated differences between sub-groups need to be interpreted with care. See Annex B for more information.
** Low response rates in the survey may result in bias in the estimates reported and limit comparability of the data.
Source: TALIS Starting Strong 2018 database (Table.D.5.4).

StatLink https://doi.org/10.1787/888934011857

Teachers and assistants agree on some spending priorities. Across all countries surveyed for which the assistant category can be reported (Chile, Denmark [with low response rates], Germany, Korea, Norway and pre-primary education centres in Israel), they are similarly likely to report the improvement of staff salaries and the reduction of group size as highly important spending priorities, and the reduction of administrative load also appears as a top priority for both staff categories in Korea (Table D.5.4).

Governance of the ECEC sector

This section looks at how ECEC systems are governed, regulated and monitored across participating countries. TALIS Starting Strong asks centre leaders about the extent of their responsibilities in the setting, the frequency of the monitoring and evaluation they receive, as well as causes of work-related stress and barriers to effectiveness in their job. Additional system-level data makes it possible to draw a comprehensive picture of governance in ECEC settings at both national and centre levels. This overview of governance provides crucial contextual insights in understanding the important levels of governance for ECEC centres in each country, the impact of regulations and potential areas for improvement.

Organisation of national ECEC systems

The organisation of national ECEC systems is diverse across surveyed countries, primarily regarding the highest administrative authorities in charge in each of the countries surveyed and whether the system is split or integrated at the national level. In Chile, Denmark, Germany and Norway, ECEC settings are all organised under the governance of a single supervising ministry (an integrated system), which provides opportunities for continuity and synchronisation across services (Table 5.2). However, there are still noticeable differences between integrated systems. At the time of data collection and until July 2019 ECEC settings for Denmark were under the supervision of the Ministry for Children and Social Affairs. In Germany, the Ministry for Family Affairs, Senior Citizens, Women and Youth manages ECEC, and the Ministry of Education is responsible for ECEC in Chile and Norway. Germany is also distinguished by the fact that, although it has an integrated system, the governance of ECEC settings is mainly managed by the federal states (*Länder*), which have autonomy in setting their own policies and curricula for early childhood settings (OECD, 2019[27]).

Iceland, Israel, Japan, Korea and Turkey, however, rely on a split organisation for their ECEC systems. In countries with a split system, the governance of ECEC centres is often shared between the Ministry of Social Affairs for younger children and the Ministry of Education for children aged 3-5. This is the case in both Israel and Turkey. Japan represents a specific case, with three authorities sharing the governance of ECEC settings and overlaps in age groups between different types of settings. While kindergarten for children age 3-5 is operated by the Ministry of Education, children age 0-5 may also enrol in day-care centres run by the Ministry of Health, Labour and Welfare or in integrated centres for early childhood education and care supervised by the Cabinet Office.

Table 5.2. Highest administrative authorities in charge of ECEC settings

Country	Name of the ECEC setting	Age range covered	Name of the highest authority in charge	Integrated or split ECEC system
Chile	All ECEC settings	0-6	Ministry of Education	Integrated
Denmark	All ECEC settings	0-5	Ministry for Children and Education	Integrated, mainly decentralised
Germany	All ECEC settings	0-6	Federal Ministry for Family Affairs, Senior Citizens, Women and Youth	Integrated, mainly decentralised
Iceland	Preschool	0-6	Ministry of Education, Science and Culture	Integrated
Israel	All settings for children aged 3 to 5	3-5	Ministry of Education	Split
	All centres for children under the age of three	0-2	Ministry of Labour, Welfare and Social Affairs	

Country	Name of the ECEC setting	Age range covered	Name of the highest authority in charge	Integrated or split ECEC system
Japan	Kindergarten	3-5	Ministry of Education, Culture, Sports, Science and Technology	Split
	Day-care centre	0-5	Ministry of Health, Labour and Welfare	
	Integrated centre for early childhood education and care	0-5	Cabinet Office	
Korea	Kindergarten	3-5	Ministry of Education	Split
	Childcare centres	0-5	Ministry of Health and Welfare	
Norway	All ECEC settings	0-5	Ministry of Education and Research	Integrated
Turkey	Independent kindergarten Practice classroom Special education preschool	3-5	Ministry of National Education	Split
	Nursery classroom	4-5		
	Early childhood care and education Special early childhood education Crèche, day-care centre	0-4	Ministry of Social Affairs	

Source: OECD (2019[27]), "OECD Network on Early Childhood Education and Care: Quality beyond Regulations survey", internal document, OECD, Paris.

Legal minimum standards and monitoring policies

Given the high level of autonomy devolved to local authorities and centres in some countries, the definition of monitoring practices and minimum standards represents an efficient way of ensuring a certain level of homogeneity in the provision of early childhood services. For this reason, several countries have developed minimum requirements for ECEC centres, for example, regarding the number of square metres that each child should benefit from, and monitoring practices, such as regular inspections.

Answers to an OECD questionnaire for national or sub-national authorities in charge of ECEC show that the majority of countries participating in TALIS Starting Strong have implemented minimum standards on at least some dimensions of structural quality in ECEC (Table 5.3 and Annex A). The most common legal requirements concern child-staff ratios (regulated in all countries surveyed except Iceland), the level of staff qualifications and the available space that children should have indoors and sometimes outdoors. However, legal requirements differ widely across countries. On ratios for instance, the Norwegian legislation (as of 2018) requires the presence of at least one staff member for every six children between 3 and 5 years old. In addition there is a child-teacher ratio requiring a qualified ECEC teacher for every 14 children between 3 and 5 years old. The Japanese law, however, sets a minimum of one teacher for every 30 children between 4 and 5 years old for day care centres, while in Israel, one teacher and one assistant can have a classroom or playroom of up to 35 children. Requirements for minimum available space for children also differ widely, ranging from no requirements in Iceland to 2.4 m^2 in Turkey and a guiding norm of 4.0 m^2 for children between 3 and 5 years old in Norway. These differences show that, although minimum standards are a good way of regulating centres, they may be more or less demanding.

Table 5.3. Regulations and standards for early childhood settings

Country	Age range	Name of ECEC settings	Regulations on staff-child ratio and group size	Regulations on minimum space available per children	Regulations on workforce composition	Regulations on children's group composition
Denmark	0-5	Kindergarten, Nursery, Home-based day care, Integrated day care	In home-based centres only: up to 5 children per staff member, 10 if the day care only has 1 staff member	Yes	No	Rules to ensure that children from vulnerable areas are well distributed and can attend a Danish-speaking centre with a positive environment, focused on child well-being, development, learning, education and development.
Germany	0-6	All ECEC settings	Differs across *Länder*	Differs across *Länder*	Differs across *Länder*	Differs across *Länder*
Iceland	1-5	Preschool (centre-based settings)	No	No	At least 1 preschool leader with teacher education, preschool teachers and staff for children with special needs. At least two-thirds of staff should have the preschool teacher qualification.	No
Israel	0-3	Day care centre	3-15 months: up to 6 children with one staff member. For children aged 2, 1 staff member for every 9 children. For children aged 3, one staff member for 11 children.	Yes	1 leader is required as well as 1 cook, carers according to required ratios as well as assistants for children who have special needs.	No
	0-3	Family day care	4 months – 3 years: maximum of 5 children per carer.	Yes	1 coordinator to manage up to 28 families and 1 carer for up to 5 children.	No
	3-5	Public kindergarten	Age 3-5: up to 35 children with 1 kindergarten teacher and assistant. For children aged 3, one additional assistant if there are more than 30 children in the group.	95 m^2. for kindergarten of up to 35 children	At least 1 qualified kindergarten teacher and 1 assistant per group of 35 children	No
	3-5	Private kindergarten	No	No	No	No
Japan	3-5	Kindergarten	Less than 35 children per group	At least 400 m^2 for a centre of three classes, and 80 m^2 of increase per class	At least 1 leader in the centre and 1 teacher per class	No

Country	Age range	Name of ECEC settings	Regulations on staff-child ratio and group size	Regulations on minimum space available per children	Regulations on workforce composition	Regulations on children's group composition
	0-5	Day care centre	Age 0: 1 day care centre teacher per 3 children Age 1-2: 1 teacher per 6 children Age 3: 1 teacher per 20 children Age 4-5: 1 teacher per 30 children	Age 0-2: 1.65 m^2 per child who cannot crawl, 3.3 m^2. per child who can crawl Age 3-5: 1.98 m^2 indoor space and 3.3 m^2 outdoor playing space per child	Day care centre teacher	No
	0-5	Centre for ECEC	Less than 35 children Age 0: 1 day care centre teacher per 3 children Age 1-2: 1 teacher per 6 children Age 3: 1 teacher per 20 children Age 4-5: 1 teacher per 30 children	Age 0-2: 1.65 m^2 per child who cannot crawl, 3.3 m^2 per child who can crawl Age 2: 3.3 m^2 outdoor playing space per child Age 3-5: The larger standard between kindergarten standard (400 m^2, increase of 80 m^2 per class) and day-care standard (3.3 m^2 per child)	At least 1 leader in the centre and 1 teacher per class	No
Norway	0-5	Kindergarten, Family kindergarten	Age 0-2: 1 staff member per 3 children Age 3-5: 1 staff member per 6 children	Age 0-2: 5.3 m^2 indoors per child Age 3-5: 4.0 m^2 indoors per child Outdoor space should be 6 times bigger than indoor space	For kindergarten settings: Age 0-2: At least 1 qualified pedagogical leader/teacher per 7 children Age 3-5: At least 1 qualified pedagogical leader/teacher per 14 children	No
Turkey	3-5	Independent kindergarten, Practice classroom, Special education preschool	1 teacher per 20 children	Public schools: 2.4 m^2 indoor space per child Private schools: 1.5 m^2 indoor space per child, 1.5 m^2 outdoor space, 15 m^2 per classroom	School principals, vice-principals, school counsellor and teachers should have at least a Bachelor's degree. Preschool teachers working in public institutions should complete preschool education programme which lasts for 4 years and is given in universities. In addition to preschool teachers, private preschool institutions may employ master trainers who complete child development programmes in vocational high schools and have an experience of internship which lasts for one year.	No
	4-5	Nursery classroom,				

Source: OECD (2019[27]), "OECD Network on Early Childhood Education and Care: Quality beyond Regulations survey", *internal document*, OECD, Paris.

Although the majority of participating countries also have regulations on the qualifications that staff in ECEC centres should have, most TALIS Starting Strong countries do not have regulations in place on classroom or playroom composition. In Denmark, however, a recent legislative amendment aims to ensure that all children from vulnerable residential areas enter ECEC settings in which the Danish language is spoken. Such regulation does not exist in the other countries surveyed, although several countries have implemented policies aiming at allowing children from vulnerable backgrounds to access ECEC. This is the case in Norway for instance, where centre fees for parents cannot exceed 6% of the family income, as a way to ensure that ECEC is accessible and affordable to families from all socio-economic backgrounds. There are also national regulations in Norway on free core time of 20 hours per week for families with income below a certain threshold. In Germany, several federal states (*Länder)* have implemented similar policies aiming at reducing or suppressing parental fees altogether to ensure more equitable access to ECEC settings (OECD, 2019[27]).

Based on the responses of centre leaders to the TALIS Starting Strong questionnaire, process aspects of quality (interaction with children, content of activities) appears unevenly monitored across countries (Table D.5.5). When asked about the external evaluations they receive, about 90% or more of centre leaders in Chile, Korea and Turkey (at pre-primary level) and Denmark (with low response rates) and Israel (both at pre-primary centres and centres for children under age 3) report that they have inspections on process quality. In Germany at both levels of education, Japan and Norway (in centres for children under age 3), more than 20% of leaders report that they never have such inspections. When inspections on process quality take place, they generally occur at least once a year. A majority of centre leaders report that they have inspections on process quality at least once a year in Chile, Denmark (with low response rates), Iceland, Israel, Japan, Korea and Turkey. In Norway, a large share of leaders report that these inspections occur less than once a year. Evaluation modalities may vary a lot across countries, for instance when it comes to the duration of the evaluation period or the training of staff dedicated to assessing process quality in the ECEC centre, which is not reflected in the Survey.

Structural features of quality (child-staff ratio, qualification levels of staff) also appear to be unevenly monitored across countries. More than 20% of leaders report that they never have these inspections in Germany (centres for children under age 3), Israel (pre-primary centres) and Japan, while more than 90% of centre leaders report having these inspections in Denmark (at both levels of ECEC, with low response rates), Israel (centres for children under age 3), Korea and Norway (at both levels of ECEC).

In other domains for monitoring, there is less variation across countries. Only a few centre leaders across countries report that they never have inspections to ensure that facilities meet the appropriate requirements (e.g. regarding the space and equipment available and health and safety standards). The same applies to audits on the financial management of centres, with the exception of Chile and pre-primary centres in Israel, where more than a quarter of leaders report that they never experience these audits. These numbers show that although structures exist to assess ECEC centres, these monitoring efforts aim to assess financial and material aspects of the centre more frequently than process quality and other aspects of structural quality (Table D.5.5).

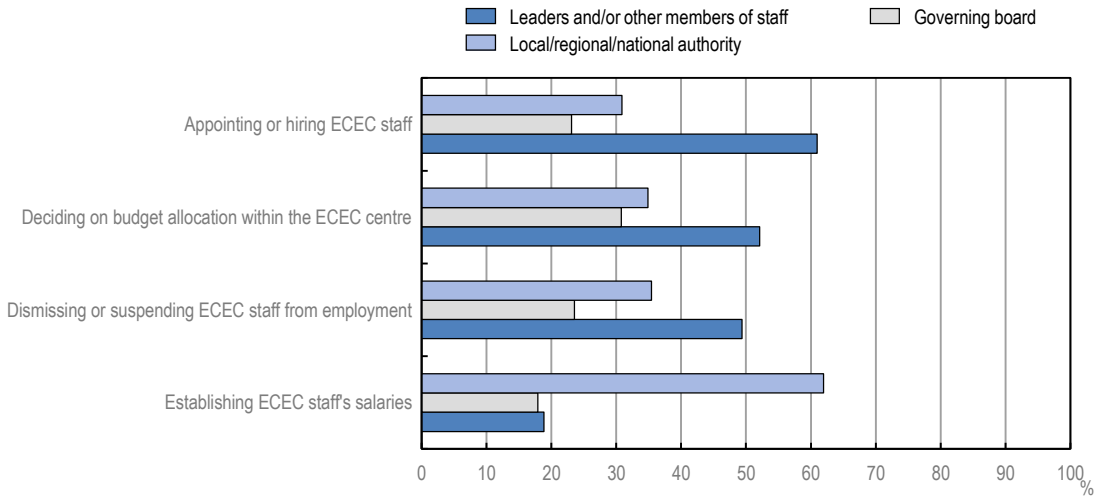
Centre autonomy and leader/staff responsibilities

Centre leaders and/or members of staff across countries can be in the position of making key decisions at the centre level. Across all countries surveyed at the pre-primary level, more than six out of ten leaders report that they and/or other members of staff have significant responsibility in appointing or hiring ECEC staff in their centre, meaning that they play an active role in decision-making (Figure 5.8). Similarly, half of the leaders across countries report that they and/or other members of staff have a significant role in deciding on budget allocations within the ECEC centre, and in dismissing or suspending staff from employment. For these three managerial tasks, pre-primary centre leaders and/or other members of staff across countries report that they play a more active role in decision-making than the ECEC centre

governing board or higher administrative authorities. This highlights the key role of centre leaders and/or members of staff have in shaping centre human resources and spending and underlines a certain level of centre autonomy for some key managerial tasks. The exception concerns the establishment of staff salaries, as less than 20% of all pre-primary centre leaders report that they and/or other members of staff play an active role in this matter, and more than 60% designate higher administrative authorities as the main decision-maker.

Figure 5.8. Responsibilities of centre leaders, governing boards and administrative authorities

Percentage of pre-primary centre leaders across countries who reported that the following stakeholders have significant responsibility for the following tasks



Note: *Tasks are ranked in descending order of the percentage of leaders who report that they and/or other members of staff have significant responsibility.*
Source: TALIS Starting Strong 2018 database (Table.D.5.6).

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This broad picture hides a diversity of situations regarding the autonomy of pre-primary ECEC centres across countries. In Iceland, for example, almost all ECEC leaders and/or members of staff have a significant role in hiring and suspending staff in their centre, while the role of the governing board and other administrative authorities is marginal in this regard (Table D.5.6). In pre-primary settings in Israel and Turkey, however, leaders do not report that they and/or other members of staff play an important role in the hiring or suspension of staff or in establishing staff salaries. For these two countries, higher administrative units are the main actor for the definition of human resources policies and staff salaries in pre-primary centres. However, two-thirds of centre leaders in pre-primary settings in Israel and a quarter of leaders in Turkey report that they and/or other members of staff have significant responsibility for deciding on budget allocations within the ECEC centre. Extensive reliance on higher administrative authorities can be found to some extent in Chile and Iceland, where more than half of centre leaders report that state authorities play a significant part in deciding on budget allocations within ECEC centres.

Centres for children under age 3 display a comparable level of centre autonomy as pre-primary centres in Denmark, Germany and Norway. In Israel, however, leaders in centres for children under age 3 report that they and/or other members of staff have more responsibilities in managing human resources in the ECEC centre, compared to pre-primary centres. This higher autonomy of centre leaders and/or other members of staff is, however, limited to human resources responsibilities, as leaders and/or members of staff across

levels of education display a comparable level of responsibility in deciding on budget allocations within the centre.

In contrast, central importance is given to governing boards in both pre-primary settings and centres for children under age 3 in Germany. At both levels of education, at least 90% of centre leaders report that governing boards have a significant role in dismissing or suspending staff, 76% say that they make active decisions in the appointment or hiring of ECEC staff, and more than 60% declare that governing boards also have a significant say on the establishment of staff salaries and budget allocations within the centre. This widespread reliance on governing boards can also be observed to a lesser extent in centres for children under age 3 in Israel.

Barriers to effective leadership and leader stress

TALIS Starting Strong asks centre leaders about the main barriers to their effectiveness, meaning limitations that may keep leaders from achieving desired outcomes. Centre leaders in several countries highlight the fact that inadequate budget and resources, government regulations and policies, as well as staff absences and shortages are important barriers to their effectiveness (Table 5.4). In all countries except for Germany (for both pre-primary centres and centres for children under age 3) leaders consider inadequate centre budget and resources among the top three barriers to their effectiveness. In all countries except for Chile and Turkey (and Israel where these items were included in the questionnaire), staff absences, staff shortages or both are among the top three barriers to their effectiveness that leaders report. Government regulations and policies are among the top three barriers to effectiveness mentioned by leaders in pre-primary settings in Denmark (with low response rates), Germany, Israel and Korea and in centres for children under age 3 in Germany and Norway.

In pre-primary centres in Chile, Israel and Turkey, leaders consider a lack of parent/guardian involvement and support to be strong barriers to their effectiveness. Furthermore, in Chile and Turkey, leaders rank a lack of opportunities and support for professional development for ECEC staff as a strong barrier to their effectiveness. However, in none of the countries surveyed did leaders report lack of opportunities for their own professional development as being a top source of concern, consistent with their high levels of participation in ongoing professional development (see Chapter 3).

Too much administrative work (e.g. filling out forms) and keeping up with changing requirements from authorities are overall the most important sources of work-related stress for leaders (see Chapter 3). Examining leader rankings of their sources of work-related stress within countries confirms this overall pattern and underscores that staff absences are also a major source of leaders' work-related stress (Table 5.5). Some differences are evident with regard to the top three sources of work-related stress for leaders. These findings raise questions about whether centre leaders at both levels of ECEC have too much procedural work to complete and/or whether they are sufficiently trained for this dimension of their job. The concern that centre leaders express about changing requirements from administrative authorities also suggests that the process for deciding and implementing new regulations could be improved. Within countries, additional sources of work-related stress for leaders vary to some extent. For example, managing ECEC staff is the top source of work-related stress for leaders in Iceland, but not among the top three sources of work-related stress in any other country. Stress related to addressing parent/guardian concerns is ranked high among leaders in Korea and Turkey, and being held responsible for children's development, well-being and learning is a predominant source of stress for leaders in Israel, both in centres for children under age 3 and pre-primary settings.

Table 5.4. Top three barriers to leaders' effectiveness

Barriers to effectiveness ranked according to the percentage of leaders who declared that the following limit their effectiveness "quite a bit" or "a lot"

	Inadequate ECEC centre budget and resources	Government regulation and policy	ECEC staff absences	ECEC staff shortages	Lack of parent or guardian involvement and support	Lack of opportunities and support for my own professional development	Lack of opportunities and support for ECEC staff's professional development
Pre-primary centres							
Chile	3				1		2
Germany*		3	1	2			
Iceland	3		1	2			
Israel[1]	1	2			3		
Japan	2		3	1			
Korea	3	1		2			
Norway	2		1	3			
Turkey	1				2		3
Denmark**	1	3	2				
Centres for children under age 3							
Germany*		3	1	2			
Israel	3		2	1			
Norway	2	3	1				
Denmark**	1		3	2			

1. In pre-primary settings in Israel, leaders were not asked about staff absences, staff shortages or a lack of opportunities and support for ECEC staff's professional development as barriers to their effectiveness.
* Estimates for sub-groups and estimated differences between sub-groups need to be interpreted with care. See Annex B for more information.
** Low response rates in the Survey may result in bias in the estimates reported and limit comparability of the data.
Source: TALIS Starting Strong 2018 database.

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Table 5.5. Top three sources of stress for ECEC centre leaders

Main sources of stress for ECEC centres leaders ranked according to the percentage of leaders who declared that the following issues cause them "quite a bit" or "a lot" of stress

	Having too much administrative work to do	Having extra duties due to absent ECEC staff	Being held responsible for children's development, well-being and learning	Keeping up with changing requirements from authorities	Managing ECEC staff	Addressing parent or guardian concerns	Accommodating children with special needs	Lack of support from local authorities or government	Lack of resources	Lack of ECEC staff to carry out work
Pre-primary centres										
Chile	1			2					3	
Germany*	1	2								3
Iceland		2			1					3
Israel[1]	1		2	3						
Japan	1			2						3
Korea				1		3		2		
Norway	2	1		3						
Turkey						3		2	1	
Denmark**	1	3							2	
Centres for children under age 3										
Germany*	1	2		3						
Israel		2	3							1
Norway	2	1		3						
Denmark**	1	2							3	

1. In pre-primary settings in Israel, leaders were not asked about a lack of ECEC staff to carry out work as a source of stress.
* Estimates for sub-groups and estimated differences between sub-groups need to be interpreted with care. See Annex B for more information.
** Low response rates in the Survey may result in biases in the estimates reported and limit comparability of the data.
Source: TALIS Starting Strong 2018 database.

