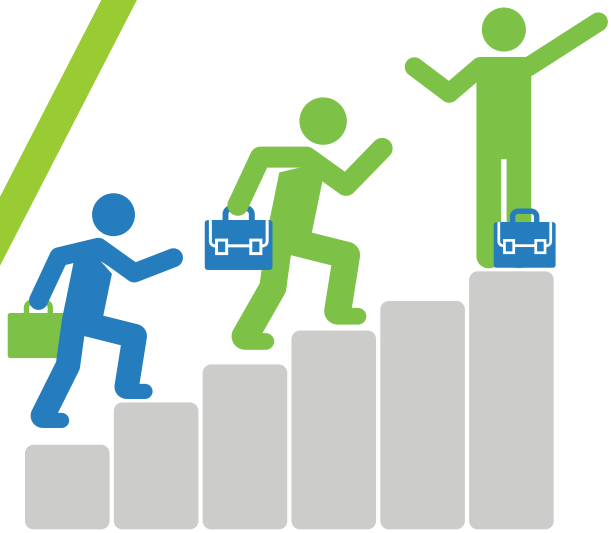
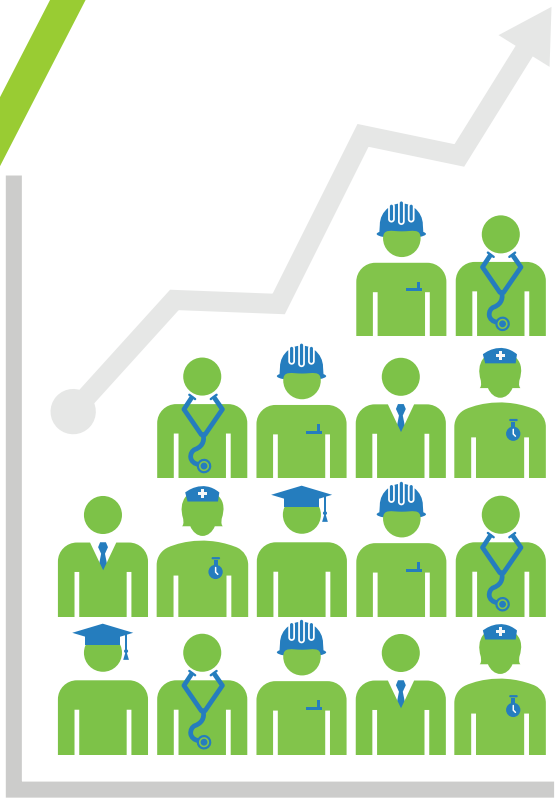
OECD Skills Strategy Diagnostic Report

Mexico

2017





OECD

BETTER POLICIES FOR BETTER LIVES

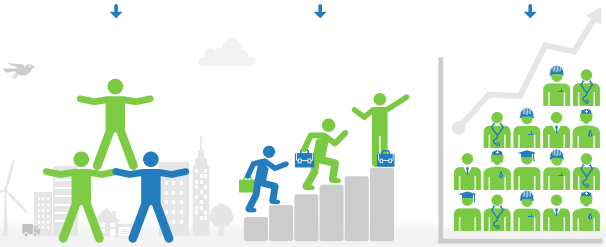
Building the right skills can help countries improve economic prosperity and social cohesion

In what way?

By contributing to social outcomes such as health, civil and social engagement.

By supporting improvement in productivity and growth.

By supporting high levels of employment in good quality jobs.



How is this achieved?

By strengthening skills systems

Designing and implementing an evidence-based national skills strategy.

Funding skills through public and private sources and designing effective incentives for employers and individuals.

Providing good information for the public, businesses and policy makers.

Contributes to economic prosperity

Contributes to social cohesion

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OECD SKILLS STRATEGY DIAGNOSTIC REPORT: MEXICO

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FOREWORD

Skills are the foundation upon which Mexico must build future growth and prosperity. Over the past decades Mexico has evolved from an import substitution to an export-oriented economic model becoming a global reference in some export activities of high value added and technology intensive industries. Now is the time to harness Mexico's skills and human capital to drive further innovation and inclusive growth for the future while dealing more effectively with longstanding, but increasingly urgent issues, such as improving equity and reducing informality.

Paving the path to growth, prosperity, and wellbeing will hinge upon developing high levels of skills that are relevant to the needs of the labour market, facilitating job growth and efficient transitions and returns to work, and making the best use of skills in workplaces. Making this happen in practice requires concerted government action. Mexico has undertaken a number of reforms aiming to enhance the quality of teaching, raise productivity, stimulate innovation and improve integration into global value chains. Yet governments cannot achieve better skills outcomes alone. Success will depend on the commitment and actions of a broad range of stakeholders.

Skills do more than just raise employment, income and aggregate growth. Data from the Survey of Adult Skills (PIAAC) – which Mexico is currently deploying – show that in all countries, adults with higher foundation skills, such as literacy and numeracy, are far more likely than those with lower skills to report good health, to perceive themselves as actors in political processes, and to have trust in others. In short, achieving higher skills levels for all fosters equity and facilitates people's participation in democracy and society.

The OECD Skills Strategy provides countries with a framework for developing co-ordinated and coherent policies that support the development, activation, and effective use of skills. Countries that are the most successful in mobilising the skills potential of their people share a number of features: they provide high-quality opportunities to learn throughout life, both in and outside school and the workplace; they develop education and training programmes that are relevant to students and the labour market; they create incentives for, and eliminate disincentives to, supplying skills in the labour market; they recognise and make maximal use of available skills in workplaces; they seek to anticipate future skills needs and they make learning and labour market information easy to locate and use.

This diagnostic report identifies 8 skills challenges for Mexico based on analysis of OECD, international organisations and national data, as well as input received from the national government and a wide range of stakeholders, including individuals, employers, employer associations, trade unions and education providers. This project has been conducted in close collaboration with the National Productivity Committee.

Mexico has demonstrated its commitment to undertake this cross-sectoral project and is already equipped with institutional mechanisms to overcome policy silos. We hope that this report will help in paving Mexico's path to sustainable growth and prosperity by stimulating a national conversation on Mexico's skills challenges, assets and aspirations. Success will ultimately depend on all actors working together to achieve a common goal.

The OECD stands ready to contribute to Mexico's ongoing efforts in designing and implementing better skills policies for better jobs and better lives.

Andreas Schleicher

Director for the OECD Directorate for Education and Skills and Special Advisor to the Secretary-General on Education Policy

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ACRONYMS

ALMP	Active labour market programmes
CENEVAL	Higher Education National Evaluation Centre
CONACYT	National Council for Science and Technology
EPL	Employment protection legislation
FDI	Foreign direct investment
GDP	Gross domestic product
HEI	Higher education institution
IADB	Inter-American Development Bank
ICT	Information and communication technology
ILO	International Labour Organization
INEGI	National Institute of Statistics, Geography and Informatics
NEET	Not in education, employment or training
NGO	Non-governmental organisation
NPC	National Productivity Committee
OECD	Organisation for Economic Co-operation and Development
PES	Public Employment Service
PIAAC	Programme for the International Assessment of Adult Competencies (Survey of Adult Skills)
PISA	Programme for International Student Assessment
R&D	Research and development
SE	Ministry of Economic Affairs
SEP	Ministry of Education
SME	Small and medium-sized enterprise
STPS	Ministry of Labour and Social Protection
TFP	Total factor productivity
UIS	UNESCO Institute of Statistics
UNESCO	United Nations Educational, Scientific and Cultural Organisation
VET	Vocational education and training

EXECUTIVE SUMMARY

Why a skills strategy? Better skills, better jobs, better lives

Skills have become the key driver of individual well-being and economic success in the 21st century. Without proper investment in skills, people languish on the margins of society, technological progress does not translate into growth, and countries are unable to compete in increasingly knowledge-based global economies.

