

**DIRECTORATE FOR EDUCATION
EDUCATION POLICY COMMITTEE**

Network on Early Childhood Education and Care

REVISED PROJECT PROPOSAL OF NEW POLICY OUTPUT ON EARLY LEARNING AND DEVELOPMENT

Annex 2: Existing data for international comparison

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Ineke Litjens, Analyst; Tel: +33 (0) 1 45 24 86 19; Email: ineke.litjens@oecd.org

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Introduction

1. The importance of high-quality ECEC has been emphasised in the three *Starting Strong* reports (OECD 2001, 2006 and 2011) and is underpinned by international research findings. A strong start in life through participation in high-quality care and education has been found to be beneficial for children's learning outcomes and can have benefits for society at large as well, with the largest gains for children at risk. This serves as an important argument in creating equitable, high-quality ECEC systems from which all children can benefit, and collecting data on ECEC systems so as to increase knowledge on different ECEC systems.

2. International data on ECEC can provide insights on how different ECEC systems are organised and contribute to knowledge creation and sharing on quality aspects of ECEC provisions. Data on ECEC can be used for system analysis purposes and in enhancing the quality of a country's ECEC system. *Starting Strong III* (OECD, 2011), as well as other international data sources, have collected a wide range of ECEC data.

3. This paper will provide an overview of currently existing data as well as data that will be collected by other agencies in the nearby future. The sources of data, *i.e.*, the agencies which have collected or plan to collect the data, will be explained as well as overlaps in data collection. Data issues and specific data gaps are discussed.

Organising framework of data

4. The organising framework (matrix) for the OECD's ECEC data collection and mapping exercise is based on the organising matrix of *Education at a Glance's* (EAG) indicators. The indicators in the mapping exercise, as well as plans for future data collection by the ECEC Network and other agencies, fit within this framework, though they often speak to more than one cell. The following sections discuss the framework dimensions in more detail.

Table 1. Adapted (from EAG) organising framework for collection of data on the early learning and development sector

	1. Output and outcomes of ECEC, education and learning	2. Policy levers and contexts shaping early childhood development	3. Antecedents or constraints that contextualise policy
I. Individual children in early childhood education and care	1.I. The quality and distribution of individual child development and child outcomes	2.I. Individual child engagement and behaviour to education and care	3.I. Background characteristics of the individual children and ECEC staff
II. Learning and caring settings	1.II. The quality of early learning and care delivery	2.II. Pedagogy, learning and caring practices and room climate	3.II. Early childhood education and care conditions and staff working conditions
III. Providers of early childhood services	1.III. The output of early childhood education and care institutions and institutional performance	2.III. Early childhood development environment and organisation	3.III. Characteristics of the service providers and their communities
IV. Early childhood education and care system as a whole	1.IV. The overall performance of the early childhood education and care system	2.IV. System-wide institutional settings, resource allocations and policies	3.IV. The national educational, social, economic and demographic contexts

Actors in ECEC systems (left column: I – IV)

5. Many features of development and implementation of ECEC systems can only be understood through comprehension of the relationships between inputs, processes and outcomes at the level of individuals and/or institutions, instead of only at system (governance) level. To account for this, the mapping exercise includes indicators at different levels:

- The ECEC system as a whole;
- The providers of ECEC services;
- The caring setting and learning and well-being environment within the ECEC services;
- The individual children participating in ECEC.

Inputs, processes and outcomes (second to fourth rows: 1 – 3)

6. The second dimension in the organising framework further groups the indicators at each of the above levels:

- Indicators on observed individual child, as well as broader societal outputs and outcomes, are grouped under the sub-heading *output and outcomes of ECEC, education and learning*.
- The sub-heading *policy levers and contexts* groups activities seeking information on the policy levers or circumstances, which shape child development outcomes and organisation at each level.
- These policy levers are situated within a specific context and often have factors that define policy or practices. These are represented by the sub-heading *antecedents or constraints*. It should be pointed out that antecedents (or constraints) often differ per level of the ECEC system. Antecedents at a lower level (such as individual level) may be policy levers at a higher level (such as centre or system level). For ECEC staff for example, required qualifications or training can be a constraint while, at the ECEC system level, the education and professional development of staff is a key policy lever.

Data mapping exercise

7. A data mapping exercise has been conducted with the purpose to map what indicators and which data is available on ECEC within the OECD and other international data sources, such as the European Commission, the World Bank and UNESCO.

8. The mapping exercise provides an up-to-date and verified source of indicators that reflects available data on different aspects of ECEC as well as data for which there are plans to collect these in the next two to three years. The indicators are organised around four different themes, including governance and system management and the characteristics of country's ECEC systems; the financial resources invested in early childhood; access and participation in ECEC; and the learning environment and organisation of ECEC centres, which includes child development outcomes.

Available data

9. The currently available data on ECEC has been, based on the outline used in *Education at a Glance*, categorised into four topics (or chapters): i) governance and system management; ii) financial resources invested in ECEC; iii) access and participation; iv) learning and well-being environments, which include child development outcomes. These data come from different sources, including the OECD – such as *Starting Strong III* (SSIII), *Education at a Glance* (EAG), PISA, Family Database (FDB) and *Doing*

Better for Families (DBfF) – as well as data from other organisations, such as Eurydice and UNESCO. The overview is divided into four tables, each table covering each of the four topics mentioned above.

I. Governance and system management (2.I, 2.II, 2.III, and 2.IV in table 1)

10. The OECD, notably *Starting Strong III*, as well as Eurydice, have collected a broad range of data and information on ECEC on “governance and system management”. These data refer to how ECEC systems are managed at national or sub-national levels and largely provide information on policy inputs. Indicators on governance and system management can contribute to identifying aspects of ECEC management which might need improvement to increase efficiency or effectiveness.