StatLink https://doi.org/10.1787/888934011895

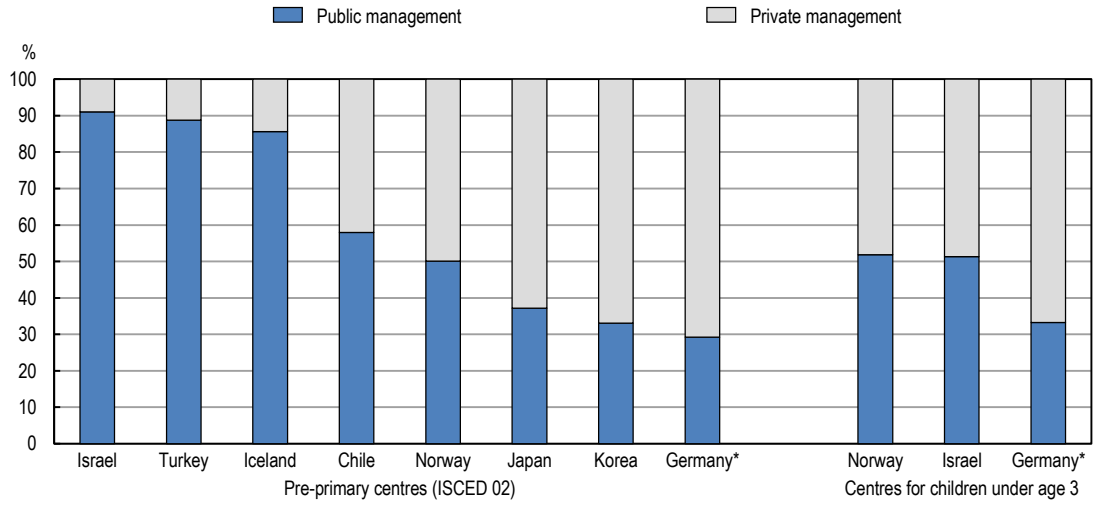
Public and private management of ECEC centres

The countries surveyed rely on different forms of centre management. At the pre-primary level, Iceland, Israel and Turkey have the highest share of publicly managed centres (more than 80%) (Figure 5.9). Data suggest that Denmark (with low response rates) displays a similar pattern. In contrast, the private sector manages the majority of ECEC centres in Germany, Japan and Korea. Chile and Norway do not have a clearly predominant form of centre management. Overall, data from countries surveyed suggest that privately managed centres are more common in ECEC than in other levels of education (OECD, 2014[28]).

Among the countries that surveyed centres for children under age 3, only Israel has different shares of public and private management compared to the pre-primary level, reflecting its system of split governance. While the public sector largely manages pre-primary education in Israel, almost half of the centres for children under age 3 are privately managed.

Figure 5.9. Share of publicly and privately managed centres in ECEC

Percentage of centre leaders who answered that their centre was publicly or privately managed



* Estimates for sub-groups and estimated differences between sub-groups need to be interpreted with care. See Annex B for more information.
Notes: A publicly managed centre is a centre whose leader reported that it is managed by a public education authority, government agency or municipality. A privately managed centre is a centre whose leader reported that it is managed by a non-governmental institution (e.g. a church, synagogue or mosque, a trade union, a business, or any other private institution or person). Privately managed centres may be publicly subsidised or not.
Countries are ranked in the ascending order of the percentage of public centres in the country.
Source: TALIS Starting Strong 2018 database (Table.D.5.7).

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Box 5.2. Approaches to public and private provision

In **Norway**, two types of settings are in place in ECEC: kindergartens (*barnehage*) and family child care (*familiebarnehage*), which can be managed publicly or privately. Of children enrolled in ECEC, more than 98% attend kindergartens and less than 2% are in family child care. Kindergartens in Norway are integrated pedagogical settings providing ECEC for children aged 0-5. Both publicly and privately managed ECEC settings in Norway are funded mostly by public sources. Of the total expenditure on ECEC in Norway, 15% comes from private sources, including fees paid by parents/guardians.

Both national and municipal governments in Norway have made efforts to expand access and support equality of participation, particularly for low-income and minority-language families through fee reductions and legal entitlements, as part of the kindergarten reform 2004-09. This was achieved through increased public funding, which reduced the parental contribution to operating costs.

Nationally, there is a maximum price (for all children) at NOK 3 040 (EUR 304) monthly (adjusted in August 2019). To better target low-income families, a regulation was introduced in 2015 stating that the maximum annual fee shall not exceed 6% of the family income. If the fee exceeds 6% of household income, the excess amount is covered by the state rather than by municipalities (as used to be the case). The national regulations also stipulate moderation of fees for siblings and reductions of 30% of the annual fee for the second child and 50% for the third child. Municipalities are responsible for ensuring that these regulations are applied by all kindergartens (both public and private) and for compensating private providers for the reduced fees. Although participation among minority-language children continues to be lower than for all children, the gap is closing. In 2018, according to national authorities, 83% of minority-language children aged 1-5 attended ECEC, an increase of 2.5 percentage points compared to 2017. For all children, the participation rate was 92% (Statistics Norway, 2018[29]).

In **Germany**, four types of ECEC settings are in place: ECEC centres for all age groups (0-6), ECEC centres for children under age 3, ECEC centres for children 3 to 6 and family day care (0-6). Additionally, there is a fifth type of setting in some states: pre-primary classes, covering a very small proportion of children around primary school entry age (typically around age 6). All types of settings in Germany can be managed publicly or privately (OECD, 2019[27]). TALIS Starting Strong shows that the private sector manages the majority of ECEC centres. However, almost the totality of ECEC centres are non-profit. Both publicly and privately managed centres are mostly funded by public sources.

Of the total expenditure on ECEC in Germany, 19% comes from private sources (OECD, 2019[25]) . Encouraging private actors and community engagement to support ECEC centres is increasingly seen as an important policy lever and a potential source of additional resources. In Germany, more than 9% of all private funding comes from private entities other than households (OECD, 2017[5]). Private non-profit providers and foundations are important contributors to private expenditure on ECEC in Germany. For example, the *Haus der kleinen Forscher* (Little Scientists' House) foundation promotes nationwide early childhood education in natural sciences and technology. The foundation develops workshops and teaching materials for educators, hosts annual promotion days and provides comprehensive background information and experiments on the internet (OECD, 2017[5]).

Note: This material was supplemented by additional inputs sent by the national authorities in Germany and Iceland, respectively.
Sources: Statistics Norway (2018[29]), *Minoritetsspråklige barn i barnehage 1-5 år (K) 2015 - 2018*, https://www.ssb.no/statbank/table/12272/; OECD (2019[27]), "OECD Network on Early Childhood Education and Care: Quality beyond Regulations survey", *internal document*, OECD, Paris; OECD (2019[25]), *Education at a Glance 2019: OECD Indicators*, https://doi.org/10.1787/f8d7880d-en; OECD (2017[5]), *Starting Strong 2017: Key OECD Indicators on Early Childhood Education and Care*, https://dx.doi.org/10.1787/9789264276116-en.

ECEC centres are mostly non-profit settings. Across countries where leaders were asked about the profit status of their centres (the question was not part of the survey in Chile, Denmark, Israel and Turkey), the large majority of centres indicate that they do not aim to generate a profit. However, in Norway for-profit centres represent 16% of centres surveyed at the pre-primary level and 11% among centres for children under age 3. These percentages are higher than in all other countries (Table D.5.7).

Characteristics of publicly and privately managed ECEC centres

This section discusses the various types of differences between publicly and privately managed centres, such as differences in centre autonomy, staff education level and access to training, and centre location. Some of these aspects are closely linked to process quality (OECD, 2018[1]). The literature points out that gaps in process quality between public and private settings are often due to different choices in investment and human resources management across these centres (Coley et al., 2016[12]; Hu et al., 2016[13]). However, research also shows that these differences are country-specific and do not represent a global trend.

Table 5.6 summarises this section by presenting a comparison of characteristics of publicly managed settings compared to privately managed settings. It shows, for instance, that publicly managed centres tend to be significantly more likely to be located in rural areas than privately managed centres.

Table 5.6. Summary of findings on differences between public and private ECEC centres

Statistically significant differences in characteristics of publicly managed centres compared to privately managed settings

	More leader/staff autonomy in recruitment policies	More leader/staff autonomy in budget planning	Higher staff educational attainment	Higher leader educational attainment	Higher number of staff per child	Higher staff participation in professional development	Higher support for staff professional development	Location in more rural areas	Higher percentage of children whose first language is different from that of the centre	Higher percentage of children from disadvantaged backgrounds
Pre-primary centres										
Chile	Private	Private	Private					Public		Public
Germany*	Private							Public		
Iceland		Private								
Israel	Private	Public			Public	Public	Private			Public
Japan	Private	Private		Private	Public					
Korea	Private	Private	Public	Public	Private					
Norway	Private						Private	Public	Public	
Turkey	Private	Private						Public	Public	Public
Denmark**									Public	Public
Centres for children under age 3										
Germany*		Public			Private					
Israel										
Norway	Private							Public		
Denmark**								Private	Public	

* Estimates for sub-groups and estimated differences between sub-groups need to be interpreted with care. See Annex B for more information.
** Low response rates in the Survey may result in bias in the estimates reported and limit comparability of the data.
Note: "Public" means that publicly managed centres are significantly more likely to possess a certain characteristic than privately managed settings (e.g. staff in publicly managed centres in Korea have, on average, a higher level of educational attainment than staff in privately managed centres). "Private" means that privately managed centres are significantly less likely to have a certain characteristic than publicly managed centres (e.g. centre leaders in privately managed centres in Chile have, on average, more autonomy in leading recruitment policies). Blank cells indicate that no statistically significant difference was found for this characteristic.
Source: TALIS Starting Strong 2018 database.

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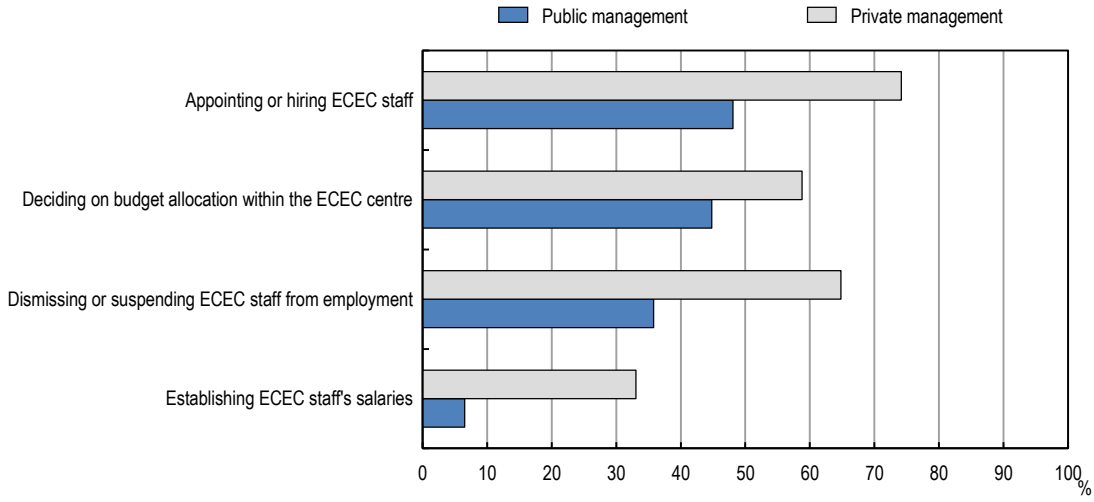
Leader responsibilities and centre autonomy

The main difference between publicly and privately managed ECEC centres lies in the extent of the centres' autonomy. Unsurprisingly, leaders in privately managed pre-primary centres across countries are more likely to report that they and/or other members of staff have a significant role in key managerial tasks in the centre (Figure 5.10). Most notably, leaders and/or other members of staff in privately managed pre-primary centres have wider responsibilities in shaping the ECEC centre's human resources. Three-quarters of leaders of privately managed centres report that they and/or other members of staff play a decisive role in appointing or hiring ECEC staff, while less than half of leaders in publicly managed centres see their responsibility and/or the responsibility of other staff members as significant in this regard. Similar differences appear regarding dismissing or suspending ECEC staff from employment and establishing staff salaries. Although the difference is less striking than for other managerial tasks, leaders in privately managed pre-primary centres are also significantly more likely to report that they and/or other members of staff have an important impact on budget allocation decisions within the ECEC centre (59%) than their counterparts in publicly managed centres (45%).

Figure 5.10. Responsibilities of leaders and/or other staff in publicly and privately managed pre-primary centres

Average percentage of centre leaders in pre-primary centres who report that they and/or other members of staff have a significant responsibility for the following tasks



Note: *Countries are ranked by descending order of the percentage of leaders in publicly managed centres who report that they and/or other members of staff have a significant responsibility in these tasks.*
Source: TALIS Starting Strong 2018 database (Table.D.5.8).

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These greater responsibilities of leaders and/or other members of staff point to the broader autonomy of privately managed centres compared to publicly managed settings, especially in pre-primary centres. In almost all the countries surveyed, this is also complemented by a greater involvement of centre governing boards and lesser involvement of state authorities in the governance of privately managed centres compared to publicly managed settings (Table D.5.8). The wider autonomy of privately managed centres compared to publicly managed centres could therefore lead to different approaches regarding recruitment or other aspects of centre governance.

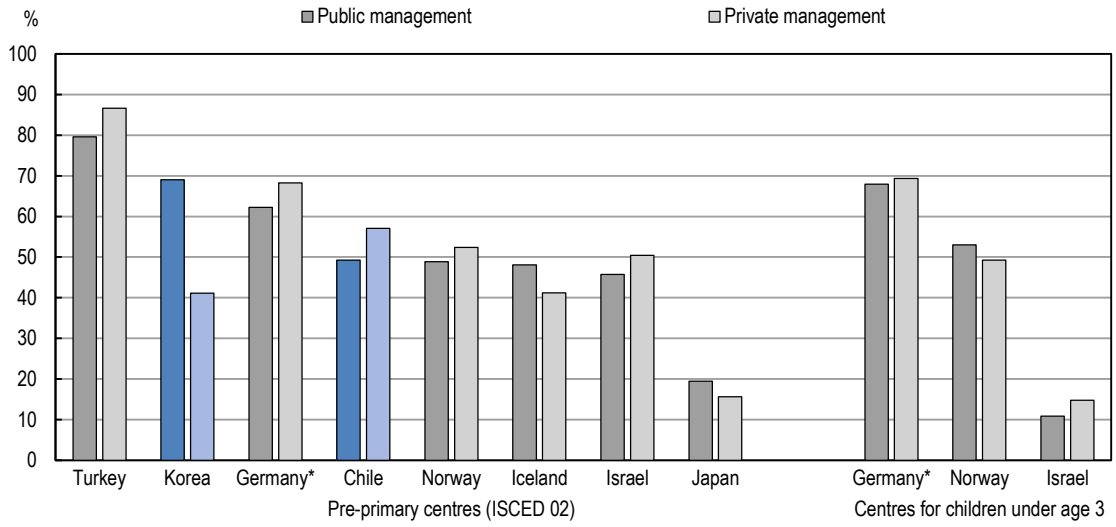
Staff initial education and centre composition

Korea and Chile are the only countries reporting a statistically significant gap in educational attainment among staff depending on centre management. Korea is the most salient example, with 41% of staff in privately managed centres reaching the level of bachelor's degree, compared to 69% in publicly managed centres (Figure 5.11). The relation between centre management and staff educational attainment is reversed in Chile, where 57% of staff in privately managed centres have reached a bachelor's level, compared to 49% of staff in publicly managed centres. In the remaining participating countries, there are no consistent differences in staff educational attainment between publicly and privately managed centres.

Leaders' levels of educational attainment are generally very similar in publicly and privately managed centres. Japan and Korea are the only two countries where large differences in centre leaders' educational attainment are visible, with more centre leaders who obtained at least a bachelor's degree in privately managed centres in Japan and in publicly managed centres in Korea (Table D.5.9).

Figure 5.11. Staff educational attainment in publicly and privately managed ECEC centres

Percentage of ECEC staff who reported having graduated from a bachelor's degree level or equivalent (ISCED 6) or above



* Estimates for sub-groups and estimated differences between sub-groups need to be interpreted with care. See Annex B for more information.
Notes: Statistically significant differences are marked in blue (see Annex C).
Countries are ranked in descending order of percentage of staff in publicly managed centres who reported having graduated from a bachelor's level or equivalent or above.
Source: TALIS Starting Strong 2018 database (Table.D.5.9).

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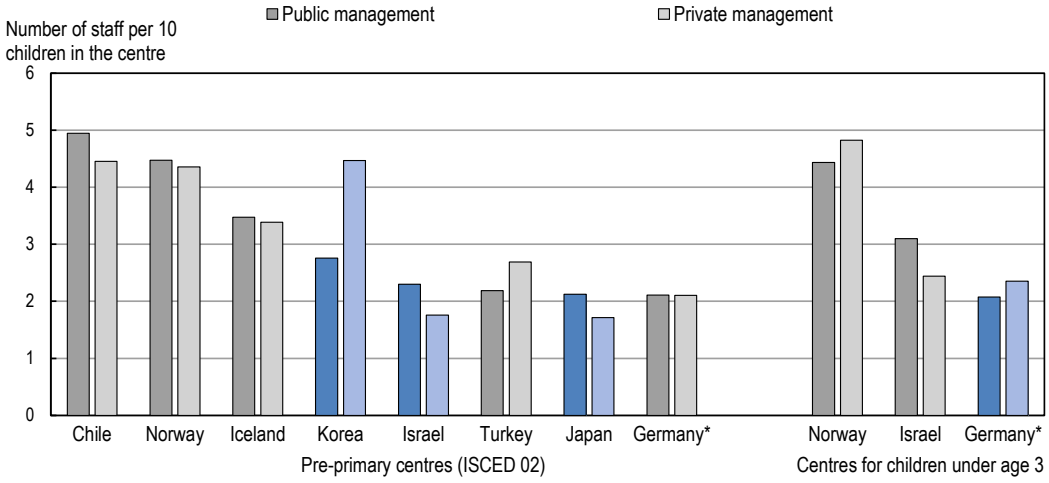
Some noticeable differences are visible in public and private centres regarding the number of staff per child (the total number of staff working in the centre, regardless of their role, divided by the total number of children enrolled, see Box 4.5 in Chapter 4). In pre-primary settings in Israel and Japan, leaders in publicly managed pre-primary centres report more staff per child. For every ten children, leaders report 2.3 staff members in Israel and 2.1 staff members in Japan in publicly managed centres, compared to 1.8 staff members in Israel and 1.7 staff members in Japan in privately managed centres (Figure 5.12). In pre-primary centres in Korea, however, privately managed centres report more staff per child for every ten children, as they have 4.5 staff members for every ten children in privately managed centres compared to

2.8 staff members for every ten children in publicly managed centres. Privately managed centres for children under age 3 in Germany also report more staff per child than publicly managed centres. As a result, staff in publicly managed centres for children under age 3 in Germany and in pre-primary centres in Korea have to handle interactions with a larger number of children than their counterparts in privately managed centres. In the rest of the participating countries, there are no significant differences in the number of staff per child depending on the type of centre management.

Figure 5.12. Number of staff per ten children in publicly and privately managed ECEC centres



* Estimates for sub-groups and estimated differences between sub-groups need to be interpreted with care. See Annex B for more information.
Notes: Statistically significant differences are marked in blue (see Annex C).
Countries are ranked in the descending order of the number of staff per child in publicly managed centres.
Source: TALIS Starting Strong 2018 database.

StatLink https://doi.org/10.1787/888934011762

Opportunities for and barriers to staff professional development

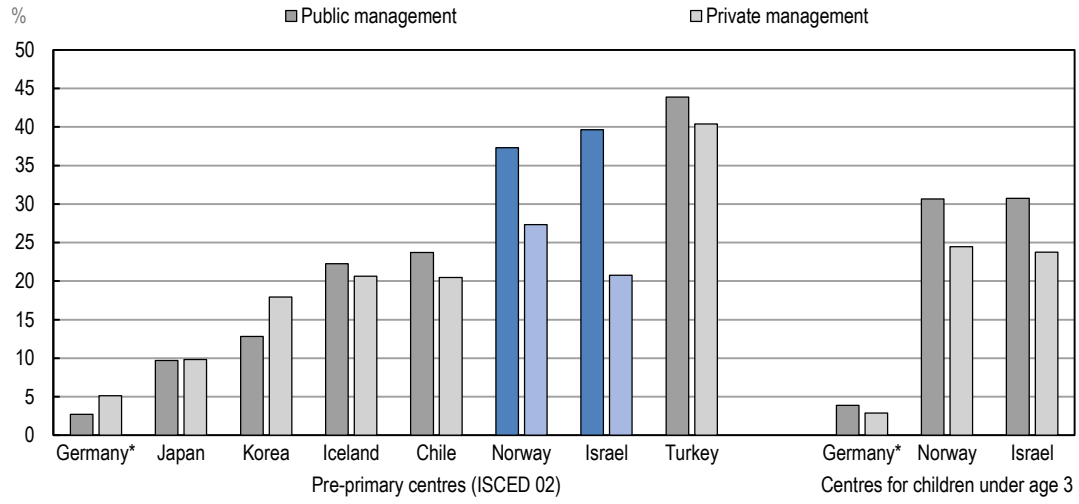
Professional development plays a key role in fostering process quality in ECEC centres, as examined in Chapter 3. This makes it important to understand how support for professional development relates to centre management. In the majority of countries surveyed, there is no difference in take-up of professional development depending on centre management. Pre-primary settings in Israel are an exception, as staff of privately managed centres are significantly less likely to participate in professional development than staff in publicly managed settings (Table D.5.10).

Take-up of professional development is influenced by the support that staff receive. Support for professional development consists of different incentives to encourage staff to participate in professional development, for instance through a reduction of working hours, or monetary and non-monetary rewards (see Chapter 3). In pre-primary settings in Israel and Norway, among those who participated in professional development over the previous 12 months, a larger share of staff in publicly managed centres report that they did not receive any support to do so compared to staff in privately managed centres (Figure 5.13). The case of Israel is of particular interest. Staff in publicly managed centres are more likely to take up professional development activities, but less likely to report receiving support for their participation than their counterparts in privately managed centres. This finding could suggest that other factors aside from explicit supports, such as a culture of participation in professional development within centres or leader

support for ongoing training, can encourage staff participation in such activities, at least in pre-primary settings in Israel.

Figure 5.13. Lack of support for professional development in publicly and privately managed ECEC centres

Percentage of ECEC staff who participated in professional development in the 12 months prior to the Survey but reported no support for this participation



* Estimates for sub-groups and estimated differences between sub-groups need to be interpreted with care. See Annex B for more information.
Notes: Statistically significant differences are marked in blue (see Annex C).
Countries are ranked in ascending order of percentage of staff in publicly managed centres who report that they did not benefit from any support for participating in professional development activities over the previous 12 months.
Source: TALIS Starting Strong 2018 database (Table.D.5.10 and Table.D.5.11).