The OECD Skills Strategy provides countries with a framework to analyse their strengths and weaknesses as a basis for taking concrete actions relating to the three pillars that comprise a national skills system: 1) developing relevant skills from childhood to adulthood; 2) activating these skills in the labour market; and 3) using these skills effectively in the economy and society. In addition to these three inter-related policy levers, the OECD Skills Strategy framework advocates for an overarching theme of strengthening the skills system to build the right skills that can lead to better jobs and better lives.

Building an effective skills strategy for Mexico

In recent decades, Mexico has undergone profound economic and social transformation. Since the 1980s, Mexico's economy has evolved from an import substitution to an export-oriented economic model. In the space of only a few years, Mexico has become a global leader in the export activities of major industries (such as auto parts, engines, electronic and medical equipment, televisions), and one of the major recipients in the Latin American region of foreign direct investment, due to structural reforms that have made the Mexican economy more open and attractive.

However, many Mexicans still lack good quality basic services in education, health and housing, and many work in the informal economy where employment conditions are more precarious. Within this context, women and youth are especially vulnerable to poor working and living conditions.

Mexico's goal for the future is to ensure that the benefits of structural reforms and of opening the economy translate into better living conditions for Mexicans. Boosting the development, activation and use of skills will be key to achieving these objectives. As demonstrated by the Survey of Adult Skills (PIAAC), which Mexico is currently deploying, higher skill levels are not only associated with higher productivity and earnings, but also with other important outcomes, such as better health, higher levels of trust, and greater propensity to contribute to society through volunteering. To this end, the aim of current educational reform in Mexico is in line with OECD recommendations to create a more inclusive society through giving equal opportunities to everyone, and reducing poverty while providing quality education to all Mexicans.

Enrolment rates in Mexico from primary to lower secondary school are close to universal, however, in upper secondary education they remain relatively low. During the transition from lower secondary to upper secondary, the enrolment rate of 15 - 19 year-olds drops to around 54%, the lowest enrolment rate for this age group among OECD countries, and well below the OECD average of 84%. Moreover, in Mexico, the returns to attaining tertiary education are among the highest in OECD countries, however, only 16% of adults (25-64 years old) have obtained higher education, the lowest share across OECD countries in 2015. Despite recent progress, therefore, Mexico still has a comparatively low-skilled workforce. As a result, Mexico tends to specialise in low value-added activities that contribute to the prevalence of informal employment arrangements, which are estimated to account for 52.5% of all employment. Workers in the informal economy are, on average, less likely to: receive training, participate in high performance workplace practices that make more effective use of their skills, and find themselves employed in precarious and low quality jobs. Firms operating

in the informal sector tend to be less capital intensive and invest less in training their workers and in modernising production, which translates into low productivity and growth. For society, having a large share of the workforce employed informally implies higher social costs and foregone tax revenues that could have been invested in expanding the provision of education and training.

By providing opportunities for all Mexicans to develop high quality and relevant skills, and by supporting employers to improve their human resources management, Mexico can raise productivity levels and, by extension, the incentives for employers to hire individuals in the formal sector. Skills are central to Mexico's future prosperity and the well-being of its people. Fostering better and more equitable skills outcomes, especially for women and youth, will provide the foundation for building a healthier, more equitable, and more cohesive society.

Mexico needs to tackle eight key skills challenges

Mexico recognises the need for a whole of government approach to skills. The importance of skills and human capital has been acknowledged as a priority for the Mexican Government. Therefore, the National Productivity Committee (NPC), an advisory public-private council capable of making binding recommendations to increase productivity, agreed to work on a lifelong skills strategy with a long term vision. Mexico is the second OECD member country, after Norway, to be undertaking the complete process of a National Skills Strategy project with the OECD that encompasses diagnostic and action phases.

This diagnostic report sets out eight skills challenges for Mexico. These challenges were identified through two interactive workshops with stakeholders (including employers, trade unions, and education providers), bilateral meetings (with government officials and experts), internal discussions with experts at the OECD, and analysis of documents and data produced by the OECD, the United Nations Educational, Scientific and Cultural Organisation (UNESCO), the International Labour Organisation (ILO), the World Bank, the Inter-American Development Bank (IDB), and the Mexican government.

The challenges are described under each of the OECD Skills Strategy's main pillars and are framed as outcome statements. The first six challenges refer to specific outcomes across the three pillars of developing, activating and using skills. The next two challenges refer to the "enabling" conditions that strengthen the overall skills system. Success in tackling these skills challenges will boost performance across the whole skills system.

Box. 1 The OECD Skills Strategy: Defining the concept of "skills"

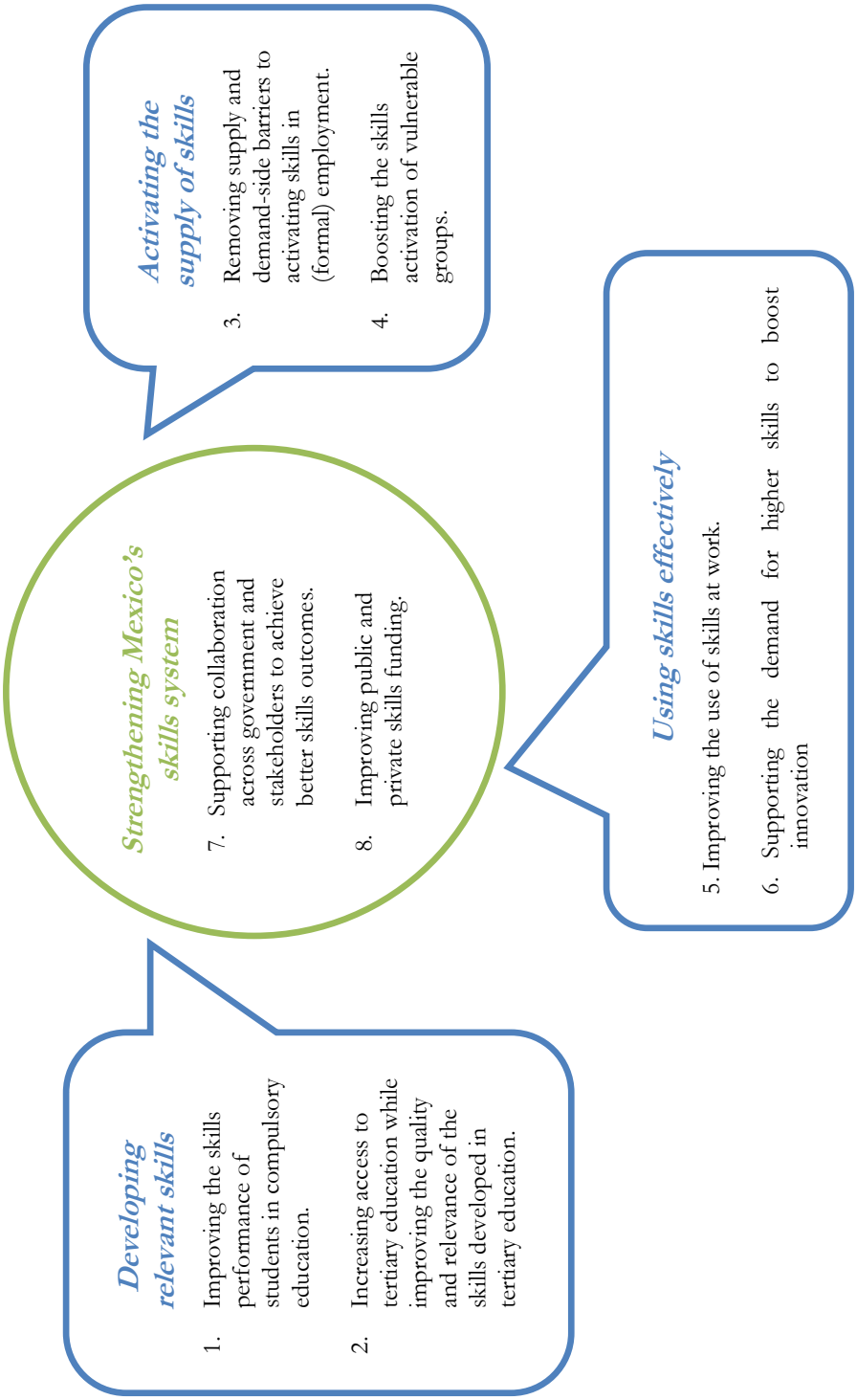
The OECD Skills Strategy defines skills (or competences) as the bundle of knowledge, attributes and capacities that can be learned, that enable individuals to successfully and consistently perform an activity or task, and that can be built upon and extended through learning. This definition includes the full range of cognitive (e.g. literacy, numeracy), technical (e.g. sector or occupation specific) and socio-emotional (e.g. teamwork, communication) skills. The concepts of "skill" and "competence" are used interchangeably in this report. The sum of all skills available to the economy at a given point in time forms the human capital of a country.