11. The key existing data include structural indicators concerning the minimum (legal) standards, regulations for workforce and descriptive information on how ECEC systems are organised (*e.g.*, starting age), and who designs and oversees ECEC policies (*e.g.*, goal-setting, funding, curriculum, evaluation).

12. Future data development on “governance and system management” will be furthering the detail with descriptions of specific responsibility areas (*e.g.*, policy design, financing) of the designated authority(ies), indicators on stakeholder co-operation (*e.g.*, description of consultative bodies and boards, types of power they exercise). In addition, further data on regulatory aspects will be collected including health and safety standards in place.

13. Table 2 provides an overview of available indicators and data on “governance and system management” by source.

Table 2. Data on governance and system management

Topic	Indicator	Details	Sources				
			OECD			Eurydice	UNESCO
			SSIII	EAG	FDB		
Contextual information for better interpretation of international comparative data							
Governance	Structure of ECEC systems	Integrated or split, with names of provision in country language	▲		•	•	
	Nature of ECEC	Compulsory ECEC or not	•			•	
	Starting age of compulsory schooling	Age in years	•	•	•	•	•
	Policy goals	Overall and focus of ECEC policy goals (national, regional, local)	•				
	Policy design	Authorities in charge of policy design (national, regional, local)	▲			▲	
	Minimum standard setting	Authorities in charge (national, regional, local)	▲				
	Curriculum development	Authorities in charge (national, regional, local)	▲				
	Financing authorities	Authorities in charge of financing ECEC settings (national, regional, local)				•	
Contextual information for better interpretation of international comparative data							
Governance	Family and community engagement	Approaches to engaging families and communities in ECEC	•			▲	
		Power exercised by councils/boards with parent and community members				▲	
	Stakeholder co-operation	Existence of which central-level consultative bodies and types of stakeholder involvement in these bodies (representatives of staff, parents' representatives, etc.)				▲	

Table 2. Data on governance and system management (continued)

Topic	Indicator	Details	Sources				
			OECD			Eurydice	UNESCO
			SSIII	EAG	FDB		
Policy inputs							
Regulations and minimum standards	Regulated standards	Areas covered (list) by regulated standards				▲	
	Regulated staff-child ratio	Maximum number of children per staff member for under-3-year-olds	●			●	
		Maximum number of children per staff member for 3-to-6-year-olds	●				
		Maximum number of children per staff member for 3-, 4- and 5-year-olds separately				●	
	Regulated minimum space	Minimum indoor and outdoor space in m ² per child for under-3-year-olds	●			▲	
		Minimum indoor and outdoor space in m ² per child for 3-to-6-year-olds	●			▲	
	Regulated group size	Minimum and maximum group size for under-3-year-olds	▲ (max only)			●	
		Minimum and maximum group size for 3-to-6-year-olds	▲ (max only)			●	
	Opening hours	Hours per day or week an ECEC setting is required to be open	▲			▲	
	Health and safety	What regulations are in place on health and safety (e.g., indoor equipment standards)				▲	
Workforce	Accreditation initial education	Authorities in charge of accrediting education and training programmes for ECEC staff	▲				
	Professional development	Participation in professional development (mandatory or not)	●			●	
	Licensing renewal	Licensing renewal requirements in place: yes/no	●			▲	
		Timeframe for renewal in years	●			▲	
Long-term outcome based data	Longitudinal studies on ECEC in place	Actors conducting longitudinal studies	●				

Note: ● = data is available for the indicator. ▲ = Data is not available yet. For the source SSIII, this refers to untapped survey results. Regarding other sources, this indicates that there are plans for data collection on this indicator.

II. Financial resources invested in ECEC (2.IV in Table 1)

14. Data on “financial resources invested in ECEC” provides indicators that are policy inputs which shape the ECEC environment (Table 1). Expenditure can contribute to the quality of and access to ECEC, and indicators on funding, spending and costs of child care and early education can highlight issues of, *e.g.*, inequity in access or participation.

15. Most of the data on ECEC financing have been collected by the OECD, through the annual publication of *Education at Glance*, the Family Database, and *Doing Better for Families*. Eurydice has collected some contextual and qualitative information with regard to ECEC investment and financing.

16. Most of the available data refer to pre-primary education¹, as published in *Education at a Glance*. This is in line with the ISCED qualifications *Education at a Glance* deploys where ISCED 0 refers to education-based programmes for children from the age of three to the start of primary schooling. However, a revision in the description of ISCED 0 has recently been made with a revised focus from merely educational programmes to early childhood educational development and pre-primary education. This will also include programmes that have educational content designed for younger children (in the age range zero to two years). It is expected that additional data on ECEC will be available when the new ISCED 2011 qualifications will be implemented for data collection.

17. The currently available data can be categorised into: expenditure by the government; sources of funding; expenditure by ECEC institutions and settings; and expenditure by parents. This data includes figures regarding what public financial resources are spent on (*i.e.*, in-kind ECEC provision, tax breaks or otherwise), how much is spent per child at the national level, sources of funding, including data on public versus private funding of pre-primary education, and what family benefits are in place to cover costs of ECEC. How much ECEC costs per child is provided by the spending of ECEC provisions per child and published in *Education at a Glance*. The OECD has also collected data on the costs of child care for parents, as did Eurydice, but not the costs of pre-primary education.

18. Further data on the types of financial support available to all families with children in ECEC and with children “at risk” will be collected by Eurydice. Additionally, an indicator with information on the minimum and maximum monthly fee of public and subsidised private ECEC will be developed.

19. Table 3 provides an overview of available indicators and data on financial resources invested in ECEC by source.

¹ Pre-primary education, preschool and kindergarten are used interchangeably in this paper. All refer to the provision of ECEC with educational aspects, mostly provided to children aged three or four and above.