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Variations exist in the variety of support for professional development offered for staff in public and private centres in several countries. In Chile, Denmark (in pre-primary centres, with low response rates) and Norway (in centres for children under age 3), staff in privately managed centres are, for example, more likely to be reimbursed for professional development activities. In Chile, Israel (both pre-primary and centres for children under age 3) and Norway (in centres for children under age 3), they also are more often supplied with the materials needed for professional development activities. In Korea, on the other hand, staff in publicly managed centres receive more forms of support for professional development than their colleagues in privately managed centres (Table D.5.11).

Staff in publicly and privately managed centres generally agree on the main barriers to their professional development. The only exception is the lack of replacement staff to accommodate for an absence, which is perceived as a barrier to professional development by a significantly larger percentage of staff in publicly managed centres than in privately managed centres in four of the nine participating countries at the pre-primary level. This item also ranks as the main barrier to professional development in public centres in all countries and levels surveyed, except in Chile, highlighting the high prevalence of this issue (see Chapter 3 and Table D.5.12).

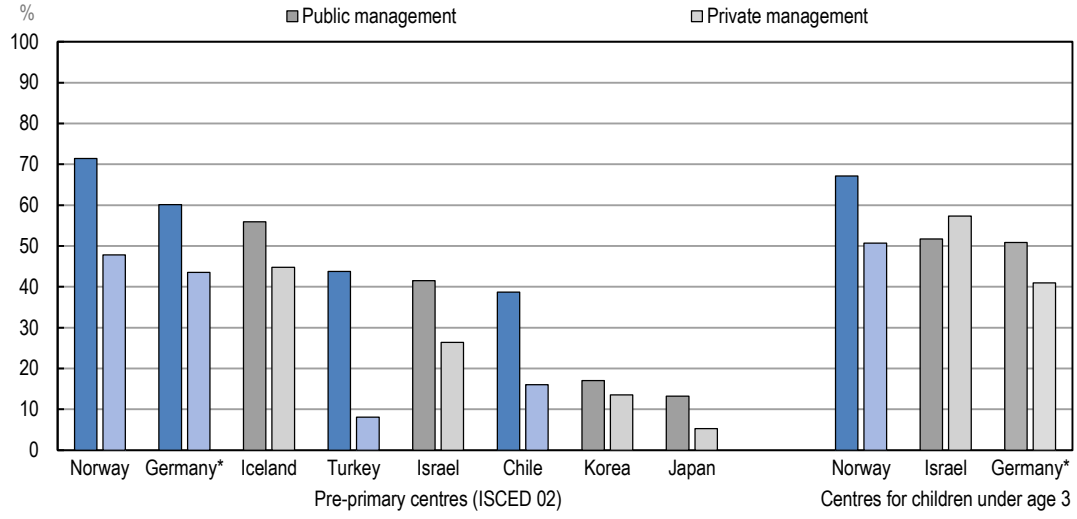
In Korea, larger percentages of staff in privately managed centres than in publically managed centres report facing barriers to professional development, notably regarding a lack of incentives to participate in in-service training and the existence of conflicts between professional development and work schedules.

Urban location of publicly and privately managed centres

At the pre-primary education level in all countries surveyed, the share of publicly managed centres is higher than the share of privately managed centres in towns of 15 000 people or less. Privately managed centres are mostly concentrated in more urban areas (Figure 5.14). This is particularly striking in Turkey, where only 8% of privately managed ECEC centres are located in urban units of less than 15 000 people, while 44% of all publicly managed centres are in these smaller towns. Centres for children under age 3 in Denmark (with low response rates) and Israel are the only exceptions, as privately managed centres are, on average, located in smaller urban areas than publicly managed centres. For all other countries and levels of ECEC, this reflects the important role of the public sector in ensuring that coverage of ECEC extends to municipalities with fewer people.

Figure 5.14. Geographical location of public and private centres

Percentage of ECEC centre leaders who reported that their centre was located in a town of 15 000 people or less



* Estimates for sub-groups and estimated differences between sub-groups need to be interpreted with care. See Annex B for more information.
Notes: Statistically significant differences are marked in blue (see Annex C).
Countries are ranked by descending order of percentage of publicly managed centres located in towns of 15 000 people or less.
Source: TALIS Starting Strong 2018 database.

StatLink https://doi.org/10.1787/888934011800

The relationship between aspects of governance and funding and process quality

Several aspects of governance, from the type of centre management to the quality of leadership, can influence the quality of the interactions between children and staff or between staff and parents/guardians. TALIS Starting Strong allows for the exploration of some of these linkages by investigating the association between indicators of process quality built from the Survey (see Chapter 2) and the aspects of governance and funding discussed in this chapter. Staff responses indicate the commonality of practices that favour children's development and well-being at the centre level, including staff support for literacy and numeracy development, for social and emotional development, and for engagement of parents/guardians.

Centre management and funding and process quality

Regression analysis is used to simultaneously examine multiple characteristics of centres (e.g. the percentage of children from socio-economically disadvantaged homes) and of staff within the centres (e.g. the level of education of staff in the centre), to better understand the associations of centre management, centre funding and leaders' responsibilities with process quality.

With regard to centre management, staff in several countries working in publicly managed centres report lower support for some aspects of process quality, compared to staff working in privately managed centres, although the specific dimensions of process quality vary across these countries (Table D.5.13). In pre-primary centres in Germany, staff in publicly managed centres report lower support for prosocial behaviour among children and less facilitation of emotional development, compared to their colleagues in privately managed centres. Staff in centres for children under age 3 in Norway similarly report less facilitation of emotional development in publicly managed settings. In centres for children under age 3 in Denmark (with low response rates), staff in publicly managed settings report less facilitation of literacy and numeracy development, compared to staff in privately managed settings. In Iceland, staff also report less facilitation of numeracy development in public versus private centres. Finally, staff in pre-primary settings in Norway and centres for children under age 3 in Denmark (with low response rates) report less support for facilitating engagement of parents/guardians in their centres, compared to colleagues in privately managed settings. An exception to this overall trend is Chile, where staff in publicly managed centres report more support for facilitating engagement of parents/guardians.

With regard to centre funding, in centres for children under age 3 in Israel, staff in centres that receive funds exclusively from the government (and not from private sources) report more support for literacy and numeracy development, compared to their colleagues in centres that receive mixed public and private funds (Table D.5.14). Similarly, in pre-primary settings in Norway staff in centres that receive funds exclusively from the government report more support for facilitating children's emotional development and facilitating engagement of parents/guardians than staff in centres with mixed funding sources. In contrast, in centres for children under age 3 in Denmark (with low response rates), staff in centres that receive funds exclusively from the government report less support for facilitating engagement of parents/guardians compared to their colleagues in centres with mixed funding sources.

Leaders responsibilities and process quality

The extent of leaders' responsibilities in their centres may also be relevant for process quality. In particular, the opportunity for leaders and/or members of staff to make decisions about the centre's budget and recruitment allows them to shape the human resources and spending priorities of the centre, both of which matter for process quality. TALIS Starting Strong allows investigation of links between leaders' responsibilities in the centre and process quality.

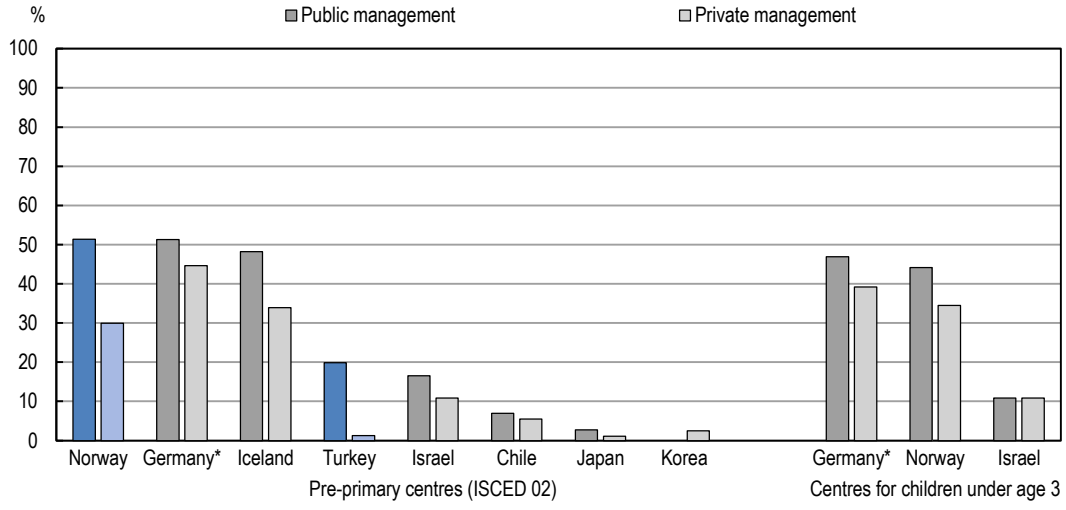
Results show that the fact that leaders and/or members of staff have influence on recruitment at their centres is associated with process quality in Germany, Japan and Norway (Table D.5.15). In pre-primary centres in Norway, staff in centres where leaders have a significant responsibility for recruitment policies report greater support for all dimensions of process quality, except support for facilitating engagement of parents/guardians, compared to staff in centres where leaders do not have this type of responsibility. Similar associations are seen in Japan, where staff in centres where leaders are responsible for recruitment report greater use of practices facilitating emotional development and the prosocial behaviour of children, compared to staff in centres where leaders are not in charge of the recruitment process. In centres for children under age 3 in Germany, staff also report more practices facilitating emotional development when leaders and/or members of staff have a significant influence on recruitment policies than when leaders do not have this influence.

Governance and equity

In countries covered by TALIS Starting Strong, publicly managed centres typically serve a larger share of children whose first language is different from the language(s) of the centre than privately managed centres, although those differences are not always statistically significant (Figure 5.15). In Turkey and Norway, the difference is particularly notable: only 1% of private centres in Turkey and 30% in Norway serve 11% or more children whose first language is not a language used in the centre, compared to 20% of public centres in Turkey and 51% in Norway. This pattern is also visible in both levels of ECEC in Denmark (with low response rates). The same conclusion applies for children with special needs in Denmark (in both levels of ECEC, with low response rates), Israel (in both levels of ECEC) and Japan. This further indicates a tendency in these countries to concentrate children from similar backgrounds in the same centres (Table D.5.16).

Figure 5.15. Percentage of ECEC centres serving 11% or more of children with a different first language, by centre management

Percentage of ECEC centre leaders who reported serving 11% or more of children whose first language is different from the language(s) used in the centre in publicly and privately managed centres



* Estimates for sub-groups and estimated differences between sub-groups need to be interpreted with care. See Annex B for more information.
Notes: Statistically significant differences are marked in blue (see Annex C).
Countries are ranked in descending order of percentage of private centres that serve 11% or more children whose first language is different from the language(s) of the centre.
Source: TALIS Starting Strong 2018 database (Table.D.5.16).

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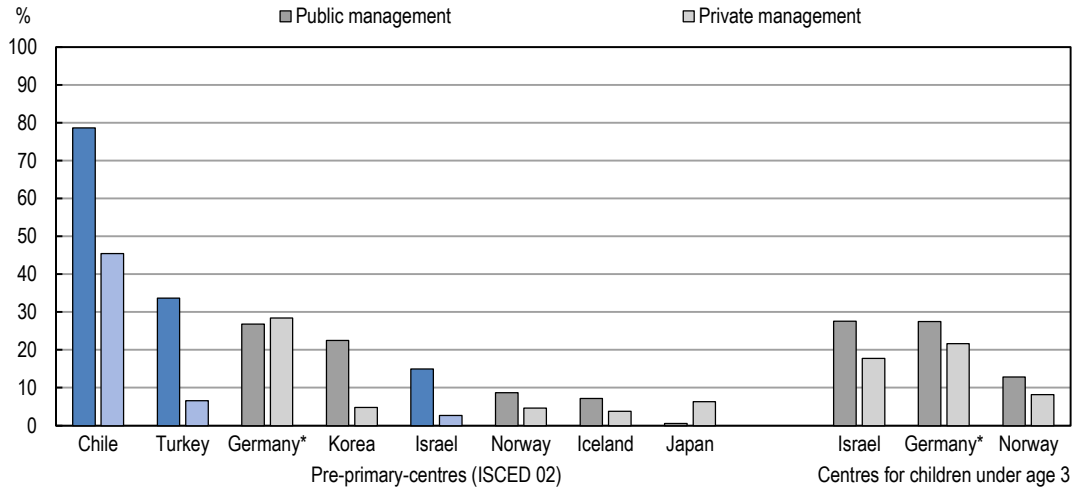
In privately managed ECEC centres, percentages of children from socio-economically disadvantaged homes are also smaller than in publicly managed centres (Figure 5.16). These results point towards inequalities in access for children from socio-economically disadvantaged homes and, therefore, to the concentration of children from low socio-economic backgrounds in the same types of centres. Depending on national or local regulations, private centres may implement more selective access (e.g. due to higher fees) and hence enrol children from wealthier family backgrounds.

Figure 5.16. Percentage of ECEC centres serving 11% or more children from socio-economically disadvantaged homes, by centre management

Percentage of ECEC centre leaders who reported serving 11% or more children from socio-economically disadvantaged homes in publicly and privately managed centres



* Estimates for sub-groups and estimated differences between sub-groups need to be interpreted with care. See Annex B for more information.
Notes: Statistically significant differences are marked in blue (see Annex C).
Countries are ranked in descending order of percentage of private centres that serve 11% or more children from disadvantaged backgrounds.
Source: TALIS Starting Strong 2018 database.

StatLink https://doi.org/10.1787/888934011838

Differences between public and private centres are the strongest in Chile, Turkey and Israel. In Chile, 79% of public ECEC centres serve 11% or more children from socio-economically disadvantaged homes, compared to the 45% of private ECEC centres. In Turkey, the percentages are 34% of public centres and 7% of private centres that serve 11% of more children from socio-economically disadvantaged homes. In pre-primary settings in Israel, the comparable percentages are 15% of public centres and 3% in private centres. The situation in pre-primary centres in Denmark (with low response rates) appears to be similar. In Chile and Turkey, similar differences are visible for publicly and privately managed centres serving more than 30% of children from socio-economically disadvantaged homes. This reveals a tendency for private centres to attract families from wealthier backgrounds in some countries. The concentration of children from low socio-economic backgrounds in ECEC centres can affect children's development, learning and well-being, in particular through peer effects (OECD, 2018[1]).

Likewise, in participating countries, the percentages of children from socio-economically disadvantaged homes are often larger in pre-primary centres funded exclusively by public sources than in centres that also receive private funding from various sources. However, the difference is only statistically significant in Chile (Table D.5.17).

Conclusion and policy implications

This chapter presents an overview of the funding and governance structure of ECEC centres in countries participating in TALIS Starting Strong, using both answers from the survey and additional system-level data. TALIS Starting Strong explores centre leaders' perceptions on effective management and sources of work-related stress. The chapter also looks into the relationship between centre governance and staff's

level of education, perceptions on spending priorities and support for professional development. The relationship between centre governance, funding and various dimensions of process quality is also examined, as well as how access for groups of children from different socio-economic backgrounds relates to different centre governance and funding structures.

Policy approaches can include:

1. **Ensuring that monitoring is guided by a clear regulatory framework that considers both structural and process aspects of quality:** In countries participating in TALIS Starting Strong, the organisation of governance of ECEC centres is very diverse, and centres are often supervised by different administrative entities. The ECEC sector also relies more on privately managed centres than higher levels of education. Monitoring tends to focus more on assessing the facilities and the financial situation of centres rather than on process quality. A clear monitoring framework that is aligned with minimum standards would provide guidance and help ensure that strong process quality is available for children across different types of settings. The Survey suggests that Germany and Japan, in particular, could better incorporate structural and process aspects of quality into the monitoring framework.
2. **Increasing the efficiency of governance, while streamlining regulations, to ensure leaders can fully exert the various aspects of leadership:** Leaders report that the main barriers to their effectiveness are inadequate resources for their centres, staff absences and staff shortages. They also report that their main sources of stress are administrative workload and changing requirements from administrative authorities. At the same time, staff across countries and levels of education converge on spending priorities: reducing group sizes; improving staff salaries; and receiving support for children with special needs. These findings highlight the importance of providing solutions to the issue of staff shortages through policies at the national level, but also ensuring that leaders have sufficient leeway to recruit more staff and to exert all aspects of leadership. They also point to the need to ensure that regulations do not create an excessive burden to leaders.
3. **Ensuring equal professional development opportunities for staff:** In several countries, staff in publicly managed centres report less diversified forms of support for professional development than staff in privately managed centres. Furthermore, staff in publicly managed centres report somewhat less support for facilitating children's learning and development and engaging parents/guardians. An efficient policy would be to ensure that all staff in publicly and privately managed centres are supported to participate in professional development to promote process quality in centres. Supports for participation in professional development can be formal, such as reimbursement of associated costs or provisions of materials, as well as less formal, such as encouragement from centre leaders for staff to engage in ongoing training, collaboration and peer-learning.
4. **Strengthening the role of the public sector in ensuring equal availability of ECEC settings within countries and across different groups of children of children:** Publicly managed centres are significantly more likely than privately managed centres to be located in more rural areas, highlighting the importance of publicly managed settings in ensuring the provision of ECEC services across the national territory. Across countries, publicly managed centres enrol larger percentages of children whose first language is different from the language(s) used in the centre and children from socio-economically disadvantaged homes. This further indicates the importance of the public sector in ensuring access to ECEC to all populations of children. National and local regulations can help ensure equal opportunities for all children to access ECEC. Authorities have to make sure that publicly managed centres have the capacity and support necessary to guarantee access to equal quality ECEC to children from all backgrounds, living in both urban and rural settings. This is particularly the case for Chile (with a large share of privately managed centres)

and for Turkey (with a smaller share), where TALIS Starting Strong suggests inequality in access for different groups of children.

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Annex A. Country profiles of early childhood education and care systems

Country profiles provide a summary of relevant system-level data on early childhood education and care (ECEC) in participating countries in order to contextualise Starting Strong Teaching and Learning International Survey (TALIS Starting Strong) 2018 findings. The profiles draw on data from various sources, including results from a policy questionnaire implemented in the context of the OECD Quality beyond Regulation policy review in 2019 (OECD, 2019[1]), which collects information on ECEC policies from the authorities in charge of those policies. Other sources include *Education at a Glance 2019: OECD Indicators* (OECD, 2019[2]), the Starting Strong series (OECD, 2017[3]; 2017[4]) and additional information provided by national authorities. Country profiles examine the following five dimensions:

- access to early childhood education and care
- governance and settings
- expenditure and funding
- curriculum and quality standards
- workforce development.

The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

Chile

Access to early childhood education and care

In Chile, a legal entitlement grants unconditional access to a place in ECEC to all children aged 3 to 5. In practice, children have access to at least 22 hours of free ECEC per week. In 2017, 79% of children aged 3 to 5 were enrolled in ECEC (below the OECD average of 87%). In addition, 22% of children under age 3 participate in ECEC in Chile, which is 14 percentage points lower than the average enrolment rate across OECD countries (OECD, 2019[2]).

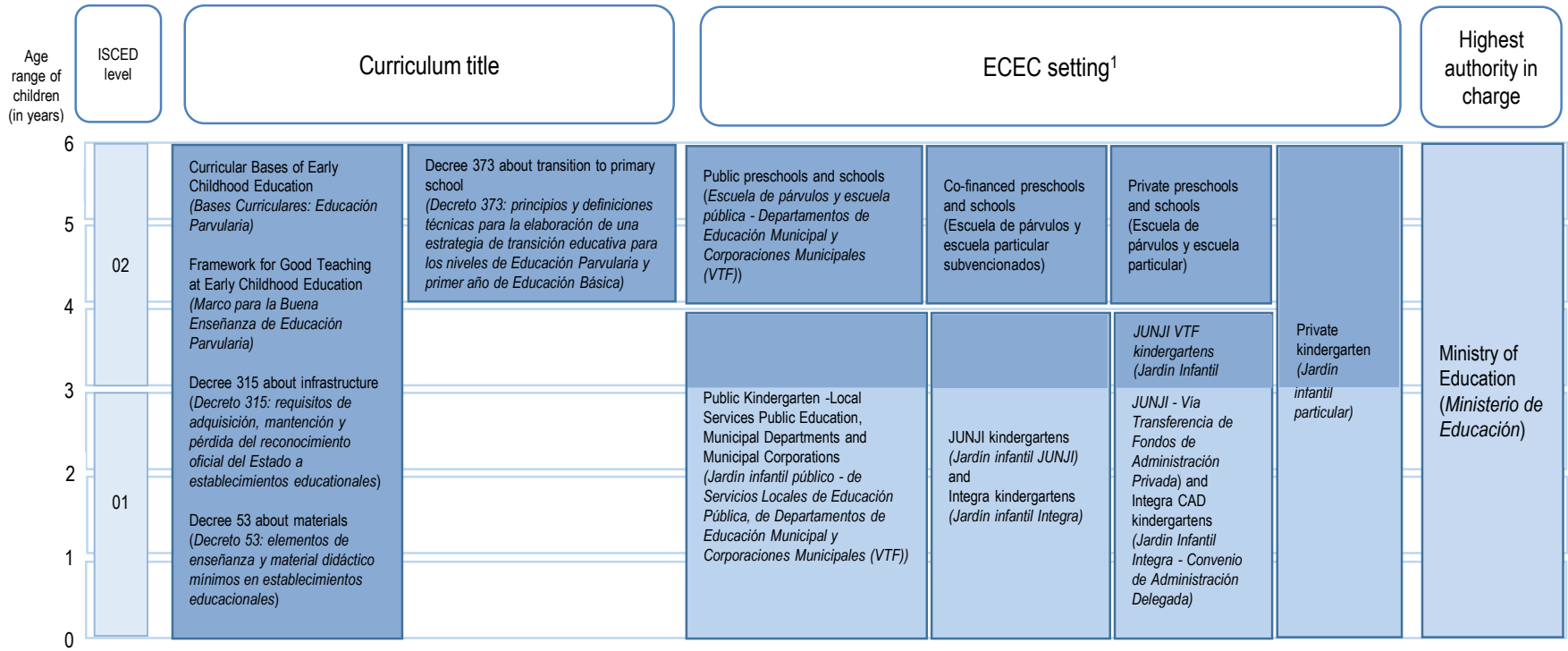
Governance and settings

The ECEC system in Chile is integrated, as it is the Ministry of Education who is responsible for ECEC programmes for children aged 0-6 (Figure A A.1). The starting age for compulsory primary school is 6 (OECD, 2019[2]).