The OECD Skills Strategy shifts the focus from traditional proxies of skills, such as years of formal education and training or qualifications/diplomas attained, to a much broader perspective that includes the skills people acquire, use and maintain – and also lose – over the course of a lifetime. People need skills to help them succeed in the labour market, contribute to better social outcomes, and build more cohesive and tolerant societies.

Source: OECD (2012), *Better Skills, Better Jobs, Better Lives: A Strategic Approach to Skills Policies,* OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264177338-en.

All of the challenges identified are strongly interlinked, and their connections with each other are highlighted throughout the report. The failure to look beyond policy silos will have implications for specific groups in Mexico, such as women and youth, as well as for the economy and society's ability to build a solid foundation for future prosperity.

8 SKILLS CHALLENGES FOR MEXICO



Pillar 1: Developing relevant skills

Challenge 1. Improving the skills performance of students in compulsory education

- **Skills developed in compulsory education are the building blocks for individual success in further education, the labour market and life**. Whether students pass through the general academic or vocational education and training (VET) system, they should develop strong foundation skills that allow them to enter directly into the labour market or progress to higher education. Along with its intrinsic value, skills have a positive effect on people's income, their health, and their civic engagement. It also improves individuals' chances to find a job, which means that those who are better educated are less vulnerable to unemployment and informal employment. People with poor foundation skills face a much greater risk of experiencing economic disadvantage, and a higher likelihood of unemployment and dependency on social benefits.

- **Few Mexican youth are developing high levels of skills and completing higher levels of education.** Despite some improvements, Mexico's performance on most measures of skills development ranks at the bottom of OECD countries. According to the Programme for International Student Assessment (PISA), many youth are still not developing high levels of skills with the share of students performing poorly in mathematics 56.6%, in reading 41.7% and science 47.8%. In addition, only 56% of 15-19-year-olds complete upper secondary education, far below the OECD average of 84%.

- **Mexico needs to ensure that all students receive a high quality education regardless of their backgrounds, where they live and what kind of school they attend.** Educational outcomes in Mexico vary greatly. While performance gaps by gender have decreased over time, boys are still outperforming girls in science and mathematics and girls are outperforming boys in reading. This may have implications for how well they are prepared to continue their education in certain subject areas and enter certain professions. Encouragingly, the amount of educational performance that is explained by socio-economic background has decreased from 16.9% in 2006 to 10.9% in 2015. Additionally, the percentage of students that are resilient (12.8% in Mexico compared with the OECD average of 29.2%) has also improved. Resilient youth are those who despite significant socio-economic disadvantage are able to succeed in learning – and resilience is measured by the share of students that are in the bottom quarter of the socio-economic scale within a country and nonetheless perform among the top quarter of students. However, many indigenous students continue to struggle, having lower educational attainment rates and poorer skills outcomes. OECD research shows that performance gaps by gender, socio-economic and family background are not determined by innate abilities and can be reduced by parents, teachers and policy makers by taking action such as providing equal support early on, tailoring teaching to students' specific needs, and reducing potential barriers (e.g. financial, cultural) in order to ensure that all students receive the support they need to realise their full potential and contribute to the economic growth and well-being of society.

- **While the quality of school environments has improved, there remains much to be done.** Grade repetition has decreased from 30% in 2003 to 15.8% in 2015, but still exceeds the OECD average of 11.3%. While more time is spent on learning than before, it is critical that it is spent on quality learning. For that teachers need to be well trained and have professional development opportunities throughout their working lives. Recent education reforms that reward high performing teachers and provide professional development opportunities to those requiring further support should help to improve the quality education in Mexico. Information and career guidance systems can help students to make informed decisions about progression in the education system. While annual expenditure per student has increased in Mexico, expenditure for primary and secondary

education in absolute terms is still the lowest in the OECD. The distribution of funds can be made more efficient – differences in the quality of educational resources between socio-economically advantaged and disadvantaged schools are one of the largest in the OECD.

Challenge 2. Increasing access to tertiary education while improving the quality and relevance of the skills developed in tertiary education

- **Tertiary education provides significant benefits to individuals and society.** Tertiary graduates benefit from higher skills and have higher productivity, which means they are more likely to be employed in the formal economy and earn a higher income. Tertiary graduates also tend to report better health outcomes, have lower crime rates and participate more fully in the political process and society. For society, a more highly educated population is associated with an expanded formal sector, higher tax revenues, lower costs of social transfers and criminality, and increased productivity, thereby supporting economic prosperity and higher standards of living.

- **A small share of Mexican students completes tertiary education.** Only 16% of the population aged 25 to 64 years old in 2015 had attained tertiary education, which is significantly below the OECD average of 36%. Access varies greatly across regions, with participation rates high in Mexico City, and significantly lower in most other regions. While tertiary education participation rates are similar for men and women, there are some differences by field of study. Of particular concern is the participation rate among certain disadvantaged groups, such as indigenous students. Improving access broadly across regions would boost the well-being of graduates, but also the country as a whole. Boosting access for disadvantaged groups could support social mobility and improved social cohesion.

- **Mexico will need to improve the quality and relevance of skills developed in tertiary education to fully realise their benefits.** Rapid expansion and limited oversight may mean that many graduates are not developing skills of the quality and relevance demanded by the labour market. Employer surveys suggest that many tertiary graduates do not have the skills required for their jobs. Furthermore, one out of two tertiary graduates works in an occupation unrelated to their field of study, which may suggest that some tertiary students are completing studies that are not in the highest demand. Incentives to adapt course offerings to labour market needs could be strengthened in both private and public tertiary education institutions, which are responsible for about 33% and 67% of tertiary graduates, respectively.

- **Mexico could improve access to tertiary education, while bolstering the quality and relevance of skills developed in tertiary education.** Better regulation and quality assurance systems could ensure that universities are accountable for increasing access, but also for raising quality and relevance. The quality of teaching could be further improved through the increased use of evaluations and better working conditions. The tertiary curriculum could be made more relevant to the labour market through partnerships between universities and industry, and through the increased use of work-integrated learning. Better information about current and future skills needs and outcomes of tertiary institutions could also support increased quality and relevance. The effective financing of tertiary education could be an important lever to improve tertiary education and its outcomes, particularly when public funding is contingent on outcomes of measurable quality and relevance indicators of tertiary education.