Table 3. Data on financial resources invested in ECEC

Topic	Indicator	Details	Sources				
			OECD			Eurydice	UNESCO
			EAG	FDB	DBfF		
Policy inputs							
Expenditure by government	Public expenditure on early childhood	Public social expenditure on early childhood (0-to-6-year-olds), as a % of total spending		•	•		
	Public expenditure on child care	Public expenditure on child care as % of GDP		•			
	Public expenditure on pre-primary education	Total expenditure on pre-primary education institutions as % of GDP from public and private funds	•				•
		Total public expenditure on pre-primary education as a % of total public expenditure	•				•
	Expenditure per child	Annual public expenditure per child on child care support in USD			•		
		Annual public expenditure per child in pre-primary education, in USD – total and in public and private institutions	•				
		Annual public expenditure per child on pre-primary education in USD			•		
	Expenditure by intervention	Public expenditure as % of GDP on interventions: cash benefits, tax breaks and in-kind services			•		
		Total public expenditure on children in early childhood (0 to 6 years) as % of median working-age household income - on interventions: cash benefits and tax breaks; child care; education; other benefits in kind			•	•	
		Trends in total public expenditure on children in early childhood (0 to 6 years) as % of median working-age household income – on interventions between 2003 and 2007			•	•	
		Total public expenditure <i>by age</i> , as % of median working-age household income – on interventions: cash benefits and tax breaks; child care; education; other benefits in kind			•	•	

Table 3. Data on financial resources invested in ECEC (continued)

Topic	Indicator	Details	Sources				
			OECD			Eurydice	UNESCO
			EAG	FDB	DBfF		
Policy inputs							
Expenditure by government	Family benefits	Public expenditure as % of GDP on family benefits: child payments and allowances, parental leave benefits and child care support			•		
		Types of financial support available to families with children in ECEC: family cash benefits, tax relieves, grants for ECEC provisions, etc.				▲	
		Characteristics (descriptive) of family cash benefits: income-tested or not, maximum benefit for one child aged 3 to 12 years, benefit amount per additional child varies with age of child or number of children		•			
		Additional types of financial support available to families with children at risk to encourage participation in ECEC				▲	
Sources of funding	Financing authorities	Authorities in charge of financing ECEC settings (national, regional, local)				•	
	Share of public and private funding	Public and private expenditure on pre-primary education, as % of total expenditure on pre-primary education	•				
		Share of public and private sources of funds for pre-primary education, as % of GDP	•				•
Expenditure by institutions/provisions	Expenditure per child	Annual expenditure per child in pre-primary education by institutions for all services, in USD	•				
		Annual expenditure per child in pre-primary education by institutions for all services, as % of GDP per capita	•				
		Expenditure per child in pre-primary education relative to primary education (index)	•				

Table 3. Data on financial resources invested in ECEC (continued)

Topic	Indicator	Details					
			OECD			Eurydice	UNESCO
			EAG	FDB	DBfF		
Policy inputs							
Expenditure by parents	Household expenditure	Household expenditure on pre-primary education, as % of total expenditure on pre-primary education	•				
	Parental costs	Free and fee-paying pre-primary provision offered (free; free in some settings; fees payable)				•	
		Minimum and maximum monthly fee of public and private grant-aided ECEC				▲	
		Factors taken into account in offering reductions or exemptions of fees in public and private grant-aided ISCED 0: family income, number of children, family status, geographical location, other				•	
		Child care fees per 2-year-old attending accredited early-years care and education services, as % of average wage		•			
		Net child care costs for dual earning families, as % of average wage			•		
		Net child care costs for single parent families, as % of average wage			•		

Note: • = data is available for the indicator. ▲ = Data is not available yet. For the source SSIII, this refers to untapped survey results. Regarding other sources, this indicates that there are plans for data collection on this indicator.

III. Access and participation (1.I, 1.IV and 2.IV in table 1)

20. Data on “access and participation” provides indicators that are a mixture of outcome indicators and policy inputs (Table 1). Enrolment rates and changes in enrolment rates over time can be regarded as outcome measures to the extent that they indicate the results of ECEC policies. But these indicators can also contribute to identifying areas where policy intervention might be needed to, for instance, address issues of inequity.

21. Several international sources have data regarding children's access and participation in ECEC settings. As a result, data on participation in ECEC is widely available. Most data refers to actual enrolment rates in preschool or formal care arrangements, complemented with more qualitative information on whether ECEC is free of charge or fee-paying.

22. Table 4 provides an overview of available indicators and data on access and participation by source, in table format.

Table 4. Data on access and participation

Topic	Indicator	Details	Sources					
			OECD				Eurydice	UNESCO
			SSIII	EAG	FDB	DBfF		
Contextual information for better interpretation of international comparative data								
Access	Legal entitlements	Legal entitlements in place to free ECEC (age coverage; hour coverage; universal or targeted)	▲				▲	
		Legal entitlements in place to a place in ECEC (age coverage; hour coverage; universal or targeted)	▲				▲	
	Accessibility	The basis on which places in ECEC are attributed (employment status of parents; socio-economic criteria; etc.)					▲	
	Provision	Full-time or part-time provision of early childhood education programmes		●				
Policy inputs								
Access	Affordability	Free and fee-paying pre-primary provision offered (free; free in some settings; fees payable)					●	
	Opening hours	Hours per day or week an ECEC setting is required to be open	▲				▲	
Policy outputs								
Enrolment	Enrolment rate under-3-year-olds	Enrolment rates (%) for children below the age of 3 in formal child care			●			
		Enrolment rates (%) for children below the age of 3 in ISCED 0		●				
		Enrolment of 0-, 1- and 2-year-old children in ECEC					▲	
		Proportion (%) of under 3-year-olds enrolled in child care by family income				●		
	Enrolment rates of children aged 3 and older	Enrolment rates (%) of 3-to-6-year-olds in ISCED 0 or 1 by age		●			●	
		Enrolment rates (%) in ECEC of 3-to-6-year olds, total and by age			●			
		Gross enrolment rate (%) in ISCED 0 by gender					●	
		Net enrolment rate (%) in ISCED 0 by gender					●	