For children under age 4, five types of settings are in place: public kindergartens of local service public education; municipal departments and municipal corporations (publicly funded and managed by local governments); Junta Nacional de Jardines Infantiles (JUNJI) kindergartens (publicly managed and funded) and JUNJI VTF; Integra kindergartens (privately managed but receive public funding) and Integra CAD. For children aged 4-6, the five types of existing settings are: public preschools and schools (publicly funded and managed by local governments); co-financed preschools and schools (privately managed and at least partly funded by public sources) and private preschools and schools (privately managed and funded). There is also a setting that serves children aged 0-6: private kindergartens, which are privately managed and funded (Figure A A.1).

The national/federal authority is responsible for setting minimum standards and for regulating class composition for all children at both publicly and privately managed settings (Table A A.1).

Figure A A.1. Organisation of the early childhood education and care system in Chile



1. Settings with lighter colours are either not included in the TALIS Starting Strong data analysed for this report or data collection did not focus on the age group concerned.
Source: OECD (2019[1]), "OECD Network on Early Childhood Education and Care: Quality beyond Regulations Survey", Internal document, OECD, Paris.

Expenditure and funding

In Chile, total expenditure on ECEC services (ISCED 0) was equal to 1.2% of GDP in 2016 (Table A A.1), higher than the average of 0.8% of GDP in OECD countries. Investment in early childhood educational development (ISCED 01) amounted to 0.3% of GDP and pre-primary education (ISCED 02) amounted to 0.9%. Both levels are funded mostly by public sources. Of the total expenditure on ECEC in Chile, 18% comes from private sources (OECD, 2019[2]).

Annual expenditure in 2016 on ECEC per child in pre-primary education in Chile was lower than the OECD average (USD 6 599 compared to USD 8 349). In addition, annual expenditure per child on early childhood educational development (ISCED 01) in the same year was lower than in all other OECD countries with available data (USD 8 018 compared to an OECD average of USD 12 080) (OECD, 2019[2]).

Curriculum and quality standards

There are five curriculum frameworks in place in Chile. The main framework is the Curricular Bases of Early Childhood Education, which covers the 0-6 age range with specific learning goals for different age groups: children under age 2, children aged 2-3 and children aged 4-6. The Framework for Good Teaching at Early Childhood Education specifies ECEC practices for these three age groups in Chile. The Decree 53 and Decree 315 frameworks specify the minimum educational elements and teaching materials, as well as the necessary infrastructure to obtain and maintain the official state recognition in these three levels. Finally, the Decree 373 framework establishes the definitions for the transition between pre-primary and primary school levels (Figure A A.1). These curriculum frameworks are mandatory for all settings.

Chile has established regulations on child-staff ratios and group sizes for each age group. For children under age 2, ECEC centres are required to have one assistant per seven children, one teacher per 42 children and one food operator per 40 children. For this age group, the maximum group size is 21 children. For children aged 2, the requirements are one assistant per 25 children and one teacher per 32 children. For children aged 3, one assistant and one teacher are required per 32 children. The maximum group size for children aged 2 and 3 is 32 children. For children aged 4 and 5, ECEC centres need to have one assistant and one teacher per 35 children. The maximum group size is 35 children for children aged 4 and 45 children for children aged 5 (if the sizes are respectively equal to or below 10 and 15 children, only one teacher is required for the group) (Table A A.1).

Workforce development and working conditions

The minimum educational attainment required for teachers in ECEC (as well as in primary school) is a bachelor's degree (ISCED level 6) (OECD, 2019[2]).

In 2018, the annual statutory salary of pre-primary teachers in Chile after 10 years of experience was USD 29 318 (converted using PPPs for private consumption), lower than the OECD average, and the same as the annual statutory salary of primary teachers at the same point of their careers. In 2018, the total statutory working time per school year in pre-primary was 1 962 hours (the same as in primary school), and the statutory net teaching time (actual time spent in direct contact with children) per school year was 1 063 hours (the same as in primary school). This means that pre-primary and primary teachers in have equal non-contact time (e.g. for administrative work, preparing, professional development) as primary teachers. On average in OECD countries, total statutory working time per school year in pre-primary was 1 613 hours, and statutory net teaching time was 1 024 hours (OECD, 2019[2]).

Table A A.1. Overview of early childhood education and care system-level indicators in Chile

Access to ECEC		
Enrolment rates (2017)	22% (age 0-2)	79 % (age 3-5)
Legal entitlements to free ECEC (2019)	Unconditional access for all children aged 3-5	
Expenditure and funding		
	ISCED 01	**ISCED 02**
Average expenditure on ECEC as percentage of GDP (2016)	0.3%	0.9%
Annual expenditure on ECEC per child in USD, converted using PPPs (2016)	USD 8 017	USD 6 599
Relative proportions of private expenditure on ECEC (2016)	18%	
Governance		
Responsibility for setting minimum standards (2019)	For children 0-3: National/federal authority for both publicly managed and privately managed settings	
	For children 4-6: National authority for publicly managed settings; National/federal and regional authorities for privately managed settings	
Responsibility for regulating group/classroom composition (2019)	For children 0-3: National authority for both publicly managed and privately managed settings	
	For children 4-6: National authority for both publicly managed and privately managed settings	
Quality standards		
Group size and child-staff ratios (2019)	For children under age 2: one assistant per 7 children; one teacher per 42 children and one food operator per 40 children. Maximum group size is 21	
	For children aged 2: one assistant per 25 children and one teacher per 32 children. Maximum group size is 32	
	For children aged 3: one assistant and one teacher per 32 children. Maximum group size is 32	
	For children aged 4: one assistant and one teacher per 35 children. If the group size is 10 or less, only one teacher is required. Maximum group size is 35	
	For children aged 5-6: one assistant and one teacher per 35 children. If the group size is 15 or less, only one teacher is required. Maximum group size is 45	
Group/classroom composition (2019)	No policy or regulation	
Workforce development		
Minimum initial educational attainment required for ECEC teachers (2017)	ISCED 6 (bachelor's degree)	
Participation in professional development (2019)	Not minimum participation required	
Working conditions		
	ISCED 01	**ISCED 02**
Statutory salary after ten years of experience in USD, converted using PPPs (2018)	Data not available	USD 29 318
Gap in statutory salary between teachers in primary and pre-primary after ten years of experience (2018)	Data not available	ECEC teachers earn the same as primary teachers
Total statutory working time per school year (2018)	Data not available	1 962 hours
Statutory net teaching time per school year (2018)	Data not available	1 063 hours

Note: *Refer to the Reader's Guide for information concerning abbreviations.*
Sources: OECD (2019[1]), "OECD Network on Early Childhood Education and Care: Quality beyond Regulations Survey", Internal document, OECD, Paris; OECD (2019[2]), *Education at a Glance 2019: OECD Indicators*, https://doi.org/10.1787/f8d7880d-en.

Denmark

Access to early childhood education and care

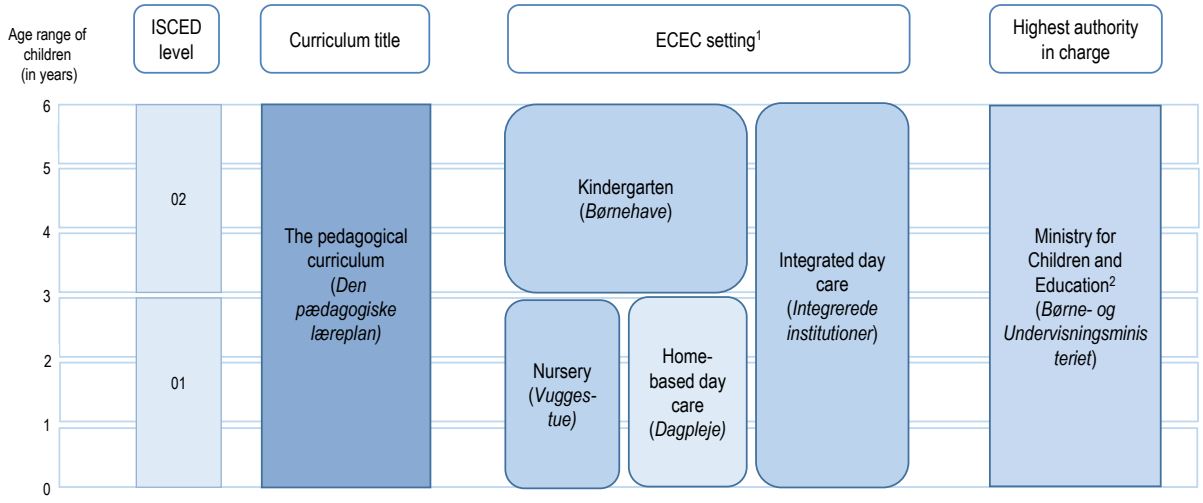
In Denmark, a legal entitlement to a place in ECEC grants universal access to ECEC to all children aged 26 weeks until school entry age. Parents with an income below a certain limit can receive a subsidy from the municipality in addition to the regular subsidy for a place in ECEC. In 2017, almost all children aged 3 to 5 were enrolled in ECEC, as well as an important percentage of 3-year-olds (96%). In addition, 55% of the children under the age of 3 participate in ECEC in Denmark, which is 19 percentage points higher than the average enrolment rate for the same age group across OECD countries (OECD, 2019[2]).

Governance and settings

The ECEC system in Denmark is integrated, as it is the Ministry for Children and Education (until July 2019, Ministry for Children and Social Affairs) who is responsible for administering ECEC programmes for children aged 0-5 year-olds (Figure A A.2). The starting age for compulsory primary school is 6 (OECD, 2019[2]).

Different types of settings are in place in Denmark. Children under the age of 3 who participate in ECEC may be enrolled in nursery or in home-based day care (Figure A A.2). Children aged between 3 and 5 years-old attend kindergarten. Alternatively, children may enrol in integrated day care centres that serve the whole age range from 0 to 5 years. The national authority is responsible for legislation regarding all ECEC settings but municipalities also participate in the regulation of ECEC centres, for instance, through the definition of minimum standards (e.g. space requirements and staff qualifications).

Figure A A.2. Organisation of the early childhood education and care system in Denmark



1. Settings with lighter colours are either not included in the TALIS Starting Strong data analysed for this report or data collection did not focus on the age group concerned.
2. Until July 2019 Ministry for Children and Social Affairs.
Source: OECD (2019[1]), "OECD Network on Early Childhood Education and Care: Quality beyond Regulations Survey", Internal document, OECD, Paris.

Expenditure and funding

In Denmark, total expenditure on ECEC services (ISCED 0) was equal to 1.3% of GDP in 2014 (Table A A.2), higher than the average of 0.8% of GDP in OECD countries for the same year of reference. Of the total expenditure on ECEC in Denmark in 2014, 19% came from private sources, which is around the OECD average of 18% for the same year. Annual expenditure on ECEC per child (ISCED 0) in 2014 in Denmark was higher than the OECD average (USD 16 298 compared to USD 8 858) (OECD, 2017[5]).

Curriculum and quality standards

A single curriculum framework covers ECEC provision for children aged 0 to 5 in nurseries, kindergartens, home-based day care and integrated day care (Figure A A.2). This integrated curriculum framework is compulsory for both ISCED 01 and ISCED 02 levels.

Denmark has established regulations regarding group composition and child-staff ratios only for home-based day care. These regulations limit the number of children per staff in home-based day care to five, a ratio that municipalities can raise up to ten children per staff in case the home-based day care setting is handled by more than one staff member. Denmark also has regulations on minimum standards of space per child.

Workforce development and working conditions

There is no minimum educational attainment required for ECEC teachers in Denmark but a large part of the staff has a bachelor's degree or equivalent. In 2018, the annual statutory salary of pre-primary teachers in centre-based ECEC settings in Denmark after ten years of experience was USD 49 675 (converted using PPPs for private consumption), higher than the OECD average, but lower than the annual statutory salary of primary teachers at the same point in their careers (OECD, 2019[2]).

In 2018, the total statutory working time per school year for pre-primary teachers was 1 680 hours, slightly over the OECD average and the same than teachers in primary schools and higher levels of education (OECD, 2019[2]). Data from 2015 indicates that the statutory net teaching time (actual time spent in direct contact with children) per school year was 1 417 hours, compared to 748 hours for primary teachers (OECD, 2017[5]). This means that teachers in ECEC in Denmark have less non-contact time (e.g. for administrative work, preparing, professional development) than primary teachers. On average in OECD countries in 2018, total statutory working time per school year in ISCED 02 was 1 613 hours, and statutory net teaching time was 1 024 hours (OECD, 2019[2]).

Table A A.2. Overview of early childhood education and care system-level indicators in Denmark

Access to ECEC		
Enrolment rates (2017)	55% (age 0-2)	98% (age 3-5)
Legal entitlements to free ECEC (2014)	Legal entitlement to a place in ECEC to all children aged 26 weeks until school entry age. Parents with an income below a certain limit can receive a subsidy from the municipality in addition to the regular subsidy for a place in ECEC.	
Expenditure and funding		
	ISCED 0	
Average expenditure on ECEC as percentage of GDP (2014)	1.3%	
Annual expenditure on ECEC per child in USD, converted using PPPs (2014)	USD 16 298	
Relative proportions of private expenditure on ECEC (2014)	19%	
Governance		
Responsibility for setting minimum standards (2019)	Local and national authorities (for both public and private centres)	
Responsibility for regulating group/classroom composition (2019)	Data not available	
Quality standards		
Group size and child-staff ratios (2019)	For home-based day care only: • one staff for every five children • two staff for every ten children	
	No regulations on group size and staff-child ratios for other settings.	
Group/classroom composition (2019)	No policy or regulation.	
Workforce development		
Minimum initial educational attainment for ECEC teachers (2017)	ISCED 6	
Participation in professional development (2019)	Data not available	
Working conditions		
	ISCED 01	**ISCED 02**
Statutory salary after ten years of experience in USD, converted using PPPs (2018)	Data not available	USD 49 675
Gap in statutory salary between teachers in primary and pre-primary after 10 years of experience (2018)	Data not available	Pre-primary teachers earn 8% less than primary teachers
Total statutory working time per school year (2018)	Data not available	1 680 hours
Statutory net teaching time per school year (2015)	Data not available	1 417 hours

Note: *Refer to the Reader's Guide for information concerning abbreviations.*
Sources: OECD (2017[5]), *Education at a Glance 2017: OECD Indicators*, https://doi.org/10.1787/eag-2017-en; OECD (2019[1]), "OECD Network on Early Childhood Education and Care: Quality beyond Regulations Survey", Internal document, OECD, Paris; OECD (2019[2]), *Education at a Glance 2019: OECD Indicators*, https://doi.org/10.1787/f8d7880d-en.

Germany

Access to early childhood education and care

In Germany, a legal entitlement grants universal access to a place in an ECEC centre for children from the age of 1, though, the conditions for access and fees depend on the state (*Land*), the municipality and/or the providers. In 2017, 95% of children aged 3 to 5 were enrolled in ECEC, which is higher than the OECD average of 87%. In addition, a 37% of children under age 3 participate in ECEC in Germany, which is around the average enrolment rate across OECD countries for this age group (OECD, 2019[2]).

Governance and settings

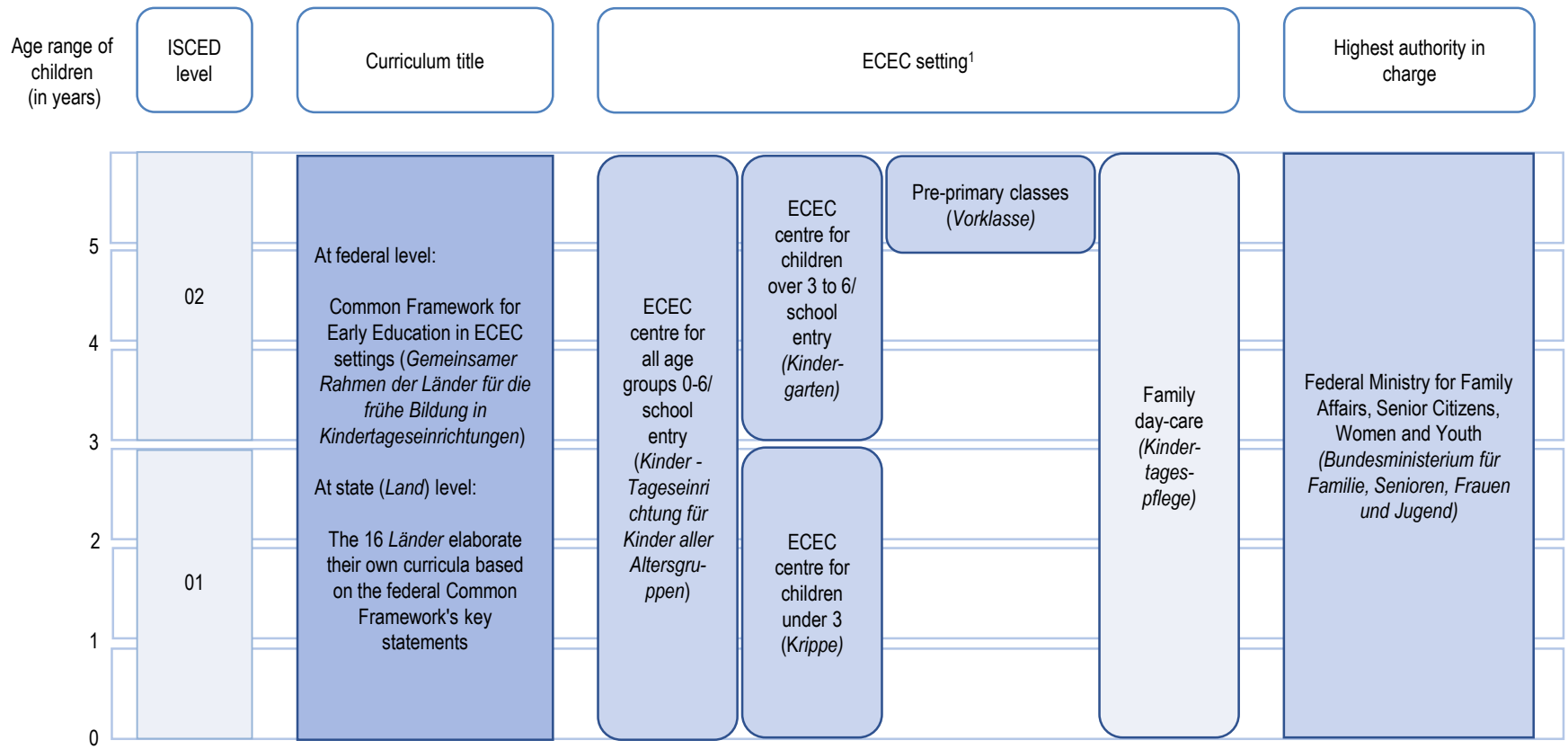
The ECEC system in Germany is integrated at the federal level. The Federal Ministry for Family Affairs, Senior Citizens, Women and Youth is responsible for administering ECEC programmes for children aged 0 to school entry age (typically at age 6) (Figure A A.3). However, core competences are devolved to the states, which regulate ECEC within the framework set out by national legislation (e.g. the Social Code Book and the Child and Youth Act). In most states, the education department is in charge of ECEC, but in some states it is the social affairs department (OECD, 2019[2]).

For Germany, the policy questionnaire implemented in the context of the OECD Quality beyond Regulations policy review collects information on ECEC policies at the national as well as the state level. To ensure the feasibility of the policy data collection in the federal context, 4 out of 16 states were selected by Germany for the policy questionnaire, covering states in the former East and West of the country, as well as states of different types (territorial and city states) and with different numbers of inhabitants*:* Bavaria, Berlin, Brandenburg and North-Rhine-Westphalia.

Four types of settings are in place: ECEC centres for all age groups (0-6), ECEC centres for children under age 3, ECEC centres for children aged 3-6, and family day care (for all age groups). Some states additionally comprise a fifth type of setting: pre-primary classes, covering a very small proportion of children around the school-entry age. All these types of settings can be managed publicly or privately (Figure A A.3).

In the four states for which data has been collected as part of the policy questionnaire, the national authority (which provides the overarching legislative framework: the Social Code Book and the Child and Youth Act) and the regional authority (which specify standards through their respective implementation laws for ECEC) are responsible for setting minimum standards (e.g. space requirements, staff qualifications, ratios) for both publicly and privately managed settings. The ECEC providers are in charge of the regulations regarding group/classroom composition for both publicly and privately managed settings in all states, whereas the regional authority is also responsible for this in the states of Bavaria and North-Rhine-Westphalia. (Table A A.3).

Figure A A.3. Organisation of the early childhood education and care system in Germany



1. Settings with lighter colours are either not included in the TALIS Starting Strong data analysed for this report or data collection did not focus on the age group concerned.
Source: OECD (2019[1]), "OECD Network on Early Childhood Education and Care: Quality beyond Regulations Survey", Internal document, OECD, Paris.

Expenditure and funding

In Germany, total expenditure on ECEC services (ISCED 0) was equal to 0.9% of GDP in 2016 (Table A A.3), higher than the average of 0.8% of GDP in OECD countries. Investment in early childhood educational development (ISCED 01) and pre-primary education (ISCED 02) amounted to 0.3% and 0.6% of GDP, respectively. Of the total expenditure on ECEC in Germany, 19% comes from private sources (OECD, 2019[2]),

Annual expenditure in 2016 on ECEC per child in pre-primary education in Germany was higher than the OECD average (USD 10 101 compared to USD 8 349). In addition, annual expenditure per child in 2016 on early childhood educational development (ISCED 01) in the same year was higher than in all other OECD countries with available data (USD 16 169 compared to an OECD average of USD 12 080) (OECD, 2019[2]),

Curriculum and quality standards

Each state defines their curriculum framework based on the federal Common Framework. For example, in Berlin, the "Bridging Diversity - an Early Years Programme" (*Berliner Bildungsprogramm für Kitas und Kindertagespflege*) covers ages 0-6 and in Brandenburg the "Principles of Elementary Education" (*Grundsätze elementarer Bildung in Einrichtungen der Kindertagesbetreuung im Land Brandenburg*) cover children from 1-6 years old. The curriculum framework "Principles of education for children aged 0-10 in child day-care facilities and primary schools in North Rhine-Westphalia" (*Bildungsgrundsätze für Kinder von 0 bis 10 Jahren in Kindertagesbetreuung und Schulen im Primarbereich in Nordrhein-Westfalen*) addresses a wider age range from 0-10. In Bavaria, there are three binding curriculum frameworks in place. The main curriculum is the Bavarian Framework for Early Education (*Der Bayerische Bildungs- und Erziehungsplan für Kinder*) for children aged 0-10. For the same age group, this state also provides the Bavarian Guidelines for Education *(Bayerische Leitlinien für die Bildung und Erziehung von Kindern bis zum Ende der Grundschulzeit – BayBL)*. Bavaria also specifically adapted the Bavarian Framework for children aged 0-3 and provided specific guidelines to work with this age group in the curriculum framework. In Germany the regulations on child-staff ratios both at ISCED 01 and 02 levels vary across states. There are regulations on group sizes in place in the states of Berlin and North Rhine-Westphalia. There are no regulations on group composition, except for the state of Brandenburg, where legislation indicates that a group should offer children the possibility of experiences with other age groups (although there are no quotas) (Table A A.3).