Pillar 2: Activating skills supply

Challenge 3. Removing supply and demand-side barriers to activating skills in (formal) employment

- **Mexico could do a better job of activating the skills of its people in the labour market**. When employed, workers often find themselves in poor quality jobs. Most workers are employed in informal jobs that are characterised by low pay, long work hours, limited employment protection and limited opportunities for training and career advancement. This under-utilisation of skills in the labour market represents a significant waste of human potential.

- **Improving the activation of skills into high quality (and formal) jobs will mean removing supply and demand-side barriers to employment**. On the one hand, good quality employment services and active labour market programmes, as well as adequate and well-designed income protection systems, are needed to ensure that jobseekers receive the support they need to activate their skills in the labour market. On the other hand, in order for skills to be successfully activated in the labour market, there is a need to create sufficient numbers of (formal) jobs. To this end, measures that tackle demand-side barriers to employment (e.g. high labour costs and/or strict employment protection legislation) are crucial.

- **Employment support provided to jobseekers could be improved**. The Mexican Public Employment Service (PES) reaches few jobseekers and firms. Low funding, the scarcity of case workers, and the fact that the PES does not have responsibility for the administration of (unemployment and/or social assistance) benefits, may help explain why many people find jobs through informal job-search channels (e.g. family and friends). Although existing active labour market programmes have often proved successful in Mexico, insufficient funding has been allocated to these programmes.

- **Income protection is very weak and may push workers into subsistence-level occupations.** The near non-inexistence of unemployment insurance, poorly implemented severance payments, as well as the low generosity and poor targeting of existing benefits, mean that many individuals do not have adequate income protection. This lack of income support may push many jobseekers to accept any job, whether informal and/or poorly paid, to sustain their incomes.

- **Relatively high tax and social security contributions on low-wage earners and complex tax systems may be a brake on (formal) hiring and employment**. Although minimum wages are low, the non-wage costs (i.e. employers' social security contributions) associated with hiring a low-income (hence typically low-skilled) worker are high by international standards. While this high tax burden on firms is typically reduced through targeted tax reductions/exemptions, this approach increases red tape and adds complexity to the tax system.

- **Despite recent improvements, employment protection legislation continues to be strict and may (at least in theory) limit the growth of jobs in the formal economy.** Employment protection legislation (EPL) has become less strict since the introduction of the 2012 Labour Law reform, but remains high by OECD standards. If the cost of hiring people formally is high relative to the output of workers, stringent EPL will increase the incentives for employers to hire workers informally. In practice, however, enforcement remains limited: relatively few labour inspectors exist, and inspections are generally focussed on larger firms, which are less likely to breach existing rules.

Challenge 4. Boosting the skills activation of vulnerable groups

- **Some vulnerable groups are struggling to activate their skills in the labour market**. In particular, youth and women are facing considerable challenges in entering and remaining active in

the labour market, and need targeted support. The successful integration of these vulnerable groups into the labour market will depend on the ability of policy measures to increase their employability and work incentives, as well as on the capacity of the Mexican economy to grow and create jobs.

- **Youth are often neither in employment, education or training (NEET)**. This represents a large waste of human capital and a significant cost to society. NEETs in Mexico are typically inactive (and therefore not actively looking for jobs), they are often low skilled, and are usually female. While the government is working to address the NEET challenge, international experience suggests that further room for improvements exists. Crucial policy channels through which NEET rates can be reduced and school-to-work transition facilitated include: improving the capacity of the Public Employment Service to reach out to youth, promoting access to high quality education (and reducing school dropouts), strengthening family-friendly policies (see below), and providing youth with adequate income support.

- **Women in Mexico are often excluded from the formal labour market because they typically bear the burden of family responsibilities.** Increasing the participation of women in employment will require family-friendly policies that help parents balance work and family life. Despite notable efforts, too few children (aged 0-2) in Mexico are enrolled in childcare facilities, a situation that forces many parents (and mothers in particular) to remain detached from the labour market after their children are born. Both maternity and paternity leave entitlements are weak, which may discourage many women from entering employment in the first place. In addition, workers are expected to work very long hours, and flexible work arrangements (e.g. part-time or remote working) are uncommon, making it even harder for a woman to balance work and family life.

Pillar 3: Using skills effectively

Challenge 5. Improving the use of skills at work

- **Using skills effectively at work is important for the success of Mexico.** It is not sufficient to develop and activate skills; to realise the full benefits to individuals, firms and society, skills must also to be put to effective use. For the individual, the more effective use of skills increases wages and life satisfaction. For the employer and the country, the more effective use of skills means higher productivity and greater competitiveness. Overall, better productivity, wages and benefits mean more resources available to the country to grow the economy and support a better standard of living for Mexicans.

- **The skills of many workers in Mexico are not effectively used.** About 26% of Mexican workers are over-educated, and around 31% are under-educated for their job. Around 40% of employed tertiary graduates work in an occupation that is unrelated to their field of study. Companies are reporting skills shortages and problems finding the skilled labour they need.

- **Factors internal to the firm could improve skills use at work**. The quality of the work environment can affect skills use. Around 34% of workers in Mexico experience job strain. Workers in Mexico work the longest hours across the OECD: around 27% higher than the OECD average, 6% higher than Korea, 25% higher than the United States, and 32% higher than Canada. High performance workplace practices and on-the-job training are important factors in determining how effectively skills are used at work. The prevalence of temporary contracts and informal work arrangements in Mexico will hinder how effectively skills are used in workplaces, as employers will be less likely to invest in workers with whom they have a weak employment relationship. Micro, small and medium enterprises are also less likely than larger firms to implement these practices.

- **External factors to the firm could foster greater skills use at work.** Labour market institutions, such as employment protection legislation, minimum wages, the tax system and collective bargaining, influence the cost of labour, which can have an indirect impact on skills use at work. The availability of quality information and guidance on learning and career pathways can reduce the mismatch of skills and improve their use. The recognition of learning outside of formal education can also help firms identify the skills that workers actually possess, which can improve skills matches within the firm and across occupations and sectors.

Challenge 6. Supporting the demand for higher skills to boost innovation and productivity

- **High-skilled workers, researchers and entrepreneurs are key actors in a country's modernisation efforts.** Entrepreneurs with innovative ideas can drive growth and advancements in global markets. Universities and research institutions generate knowledge that is necessary to support the implementation of innovative ideas. High-skilled workers can use advanced technologies and transform innovative ideas into innovative projects. The share of research and development (R&D) personnel in employment in Mexico is 1%, which is among the lowest in the OECD, and considerably lower than in countries such as Israel, Finland and Denmark, where it is over 20%.

- **The relatively weak research base in Mexico should be improved**. A small group of modern and successful businesses demand and employ high-skilled workers in Mexico. However, the majority of firms do not invest significantly in talent and knowledge. As a result, Mexico lags behind other OECD countries on a number of measures of innovation, such as business expenditure on R&D and number of patents. Both private and public sector R&D investment is well below that of nearly all OECD countries. In 2013, Mexican businesses invested the equivalent to 0.2% of GDP in R&D. By comparison, the OECD average was 1.6% of GDP, and in Korea it was 3.3%.

- **Even though barriers to entrepreneurship remain significant in Mexico, there are several signs that a more entrepreneurship-friendly environment is being developed.** According to the evolution of the OECD indicator on barriers to entrepreneurship, which measures the degree to which policies promote or inhibit competition, Mexico has substantially reduced obstacles to business activity in the last ten years. However, it is still one of the OECD countries with the highest barriers to entrepreneurship.