Table 4. Data on access and participation (continued)

Topic	Indicator	Details	Sources						
			OECD				Eurydice	UNESCO	
			SSIII	EAG	FDB	DBfF			
Policy outputs									
Enrolment	Trends	Trends in enrolment rates (change in %) in pre-primary education of 3-year-olds, 2000 and 2005						•	
		Trends in enrolment rates (change in %) in pre-primary education of 4-year-olds, 2005 and 2010		•				•	
	Enrolment in type of provision	Distribution of pupils in % in ISCED 0, by type of institution (public/private)		•					
		Enrolment rates (%) in public and private ISCED 0 programmes						•	
	Gender parity	Gender parity index for gross and net enrolment ratio in ISCED 0						•	
Participation characteristics	Duration of participation	Average hours per week in formal child care for children under 3 years			•				
		Expected number of years in preschool for 3-to-6-year-olds			•				
		Usual duration in years of early childhood education programmes		•					
	Use of informal child care	Proportion of children using informal child care by age groups 0-3, 3-6 and 6-12 years			•				
		Average number of hours in informal care per week by age groups 0-3, 3-6 and 6-12 years			•				
	No usual participation	Proportion of children with no usual child care arrangements by age groups 0-3, 3-6 and 6-12 years			•				

Note: • = data is available for the indicator. ▲ = Data is not available yet. For the source SSIII, this refers to untapped survey results. Regarding other sources, this indicates that there are plans for data collection on this indicator. The World Bank has data on enrolment rates which comes directly from UNESCO. Therefore, the World Bank is not mentioned separately here as a data source.

IV. Learning and well-being environments (1.I, 1.II, 2.I, 2.II, 2.III, 2.IV, 3.I and 3.II in table 1)

23. Data on children's learning and well-being environments refer to any indicators that might have a direct or indirect impact or influence on children's everyday centre-based ECEC experiences, environments and development. It provides indicators that not only represent policy levers which can be manipulated at management or staff level, but also provide contexts for the quality of caring and teaching (educating) in ECEC settings and for the outcomes of children.

24. The available data are largely related to structural quality indicators², such as staff-child ratio and space per child, which influence how a child is experiencing its ECEC environment, and workforce indicators, such as staff qualifications. Workforce indicators are believed to influence the quality of interactions with children and therefore the quality of child outcomes. Data are available on initial education, professional development and working conditions. It also presents data on the profile of ECEC workers, as well as the curriculum used by ECEC staff – which influences the activities and practices within a setting. Existing comparative data on child outcomes include learning outcomes such as performance in primary and secondary school, social outcomes and societal outcomes.

25. Eurydice has plans to collect data on capacity planning for ECEC, including which aspects are considered in this. Information on support parents receive at the home environment from ECEC settings will also be collected. In addition, more detailed information on curriculum content, such as its objectives and recommended teaching approaches and child evaluation methods will be collected. Data on teaching time of pre-primary teachers is currently being developed by the INES working group. Eurydice also plans to collect data on requirements for managers of ECEC settings, and further information on policies and practices to improve working conditions or diversify the workforce.

26. An overview of all data categorised under learning and well-being environments can be found in Table 5.

² *Structural quality* refers to the overarching structures needed to ensure quality in early childhood programmes and are often aspects of ECEC that can be regulated, though they may contain variables which may differ from real situations at the centre level (e.g. staff-child ratio, space, group size and qualifications of ECEC staff).

Table 5. Data on learning and well-being environments

Topic	Indicator	Details	Sources							
			OECD				PIRLS	TIMMS	Eurydice	UNESCO
			SSIII	EAG	PISA	FDB				
Policy inputs										
Regulations and minimum standards	Regulated staff-child ratio	Maximum number of children per staff member for under-3-year-olds	•						•	
		Maximum number of children per staff member for 3-to-6-year-olds	•						•	
		Maximum number of children per staff member for 3-, 4- and 5-year-olds separately							•	
	Regulated minimum space	Minimum indoor and outdoor space in m ² per child for under 3-year-olds	•						▲	
		Minimum indoor and outdoor space in m ² per child for 3-to-6-year-olds	•						▲	
	Regulated group size	Minimum and maximum group size for under-3-year-olds	▲ (max only)						•	
		Minimum and maximum group size for 3-to-6-year-olds	▲ (max only)						•	
Organisation and management	Capacity planning	Demand/supply analysis conducted (yes/no) and by who							▲	
		Sources used for capacity planning							▲	
		Aspects considered in capacity planning (demographic projections, staff, etc.)							▲	
	Workforce management	Existence of a teacher registration for ISCED 0: yes/no		•						
		Requirements in place to enter the teaching profession in ISCED 0		•						
	Family and community engagement	Approaches to family and community engagement	•						▲	
		Methods for involving parents and community in designing pedagogical frameworks							▲	
		Provision of support for parents (such as home visits or home curriculum)							▲	

Table 5. Data on learning and well-being environments (continued)