Workforce development and working conditions

The minimum educational attainment typically required for teachers in ECEC is a vocationally-oriented bachelor's degree or equivalent (ISCED level 6) (see Box 3.1) (OECD, 2019[2]). In the ECEC sector professional development for teachers depends on the state and what is defined in the employment contracts, e.g. in Mecklenburg-Pomerania staff are required by law to attend five days of continued professional development annually and in Thuringia it is two days per year (Table A A.3).

In 2018, the total statutory working time per school year in pre-primary and primary education was 1 769 hours, and the statutory net teaching time (actual time spent in direct contact with children) per school year was 1 755 hours for pre-primary teachers, compared to 800 hours for primary teachers. This means that teachers in ECEC have less non-contact time (e.g. for administrative work, preparing, professional development) than primary teachers. On average in OECD countries in 2018, total statutory working time per school year in ISCED 02 was 1 613 hours, and statutory net teaching time was 1 024 hours (OECD, 2019[2]).

Table A A.3. Overview of early childhood education and care system-level indicators in Germany

Access to ECEC		
Enrolment rates (2017)	37% (age 0-2)	95% (age 3-5)
Legal entitlements to ECEC (2019)	Universal access to a place in an ECEC centres for children aged 1-5. Conditions for access and fees depend on the state, the municipality and/or the providers.	
Expenditure and funding		
	ISCED 01	**ISCED 02**
Average expenditure on ECEC as percentage of GDP (2016)	0.3%	0.6%
Annual expenditure on ECEC per child in USD, converted using PPPs (2016)	USD 16 169	USD 10 101
Relative proportions of private expenditure on ECEC (2016)	22%	
Governance		
Responsibility for setting minimum standards[1] (2019)	Regional authorities, within the framework established by national legislation (for both publicly and privately managed settings in all participating states).	
Responsibility for regulating group/classroom composition[1] (2019)	ECEC provider (for both publically managed and privately managed settings) for all participating states. In addition, in North-Rhine-Westphalia and in Bavaria the regional authority is also responsible	
Quality standards		
Group size and child-staff ratios[12] (2019)	**Berlin**:	
	Child-staff ratio:	
	• for children under the age of 3, one staff member for 4.8 children	
	• for children age 3-5, one staff member for 8.7 children	
	No regulation on group sizes.	
	Brandenburg:	
	Child-staff ratio:	
	• for children under the age of 3, one staff member for 7.6 children	
	• for children age 3-5, one staff member for 11.5 children	
	• for children age 6 and older, 1 staff member for 12.5 children	
	No regulation on group sizes.	
	North Rhine-Westphalia:	
	Child-staff ratio:	
	• for children under the age of 3, one staff member for 3.5 children	
	• for children age 3-5, one staff member for 9.4 children	
	Regulations on group size are in place.	
	Bavaria:	
	Child-staff ratio:	
	• for children under the age of 3, at least one staff member for 5.8 children	
	• for children age 3-5, at least one staff member for 11.5 children	
	• for children age 6 and older, at least 1 staff member for 9.6 children Regulations on group size are in place.	
Group/classroom composition[1] (2019)	**Brandenburg:** There are no quotas but a group should offer children the possibility of experiences with other age groups	

Workforce development		
Minimum initial educational attainment required for ECEC teachers (2019)	Typically ISCED 6, vocational	
Yearly participation in professional development[1] (2019)	It depends on the state and what is defined in the contracts	
Working conditions		
	ISCED 01	**ISCED 02**
Statutory salary after ten years of experience in USD, converted using PPPs	Data not available	
Gap in statutory salary between teachers in primary and pre-primary after ten years of experience	Data not available	
Total statutory working time per school year (2018)	1 769 hours	
Statutory net teaching time per school year (2018)	1 755 hours	

1. Data includes information for 4 out of 16 states in Germany: Bavaria, Berlin, Brandenburg and North-Rhine-Westphalia. For an overview over all states see Viernickel and Fuchs-Rechlin (2015[6]).
2. Staff ratios were provided by Germany according to a standardised calculation by Viernickel and Fuchs-Rechlin (2015[6]), on the basis of the regulations of the 16 states.
Note: *Refer to the Reader's Guide for information concerning abbreviations.*
Sources: OECD (2019[1]), "OECD Network on Early Childhood Education and Care: Quality beyond Regulations Survey", Internal document, OECD, Paris; OECD (2019[2]), *Education at a Glance 2019: OECD Indicators*, https://doi.org/10.1787/f8d7880d-en.

Iceland

Access to early childhood education and care

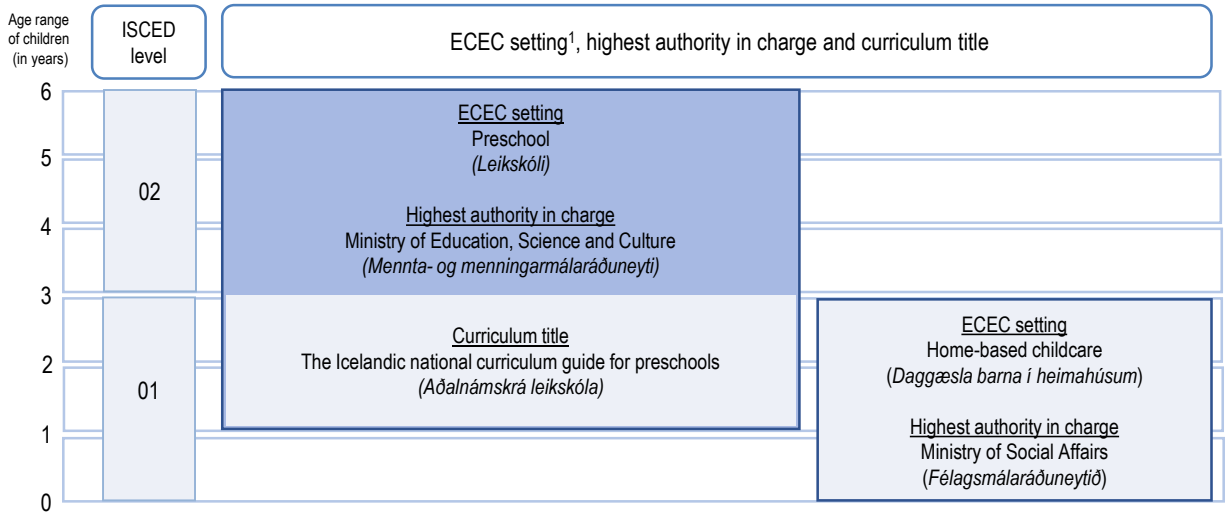
In 2017, 60% of children under age 3 were enrolled in an ECEC programme in Iceland, which is well above the average enrolment rate for this age group across OECD countries (36%). In addition, 95% of children aged 2 participate in ECEC. A 97% of children aged 3-5 were enrolled in an ECEC programme, which is also above the OECD average by 10 percentage points (OECD, 2019[2]).

Governance and settings

The ECEC system in Iceland is split. The Ministry of Education and Research is responsible for ECEC centre-based settings for children aged 1-5, while the Ministry of Social Affairs is responsible for administering home-based provisions for children under the age of 3 (Figure A A.4). The starting age for compulsory primary school is 6 (OECD, 2019[2]).

Preschools in Iceland can be managed publicly or privately. These settings target all children aged 1-5 providing integrated early childhood education and care. In publicly managed preschools, the national and local authorities are responsible for setting minimum standards (e.g. staff qualifications). In privately managed preschools, the national authority and the ECEC providers set the minimum standards. Regulations on classroom composition are the responsibility of the local authorities in publicly managed settings, and of the ECEC provider in privately managed settings (Table A A.4).

Figure A A.4. Organisation of the early childhood education and care system in Iceland



1. Settings with lighter colours are either not included in the TALIS Starting Strong data analysed for this report or data collection did not focus on the age group concerned.
Source: OECD (2019[1]), "OECD Network on Early Childhood Education and Care: Quality beyond Regulations Survey", Internal document, OECD, Paris.

Expenditure and funding

In Iceland, total expenditure on ECEC services (ISCED 0) was equal to 1.7% of GDP in 2016 (Table A A.4), higher than the average of 0.8% of GDP in OECD countries. Investment in early childhood educational development (ISCED 01) was somewhat lower than for pre-primary education (ISCED 02), amounting to 0.7% of GDP and 1.0% of GDP, respectively. Both levels are funded mostly by public sources. Of the total expenditure on ECEC in Iceland, 13% comes from private sources (OECD, 2019[2]).

Annual expenditure in 2016 on ECEC per child in pre-primary education in Iceland was higher than the OECD average (USD 13 230 compared to USD 8 349). In addition, annual expenditure per child on early childhood educational development (ISCED 01) in the same year was higher than the OECD average (USD 18 934 compared to an OECD average of USD 12 080) (OECD, 2019[2]).

Curriculum and quality standards

A single curriculum framework covers ECEC provision (both ISCED 01 and ISCED 02) for children in preschools in Iceland (Figure A A.4). This integrated curriculum framework is compulsory. Iceland does not have formal regulations regarding child-staff ratios, group sizes or group composition (Table A A.4).

Workforce development and working conditions

The minimum educational attainment required for teachers in ECEC (as well as in primary school) is a Master's degree (ISCED level 7) (OECD, 2019[2]). Professional development for teachers is not mandatory, but participation each year is common practice (Table A A.4).

In 2018, the annual statutory salary of pre-primary teachers in Iceland after ten years of experience was USD 39 324 (converted using PPPs for private consumption), slightly above the OECD average, but slightly lower than the annual statutory salary of primary teachers at the same point of their careers (OECD, 2019[2]).

In 2018, the total statutory working time per school year in ISCED 02 was 1 760 hours, the same as for ISCED 1. However, the statutory net teaching time (actual time spent in direct contact with children) per school year was 1 620 hours in ISCED 02 as compared to 624 hours in ISCED 1. This means that teachers in ECEC have less non-contact time (e.g. for administrative work, preparing, professional development) than primary teachers. On average in OECD countries in 2018, total statutory working time per school year in ISCED 02 was 1 613 hours, and statutory net teaching time was 1 024 hours (OECD, 2019[2]).

Table A A.4. Overview of early childhood education and care system-level indicators in Iceland

Access to ECEC		
Enrolment rates (2017)	60% (age 0-2)	97% (age 3-5)
Legal entitlements to free ECEC (2014)	None	
Expenditure and funding		
	ISCED 01	**ISCED 02**
Average expenditure on ECEC as percentage of GDP (2016)	0.7 %	1.0%
Annual expenditure on ECEC per child in USD, converted using PPPs (2016)	USD 18 934	USD 13 230
Relative proportions of private expenditure on ECEC (2016)	13%	
Governance		
Responsibility for setting minimum standards (2019)	National and local authorities for publicly managed settings National authority and ECEC providers for privately managed settings	
Responsibility for regulating classroom composition (2019)	Local authority for publicly managed settings ECEC providers for privately managed settings	
Quality standards		
Group size and child-staff ratios (2019)	No regulations	
Group/classroom composition (2019)	No regulations	
Workforce development		
Minimum initial educational attainment required for ECEC teachers (2019)	ISCED 7 (Master's degree)	
Yearly participation in professional development (2019)	Not mandatory, but participation each year is common practice	
Working conditions		
	ISCED 01	**ISCED 02**
Statutory salary after ten years of experience in USD, converted using PPPs (2018)	Data not available	USD 39 324
Gap in statutory salary between teachers in primary and pre-primary after 10 years of experience (2018)	Data not available	Primary teachers earn 1% more than pre-primary teachers
Total statutory working time per school year (2018)	Data not available	1 800 hours
Statutory net teaching time per school year (2018)	Data not available	1 620 hours

Notes: Data for Iceland does not include home-based care settings.
Refer to the Reader's Guide for information concerning abbreviations.
Sources: OECD (2019[1]), "OECD Network on Early Childhood Education and Care: Quality beyond Regulations Survey", Internal document, OECD, Paris; OECD (2019[2]), *Education at a Glance 2019: OECD Indicators*, https://doi.org/10.1787/f8d7880d-en.

Israel

Access to early childhood education and care

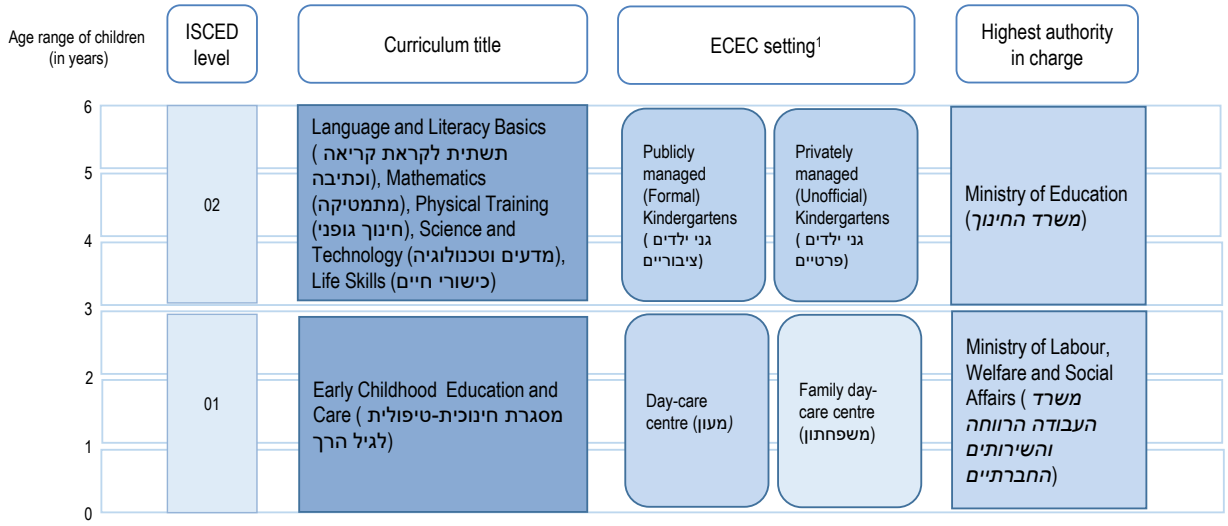
In Israel, all children aged 3-5 are legally entitled to a place in ECEC (kindergarten) for a minimum of 35 hours per week. Attendance is required by law and free of charge. For children aged 3 months to 3 years access to ECEC (day care) is a legal entitlement, too. If there are more children than there are places available for this age group, an admission committee will assess children's needs against priority criteria. ECEC for children in this age group is free for up to 50 hours per week. In 2017, almost all children aged 3-5 years were enrolled in ECEC (99%), more than the average in OECD countries (87%). OECD data suggests that 56% of children under age 3 participate in ECEC in Israel, which is 20 percentage points higher than the average enrolment rate across OECD countries (OECD, 2019[2]).

Governance and settings

The ECEC system in Israel is split. The Ministry of Education is responsible for administering kindergarten programmes for children aged 3-5, while the Ministry of Labour, Welfare and Social Affairs is responsible for ECEC settings, including childcare and family day-care, for children predominantly aged 3 months to 3 years old (Figure A A.5). Kindergartens accept all children regardless of their family background, with the exception of privately managed ultra-orthodox kindergartens, which are usually separated by gender and are located in areas where the ultra-orthodox communities are concentrated. The starting age for compulsory primary school is 6 and compulsory education starts at age 3 (OECD, 2019[2]).

The national authorities are responsible for setting minimum standards for publicly and semi-privately managed settings. The Ministry of Labour, Welfare and Social Affairs is responsible for regulating classroom composition in publicly and privately managed day-care centres. For public kindergartens, both the national and local authorities are responsible for regulating classroom composition. For day-care centres, the operational body in charge of each setting decides on the composition of the classes or groups of children.

Figure A A.5. Organisation of the early childhood education and care system in Israel



1. Settings with lighter colours are either not included in the TALIS Starting Strong data analysed for this report or data collection did not focus on the age group concerned. Data from ultra-orthodox kindergartens (ISCED 02 level) are not analysed for this report.
Source: OECD (2019[1]), "OECD Network on Early Childhood Education and Care: Quality beyond Regulations Survey", Internal document, OECD, Paris.

Expenditure and funding

In Israel, total expenditure on ECEC services (ISCED 0) was equal to 1.2% of GDP in 2016 (Table A A.5), higher than the average of 0.8% of GDP in OECD countries. Investment in early childhood educational development (ISCED 01) is at 0.3% of GDP, below the investment in pre-primary education (ISCED 02) amounting to 0.9% of GDP. Whereas, in pre-primary education only a small share of expenditure is covered by private sources (9%). In early childhood educational development most of the funding comes from private sources (84% private expenditure) (OECD, 2019[2]).

Annual expenditure in 2016 on ECEC per child in pre-primary education (USD 5 466) and early childhood educational development (USD 2 971) in Israel was lower than the OECD average (USD 8 349 and USD 12 080 respectively (OECD, 2019[2]).

Curriculum and quality standards

A single, compulsory curriculum framework covers ECEC provision for children aged 0 to 2 in childcare and family day-care centres. For pre-primary education, five complementary, subject-specific curricula are in place, covering language and literacy basics; mathematics; physical training; science and technology; life skills (Figure A A.5).

Israel has established regulations on child-staff ratios both at ISCED 01 and at 02 levels. In childcare centres, at least 1 staff per 6 children is required for infants under the age of 15 months, for children under the age of 2 it is 1 staff per 9 children and for children between 2 and 3 years old it is 1 to 11. In family day-care centres the required ratio is 1 staff per 5 children. In both publicly and privately managed kindergartens, for children aged 3-5, the group size is limited to 35 children and one teacher and one assistant are required. For children aged 3, two assistants are required if the group has more than 30 children (Table A A.5).

Workforce development and working conditions

The minimum educational attainment required for teachers in ECEC (as well as in primary school) is a bachelor's degree or equivalent (ISCED level 6). Participation in professional development activities each year is common practice for teachers in childcare centres and in public kindergartens (Table A A.5).

In 2018, the annual statutory salary of pre-primary teachers in Israel after 10 years of experience was USD 31 149 (converted using PPPs for private consumption), higher than the OECD average and 10% higher than the annual statutory salary of primary teachers at the same point of their careers (OECD, 2019[2]).

The total statutory working time per school year in ISCED 02 was 1 066 hours in 2018 (which compares to 1 235 hours in ISCED 1), and the statutory net teaching time (actual time spent in direct contact with children) per school year was 1 029 hours. In ISCED 1, statutory net teaching time per school year was 843 hours. This means that teachers in ECEC have less non-contact time (e.g. for administrative work, preparing, professional development) than primary teachers. On average in OECD countries, total statutory working time per school year in ISCED 02 was 1 613 hours, and statutory net teaching time was 1 024 hours (OECD, 2019[2]).

Table A A.5. Overview of early childhood education and care system-level indicators in Israel

	ISCED 01	ISCED 02
Access to ECEC		
Enrolment rates (2017)	56% (age 0-2)	99% (age 3-5)
Legal entitlements to free ECEC	Access to free ECEC for up to 50 hours per week. If there are more children than there are places available, an admission committee will assess children's needs against priority criteria.	Access to free ECEC for at least 35 hours per week
Expenditure and funding		
Average expenditure on ECEC as percentage of GDP (2016)	0.3%	0.9%
Annual expenditure on ECEC per child in USD, converted using PPPs (2016)	USD 2 971	USD 5 466
Relative proportions of private expenditure on ECEC (2016)	84%	9%
Responsibility for setting minimum standards (2019)	National authority	National authority
Responsibility for regulating classroom composition (2019)	National authority	National/local authorities
Quality standards		
Group size and child-staff ratios (2019)	**Day-care centres** 1 staff per 6 children under the age of 15 months; 1 staff per 9 children under the age of 2; 1 staff per 9 children between 2 and 3 years; **Family day-care centres** 1 staff per 5 children	**Formal (publicly managed) and unofficial (privately managed) kindergartens** Group size is limited to 35 children. 1 teacher and 1 assistant for groups of up to 30 1 teacher and 2 assistants for 30-35 children
Classroom composition	No regulations	No regulations
Workforce development		
Minimum initial educational attainment required for teachers (2017)	ISCED 5 (vocational training)	ISCED 5 (vocational training)
Yearly participation in professional development (2019)	Common practice for teachers in day-care centres	Common practice for teachers in public kindergartens
Working conditions		
Statutory salary after 10 years of experience in USD, converted using PPPs (2018)	Data not available	USD 31 149
Gap in statutory salary between teachers in primary and pre-primary after 10 years of experience (2018)	Data not available	Primary teachers earn 10% less than pre-primary teachers
Total statutory working time per school year (2018)	Data not available	1 066 hours
Statutory net teaching time per school year (2018)	Data not available	1 029 hours

Note: *Refer to the Reader's Guide for information concerning abbreviations.*
Sources: OECD (2019[1]), "OECD Network on Early Childhood Education and Care: Quality beyond Regulations Survey", Internal document, OECD, Paris; OECD (2019[2]) , *Education at a Glance 2019: OECD Indicators*, https://doi.org/10.1787/f8d7880d-en.

Japan

Access to early childhood education and care

In 2017, 30% of children under age 3 were enrolled in an ECEC programme, which is 6 percentage points lower than the average enrolment rate for this age group across OECD countries. In contrast, 91% of children aged 3-5 were enrolled in an ECEC programme, which is above the OECD average of 87% (OECD, 2019[2]). From 1 October 2019, free early childhood education and care is a universal legal entitlement for children age 3-5 years in Japan. Families can access kindergarten, day-care centres and centres for early childhood education and care at no cost. For children aged 0-2 coming from households exempt from municipal resident tax, access to ECEC is free of charge. For children who are recognised as ''needing childcare'', free extended access to ECEC is granted for all age groups up to an established monetary limit.

Governance and settings

The ECEC system in Japan is split. The Ministry of Education, Culture, Sports, Science and Technology is responsible for kindergarten settings for children aged 3-5, while the Ministry of Health, Labour and Welfare is responsible for day-care centres for children aged 0-5 and the Cabinet Office administers integrated early childhood education and care settings for children aged 0-5 (Figure A A.6). The starting age for compulsory primary school is 6 (OECD, 2019[2]).