Strengthening Mexico's skills system

Challenge 7. Supporting collaboration across government and stakeholders to achieve better skills outcomes

- **Skills policies require a set of formal and informal arrangements that secure coherency across ministries and levels of government and that encourage stakeholder engagement**. In Mexico, important efforts have been made to improve formal arrangements for collaboration in skills policies across ministries, levels of government and with stakeholders. However, effective collaboration remains a challenge given the large number of ministries, authorities, public agencies and stakeholders involved in the skills system. At the same time, stronger stakeholder engagement is inhibited by the top-down decision-making processes that continue to dominate policy making.

- **Collaboration across ministries should be reinforced to secure policy coherence**. Given the large number of ministries with responsibilities for skills development, activation and use in Mexico, strong co-ordination is needed to secure coherence in policy design and implementation. The law of the public sector in Mexico is not sufficiently clear about the specific responsibilities that each minister has for policies related to skills development, activation and effective use. As a result, the functional responsibilities of ministries are blurred, which creates gaps and overlaps. The creation of

the NPC is a positive step towards improved co-ordination, but NPC efforts and work should be reinforced by more vertical co-operation (there are no representatives from sub-national authorities) and more involvement from stakeholders.

- **Policy alignment across levels of government should be improved to secure responsiveness to regional and local needs**. Policies for the development, activation and effective use of skills should be responsive to the specific needs of regional and local labour markets. Co-ordination and policy alignment between national and sub-national governments is therefore essential to ensure that skills policies receive strong support from top authorities, and that the needs of sub-national authorities are taken into account. Collaboration is mutually beneficial as sub-national entities are often in a much better position to collect information for the monitoring and assessment of policies. There are a number of initiatives that demonstrate the effectiveness of local and regional authorities in building effective skills strategies (e.g. the aeronautic cluster in Querétaro), but there is still much work to be done in order to empower sub-national authorities and stakeholders to be active players in the design and implementation of coherent skills policies in the country.

- **Reinforcing partnerships with stakeholders should be a priority for skills policies in Mexico.** Strong engagement from stakeholders is critical for achieving good levels of effectiveness in policy implementation. Collaboration between government and stakeholders is also needed to ensure that skills policies are aligned with the needs of the economy and society. Although there is a long tradition of stakeholder organisation in Mexico (employers, unions, universities and other relevant actors in the system are collectively represented in a number of relevant bodies for skills policies), policy making still takes mainly place through top-down mechanisms, where substantial, but not empowered actors (e.g. small and medium-sized enterprises, female workers, youth), have a limited voice and participation. The creation of the NPC, in combination with its binding powers and inter-ministerial and consultative nature, is a promising initiative that is already generating results (with specific sectorial plans for skills development), but more support and attention is needed for these actors.

- **Strengthening governance appears to be the main challenge for the Mexican skills system**. Mexico has undertaken multiple efforts to improve collaboration across different ministries and levels of government, and to promote stakeholder engagement in the skills system. In both cases, there have been only limited results. The public administration in Mexico needs to create a new architecture that removes (mostly legal) barriers for collaboration across ministries, creates stronger (mostly budgetary) incentives for inter-ministerial collaboration, and empowers sub-national authorities and stakeholders through more inclusive policy-making mechanisms that transcend political cycles. In this respect, the NPC is again a good example of the collaborative and policy-oriented efforts that should be supported more extensively in Mexico.

- **A legal architecture that reinforces and finances collaboration across ministries and agencies is needed**. Many participants in the OECD Skills Strategy workshops and technical meetings identified that the main challenge of the skills system in Mexico is to remove the legal barriers that prevent collaboration across different ministries and levels of government. The current law of public administration is not sufficiently concise and precise about the specific responsibilities each minister has, and does not provide more guidance about the limited areas in which inter-ministerial collaboration is expected. Furthermore, the current law does not provide much room for flexibility or incentives for collaboration across different ministries and levels of government. Paradoxically, this rigidity produces policy gaps and overlaps. For example, there are skills challenges in Mexico where there is insufficient government policy attention (such as improving the match between the skills developed in education and the skills needs of the labour market, or improving the quality of VET), while other challenges are tackled by multiple ministries/agencies/levels of government without sufficient co-ordination (such as data collection and training programmes). Therefore, in

addition to supporting the work of inter-ministerial bodies (such as the NPC), the whole legal architecture of the public administration in Mexico needs to create incentives for more effective collaboration.

Challenge 8. Improving public and private skills funding

- **The financing of skills systems may impact the effectiveness of skills policies.** Total expenditure on education (in 2013) as a share of GDP in Mexico (5.2%) is close to the OECD average (5.3%); however, on a per student basis it is comparatively low (USD 3 386 in Mexico against USD 9 000 as average for the OECD). For governments and individuals, education spending pays for itself in net present value terms, although improving the quality, targeting and value for money of education spending in Mexico is crucial.

- **Expanding public support for skills investments is important for raising participation in, and the quality of, education in Mexico.** Increasing resources for education can occur either through a reduction in direct costs for students, or, at the tertiary level, through the introduction of a scheme of income-contingent loans. Mexico should also improve the modest levels of support for skills development later in life, for skills activation through active labour market programmes (currently at 0.01% of the GDP, one of the lowest across the OECD), and for better use of skills through supporting employer investment in skills. Tax expenditures offer a potentially important means of supporting skills investments, as reductions in labour income tax liabilities may encourage formalisation. Government financial support for business R&D activity is particularly low and should be improved.

- **Returns to education in the Mexican labour market are high.** These returns more than cover their costs to the government over their lifetime, and are also high for individuals. Profitable educational investments should not be foregone due to lack of access to financing for students.

- **The current tax and social contribution mix constitutes a significant barrier to formalisation in the labour market.** Employers' social contributions are a particular barrier to the activation of those with low earnings potential. While income tax credits go some way to offsetting this effect, they could go further. It is particularly important that labour taxes are reduced for those with low skills and low earnings potential, who are particularly at risk of informality.

Building shared understanding and commitment to action

Effective skills policy design and implementation requires a broad and shared understanding of the need to enhance skills, the current strengths and challenges facing a country's skills system, and priorities for action. The OECD Skills Strategy provides an integrated, strategic framework that can foster inter-ministerial collaboration and effective engagement with all relevant actors, including employers, trade unions, training institutions, students and other stakeholders.

The NPC is the main counterpart to the OECD in defining the scope and strategic direction for this project. It includes representatives from the Ministry of Finance, the Ministry of Economic Affairs, The Ministry of Public Education, the Ministry of Labour and Social Protection, and the National Council of Science and Technology (CONACYT), as well as from trade unions, employers and educational institutions. The NPC is itself a concrete expression of Mexico's commitment to promoting a whole of government and whole of society approach to skills.

As an integral part of the diagnostic phase, two interactive workshops were held in June and September 2016, each of which gathered over 80 participants from employer organisations, trade unions, education and training providers, foundations, and private companies. While many of the skills issues discussed are long

standing and were well known to participants, the workshops also generated new insights into how different stakeholders perceived and experienced these challenges. Through their active participation in these events, stakeholders have played an important role in identifying the main challenges faced by Mexico's skills system, and their input has helped to shape this diagnostic report.

From diagnosis to action

The main goal for this joint project between the OECD and the Mexican government on "Building an effective Skills Strategy for Mexico" was to provide a strategic assessment of the national skills system in Mexico, and the way skills are developed, activated and used. This analysis is needed when designing effective skills policies and strategies to meet Mexico's future skill needs, and to improve the match between supply and demand for skills.