Topic	Indicator	Details	Sources								
			OECD				PIRLS	TIMMS	Eurydice	UNESCO	
			SSIII	EAG	PISA	FDB					
Policy inputs											
Organisation and management	Transition	Criteria in place for admission to first year of primary schooling (such as age)								•	
		Recommendations in place on handing over child development records from ECEC to ISCED 1								▲	
		Parties involved in decision to postpone admission to primary school								•	
	Monitoring quality inputs	Topics (list) subject to monitoring	•							▲	
		Monitoring methods in place for regulation compliance and frequency and conductors of monitoring	•							▲	
		Monitoring methods in place for working conditions and frequency and conductors of monitoring	•							▲	
		Monitoring methods in place for curriculum implementation and frequency and conductors of monitoring	•							▲	
Curriculum, learning standards, pedagogy and practices	Average staff-child ratio	Average number of children per member of staff in ISCED 0		•							
	Curriculum frameworks	Existence of curriculum framework, age coverage and title	•							▲	
	Curriculum content	General curriculum content (list) (child outcomes, values, objectives, etc.)	•							•	
		The objectives of ECEC as mentioned in the curriculum (socio-emotional development, development of skills, etc.)								▲	
		Subject included in curriculum (literacy, arts, etc.)	•							▲	
		Recommended teaching approaches in curriculum (teamwork, timetable to be followed, etc.)								▲	
	Recommendations for child development evaluation in curriculum (what kind or none at all)								▲		

Table 5. Data on learning and well-being environments (continued)

Topic	Indicator	Details	Sources							
			OECD				PIRLS	TIMMS	Eurydice	UNESCO
			SSIII	EAG	PISA	FDB				
Policy inputs										
Curriculum, learning standards, pedagogy and practices	Staff characteristics	Types of ECEC staff (kindergarten teacher, pedagogue etc.)	▲							
		Share (%) of staff with minimum ISCED requirement in ISCED 0		•						
		Share (%) of staff with tertiary education							▲	
		Share (%) of male and female staff	•	•						•
		Average age in years of staff	•							
		Programmes in place to diversify the workforce							▲	
Initial education and professional development	Initial education requirements	Minimum ISCED level	•	•					•	
		Entry exam for initial education: yes/no		•						
	Initial education characteristics	Full-time and/or part-time provision	•							
		Public and/or private provision	•							
		Alignment of qualifications (care and early education, or with primary school)						▲		
	Initial education structure	Length in years of initial education	▲	•					•	
		Subjects covered (content) initial education	▲							
		Stage (practical experience) part of initial education: yes/no		•					•	
		Minimum share of initial education (% of total time) dedicated to stage							•	
		Specialised training to work with children at risk (integrated in initial education or separate training)							•	

Table 5. Data on learning and well-being environments (continued)

Topic	Indicator	Details	Sources								
			OECD				PIRLS	TIMMS	Eurydice	UNESCO	
			SSIII	EAG	PISA	FDB					
Policy inputs											
Initial education and professional development	Professional development characteristics	Nature of professional development: mandatory or not	•	•						•	
		Forms of professional development provision (formal, online, etc.)	•								
		Providers of professional development	•								
	Professional development structure	Most common topics of professional development	•								
		Nature of professional development topics: free choice or prescribed								•	
		Funding of professional development	•								
		Incentives in place to take up professional development	•							▲	
Working conditions	Job entry requirements	Requirements in place to enter the teaching profession in ISCED 0 (such as examination, induction period)		•							
	Remuneration	Average wage of ECEC staff compared to minimum wage (multiple of the minimum wage)	•								
		Average wage of ECEC staff compared to primary school teachers (multiple of their wage)	•								
		Minimum and maximum annual statutory salary for pre-primary teachers		•						•	
		Annual statutory salary for pre-primary teachers with 10 and 15 years of experience		•							
		Minimum and maximum annual statutory salary for heads of provisions								•	
	Working time	Organisation of working time (teaching/caring time versus non-teaching/caring time) per year		▲							
Staff turnover	Staff turnover ratio (%)	•									

Table 5. Data on learning and well-being environments (continued)

Topic	Indicator	Details	Sources								
			OECD				PIRLS	TIMMS	Eurydice	UNESCO	
			SSIII	EAG	PISA	FDB					
Policy inputs											
Working conditions	Recognition of prior learning (RPL)	Recognition of prior learning in place: yes/no	•							▲	
		For what is RPL used (up-skilling, recruitment, etc.)	•							▲	
	Licensing	License requirement in place to work in ECEC: yes/no		•							
		License renewal requirement in place: yes/no	•							▲	
		Time frame in years of license renewal	•							▲	
	Management requirements	Official requirements in place to become a head in an ECEC setting (professional experience, training needed, special qualification, etc.)								▲	
Policies and practices	Strategies to improve working conditions (such as salary parity, allowances for overtime work, additional holidays etc.)								▲		
Policy outputs											
Quality of child experience	Monitoring child development	Monitoring instruments of child development (standardised testing, etc.) and frequency and conductors of monitoring	•							▲	
Quality of service	Monitoring level of quality	Monitoring instruments of level of service provision (surveys, etc.) and frequency and conductors of monitoring	•							▲	
Staff performance and quality of pedagogy	Monitoring staff performance	Monitoring instruments of level of staff performance (self-assessment, etc.) and frequency and conductors of monitoring	•							▲	
Parent satisfaction	Monitoring parental satisfaction	Monitoring instruments of level of service provision (surveys, etc.) and frequency and conductors of monitoring	•							▲	

Table 5. Data on learning and well-being environments (continued)

Topic	Indicator	Details	Sources								
			OECD				PIRLS	TIMMS	Eurydice	UNESCO	
			SSIII	EAG	PISA	FDB					
Outcomes											
Child outcomes	Health and well-being outcomes	Obesity rate at age 15 (%), by gender (BMI equal or higher than 25)*				•					
		Overweight rate at age 15 (%), by gender*				•					
		Share of 15-year-olds (%) who smoke regularly*				•					
		Child poverty rates (%)*				•					
	School outcomes	Performance in PIRLS reading at age 10					•				
		Performance in TIMMS mathematics and science at age 10						•			
		Performance in PIRLS reading at age 10 by immigrant background					•				
		Performance in TIMMS mathematics at age 10 by immigrant background						•			
		PISA performance in reading at age 15			•						
		PISA performance in mathematics at age 15			•						
		PISA performance in science at age 15			•						
		PISA performance difference between native and immigrant children			•						
		PISA performance difference between children who attended pre-primary education for at least 1 year and who did not			•						
		Youth literacy rate (% of 15-to-24-year-olds)									•
Share of population of 25-to-34-year-olds (%) who have attained at least upper secondary education by gender				•							
Share of population of 25-to-34-year-olds (%) who have attained at least tertiary education by gender				•							

Indicators marked with * = data provided by the following sources: *Obesity rate*: International Obesity Task Force. *Overweight rate*: Health Behaviour in School-Aged Children. *Child poverty rate*: EU-SILC for non-OECD countries only. *Share of 15-year-olds smoking*: HBSC.