The national authority is responsible for setting minimum standards for kindergarten, and each centre decides on classroom composition. For day-care centres, the national and regional authorities are responsible for setting minimum standards, and individual centres are responsible for regulating classroom composition. Integrated centres for ECEC have minimum standards that are set by the national/federal and regional authorities; and individual centres decide what the classroom composition will be.

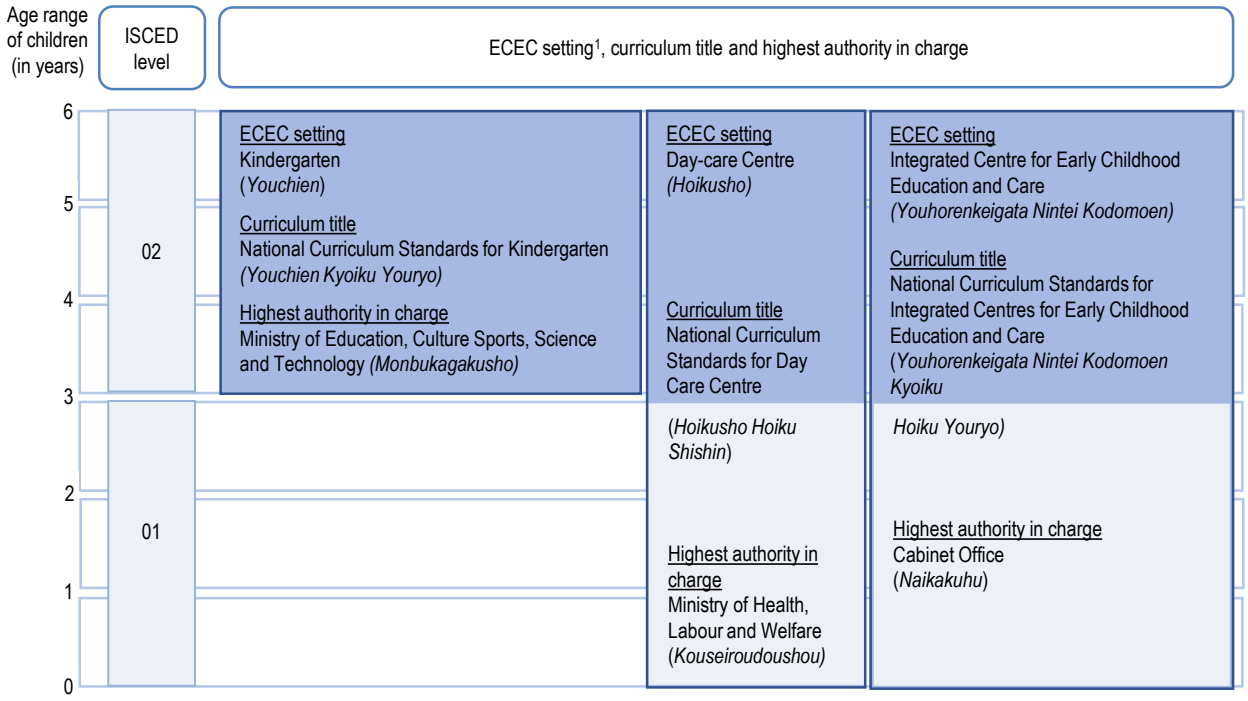
Expenditure and funding

In Japan, total expenditure on ECEC services (ISCED 0) was equal to 0.2% of GDP in 2016, lower than the average of 0.8% of GDP in OECD countries (Table A A.6). Of the total expenditure on ECEC in Japan, 51% comes from private sources. Annual expenditure in 2016 on ECEC per child in pre-primary education in Japan was USD 7 473, lower than the OECD average of USD 8 349 (OECD, 2019[2]). (OECD, 2019[1])

Curriculum and quality standards

In line with its split governance system, there are three sets of curriculum frameworks in Japan. The National Curriculum Standards for Kindergartens is the curriculum used for children aged 3-5 attending kindergarten. The National Curriculum Standards for Day-Care Centres covers children aged 0-5 in day-care centres. The National Curriculum Standards for Integrated Centres for Early Childhood Education and Care covers children aged 0-5 in integrated early childhood and care centres (Figure A A.6).

Figure A A.6. Organisation of the early childhood education and care system in Japan



1. Settings with lighter colours are either not included in the TALIS Starting Strong data analysed for this report or data collection did not focus on the age group concerned.
Source: OECD (2019[1]), "OECD Network on Early Childhood Education and Care: Quality beyond Regulations Survey", Internal document, OECD, Paris.

Japan has established regulations on child-staff ratios in day-care centres and in integrated centres for early childhood education and care. In both settings, for children under age 1, at least one staff member per three children is required. For children aged 1-2, one teacher per six children is required. For children aged 3-4 one teacher is required for every 20 children. For children between the ages of 4 and 5, one teacher is required for every 30 children. Integrated centres for early childhood education and care are permitted to have a maximum of 35 children per teacher. There are also regulations in place concerning kindergartens, which are permitted to have no more than 35 children per teacher (Table A A.6).

Workforce development and working conditions

In order to enter the teaching profession in ECEC in Japan, an ISCED 5 level certification (short cycle tertiary education) or an ISCED 6 level diploma (bachelor's degree or equivalent) are required in all types of settings (OECD, 2019[2]).

In 2018, the total statutory working time per school year in ISCED 02 was 1 891 hours, the same as in ISCED level 1. On average in OECD countries, the total statutory working time per school year in ISCED 02 was 1 613 hours (OECD, 2019[2]).

Table A A.6. Overview of early childhood education and care system-level indicators in Japan

Access to ECEC		
Enrolment rates (2017)	30% (age 0-2)	91 % (age 3-5)
Legal entitlements to free ECEC (2019)	From October 2019: Age 0-2: free for the households with low income Age 3-5: free-of-charge for all children in principle	
Expenditure and funding		
	ISCED 01	**ISCED 02**
Average expenditure on ECEC as percentage of GDP (2016)	Data not available	0.2%
Annual expenditure on ECEC per child in USD, converted using PPPs (2016)	Data not available	USD 7 473
Relative proportions of private expenditure on ECEC (2016)	51%	
Governance		
Responsibility for setting minimum standards (2019)	National/federal authority (for both publicly managed and privately managed settings)	
Responsibility for regulating group/classroom composition (2019)	ECEC providers (for both publicly and privately managed settings)	
Quality standards		
Group size and child-staff ratios (2019)	**Day-care centre** Group size: data not available Child-staff ratios: Age 0: 1 day-care centre teacher per 3 children Age 1-2: 1 day-care centre teacher per 6 children Age 3-4: 1 day-care centre teacher per 20 children Age 4-5: 1 day-care centre teacher per 30 children	
	Integrated centre for early childhood education and care Group size: maximum 35 children for ages 3-5 Child-staff ratios: Age 0: 1 ECEC teacher per 3 children Age 1-2: 1 ECEC teacher per 6 children Age 3: 1 ECEC teacher per 20 children Age 4-5: 1 ECEC teacher per 30 children (For children over age 3: 1 ECEC teacher per class)	
	Kindergarten Group size: no more than 35 children Child-staff ratios: 1 teacher per class	
Group/classroom composition (2019)	No regulations	
Workforce development		
Minimum initial educational attainment required for ECEC teachers (2017)	ISCED 5 or 6	
Participation in professional development (2019)	Data not available	
Working conditions		
	ISCED 01	**ISCED 02**
Statutory salary after ten years of experience in USD, converted using PPPs (2018)	Data not available	Data not available
Gap in statutory salary between teachers in primary and pre-primary after ten years of experience (2018)	Data not available	Data not available
Total statutory working time per school year (2018)	Data not available	1 891 hours
Statutory net teaching time per school year (2018)	Data not available	Data not available

Note: *Refer to the Reader's Guide for information concerning abbreviations.*
Sources: OECD (2019[1]), "OECD Network on Early Childhood Education and Care: Quality beyond Regulations Survey", Internal document, OECD, Paris; OECD (2019[2]), *Education at a Glance 2019: OECD Indicators*, https://doi.org/10.1787/f8d7880d-en.

Korea

Access to early childhood education and care

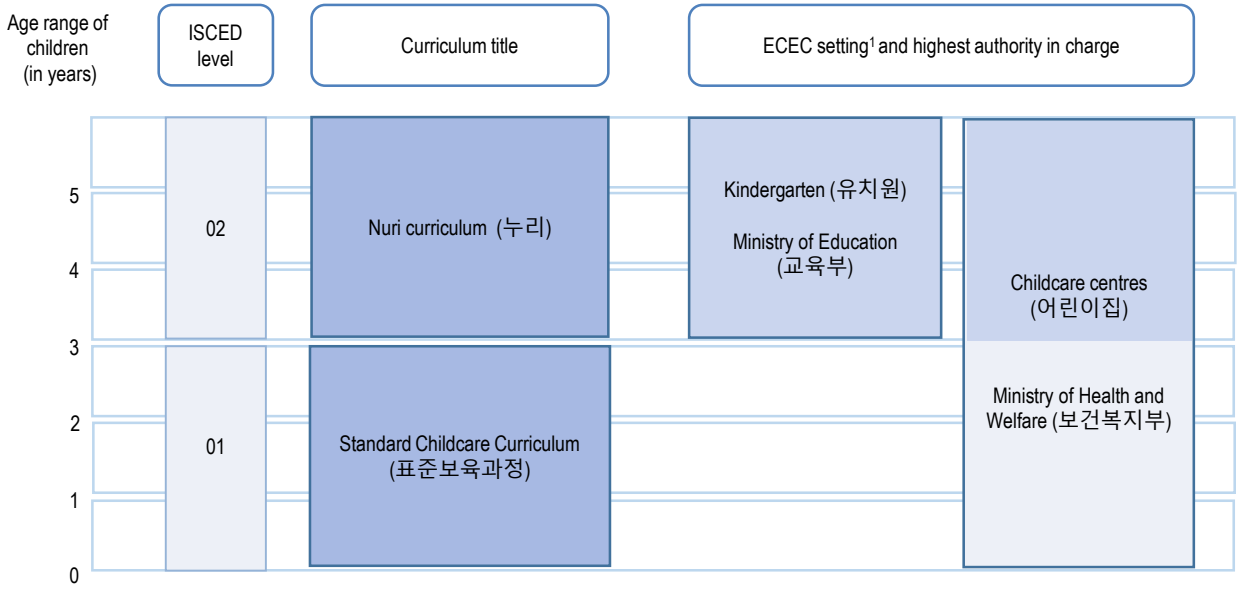
In Korea, a legal entitlement to a place in kindergarten (ISCED level 02) grants unconditional access to 20-25 hours of free ECEC per week to all children aged 3-5. Furthermore, a legal entitlement to a place in childcare centres grants unconditional access to 30-60 hours of free ECEC per week to all children aged 0-5 (OECD, 2017[3]). In 2017, almost all children aged 3-5 years-old in Korea were enrolled in ECEC (95%), above the OECD average. The percentage of children aged 3 enrolled in ECEC was 94%. In addition, a 56% of children under the age of 3 attend ECEC in Korea (as compared to an OECD average of 36%), as well as an important share of 2-year-olds (88% compared to an OECD average of 62%) (OECD, 2019[2]).

Governance and settings

The ECEC system in Korea is split. The Ministry of Education is responsible for kindergarten settings for children aged 3-5, while the Ministry of Health and Welfare is responsible for childcare settings for children aged 0-5 (Figure A A.7). The starting age for compulsory primary school is 6 (OECD, 2019[2]).

The national/federal and local authorities are responsible for setting minimum standards for kindergarten settings. For childcare settings, minimum standards are set by the national/federal authority. There are no regulations on classroom composition in Korea.

Figure A A.7. Organisation of the early childhood education and care system in Korea



1. Settings with lighter colours are either not included in the TALIS Starting Strong data analysed for this report or data collection did not focus on the age group concerned.
Source: OECD (2019[1]), "OECD Network on Early Childhood Education and Care: Quality beyond Regulations Survey", Internal document, OECD, Paris.

Expenditure and funding

In Korea, total expenditure on pre-primary education (ISCED 02) was equal to 0.5% of GDP in 2016 (Table A A.7), slightly lower than the average of 0.6% of GDP in OECD countries. Of the total expenditure on ECEC in Korea, 18% came from private sources, the same as the average in OECD countries. Annual expenditure on ECEC per child (ISCED 02) in 2016 in Korea was USD 7 358, converted using PPPs (lower than the OECD average of USD 8 349) (OECD, 2019[2]).

Curriculum and quality standards

There are two sets of curriculum frameworks in Korea: the Standard Childcare Curriculum covers children aged 0-2 and the Nuri Curriculum covers children aged 3-5. Korea has established regulations on child-staff ratios in childcare centres. For children under age 1, at least one staff member per three children is required. For children aged 1, one teacher per five children is required. For children aged 2, one teacher is required for every 7 children. For children aged 3, one teacher is required for every 15 children. For children between the ages of 4 and 5, one teacher is required for every 20 children. There are also regulations in place concerning child-staff ratios and group size in kindergartens, but these vary across different regions (with generally a maximum of 20 children per group) (Table A A.7).

Workforce development and working conditions

The minimum educational attainment required for teachers in ECEC in Korea is an ISCED 5 level certification (short cycle tertiary education) (OECD, 2019[2]). Participation in professional development each year is common practice for ECEC teachers in Korea.

In 2018, the annual statutory salary of pre-primary teachers in public kindergarten settings in Korea after 10 years of experience was USD 48 958 (converted using PPPs for private consumption), higher than the OECD average of USD 39 264, and the same as the annual statutory salary of public primary school teachers at the same point in their careers (OECD, 2019[2]).

In 2018, the total statutory working time per school year for pre-primary teachers in Korea was 1 520 hours, slightly lower than the OECD average and the same than teachers in primary schools. However, the statutory net teaching time of preschool teachers in Korea (actual time spent in direct contact with children) per school year was 789 hours, compared to 675 hours for primary teachers. This means that teachers in ECEC in Korea have less non-contact time (e.g. for administrative work, preparing, professional development) than primary teachers. On average in OECD countries in 2018, total statutory working time per school year in ISCED 02 was 1 613 hours, and statutory net teaching time was 1 024 hours (OECD, 2019[2]).

Table A A.7. Overview of early childhood education and care system-level indicators in Korea

Access to ECEC		
Enrolment rates (2017)	56% (age 0-2)	95% (age 3-5)
Legal entitlements to free ECEC (2014)	For children 3 to 5; unconditional access to 20-25 hours per week in kindergartens	
	For children 0 to 5: unconditional access to 30-60 hours per week in infant care and day care settings	
Expenditure and funding		
	ISCED 01	**ISCED 02**
Average expenditure on ECEC as percentage of GDP (2016)	Data not available	0.5%
Annual expenditure on ECEC per child in USD, converted using PPPs (2016)	Data not available	USD 7 358
Relative proportions of private expenditure on ECEC (2016)	Data not available	18%
Governance		
Responsibility for setting minimum standards (2019)	National/federal and local authorities (for public and private kindergarten settings) National/federal authority (for public and private childcare settings)	
Responsibility for regulating group/classroom composition (2019)	Not applicable	
Quality standards		
Group size and child-staff ratios (2019)	**Kindergarten** Group size: varies across different regions (generally between 20-25 children) Child-staff ratios: varies across different regions (generally 1 teacher per 20 children) **Childcare** Group size and child-staff ratios: Age 0: 1 teacher per 3 children (no more than 6 children per group) Age 1: 1 teacher per 5 children (no more than 10 children per group) Age 2: 1 teacher per 7 children (no more than 14 children per group) Age 3: 1 teacher per group of 15 children Age 4-5: 1 teacher per group of 20 children	
Group/classroom composition	No regulation	
Workforce development		
Minimum initial educational attainment required for teachers (2017)	Short-cycle tertiary education (ISCED level 5)	
Yearly participation in professional development (2019)	Common practice	
Working conditions		
	ISCED 01	**ISCED 02**
Statutory salary after ten years of experience in USD, converted using PPPs (2018)	Data not available	USD 48 958
Gap in statutory salary between teachers in primary and pre-primary after ten years of experience (2018)	Data not available	Pre-primary teachers earn the same as primary teachers
Total statutory working time per school year (2018)	Data not available	1 520 hours
Statutory net teaching time per school year (2018)	Data not available	789 hours

Note: *Refer to the Reader's Guide for information concerning abbreviations.*
Sources: OECD (2017[5]), *Education at a Glance 2017: OECD Indicators*, https://doi.org/10.1787/eag-2017-en; OECD (2019[1]), "OECD Network on Early Childhood Education and Care: Quality beyond Regulations Survey", Internal document, OECD, Paris; OECD (2019[2]), *Education at a Glance 2019: OECD Indicators*, https://doi.org/10.1787/f8d7880d-en.

Norway

Access to early childhood education and care

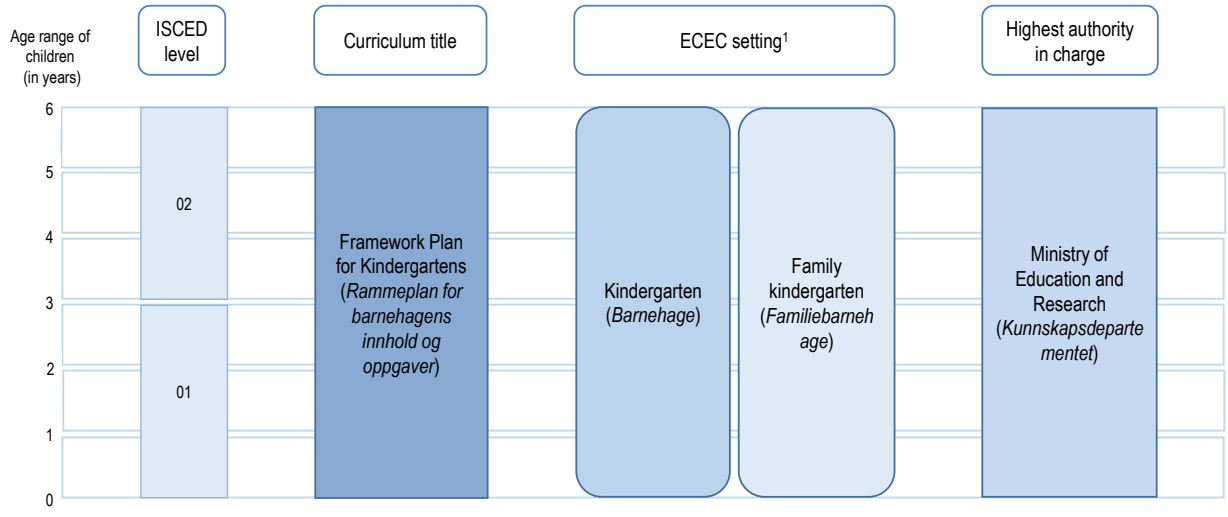
In Norway, a legal entitlement to a place in ECEC grants universal access to 41 hours of ECEC per week to all children aged 1-5 (Box 5.3). Children aged 2-5 from low-income families are eligible for up to 20 hours free of charge per week. In 2017, almost all children aged 3-5 were enrolled in ECEC, as well as an important percentage of children aged 3 (96%). In addition, 56% of the children under age 3 participate in ECEC in Norway, which is 20 percentage points higher than the average enrolment rate for this age group across OECD countries (OECD, 2019[2]).

Governance and settings

The ECEC system in Norway is integrated, as it is the Ministry of Education and Research who is responsible for administering ECEC programmes for children aged 0-5 (Figure A A.8). The starting age for compulsory primary school is 6 (OECD, 2019[2]).

Two types of settings are in place: kindergartens and family kindergartens, which can be managed publicly or privately. More than 98 % of children enrolled in ECEC attend kindergartens and less than 2 % are in family kindergartens. These settings target all children, providing early childhood education and care defined as early childhood educational development programmes (ISCED 01) for children under the age of 3 and pre-primary education programmes (ISCED 02) for children aged 3 to 5 years old. The national authority is responsible for legislation and regulation setting minimum standards for both publicly and privately managed settings.

Figure A A.8. Organisation of the early childhood education and care system in Norway



1. Settings with lighter colours are either not included in the TALIS Starting Strong data analysed for this report or data collection did not focus on the age group concerned.
Source: OECD (2019[1]), "OECD Network on Early Childhood Education and Care: Quality beyond Regulations Survey", Internal document, OECD, Paris.

Expenditure and funding

In Norway, total expenditure on ECEC services (ISCED 0) was equal to 2% of GDP in 2016 (Table A A.8), higher than the average of 0.8% of GDP in OECD countries. Investment in early childhood educational

development (ISCED 01) and pre-primary education (ISCED 02) amounted to 1% of GDP each. ECEC services in Norway are funded mostly by public sources. Of the total expenditure on ECEC in Norway 14% comes from private sources, including fees paid by parents (which are set at a maximum of 6% of a household's income) (OECD, 2019[1]; 2019[2]).

Annual expenditure in 2016 on ECEC per child in pre-primary education in Norway was USD 14 344 (higher than the OECD average of USD 8 349). In addition, annual expenditure per child on early childhood educational development (ISCED 01) in the same year was higher than in all other OECD countries with available data (USD 25 365 compared to an OECD average of USD 12 080) (OECD, 2019[2]).

Curriculum and quality standards

A single curriculum framework covers ECEC provision for children aged 0-5 in kindergartens and family day care (Figure A A.8). This integrated curriculum framework is compulsory for both ISCED 01 and ISCED 02 levels. The curriculum framework for ECEC is aligned with the curriculum for education for children aged 6 to 18 years old, as they both share purposes and values. The learning areas in the ECEC curriculum framework also reflect the subjects that children will encounter in school (Shuey et al., 2019[7]).

Norway has established regulations on child-staff ratios as well as child-teacher ratios both at ISCED 01 and 02 levels. For children under the age of 3, at least one staff per three children is required. For children aged 3 to 5, the required ratio is one staff per six children. For children under age 3 at least one teacher per 7 children is required. For children aged 3 to 5, the required ratio is one teacher per 14 children. There are no regulations on group sizes or composition in place (OECD, 2019[1]).

Workforce development and working conditions

The minimum educational attainment required for teachers in ECEC is a bachelor's degree or equivalent level (ISCED level 6) (OECD, 2019[2]). Professional development for teachers is not mandatory, but participation each year is common practice (Table A A.8).

While national regulations of working conditions do not differ across early childhood development and pre-primary education, Education at a Glance 2019 only provides data on salaries and working time of pre-primary teachers. In 2018, the annual statutory salary of pre-primary teachers in Norway after 10 years of experience was USD 40 645 (converted using PPPs for private consumption), higher than the OECD average, but lower than the annual statutory salary of primary teachers at the same point of their careers (OECD, 2019[2]).

In 2015, the total statutory working time per school year in ISCED 02 was 1 688 hours (the same as in ISCED 1), and data from 2014 indicate that the statutory net teaching time (actual time spent in direct contact with children) per school year was 1 508 hours (OECD, 2016[8]).