Now is the time to focus on improving skills outcomes to boost productivity and innovation, while strengthening the bedrock for Mexico's future economic growth. This diagnostic report represents one input to future action on improving skills outcomes in Mexico. Of equal importance to future success are the "intangible" assets generated by the project through sustained inter-ministerial dialogue and stakeholder engagement over the course of 2015-16. In particular, this report will be used as input for the NPC to develop binding recommendations to pursue a lifelong development skills strategy for Mexico.

This diagnostic report can also be used in many other ways, including: as a basis for raising public awareness, fostering broader public debate about the skills challenges currently facing Mexico, and encouraging social partners and national and regional governments to work together to tackle these challenges in the future. It will serve as the foundation for the upcoming Action Phase to be conducted in 2017, which will move the focus from diagnosis to action. The OECD stands ready to support Mexico in its ongoing efforts in designing and implementing better skills policies for better jobs and better lives.

INTRODUCTION

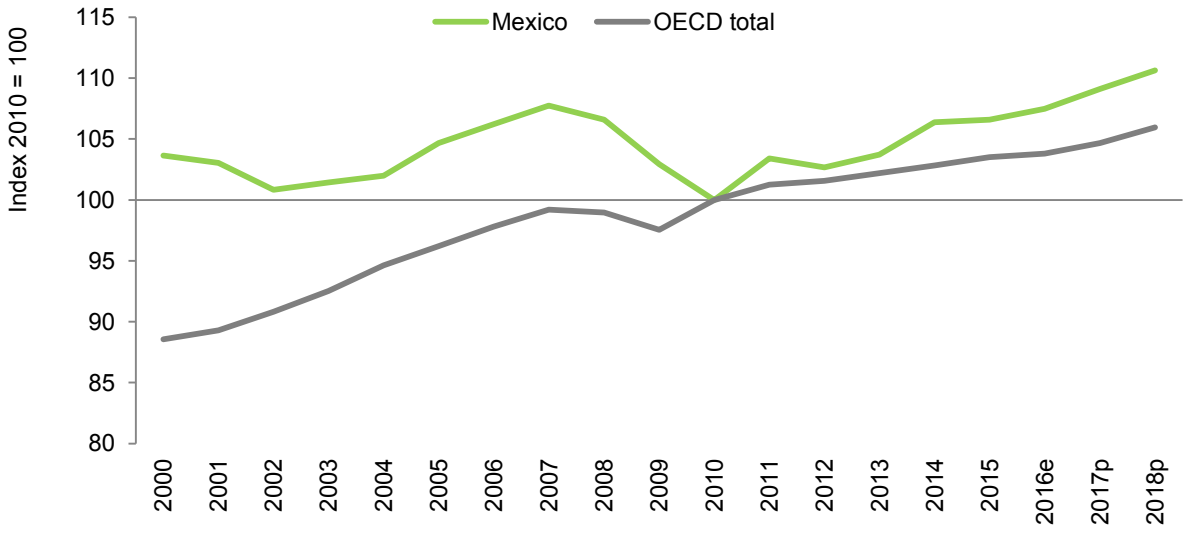
Skills have become the key drivers of individual well-being and economic success in the 21st century. Without proper investment in skills, people languish on the margins of society, technological progress does not translate into growth, and countries can no longer compete in increasingly knowledge-based economies. The more countries strive to achieve the highest levels of innovation and competitiveness in their economies, the more they have to focus on generating the right mix of skills; making sure that those skills are fully activated in the labour market and that their use is maximised in the workplace.

This introduction briefly discusses Mexico's main challenges ahead and how skills will play a critical role in shaping Mexico's future prosperity and well-being. It concludes with the set of skills challenges for Mexico that the OECD identified in close collaboration with stakeholders, experts and representatives of the Mexican government.

Mexico is underperforming

In recent years, Mexico's labour productivity has shown a growing trend but its level remains well below the OECD average. Taking 2010 as a reference year, Mexico's labour productivity annual growth is larger than the OECD average (Figure 1) and is recovering the levels reached before the economic downturn of 2008-2010. But still in 2015, Mexico recorded the lowest labour productivity level among OECD countries, about 60% below the OECD average (Figure 2).

Figure 1. Labour productivity of the total economy, Mexico and OECD, 2000-2018

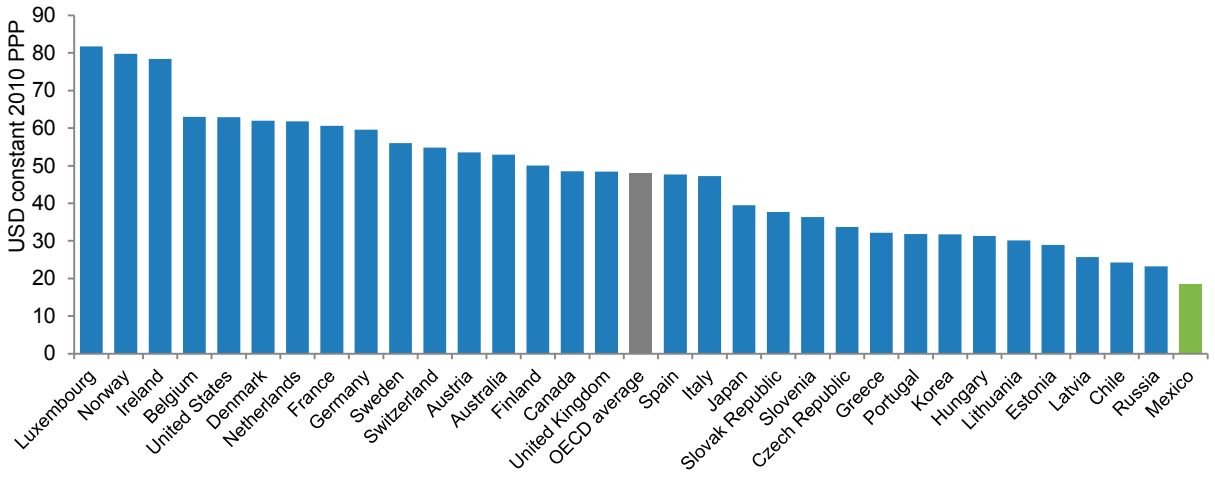


Notes: e = estimated; p = projection.

Source: OECD calculations based on data from the OECD Economic Outlook No. 100 database (http://dotstat.oecd.org/Index.aspx?DataSetCode=EO100_INTERNET), November 2016.

Figure 2. Labour productivity, 2015

GDP per hour worked, total economy, USD constant prices, 2010 PPPs



Note: Estimated values for Australia and Mexico 2015. The OECD average is unweighted and only includes countries for which data is available.

Source: OECD calculations based on data from the OECD Productivity Statistics 2016 Database. http://dotstat.oecd.org/Index.aspx?DataSetCode=PDB_LV.

Mexico lags behind most other OECD countries on several measures of innovative efforts. Research and development (R&D) investment is one of the key indicators of innovation effort. In Mexico there is a relatively weak research base. Both private and public sector R&D investment is well below that of nearly all OECD countries. In 2013, Mexican businesses invested the equivalent of 0.2% of GDP in R&D, compared to an OECD average 1.6%; in Korea it was 3.3% of GDP. Furthermore, in Mexico the share of R&D personnel in total employment is one of the lowest at 1%, which is considerably lower than other countries such as Israel, Finland and Denmark, where it is over 20%.