Table 5. Data on learning and well-being environments (continued)

Topic	Indicator	Details	Sources						
			OECD					Eurydice	World Bank
			SSIII	EAG	PISA	FDB	Employment outlook		
Outcomes									
Child outcomes	Societal outcomes	Proportion of adults (% of 25-to-64-year-olds) volunteering		•					
		Proportion of young people (% of 15-to-29-year-olds) volunteering*				•			
		Proportion of adults (% of > 18 years) voting)*				•			
		Proportion of adults (% of 25-to-64-year-olds) voting		•					
		Proportion of adults (% of 25-to-64-year-olds) satisfied with life		•					
		Suicide rates among 15-to-19-year-olds, per 100 000 of the age group population*				•			
		Share (%) of people aged 15-19 who were not in education or work by gender				•			
		Share (%) of people aged 15-29 who were not in education or work by gender		•					
Labour market outcomes	Labour market participation	Female labour force participation (%)					•	•	
		Maternal labour force participation (% of women with child under 15)				•			
	Gender gap in wages	Difference between median earnings of men and women relative to median earnings of men as %				•	•		
Demographic outcomes	Fertility rate	Number of children born per woman*				•		•	

Note: • = data is available for the indicator. ▲ = Data is not available yet. For the source SSIII, this refers to untapped survey results. Regarding other sources, this indicates that there are plans for data collection on this indicator. Indicators marked with * = data provided by the following sources: *Proportion of young people volunteering*: World Values Surveys and European Social Survey. *Proportion of adults over 18 voting*: IDEAC voter turnout. *Suicide rates*: WHO mortality database. *Fertility rate*: National Statistical Office 2011, and Eurostat Demographic Statistics, 2011.

Issues

27. Reviewing the results of the data mapping exercise, five issues can be identified as orientations for future data development. These include i) a lack of data on children below the age of three, data on the learning and well-being environments of children including more in-depth information on the training and education of staff, outcome data of children in ECEC, and data on process-quality, monitoring practices and disadvantaged children; ii) a lack of contextual information, which is important in better understanding country contexts and their ECEC systems; iii) inconsistencies in data collected by different sources due to the use of different methodologies or definitions; iv) data availability for a limited number of countries; and v) differences in country representation by different sources leading to different data results.

Data gap

28. *First*, it is evident that fewer data are available with regard to provisions and settings for the youngest children in ECEC, namely children below the age of three who attend child care or integrated ECEC provisions. While information on pre-primary education settings, which mostly cover children aged three years and older, is relatively widely available, little or fewer information is known on the structural aspects of child care provisions or settings for younger children. Especially regarding financial data, most indicators cover merely pre-primary education, such as the data collected by *Education at a Glance*, including the public and private share of spending and household expenditure. Data on these indicators are not available for child care. Valuable information concerning the learning and well-being environments for children – such as whether a registration system is in place for staff, whether there is a license requirement to start working, and what other entry requirements are in place for staff – have been collected for pre-primary education only. Collecting such policy-relevant data for child care and younger children as well can contribute to increased knowledge and understanding of ECEC systems as well as feed into evidence-based policy making. With the implementation of the new ISCED 2011 definitions, with a revised focus from merely pre-primary education only to early childhood educational development for children below the age of three and pre-primary education, it is expected that additional data on ECEC will be available when the new ISCED 2011 qualifications will be implemented for data collection.

29. *Second*, more in-depth information on how staff are trained and educated can provide insights into how the quality of ECEC can be enhanced through staff performance. Currently, we do not know in which subjects staff are trained and educated before becoming official ECEC workers, and there is little known on practical training arrangements, such as the characteristics of “stage” periods.

30. *Third*, there is no international outcome data available which provides information on the learning and well-being of children in early childhood education and care. The currently available data on outcomes refers to older children, such as the PIRLS and TIMSS outcomes of ten-year-olds, the PISA results of 15-year-olds, and societal outcomes which cover mostly outcomes of adults, such as voter turnout and volunteering rates. How children actual develop in ECEC is largely unknown, as is how (in what way) their development is evaluated or monitored and what aspects are taken into account in children's development in ECEC. To enhance quality in ECEC, such information and data is important, as it creates a better understanding on what a country regards as relevant for early development, what aspects of development can be monitored, and what different measures can be implemented to monitor such development.

31. *Fourth*, there is very little data on the process quality within learning and well-being environments, *i.e.*, what actually occurs in an ECEC setting, such as the quality of child-staff interactions. Such data is crucial to understanding the quality of the learning environment as well as quality of staff performance. The currently available data on this refers to curriculum frameworks and monitoring practices of staff performance. Further data on this can be collected, such as more detailed information on curriculum contents, prescribed or recommended approaches to learning and well-being, and what outcomes or outputs are included.

32. *Additionally*, data and information on the implementation of monitoring practices – such as what is exactly being monitored and detailed information on monitoring practices – is not available. *Starting Strong III* attempted to collect data on what is being monitored, by whom and how frequently, but content and methodologies of monitoring could add further knowledge to this topic. The OECD has selected this theme as the focus of Strand 1 of the new programme of work on ECEC.