In ISCED 1, statutory net teaching time per school year in Norway was 741 hours. (OECD, 2016[8]). This means that teachers in ECEC have less non-contact time (e.g. for administrative work, preparing, professional development) than primary teachers. On average in OECD countries in 2018, the total statutory working time per school year in ISCED 02 was 1 613 hours, and statutory net teaching time was 1 024 hours (OECD, 2019[2]).

Table A A.8. Overview of early childhood education and care system-level indicators in Norway

Access to ECEC		
Enrolment rates (2017)	56% (age 0-2)	97% (age 3-5)
Legal entitlements to free ECEC (2019)	Universal access to 41 hours of ECEC per week to all children aged 1-5. Children aged 2-5 from low-income families are eligible for up to 20 hours free of charge per week	
Expenditure and funding		
	ISCED 01	**ISCED 02**
Average expenditure on ECEC as percentage of GDP (2016)	1%	1%
Annual expenditure on ECEC per child in USD, converted using PPPs (2016)	USD 25 365	USD 14 344
Relative proportions of private expenditure on ECEC (2016)	14%	14%
Governance		
Responsibility for setting minimum standards (2019)	National authority (for both publically managed and privately managed settings)	
Responsibility for regulating group/classroom composition (2019)	Not applicable	
Quality standards		
Group size and child-staff ratios (2019)	No regulation on group size Child-staff ratio: • for children below the age of 3, at least 1 staff per 3 children; • for children 3 years and above, at least 1 staff per 6 children Child-teacher ratio • for children below age 3, at least 1 teacher per 7 children; • for children aged 3 and above, at least 1 teacher per 14 children	
Group/classroom composition (2019)	No policy or regulation	
Workforce development		
Minimum initial educational attainment required for ECEC teachers (2017)	ISCED 6	
Yearly participation in professional development (2019)	Not mandatory, but participation each year is common practice	
Working conditions		
	ISCED 01	**ISCED 02**
Statutory salary after ten years of experience in USD, converted using PPPs (2018)	Data not available	USD 40 645
Gap in statutory salary between teachers in primary and pre-primary after ten years of experience (2018)	Data not available	Primary teachers earn 15% more than pre-primary teachers
Total statutory working time per school year (2015)	Data not available	1 688 hours
Statutory net teaching time per school year (2014)	Data not available	1 508 hours

Note: *Refer to the Reader's Guide for information concerning abbreviations.*
Sources: OECD (2016[8]), *Education at a Glance 2016: OECD Indicators*, https://doi.org/10.1787/eag-2016-en; OECD (2017[5]), *Education at a Glance 2017: OECD Indicators*, https://doi.org/10.1787/eag-2017-en; OECD (2018[9]), *Education at a Glance 2018: OECD Indicators*, https://doi.org/10.1787/eag-2018-en; OECD (2019[2]), *Education at a Glance 2019: OECD Indicators*, https://doi.org/10.1787/f8d7880d-en; OECD (2019[1]), "OECD Network on Early Childhood Education and Care: Quality beyond Regulations Survey", Internal document, OECD, Paris.

Turkey

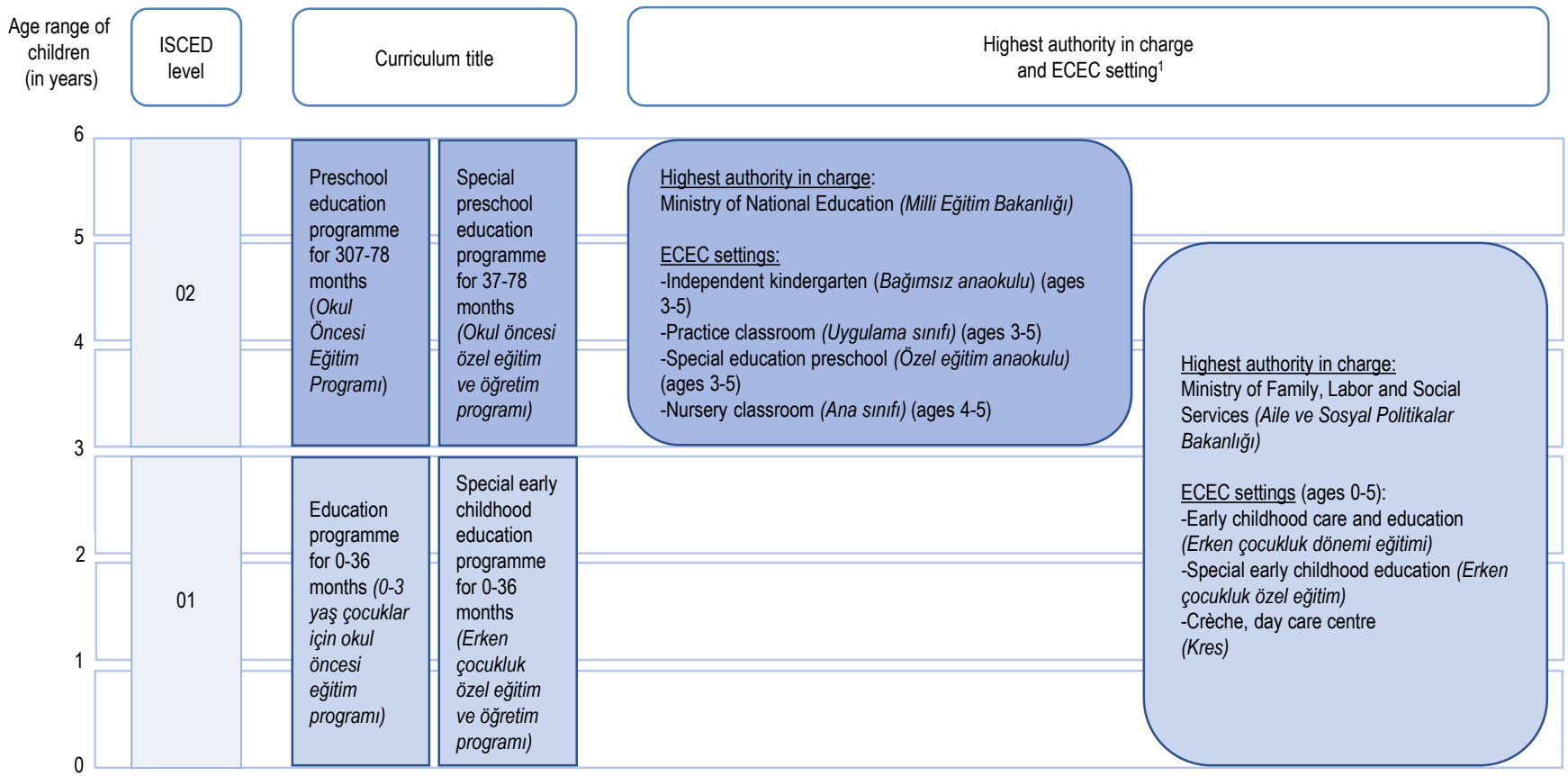
Access to early childhood education and care

In 2017, 40% of children aged 3 to 5 in Turkey were enrolled in ECEC, below the OECD average (87%). The percentage of 3 year-olds enrolled in ECEC was 10%, and close to 0% of children under age 3 attend ECEC in Turkey (as compared to an OECD average of 36%) (OECD, 2019[2]). There are no legal entitlements to free ECEC in Turkey. However, the constitution stipulates that all children have the right to education and preschool education is defined by law as free of charge in public settings (Table A A.9).

Governance and settings

The ECEC system in Turkey is split. The Ministry of National Education is responsible for settings for children aged 3-5. Four types of settings are in place for ISCED level 02: independent kindergarten, practice classroom, nursery classrooms and special education preschools, which can all be managed publicly or privately (Figure A A.9). The national authority is responsible for setting minimum standards and regulating group/classroom composition for both publicly and privately managed settings. The Ministry of Family, Labour and Social Services is responsible for three recently introduced settings for children aged 0-5 (Figure A A.9): early childhood care and education; *crèche*/day care centre; and special early childhood education. The starting age for compulsory primary school is 5-6 (OECD, 2019[2]).

Figure A A.9. Organisation of the early childhood education and care system in Turkey



1. Settings with lighter colours are either not included in the TALIS Starting Strong data analysed for this report or data collection did not focus on the age group concerned.
Note: The Ministry of National Education is responsible for developing and supervising implementation of curricula for both ISCED 01 and 02 levels, while the Ministry of Family, Labour and Social Services is the responsible authority for implementing curricula in ISCED 01.
Source: OECD (2019[1]), "OECD Network on Early Childhood Education and Care: Quality beyond Regulations Survey", Internal document, OECD, Paris.

Expenditure and funding

In Turkey, total expenditure on ECEC services (ISCED 0) was equal to 0.3% of GDP in 2016 (Table A A.9), lower than the average of 0.8% of GDP in OECD countries. Of the total expenditure on ECEC in Turkey, 28% came from private sources, which is 11 percentage points higher than the OECD average. Annual expenditure on ECEC per child in 2016 in Turkey was lower than the OECD average (USD 5 568 compared to USD 8 605) (OECD, 2019[2]).

Curriculum and quality standards

In Turkey, there are two curriculum frameworks that are compulsory for settings enrolling children aged 3 to 5: the Preschool education programme for 37-78 months and the Special preschool education programme for 37-78 months (the latter implemented in special education preschool settings only). At ISCED level 01, there are also two compulsory curriculum frameworks in place: the Education programme for 0-36 months and the Special early childhood education programme for 0-36 months, which is implemented in special early childhood education settings. The Ministry of National Education is the responsible authority for developing and supervising implementation of curricula for both ISCED 01 and 02 levels, while the Ministry of Family, Labour and Social Services is the responsible authority for implementing the curricula in ISCED 01 (Figure A A.9).

Turkey has established regulations on group size at the ISCED 02 level for both publicly and privately managed settings. The maximum group size is 20 children, however this number can be higher if the indoor space is bigger. The regulated child-staff ratio is 18 children per teacher. Regulation on classroom composition are also in place and determine that special education children aged 36-68 months are enrolled into independent kindergartens, practice classrooms and special education preschools. Special education children aged 45-68 months are enrolled into nursery classrooms. There is a quota of 2 children with special education needs for each group regardless of group size. All children regardless of their socio-economic background are enrolled in the same settings and groups (Table A A.9).

Workforce development and working conditions

In order to enter the teaching profession in ECEC in Turkey, an ISCED 6 level certification (bachelor's degree or equivalent) is required in all types of settings. Yearly participation in professional development is mandatory for ISCED level 02 teachers in Turkey (Table A A.9). In 2018, the annual statutory salary of pre-primary teachers in ECEC settings in Turkey after 10 years of experience was USD 26 955 (converted using PPPs for private consumption), lower than the OECD average of USD 39 264, but the same as the annual statutory salary of primary teachers at the same point in their careers (OECD, 2019[2]).

In 2018, the total statutory working time per school year for pre-primary teachers in Turkey was 1 592 hours, slightly lower than the OECD average of 1 613 hours per year, and the same as teachers in primary schools and higher levels of education. However, the statutory net teaching time of preschool teachers in Turkey (actual time spent in direct contact with children) per school year was 1 080 hours, compared to 720 hours for primary teachers. This means that teachers in ECEC in Turkey have less non-contact time (e.g. for administrative work, preparing, professional development) than primary teachers. On average in OECD countries in 2018, total statutory working time per school year in ISCED 02 was 1 613 hours, and statutory net teaching time was 1 024 hours (OECD, 2019[2]).

Table A A.9. Overview of early childhood education and care system-level indicators in Turkey

Access to ECEC		
	ISCED 01	**ISCED 02**
Enrolment rates (2017)	0% (age 0-2)	40 % (age 3-5)
Legal entitlements to free ECEC	None	No legal entitlement, but free provision
Expenditure and funding (ISCED 0)		
Average expenditure on ECEC as percentage of GDP (2016)	0.3%	
Annual expenditure on ECEC per child in USD, converted using PPPs (2016)	USD 5 568	
Relative proportions of private expenditure on ECEC (2016)	28%	
Governance		
	ISCED 01	**ISCED 02**
Responsibility for setting minimum standards (2019)	Data not available	National authority for both publicly and privately managed settings
Responsibility for regulating group/classroom composition (2019)	Data not available	National authority for both publicly and privately managed settings
Quality standards		
	ISCED 01	**ISCED 02**
Group size and child-staff ratios (2019)	Data not available	Group size: 20 children (can vary depending on indoor space)
		Child-staff ratio: 18 children per teacher
Group/classroom composition (2019)	Data not available	Two special education children for all groups regardless of group size. All children regardless of their socio-economic background are enrolled in the same settings and groups
Workforce development		
	ISCED 01	**ISCED 02**
Minimum initial educational attainment required for teachers (2019)	Data not available	ISCED level 6 (bachelor's degree or equivalent)
Yearly participation in professional development (2019)	Data not available	Participation in two seminars per year is mandatory
Working conditions		
	ISCED 01	**ISCED 02**
Statutory salary after ten years of experience in USD, converted using PPPs (2018)	Data not available	USD 26 955
Gap in statutory salary between teachers in primary and pre-primary after ten years of experience (2018)	Data not available	Pre-primary teachers earn the same as primary teachers
Total statutory working time per school year (2018)	Data not available	1 592 hours
Statutory net teaching time per school year (2018)	Data not available	1 080 hours

Note: *Refer to the Reader's Guide for information concerning abbreviations.*
Sources: OECD (2019[1]), "OECD Network on Early Childhood Education and Care: Quality beyond Regulations Survey", Internal document, OECD, Paris; OECD (2019[2]), *Education at a Glance 2019: OECD Indicators*, https://doi.org/10.1787/f8d7880d-en.

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Annex B. Technical notes on sampling procedures, response rates and adjudication for TALIS Starting Strong 2018

Sampling procedures and response rates

The objective of the Starting Strong Teaching and Learning International Survey (TALIS Starting Strong) 2018 was to obtain a representative sample in each participating country of staff and leaders providing early childhood education and care (ECEC) for each level of ECEC in which the country participated. The international sampling plan for TALIS Starting Strong used a stratified two-stage probability sampling design. This means that staff (second stage units, or secondary sampling units) were randomly selected from the list of in-scope staff in each of the randomly selected ECEC centres (first stage units, or primary sampling units). The leader at each centre (i.e. the person with the most responsibility for administrative, managerial and/or pedagogical leadership) was automatically selected for participation as well. For countries with integrated ECEC systems that participated in data collection for both pre-primary education and settings for children under age 3, programmes serving both age groups were split between the two samples so that each programme could be selected for participation in only one level of ECEC. A more detailed description of the survey design and its implementation can be found in the *TALIS Starting Strong 2018 Technical Report* (OECD, 2019[10]).

Staff in pre-primary education settings (ISCED level 02) are those who, as part of their regular duties in their centre, provide learning opportunities in programmes at ISCED level 02. Staff for children under age 3 are those who, as part of their regular duties in their centre, provide learning opportunities for children in this age group. Staff who provide learning opportunities for both target populations in their centres are included in the TALIS Starting Strong universe. There is no minimum cut-off for how much time staff need to be engaged at either level of ECEC.

The international target population of TALIS Starting Strong restricts the survey to those staff and leaders who work in officially registered settings providing ECEC. Centres exclusively for children with special educational needs are deemed out of scope. Also considered out of scope are: short-term substitute educators (to replace staff on sick leave); nannies and other people involved in informal arrangements; volunteers who occasionally came in to provide a special activity; auxiliary staff (e.g. cleaners, cooking staff) who did not interact regularly in a pedagogical manner with the children; and medical and therapeutic staff (e.g. speech therapists, occupational therapists) whose work was primarily non-pedagogical.

The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

For national reasons, participating countries could choose to restrict the coverage of their national implementation of TALIS Starting Strong. For example, all participating countries decided to exclude home-based settings (within the homes of the respective staff) from the pre-primary education universe, while some countries included these settings in the universe of settings providing services for children under age 3. This report excludes home-based programmes for children under age 3, focusing only on centre-based ECEC to enhance comparability across the two levels of ECEC provision. Participating countries were invited to keep sample exclusions to a minimum by keeping the national survey population to at least 95% of ECEC staff. The national project manager for each country was required to document the reasons for any exclusions.

Sample size requirements

For both levels of ECEC, the same requirements for sample size and precision of estimates were established. To allow for reliable estimation and modelling while permitting some amount of non-response, TALIS Starting Strong 2018 set the minimum number of centres per country for each population of interest (pre-primary education and services for children under age of 3) at 180. Within each centre, the minimum number of staff members selected was eight. If there were fewer than eight staff members in a centre, then all staff members were selected. Participating countries could choose to augment their national sample by selecting more centres, or by selecting more staff within each selected centre, or by increasing both. In some cases, because the average number of staff in the centres was lower than the number expected in the international plan, the number of centres sampled was increased.

Adjudication process

The basic principle that guided the adjudication was to determine, for each participating country and for each level of ECEC, whether the data released to the countries are fit to provide policy-relevant, robust international indicators and analysis on staff and leaders. To establish fitness for use, a number of quality-assurance processes were designed and activated throughout the survey process. Some processes relied on expert advice and opinion, some on qualitative information and learned judgement, some on quantitative information. More detailed information is available in the *TALIS Starting Strong 2018 Technical Report* (OECD, 2019[10]).

During the adjudication session, each individual dataset (i.e. the combination of participating countries and levels of ECEC) was submitted to the same examination. In addition, both staff participation and leader participation were adjudicated for each combination of participating countries and levels of ECEC.

The issues evaluated concerned the questionnaire's adaptation to national context, translation and verification, quality of the sampling frame, handling of out-of-scope and refusal units (i.e. staff and/or centres), within-centre sampling, data collection, data cleaning, the reports of quality observers, participation rates and overall compliance with the technical standards (see the *TALIS Starting Strong 2018 Technical Report* (OECD, 2019[10])). Once each survey process was assessed, a recommended rating was formulated, accounting for the participation rates and for any unresolved issues. The adjudication rules, based on participation rates for leaders and staff, are shown in Table A B.1 and

Table A B.2.

Table A B.1. Adjudication rules for centre or centre leader data in TALIS Starting Strong 2018

Centre participation (returned leader questionnaires)		Risk of centre non-response bias	Rating
Before replacement	After replacement		
≥ 75%	≥ 75%		Good
≥ 50% but < 75%	≥ 75%		Fair (A)
	≥ 50% but < 75%	Low	Fair (C)
		High	Poor (D)
< 50%			Insufficient

Table A B.2. Adjudication rules for staff data in TALIS Starting Strong 2018

Centre participation (minimum of 50% staff participation)		Staff participation after centre replacement	Risk of staff non-response bias	Rating
Before replacement	After replacement			
≥ 75%	≥ 75%	≥ 75%		Good
		≥ 50% but < 75%		Fair (A)
≥ 50% but < 75%	≥ 75%	≥ 75%		Fair (B)
		≥ 50% but < 75%	Low	Fair (C)
			High	Poor (D)
≥ 50% but < 75%	≥ 50% but < 75%			Poor (E)
< 50%	≥ 75%			Poor (F)
< 50%	< 75%			Insufficient

The following is a guide to help data users appreciate the limitations on use or quality:

- **Good:** The participating country's data can be used for all reporting and analytical purposes and should be included in international comparisons.
- **Fair (A):** National and subnational estimates can be produced. Some staff characteristics may suffer from larger standard errors (s.e.), hence the warning "Fair". No additional warnings to users appear necessary.
- **Fair (B, only for staff data adjudication):** National and subnational estimates can be produced. Some subnational estimates may be of lower precision (larger s.e.) if sample size is locally low, hence the warning "Fair". No additional warnings to users appear necessary.
- **Fair (C):**
  - National and subnational estimates can be produced.
  - Some subnational estimates may be of lower precision (larger s.e.) if sample size is locally low, hence the warning "Fair". But a note on data quality could appear pointing to the outcome of the non-response bias analysis.
  - Since centre participation is somewhat lower than under (B), comparing subnational estimates should be done with care, as some of those results are based on few centres.
  - Comparing small subnational estimates with similar groups from other participating countries is unlikely to uncover any statistically meaningful differences, as s.e. are likely too large.

- **Poor (D):**
  - In addition to the warnings issued for the previous category, a note should warn users of indications of non-response biases in some estimates.
  - Comparisons of subnational estimates should be limited to groups with larger sample sizes.
  - At this point, the sample represents between 37% and 56% of the workforce, from a rather small sample of centres.
  - Comparisons with similar groups in other participating countries would not be encouraged.
- **Poor (E, only for staff data adjudication):** Subnational estimates would not be recommended. There should be a note pointing out the difficulty of obtaining a representative sample of centres.
- **Poor (F, only for staff data adjudication):** Limitations similar to those of line E, but there should be a note pointing out the difficulty of obtaining at least 50% participation of the selected sample of centres. There are risks of having a non-representative sample of centres.
- **Insufficient:** Weights should not be calculated for any official tabulations. Hence, data should not be incorporated in international tables, models, averages, etc.[1]

The participation rates and the adjudication rating per participating country and level of ECEC are presented in Table A B.3 to Table A B.6. These tables display the participation rate estimates that were the most favourable for the adjudication rating. The most favourable estimates could have been weighted or unweighted depending on the characteristics of the country, the staff and leader population and the level of ECEC.

Notes regarding use and interpretation of the data

This section lists issues to be noted regarding the sampling or field operations that should be considered when interpreting the data reported for the following countries:

- **Denmark**
  - Low response rates during the survey may have resulted in bias in the estimates reported, thus limiting comparability of the data.
  - The data collection period was extended due to a public strike.
- **Germany**
  - The data collection period was re-opened for a few weeks to encourage additional centres and staff to participate.
  - Non-response bias analysis failed to show that there is not a high risk of centre and staff non-response bias.
  - In two centres serving children under age 3, staff listings were found to be incorrect; these centres were considered as “non-participant”.
- **Iceland**
  - In Iceland, a shortage of certified ECEC teachers means that staff without this credential (i.e. assistants) may be serving as teachers in some settings. Although data were collected on these role divisions, the distinction was unclear in many instances. Therefore, this overall role distinction is not used in TALIS Starting Strong because it is not meaningful for Iceland.
- **Israel**
  - For pre-primary education settings (ISCED level 02), ultra-orthodox centres were excluded after the survey because of the low participation rates in this sector. The exclusion rate therefore exceeded 5%.

- The data collection period was extended for centres serving children under age 3 to accommodate the split system in Israel.

- **Korea**
  - The data collection period was extended to encourage additional centres and staff to participate.
- **Norway**
  - Home-based ECEC settings were excluded. The exclusion rate therefore exceeded 5%.
- **Turkey**
  - Centres under the responsibility of the Ministry of Family, Labour and Social Services were excluded. The exclusion rate therefore exceeded 5%.