Only some parts of the economy are reaping the benefits of Mexico's increasing openness to trade. The multilateral and bilateral international trade agreements signed by the Mexican government in recent years, including membership of the North American Free Trade area (NAFTA), have opened up important internationalisation opportunities for Mexico's economy. However, only a few firms have taken advantage of the increased competition and linkages with the global economy to invest in skills and knowledge, improve their production process and become global competitors in advanced technological industries. The proportion of Mexican value-added embodied in its exports is, at 11%, one of the lowest in the OECD countries. This might suggest that most businesses have reacted to the increasing openness to trade by assuming the low-skilled role of assemblers of imported intermediates (*maquiladoras*), rather than specialising in sophisticated and high-skill intense products (OECD 2015b).

Mexico's labour market is not providing many Mexicans with opportunities for gainful employment, especially in the formal sector

Even when employed, people in Mexico often work informally and/or have poor-quality jobs. Over half of workers work informally in Mexico, a much higher rate than in other developed and emerging markets. The informal labour market is not the best context to stimulate further education and use workers' skills more effectively. Mexican workers typically have jobs that provide no stable income, no comprehensive healthcare or additional social benefits, and no training opportunities. A lack of training means that informal workers get trapped in low-skilled jobs without much chance to increase their productivity and move into higher-quality employment.

Mexico's skills system is not fully responsive to labour market needs, as there is a substantial mismatch between skills supply and demand. In Mexico, a high number of firms report having difficulties in finding the skills they require (30.9% against 14.8% in the OECD) (OECD, 2015a), meaning that firms' investment in their workers is below the OECD average. Mexico will only be able to improve its position in global value chains and fully insert itself into the knowledge economy through a comprehensive approach and significant investment in improving skills and opportunities for its population (OECD, 2015a).

Investment in the education of girls has increased, however, many do not enter the labour market, or do so only for short periods of time. In Mexico, the female labour force participation rate is 47%, in comparison with an OECD average of 60%. The share of female students choosing to pursue university education in science, technology and mathematics is even lower than that of their male counterparts. This problem requires action both at the school, labour and cultural levels, so that Mexico can take full advantage of women's potential.

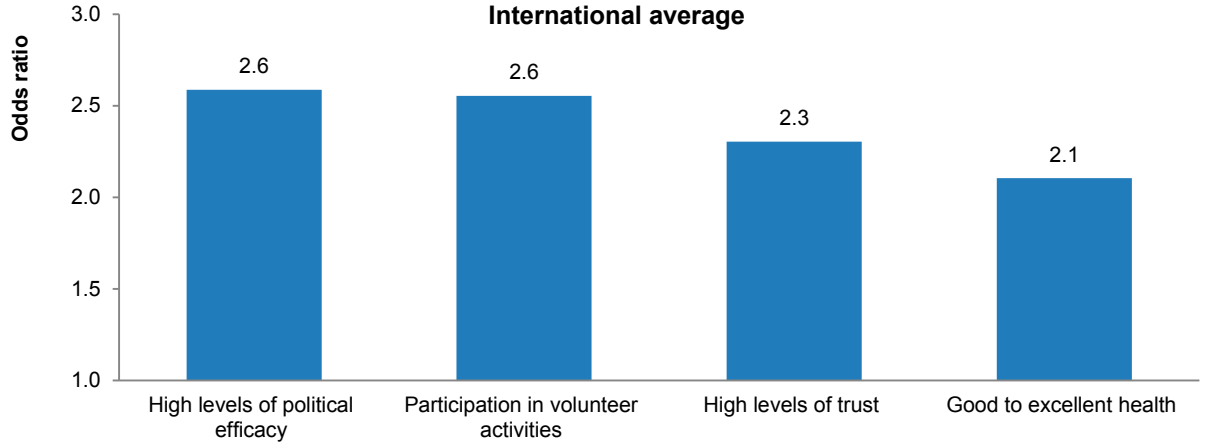
Young people in Mexico often do not activate their skills in the labour market after they have left the education system. Many young people are neither in employment, education or training (NEET) (about 22.2% in 2015), and therefore are neither developing nor activating their skills. Failing to activate youth's skills in the labour market may represent huge costs to the country. While the government is currently stepping-up efforts to address the NEET challenge, more remains to be done to provide these youth with the support they need to integrate into the world of work.

Skills will be key to achieving Mexico's goals in the future

Skills not only drive increases in labour utilisation and productivity, but also support employment in better job quality and lead to better social and health outcomes. Skills are relevant to tackling inequality and promoting social mobility. For example, in three-quarters of OECD countries, and also in many non-member countries, income inequality has deepened over the past two decades. Investing in human capital is the most effective way of promoting growth and of distributing its benefits more fairly. Investing in skills is far less costly, in the long run, than paying the price of poorer health, lower incomes, unemployment and social exclusion – all of which are closely tied to lower skills (OECD, 2012). In addition to the economic and social benefits mentioned, higher skills levels are also associated with higher levels of civic engagement, trust and better health (Figure 4).

Figure 3. Likelihood of positive social outcomes among highly literate adults

Increased likelihood (odds ratio) of adults scoring at Level 4/5 in literacy reporting high earnings, high levels of trust and political efficacy, good health, participating in volunteer activities and being employed, compared with adults scoring at or below Level 1 in literacy (adjusted)

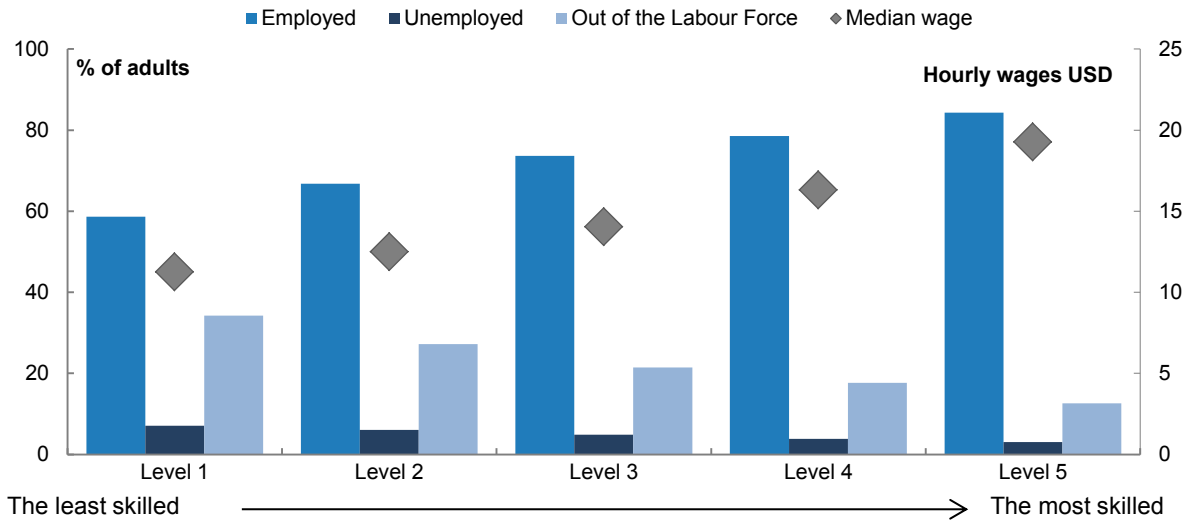


Notes: Odds ratios are adjusted for age, gender, educational attainment and immigrant and language background. High wages are defined as workers' hourly earnings that are above the country's median.

Source: OECD (2016b), *OECD calculations based on the Survey of Adult Skills (PIAAC) 2012*, (database), OECD Publishing, Paris, www.oecd.org/skills/piaac/.

There is a strong positive association between skills performance and labour market activation. Evidence from PIAAC (the Programme of International Assessment of Adult Competencies, an exercise that Mexico recently joined) shows that, on average, a better skills performance is associated with higher participation in the labour market and earning better wages. Figure 4 shows how, on average, the highest level of skills performance in PIAAC (level 5) is associated with less inactivity in the labour market (less than half of the proportion of those with the lowest skill performance level), less unemployment, and hourly wages well-above the four lower levels.