33. *Lastly*, there is a broad range of indicators with data on children's access and enrolment in ECEC. However, data on this regarding disadvantaged children is, as to date, not available. This data could be of particular importance since research has pointed out that ECEC participation is especially beneficial for disadvantaged children and children at risk.

34. To fill in such data gaps, data collection efforts should focus on drafting methodologies to fill in this missing policy-relevant information. This can be established in collaboration with other OECD departments and international organisations so as to avoid duplication of work and ensure alignment of work and methodologies and definitions used.

Lack of contextual information

35. International comparative data might lack contextual information, which can lead to misinterpretation of data. This poses challenges in particular for the data on ECEC where there is a wide range of variation of provision both across and within countries. In general, information on the organisation of the ECEC system is highly relevant since this often explains differences in provision of ECEC. Data on one indicator alone without contextual information can draw an incomplete picture of a country situation. As an example, data on enrolment rates are placed in a better context when costs and entitlements to (free) ECEC are provided as well. And staff turnover rates can be explained by working conditions, such as remunerations and working time.

36. Available data could be improved by strengthening methodologies, such as ensuring that methodologies take a country's ECEC system into account when collecting the data, and presenting data better within the context of a country. Regarding this, the differences between countries with split and integrated ECEC systems should be (better) considered when drafting questions for surveys as well as analysing data results.

Inconsistency in definitions and methodologies

37. Inconsistencies occur in overlapping data that has been collected by different sources. This means that different sources have been collecting data on similar indicators but have different results (numbers) of these indicators. Several reasons may be the cause of such inconsistencies or differences in data.

38. *First*, data collection methods can differ between different sources, resulting in data inconsistencies. As an example, enrolment rates in ECEC are widely available. Data on enrolment have been collected by several sources using various methods. Enrolment rates can be collected as gross figures (the share of children of *any age* that are enrolled in ECEC, this figure can exceed 100%), or enrolment rates can include double counting of children participating in more than one ECEC setting. Net enrolment rates (the share of children of official ECEC age that are enrolled in ECEC), on the contrary, cannot exceed 100%. Since each method is different and requires different calculations, each figure for the enrolment indicator is different, although they all provide data on “enrolment rates”.

39. An example of this is the calculation of enrolment rates in *Education at a Glance*. While the enrolment of all children aged four and below used to be calculated as a percentage of the population aged three and four only, resulting in overestimations of figures, enrolment rates are now calculated as the

proportion of the relevant age group. This change in methodology of data collection led to greater accuracy of figures.

40. Data on minimum and maximum statutory salary for pre-primary education teachers differs between *Education at a Glance* and Eurydice, though both sources collected recent data. And while *Education at a Glance* collects data in national currencies and converted numbers to USD, Eurydice collected the data in EUR. In Denmark, for example, minimum statutory salaries of pre-primary teachers are recorded as USD 41 500 in *Education at a Glance* and as EUR 38 000 by Eurydice. Although both figures are presented in different currencies, these figures do not align if both would be converted into the same currency. These data differences most likely occurred due to different calculation methods used for calculating the minimum and maximum salaries. Such differences in collection methods, as well as differences in calculating the minimum and maximum salary, may confuse data users. .

41. *Second*, different uses of terminology can result in different data. For example, whether “professional development is compulsory” for ECEC staff can have different information for the same country. Eurydice, for instance, notes that ECEC workers working with children below the age of three in the Czech Republic have to participate in professional development opportunities, while *Starting Strong III* indicates this is not compulsory. *Education at a Glance* stipulates that professional training for pre-primary teachers in Israel is mandatory, while *Starting Strong III* pointed out this is on voluntary basis. Professional training participation often depends on the type of staff and sector (child care or education). Depending on the type of staff for which data has been provided or what is defined as “mandatory”, data results can differ.

42. In addition, data on regulated staff-child ratio differs between *Starting Strong III* and Eurydice data. Differences can be small (such as a ratio for four-year-olds of 1:25 in *Starting Strong III* against 1:26 according to Eurydice for Portugal); but in many cases, inconsistency in data is much bigger. For example, the staff-child ratio for four-year-olds for Hungary is 1:11 in *Starting Strong III*, while Eurydice reports a ratio of 1:25; and Austria's ratio is given as 1:13 by the OECD and 1:25 by Eurydice. Although the year of reference differs between the two sources, where Eurydice collected the data for the years 2006/07 and *Starting Strong III* for 2009/10, the large differences in staff-child ratios cannot be merely explained by a difference in reference year, as such changes in regulations have not been reported in these countries. Additionally, differences in the definition of the ECEC level used for data collection might explain some inconsistencies: *Starting Strong III* refers to all ECEC for over-three-year-olds, while Eurydice's data on children over age three refers to ISCED 0 programmes only.

43. A third example can be provided by the indicator “general content of ECEC curriculum”, which explains what general aspects are included in curriculum documents. The definition of what is determined with “general content” differs between Eurydice and *Starting Strong III*. Both sources have provided a different list of options of what is defined as “general content”. Whereas *Starting Strong* refers to “values and principles”, “input from staff”, “input from the centre” and “child outcomes” when describing the general content of curricula, Eurydice defined “content” wider and included other aspects. The only similarity is the mention of “goals” as content. Further defined as general content by Eurydice are “subjects and activities”, “educational approach”, “assessment” and “skills to be acquired”. Besides general content, *Starting Strong III* complemented this data with information on what subject areas are included in curricula.