Table A B.3. Services for children under age 3: Centre leader participation rates and recommended ratings

Participating country	Number of participating leaders	Estimated size of leader population	Leader participation before replacement (%)	Leader participation after replacement (%)	Recommended rating
Germany	273	48 699	50.7	57.2	Poor
Israel	226	5 042	93.3	97.4	Good
Norway	163	4 916	66.8	92.6	Fair
Denmark**	93	2 852	35.4	47.5	Insufficient

** Low response rates in the survey may result in bias in the estimates reported and limit comparability of the data.

Table A B.4. Services for children under age 3: Staff participation rates and recommended ratings

Participating country	Number of participating centres	Number of participating staff in participating centres	Estimated size of staff population	Centre participation before replacement (%)	Centre participation after replacement (%)	Staff participation in participating centres (%)	Overall staff participation (%)	Recommended rating
Germany	272	1 171	268 310	50.3	57.0	89.7	51.1	Poor
Israel	225	1 113	23 201	90.7	95.3	97.4	92.8	Good
Norway	161	938	35 514	67.1	91.1	86.5	78.8	Fair
Denmark**	87	563	28 303	31.7	43.7	86.1	37.6	Insufficient

** Low response rates in the survey may result in bias in the estimates reported and limit comparability of the data.

Table A B.5. Pre-primary education (ISCED level 02): Centre leader participation rates and recommended ratings

Participating country	Number of participating leaders	Estimated size of leader population	Leader participation before replacement (%)	Leader participation after replacement (%)	Recommended rating
Chile	228	9 426	94.8	98.6	Good
Germany	247	51 942	52.8	69.0	Poor
Iceland	178	236	75.4	75.4	Good
Israel	416	12 175	97.4	98.3	Good
Japan	216	35 577	87.2	98.6	Good
Korea	188	22 722	61.5	76.1	Fair
Norway	152	4 877	64.6	83.8	Fair
Turkey	340	22 380	99.8	99.8	Good
Denmark**	102	3 034	40.9	55.3	Insufficient

** Low response rates in the survey may result in bias in the estimates reported and limit comparability of the data.

Table A B.6. Pre-primary education (ISCED level 02): Staff participation rates and recommended ratings

Participating country	Number of participating centres	Number of participating staff in participating centres	Estimated size of staff population	Centre participation before replacement (%)	Centre participation after replacement (%)	Staff participation in participating centres (%)	Overall staff participation (%)	Recommended rating
Chile	228	1 349	58 060	94.0	98.3	98.8	97.1	Good
Germany	250	1 401	404 202	50.3	57.0	89.7	51.1	Poor
Iceland	204	1 378	3 624	87.0	87.0	84.8	73.8	Good
Israel	409	1 987	43 478	95.7	96.7	97.4	94.1	Good
Japan	216	1 616	307 070	87.2	98.6	99.6	98.2	Good
Korea	182	927	91 586	59.7	75.4	96.8	72.9	Fair
Norway	144	815	39 107	60.7	78.7	83.8	65.9	Fair
Turkey	340	1 605	65 191	99.7	99.7	99.6	99.2	Good
Denmark**	85	544	28 831	32.8	45.7	84.3	38.5	Insufficient

** Low response rates in the survey may result in bias in the estimates reported and limit comparability of the data.

Reference

OECD (2019), *TALIS Starting Strong 2018 Technical Report*, OECD Publishing, Paris. [10]

Note

[1] At their November 2018 meeting in Paris, the TALIS Starting Strong 2018 Technical Advisory Group recommended that data from participating countries that had not reached 50% participation should nonetheless be weighted and displayed in tables.

Annex C. Technical notes on analyses in this report

Use of staff and centre weights

The statistics presented in this report were derived from data obtained through samples of centres, centre leaders and staff (Annex B). For these statistics to be meaningful for a country, they need to reflect the whole population from which they were drawn and not merely the sample used to collect them. Thus, survey weights must be used in order to obtain design-unbiased estimates of population or model parameters.

Final weights allow the production of country-level estimates from the observed sample data. The estimation weight indicates how many population units are represented by a sampled unit. The final weight is the combination of many factors reflecting the probabilities of selection at the various stages of sampling and the response obtained at each stage. Other factors may also come into play as dictated by special conditions to maintain the unbiasedness of the estimates (e.g. adjustment for staff working in more than one centre). A detailed description of the sampling and weighting procedures can be found in the *TALIS Starting Strong 2018 Technical Report* (OECD, 2019[10]).

Statistics presented in this report that are based on the responses of centre leaders and that contribute to estimates related to centre leaders were estimated using centre weights (CNTRWGT). Results based only on responses of staff or on responses of staff and leaders (i.e. responses from centre leaders were merged with staff responses) were weighted by staff weights (STAFFWGT).

Standard errors and significance tests

Standard errors

The statistics in this report represent estimates based on samples of staff and centres, rather than values that could be calculated if every staff member and leader in every country had answered every question. Consequently, it is important to measure the degree of uncertainty of the estimates. In TALIS Starting Strong, each estimate has an associated degree of uncertainty that is expressed through a standard error. The use of confidence intervals provides a way to make inferences about the population statistics in a manner that reflects the uncertainty associated with the sample estimates. From an observed sample statistic and assuming a normal distribution, it can be inferred that the corresponding population result would lie within the confidence interval in 95 out of 100 replications of the measurement on different samples drawn from the same population. The reported standard errors were computed with a balanced repeated replication (BRR) methodology.

Differences between sub-groups

Differences between sub-groups along staff (e.g. teachers and assistants) and centre characteristics (e.g. centres with a high concentration of children from socio-economically disadvantaged homes and centres with a low concentration of children from socio-economically disadvantaged homes) were tested

for statistical significance. All differences marked in bold in the data tables of this report are statistically significantly different from 0 at the 95% level. In the case of differences between sub-groups, the standard error is calculated by taking into account that the two sub-samples are not independent.

Use of complex variables

Number of staff and children in the centre

TALIS Starting Strong asks leaders to indicate the number of staff in different categories working in their ECEC centres (leaders, teachers, assistants, staff for individual children, staff for special tasks, interns and other staff) and the number of girls and boys enrolled in the centre.

This information is used to derive several indicators describing the staff and children in the centre: 1) the share of different types of staff working at the centre (i.e. leaders, teachers, assistants and other staff); 2) the number of teachers and leaders compared to the total number of staff at the centre; 3) the number of children at the centre; 4) the number of staff per child at the centre. If the centre covers pre-primary education (ISCED level 02) and provision for children under age 3, children and staff at both levels are considered in those numbers.

The number of staff per child at the centre refers to the total number of staff working in a centre, regardless of their role, divided by the total number of children enrolled. Because the number of staff per individual child is very low, when specific examples are cited for comparative purposes, they are presented as “number of staff per ten children”, which is obtained by multiplying the number of staff per child by ten.

These indicators differ from administrative data capturing similar constructs, for instance because TALIS Starting Strong data does not allow differentiation between part-time and full-time employment at the centre level. Furthermore, regulations often refer to staffing requirements at the group or classroom/playroom level, rather than for the centre as a whole.

Number of staff and children in the target group

A similar set of variables is also built at the level of the target group. TALIS Starting Strong asks staff to take the example of the target group (the first group of children they were working with on the last working day before the day of the Survey). Respondents indicate the category that best represents their role when working with this group of children (leader, teacher, assistant, staff for individual children, staff for special tasks, interns and other staff), as well as the number of girls and boys who made up the group.

This information is used to derive three indicators: 1) the number of children per target group; 2) the number of staff working with the same target group on the same day; and 3) the number of staff per child working with the same target group on the same day.

The number of staff per child with the same target group on the same day refers to the number of staff working with the same target group, regardless of their role, divided by the number of children in the target group. Because the number of staff per individual child is very low, when specific examples are cited for comparative purposes, they are presented as “number of staff per ten children”, which is obtained by multiplying the number of staff per child by ten.

The number of staff per child working with the same target group on the same day reflects a specific situation and is, therefore, different from the number of staff per child at the centre level. Staff may be working with the same target group at different moments of the day and not together, or may work part-time. Children in the same group may also change over the day into different group compositions, and children’s attendance hours of children can differ. This concept also differs from the regulated maximum

numbers of children per staff member, as that could include some restrictions on the staff to be included (depending on their qualifications or role) and can be specific to the age group of children.

As there is no indicator clarifying which target group each staff member referred to, several staff members may have referred to the same target group. This can result in a bias, as some target groups may be over-represented in the data.

National quarters

Some analysis using the number of children or the number of staff per child (at the centre or target group level) require these continuous variables to be transformed into interval categories. To accommodate for this need, the report makes use of national quarters. In each country, the weighted distribution of the continuous variable is split into equally sized categories, following the rank order. For instance, the cut-off point between the first quarter and the second quarter of the number of children per centre is the 25th percentile of the distribution of the number of children per centre in a specific country. As a result, the range of these intervals will differ across countries and vary with the properties of the distribution in each country.

Share of staff who left their ECEC centre in the previous year

Leaders participating in TALIS Starting Strong reported on the number of staff who left the ECEC centre in the previous year. The share of staff who left their ECEC centre in the previous year is obtained by dividing this variable by the total number of staff at the centre at the time leaders responded to the Survey.

Assessing process quality in TALIS Starting Strong

The quality of the various interactions between the ECEC workforce, children and parents involves several dimensions, corresponding to major domains of children's learning, development and well-being. Given its multidimensional nature, process quality can be conceptualised as a set of indicators. In TALIS Starting Strong, these indicators are built from questions on practices reported by staff as being used by staff at the ECEC centre or by themselves with the target group (the first group of children that they worked with on their last working day before the Survey).

The indicators of process quality used in this report are the result of extensive scale evaluation using guidelines and experience from TALIS 2018 and prior cycles. Through the scaling evaluation process, items included in the survey on interactions between children and staff and between parents/guardians and staff or children are grouped into indicators summarising responses from multiple questions into indicators of several practices. These include five indicators at the centre level (facilitating literacy development, facilitating numeracy development, facilitating prosocial behaviour, facilitating engagement of parents/guardians) and two indicators at the target group level (behavioural support and adaptive practices). However, because TALIS Starting Strong measures the self-reported practices of staff from countries with different cultural backgrounds and in different settings (i.e. pre-primary education and centres for children under age 3), building these indicators entails a number of methodological issues. In particular, individual and cultural factors affect the interpretation of questions. This may produce differences in levels of endorsement or frequency in survey responses and it may also affect the item correlation structure used to summarise the information and thus limit the comparability of the resulting indicators. In order to effectively use these indicators for further analysis, it is important to consider the specific scale properties, such as their reliability and validity in cross-cultural context.

To understand whether the process quality indicators in TALIS Starting Strong could be considered comparable across countries and levels of ECEC, measurement invariance was tested. The most

restrictive level of measurement invariance, *scalar invariance*, is reached once the indicator satisfies three properties:

1. The structure of the indicator is the same across groups, meaning that the indicator is built using the same set of items across groups.
2. The strength of the associations between the indicator and the items (factor loadings) are equivalent. This property makes it possible to claim that one unit of change in the indicator will lead to the same amount of average change in the items that constitute the construct across different groups.
3. The intercepts/thresholds for all items across groups are equivalent. If the intercepts of the items for all groups are equivalent, then the expected value of the items becomes the same across groups when the value of the indicator is zero and means can be compared across groups.

If only properties (1) and (2) are satisfied, then the indicator reaches *metric invariance*. If only property (1) is satisfied, the indicator reaches *configural invariance*.

Indicators of process quality built for this publication did not reach scalar invariance. As a result, the means of process-quality indicators cannot be compared across countries. However, all process quality indicators for pre-primary education (ISCED level 02) used in this publication reached metric invariance (Table A C.1). This means these indicators can be used for comparison within countries and comparisons across countries of the strength of the association between process-quality indicators and other factors. With metric invariant scales the same items from the Survey are relevant for each dimension of process quality across countries. Therefore, these indicators of process quality are used to describe practices within each country and to examine how characteristics of the specific group of children, the centre and the responding staff member explain variation in practices across countries.

Some indicators of process quality used in this report only reached configural invariance for centres for children under age 3 (facilitating literacy development, facilitating emotional development and behavioural support; Table A C.1). Results using these indicators are meaningful within countries, but cannot be compared across countries.

By design, all indicators and dimensions have a midpoint of 10 and a standard deviation of 2. This means that indicators and dimensions with values above 12 can be considered high. The fact that all indicators and dimensions have the same midpoint helps interpret the level of implementation of a specific practice, regardless of whether the practice is expected to occur quite often in the target group (or centre) or not. Additional information on the construction and validation of the scales included in this report can be found in Chapter 11 of the *TALIS Starting Strong 2018 Technical Report* (OECD, 2019).

Table A C.1. Indicators of process quality in TALIS Starting Strong: levels of measurement invariance

Dimension	Indicator	Practices (items from the Survey)	Level of measurement invariance	
			Centres for children under age 3	Pre-primary education (ISCED level 02)
Facilitating literacy and numeracy development (Practices used at the centre level, according to staff)	**Facilitating literacy development**	Play word games with the children, Play with letters with the children, Sing songs or rhymes with the children	Configural	Metric
	Facilitating numeracy development	Use sorting activities by shape or colour, Play number games, Sing songs about numbers, Help children to use numbers or to count, Refer to groups of objects by the size of the group	Metric	Metric

Dimension	Indicator	Practices (items from the Survey)	Level of measurement invariance	
			Centres for children under age 3	Pre-primary education (ISCED level 02)
Facilitating socio-emotional development (Practices used at the centre level, according to staff)	**Facilitating emotional development**	Hug the children, Talk with children about feelings, Help children to talk about what makes them happy, Help children to talk about what makes them sad	Configural	Metric
	Facilitating prosocial behaviour	Encourage sharing among children, Encourage children to help each other, Encourage children playing in small groups to include other children, Encourage children if they comfort each other	Metric	Metric
Group organisation and individual support (Practices used by staff with the target group)	**Behavioural support**	I help children to follow the rules, I calm children who are upset, When the activities begin, I ask children to quieten down, I address children's disruptive behaviour that slows down other children's learning, I help children understand the consequences if they do not follow the rules	Configural	Metric
	Adaptive practices	I set daily goals for the children, I explain how a new activity relates to children's lives, I give different activities to suit different children's level of development, I give different activities to suit different children's interests, I adapt my activities to differences in children's cultural background	Metric	Metric
Facilitating engagement of parents/guardians (Practices used at the centre level, according to staff)	**Staff engagement with parents and guardians**	Parents or guardians can get in touch with ECEC staff easily, Parents or guardians are informed about the development, well-being and learning of their children on a regular basis, Parents or guardians are informed about daily activities on a regular basis, Parents or guardians are encouraged by ECEC staff to play and do learning activities with their children at home	Metric	Metric

Note: This table shows the practices that are included in the indicators of process quality used in this publication.

Statistics based on regressions

Country-specific regression analyses were performed to examine the associations between different variables. Multiple linear regression was used in those cases where the dependent (or outcome) variable was considered continuous, for example with the process quality indicators. Binary logistic regression was employed when the dependent (or outcome) variable was a binary categorical variable, for example a high versus low share of children from socio-economically disadvantaged homes. Outcome variables used in the report refer either to the centre or to the target group; the predictor and control variables are adjusted accordingly.

The centre (or target group) characteristics of interest can relate to one another and with other characteristics of the staff member who is reporting. Thus, the regression analyses were performed through an estimation of the associations of interest, holding all other characteristics constant. In the models, the associations between a specific centre (or target group) feature and the outcome variable were examined after accounting for a set of centre and staff characteristics, described below. Control variables included in the regression models were selected based on theoretical reasoning and to ensure comparability of the model across countries. For some countries, the number of staff or centres in a particular category was too low to draw conclusions. Results are presented only when they are based on a minimum of 30 staff or ten centres.

Staff and centre characteristics used in the models

The typical regression model used in this report includes the following set of variables as independent variables. In some cases additional variables of interest are added depending on the analysis purpose while in other cases only a single predictor is used in the models. Tables providing complete regression results for all models presented in the report provide specific information on the variables included in respective models (see Annex D).

- Staff education level is aggregated into three categories: secondary education or below (ISCED level 3 or below); post-secondary non-tertiary education or short-cycle tertiary education (ISCED level 4 or 5); and bachelor's degree or equivalent or more (ISCED level 6 or more), which is set as reference.
- Staff specifically trained to work with children versus staff without specific training (without specific training as the reference).
- Staff experience refers to the number of years of experience in any ECEC centres, in three categories: less than 5 years; between 5 and 9 years; and more than 9 years, which is set as the reference.
- Permanent employment versus fixed-term contracts/self-employment (two categories with fixed-term contracts as the reference).
- Working full-time versus part-time (part-time as the reference).
- Leader/Teacher: the respondent is either a leader or a teacher in the target group. All other categories, including assistants, are grouped and taken as the reference.
- Centre in city: the centre is in a municipality with more than 15 000 people, with a location with fewer people taken as the reference.
- Public management versus private management (private management as the reference).
- Number of children in the centre (or target group), in quarters. In each country, the distribution of answers from leaders on the number of children can be divided into four equal quarters with increasing numbers of children per centre.

  The first quarter is set as the reference: the respondent works in a centre (or target group) with a number of children among the 25% lowest of the country distribution.
- Number of staff per child, in quarters: the total number of staff working in the centre (or target group), regardless of their role, divided by the number of children in the centre (or target group).

  The first quarter is set as the reference: the respondent works in a centre (or target group) with a number of staff per child among the 25% lowest of the country distribution.
- Concentration of children from socially disadvantaged homes: the proportion of children from socio-economically disadvantaged homes in the centre (target group) is greater than or equal to 11% with a proportion of 10% or less as the reference.

Strength of association

The strength of association between two variables (indicator, staff or centre characteristic) relates to the magnitude of the corresponding unstandardised coefficient of a regression in which one of the variables is the dependent variable and the other is among the independent variables.

Pearson correlation coefficient

Correlation coefficients measure the strength and direction of the statistical association between two variables. Correlation coefficients vary between -1 and 1; values around 0 indicate a weak association, while the extreme values indicate the strongest possible negative or positive association. The Pearson correlation coefficient measures the strength and direction of the linear relationship between two variables.

International averages

Cross-country averages are provided for pre-primary (ISCED level 02) settings throughout the report. These averages correspond to the arithmetic mean of the nine country estimates. Comparisons between a single country and the international average are not used because the averages reflect only nine countries. Each country makes a substantial contribution to the overall average and therefore a comparison between the averages and a single country may overestimate the similarity of that country's results with those from the other countries.

Reference

OECD (2019), *TALIS Starting Strong 2018 Technical Report*, OECD Publishing, Paris. [10]

Annex D. List of tables available on line

The following tables are available in electronic form only:

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Annex E. List of TALIS Starting Strong 2018 contributors

TALIS Starting Strong is a collaborative effort, bringing together expertise from participating countries that share an interest in developing a survey project to inform their policies about the early childhood education and care (ECEC) workforce and quality of provision. This report is the product of collaboration and co-operation among the member countries of the OECD participating in the first round of TALIS Starting Strong. Engagement with bodies representing teachers (Education International) and regular briefings and exchanges with the Trade Union Advisory Council (TUAC) at the OECD have been very important in the development and implementation of TALIS Starting Strong. In particular, the co-operation of staff and leaders in the participating centres has been crucial in ensuring the success of TALIS Starting Strong.

In the context of OECD objectives and the programme of work and budget of the OECD Education Policy Committee, the Extended ECEC Network on TALIS Starting Strong, a sub-group of the OECD Network on Early Childhood Education and Care, has driven the development of the project and its policy objectives. This includes the objectives of the analysis and reports produced, the conceptual framework and the development of the TALIS Starting Strong questionnaires. The Extended ECEC Network has also overseen the implementation of the survey and the preparation of this report.

Participating countries implemented TALIS Starting Strong at the national level at national project centres through, among others, national project managers (NPMs), national data managers (NDMs) and national sampling managers (NSMs), who were subject to rigorous technical and operational procedures. The NPMs played a crucial role in helping to secure the co-operation of ECEC centres, to oversee the national adaptation, translation and validation of the questionnaires, to manage the national data collection and processing and to verify the results from TALIS Starting Strong. The NDMs co-ordinated data processing at the national level and liaised in the cleaning of the data. The NSMs were responsible for implementing TALIS, respecting sampling procedures and other rigorous technical and operational procedures. In addition to the nine participating countries, the United States, United Arab Emirates and Kazakhstan have contributed to the development of the questionnaires.

A Questionnaire Expert Group (QEG) was established to translate the policy priorities into questionnaires to address the policy and analytical questions that had been agreed by the Extended ECEC Network. A Technical Advisory Group (TAG) was assembled to advise during the decision-making process for technical or analytical issues. A group of subject-matter experts and analysts were also critical in the analytical phase and drafting of the initial reports.

The co-ordination and management of implementation at the international level was the responsibility of the appointed contractors, the International Association for the Evaluation of Educational Achievement (IEA), its consortium member Statistics Canada (Ottawa, Canada), and Rand Europe (Cambridge, United Kingdom). The TALIS Starting Strong Consortium included staff from the IEA offices in Amsterdam and Hamburg, Statistics Canada and Rand Europe. The IEA Hamburg was responsible for the overall survey planning, sampling, survey administration and the international data management. The IEA Amsterdam was responsible for overseeing the verification of the translation and for quality control in general. Rand Europe managed the development of the survey instruments and conceptual framework. Statistics Canada, as a subcontractor of the IEA Hamburg, served as the sampling referee.

The OECD Secretariat had overall responsibility for managing the project, monitoring its implementation on a day-to-day basis and serving as the secretariat of the Extended ECEC Network on TALIS Starting Strong.

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TALIS

Providing Quality Early Childhood Education and Care

RESULTS FROM THE STARTING STRONG SURVEY 2018

For most children, early childhood education and care (ECEC) provides the first experience of life in a group away from their families. This experience plays a crucial role in children's learning, development and well-being. The benefits of high-quality ECEC are not restricted to children's first years of life. However, little is known about this first experience. What do children learn and do in ECEC settings? With which staff do children interact at their centres? Do all children face the same opportunities to enrol in high-quality settings? What are the main spending priorities to raise the quality of ECEC? These are key questions for parents, staff and policy makers.

The OECD Starting Strong Teaching and Learning International Survey (TALIS Starting Strong) is the first international survey that focuses on the ECEC workforce. It offers an opportunity to learn about the characteristics of the workforce, the practices they use with children, their beliefs about children's development and their views on the profession and on the sector. This first volume of findings, Providing Quality Early Childhood Education and Care, examines multiple factors that can affect the quality of ECEC and thereby can influence children's learning, development and well-being.

Consult this publication on line at ***https://doi.org/10.1787/301005d1-en***.

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