44. A fourth indicator for which a difference in methodology or definitions resulted in different figures is the data on share of female staff in pre-primary education (kindergarten). Small differences in data for a few countries occur since different definitions for “staff” were used. *Education at a Glance* collected data on pre-primary teachers only and *Starting Strong III* on ECEC staff in general in kindergarten. The largest difference can be found for Mexico, where the share of all female staff in kindergarten is 83% (*Starting Strong III*), while it is 96% for pre-primary teachers (*Education at a Glance*). Other inconsistencies are differences of a few percentage points: Germany's *Starting Strong III* figure is 94%, while *Education at a*

Glance reported a share of 97.5% female kindergarten teachers. In Japan, these figures are 94% and 97% respectively.

45. To avoid inconsistencies caused by differences in definitions or methodologies for data collection, definitions and data collection methods should be shared between sources and similar methods and terminologies should be used and implemented.

46. It is important to note that any overlap on financial data (public expenditure on pre-primary education), as well as governance and organisation of education systems (such as compulsory schooling age; average duration of pre-primary education), between OECD sources, Eurydice and UNESCO is due to the joint data collection effort of these three sources in UOE. Since these three sources have collaborated on collecting this data collectively, an overlap in available data on these indicators exist, but data for these indicators are identical, *i.e.*, no differences occur, as similar collection methods and definitions have been used. Any other indicators for which an overlap in data collection exists, but which have not been referred to above, have not resulted in differences in data or figures.

Country coverage

47. Knowledge of ECEC systems could be improved by collecting data for a larger number of countries. For certain indicators, relatively little data have been collected. When data is available for a large number of countries, a better understanding of differences and equalities between ECEC system organisation can be created. This can also lead to improved quality of analyses.

48. Data availability for a limited number of countries might be due to the inability of countries to provide the respective data. To improve data coverage and quality, methodologies to collect the data must be improved by aligning the definition used for international comparison with that of being used domestically, as well as to increase the response rate by improving the guidelines for the international questionnaire.

49. The indicators that can improve country coverage would include:

- Staff turnover rates: only a few countries and jurisdictions were able to provide data (10 for kindergarten, and 7 for child care). In addition, a relatively small number of countries are covered in the following indicators:
- Outdoor space requirements in m² per child: the data are available for 18 jurisdictions for both care and kindergarten versus 32 and 28 jurisdictions for indoor space requirements in care and kindergarten respectively.
- Staff profiles: staff characteristics, such as share of female workforce and average age of ECEC workers (data on 15 jurisdictions regarding child care and 23 for kindergarten).
- License renewal requirements in place: yes/no. A total of 11 jurisdictions provided data for child care and 17 for kindergarten.
- Staff remuneration: data on the salaries as a multiple of minimum wage is available for 17 jurisdictions regarding kindergarten staff and 11 regarding child care staff. Data on kindergarten teachers' salaries compared to primary teachers' salaries was provided by 15 jurisdictions.
- Information on community engagement is available for 15 jurisdictions.
- There is also limited information on monitoring practices of child development in child care (15 jurisdictions); monitoring practices of staff performance (13 jurisdictions) and parental satisfaction (8).

Country representation

50. Country representation can also differ between sources. As an example, data for Germany are presented as one figure for the whole country by most sources, including *Education at a Glance* and Eurydice, while *Starting Strong III* collected data at the jurisdiction level (e.g., on 14 German *Länder*). This, naturally, leads to differences in data since data are represented in a different manner.

51. Different sources have data on different countries, resulting in data on overlapping countries but also different countries. As an example, Eurydice collects data for European countries only including some non-OECD countries, while OECD covers some European countries plus other OECD economies. UNESCO collects, in addition to these countries, data on more developing and under-developing (non-OECD) countries. Data from these different sources can complement one another, especially if methodologies and definitions are shared between different sources so as to avoid inconsistency in data results and duplication of work.

52. Differences in country representation can lead to different data results. As an example, averages may represent different countries: while the OECD average refers to the average figure of the 34 OECD countries, Eurydice averages refer to EU countries only. And averages are also different when individual states or *Länder* are used in the calculation. Caution is therefore needed when interpreting such data. To ensure consistency in data results and country representation, collection methods should be aligned.

Conclusion

53. As research has indicated, high-quality early childhood education and care can make a strong contribution towards early and later human development. This paper aimed to provide insights into what data is currently available on ECEC, what data will be collected and what issues are present in current data collection on ECEC.

54. As is evident from the overview and issues section, although data have been collected on a broad range of indicators, gaps remain and inconsistencies in data exist due to different collection methodologies and/or use of different definitions. Besides, some indicators lack contextual information, cover relatively few countries, or country representation differs among sources. Strand 2 of the ECEC PoWB for 2013-14 ([EDU/EDPC/ECEC\(2012\)3/REV1](#)) is designed to tackle the current issues of data gaps in ECEC as well as to overcome inconsistencies in data.

55. Strand 2 includes a proposed programme of work for the ECEC network on data development and collection, with a focus on learning and well-being environments as the result of country feedback ([EDU/EDPC/ECEC\(2012\)3/REV1/ANN1](#)). The data work will not limit itself to the topics of learning and well-being environments as stipulated in Table 5 but will cover data on policy-relevant contextual information in order to provide a good overview of country context and ECEC systems, policy inputs, and policy outputs and outcomes.

56. Within the work of Strand 2, the OECD ECEC Network will collaborate with other OECD departments (INES and ELS), as well as other international organizations (namely Eurydice), on the development of new indicators and improvement and/or updating existing indicators. We will aim at close co-operation with these agencies to i) avoid duplication of work and ensure that data collection efforts are complimentary and ii) avoid inconsistencies in data collection results by sharing and aligning data collection methods and definitions of terms used in surveys and questionnaires

57. With the results of Strand 2, we aim to contribute to the knowledge on the learning and well-being environments of children, what policies and practices are in place and what aspects are in place in different ECEC systems, and stimulate data collection efforts and research on ECEC and their outcomes or effects in countries.