Figure 4. Skills matter for labour market outcomes



Source: OECD (2016b), *The Survey of Adult Skills (PIAAC) 2012*, (database), OECD Publishing, Paris, www.oecd.org/skills/piaac/.

There is a strong positive relationship between skills performance, skills use and productivity. The more positive labour market outcomes of people with better skills performance can be explained by higher productivity levels. Individuals undertaking activities that entail the regular use of their reading skills at work are more likely to be more productive (OECD, 2012). The level of skills performance can, therefore, be a good predictor of productivity levels in many countries.

Skills also matter for reducing informality. Mexico's comparatively low-skilled workforce and relatively high concentration in low value-added activities, are major contributors to the prevalence of informal employment arrangements. The low labour productivity of many Mexican workers could mean that they do not produce sufficient output to cover the costs of being hired formally by employers. These costs include minimum wages and social security contributions. By providing individuals with high quality and relevant skills, and employers with support and incentives to use the skills of their workers more effectively, Mexico can raise its productivity and, by extension, the incentives for employers to hire individuals in the formal sector. This can have an impact across regions, economic sectors, occupations and age groups.

The OECD Skills Strategy can help Mexico to respond to skills challenges

The OECD Skills Strategy provides an integrated, cross-government strategic framework to help countries maximise their skills potential to drive inclusive economic growth and improve well-being. It helps countries to identify the strengths and weaknesses of their existing national skills pool and skills systems, benchmark them internationally, and develop policies for improvement. In particular, the strategy provides the foundations upon which governments can work effectively with all interested parties – national, local and regional government, employers, employees, and learners – and across all relevant policy areas to: develop high quality and relevant skills from early childhood to adult education; activate skills in the labour market; and put skills to effective use in the workplace and the economy at large.

Fostering a whole-of-government approach to skills

Maximising a country's skills potential requires a co-ordinated effort across ministries. A whole-of-government approach to skills is needed to integrate the diverse fields of education and training, labour, economy, tax, local economic development, research and innovation. Each OECD Skills Strategy project is designed to foster greater interaction and exchange among relevant ministries in order to forge a common understanding of the skills challenges at stake as a basis for co-ordinated action.

The project on Building an Effective Skills Strategy for Mexico involves an inter-ministerial project team in Mexico led by the National Productivity Committee (NPC) that includes views from the Ministry of Finance, the Ministry of Economic Affairs, the Ministry of Public Education, the Ministry of Labour and Social Protection, and the National Council of Science and Technology (CONACYT). This team was responsible for setting the strategic direction of the project by defining which outcomes of the OECD Skills Strategy Diagnostic Toolkit are most relevant to Mexico, and ensuring that the diagnostic phase covered all relevant aspects of the national skills system.

Engaging stakeholders in strengthening the skills system

Effective skills policy design and implementation requires a broad and shared understanding of the need to enhance skills, the current strengths and challenges facing a country's skills system, and priorities for action. The OECD Skills Strategy underlines the need to look beyond government and build strong partnerships with all actors involved, such as employers, trade unions, training institutions, students and other stakeholders.

Each national project is designed to ensure stakeholder engagement and ownership and to build a shared commitment for concrete action. This is achieved by actively engaging with stakeholders throughout the process, notably through a series of workshops. Each workshop consisted of structured small group discussions among participants speaking in their native language as they worked through a series of exercises. In the case of Mexico:

- More than 100 people took part in the diagnostic workshop with stakeholders in Mexico City on 9 June 2016, including employer organisations, trade unions, education and training providers, foundations, and private companies. About 80 stakeholders also participated in the skills challenges workshop in Mexico City on 22 September 2016.

- Through their active participation in these events, Mexico's stakeholders have played a central role in identifying the main challenges faced by Mexico's skills system, and their input has helped to shape this diagnostic report.

Mobilising comparative data and international experience

Working in close partnership with the national project team, the OECD has mobilised its resources to support the analysis of Mexico's skills challenges and opportunities. These resources include:

- The OECD Skills Strategy framework and diagnostic toolkit to structure the analysis and workshops.

- The design and delivery of interactive workshops that maximise discussion among diverse participants, forge a shared understanding among stakeholders of the skills challenges currently facing Mexico, and generate concrete written outputs.

- Relevant OECD comparative data to analyse how Mexico fares in relation to other OECD member countries on a number of important skills dimensions.

- A multidisciplinary team of OECD staff drawing on expertise from across the relevant OECD directorates: education and skills development; and science, technology and innovation.

- An external, independent perspective with which to create a "level playing field" for all actors in the skills system and to foster constructive dialogue.

Drawing upon diverse sources of information when developing a skills diagnosis

Mexico's stakeholders and government

The skills challenges identified and refined by a diverse set of stakeholders and the government, who answered an initial toolkit questionnaire and participated in workshops and technical discussions, constitute the "backbone" of this report.

OECD comparative data and analysis

The wealth of OECD comparative data and analysis sheds light on the challenges identified by stakeholders and places Mexico's challenges in a broader international context. Each section examines one skills challenge and provides international comparative data from the OECD and other sources.

Country examples

The report features a selection of concrete examples to illustrate how other OECD member countries have tackled similar challenges in their own contexts.

This diagnostic report draws upon three main sources of information: input from workshops and technical meetings with stakeholders, OECD comparative data, and relevant examples from other OECD countries.

How stakeholders view Mexico's skills challenges

The workshops held in 2016 were designed to encourage all stakeholders to express their diverse views and generate both quantitative and qualitative evidence on the main skills challenges facing Mexico. This information was captured through group discussions and bilateral meetings with the OECD. While many of these skills challenges are long standing and well known to all participants, the exercise also generated new insights into how different stakeholders perceived or formulated challenges.

Workshop participants had clear views on the many strengths of Mexico's current skills system. Working in small groups, participants drew up a varied list that they agreed was a strong basis on which to build future success.

Mexico needs to overcome eight key skills challenges to realise its objectives

Mexico has identified the need for a whole of government approach to skills, and is the second OECD member country, after Norway, to be undertaking the complete process of a National Skills Strategy project with the OECD, i.e. both the diagnostic and action phase, in a single cycle. The NPC acts as the Mexican government's National Project Co-ordinator. As mentioned in previous paragraphs, it consists of members from four different ministries (Finance, Education, Labour, and Economic Affairs), as well as representatives from CONACYT, trade unions, employers and educational institutions.

This diagnostic report sets out eight skills challenges for Mexico. These challenges were distilled from an original list of 65 items discussed with Mexico through the Diagnostic Toolkit Questionnaire submitted to Mexico in March 2015. The distilled list of challenges was refined through workshops with stakeholders, experts and government representatives; through internal discussions with experts at the OECD; and through the analysis of documents and data produced by the OECD, the United Nations Educational, Scientific and Cultural Organisation (UNESCO), the International Labour Organisation (ILO), the World Bank, the Inter-American Development Bank (IDB), and the Mexican government. In addition, two site visits were undertaken during this project: 1) to the aerospace cluster in the State of Queretaro; and 2) to the auto parts clusters in the State of Mexico. The challenges are described under each of the OECD Skills Strategy's main pillars and are framed as outcome statements. The first six challenges refer to specific outcomes across the three pillars of developing, activating and using skills. The next two challenges refer to the "enabling" conditions that strengthen the overall skills system. Success in tackling these skills challenges will bring coherence and strategic focus to the skills development agenda and system, as well as boost performance.

Box 2. The OECD Skills Strategy: Defining the concept of "skills"

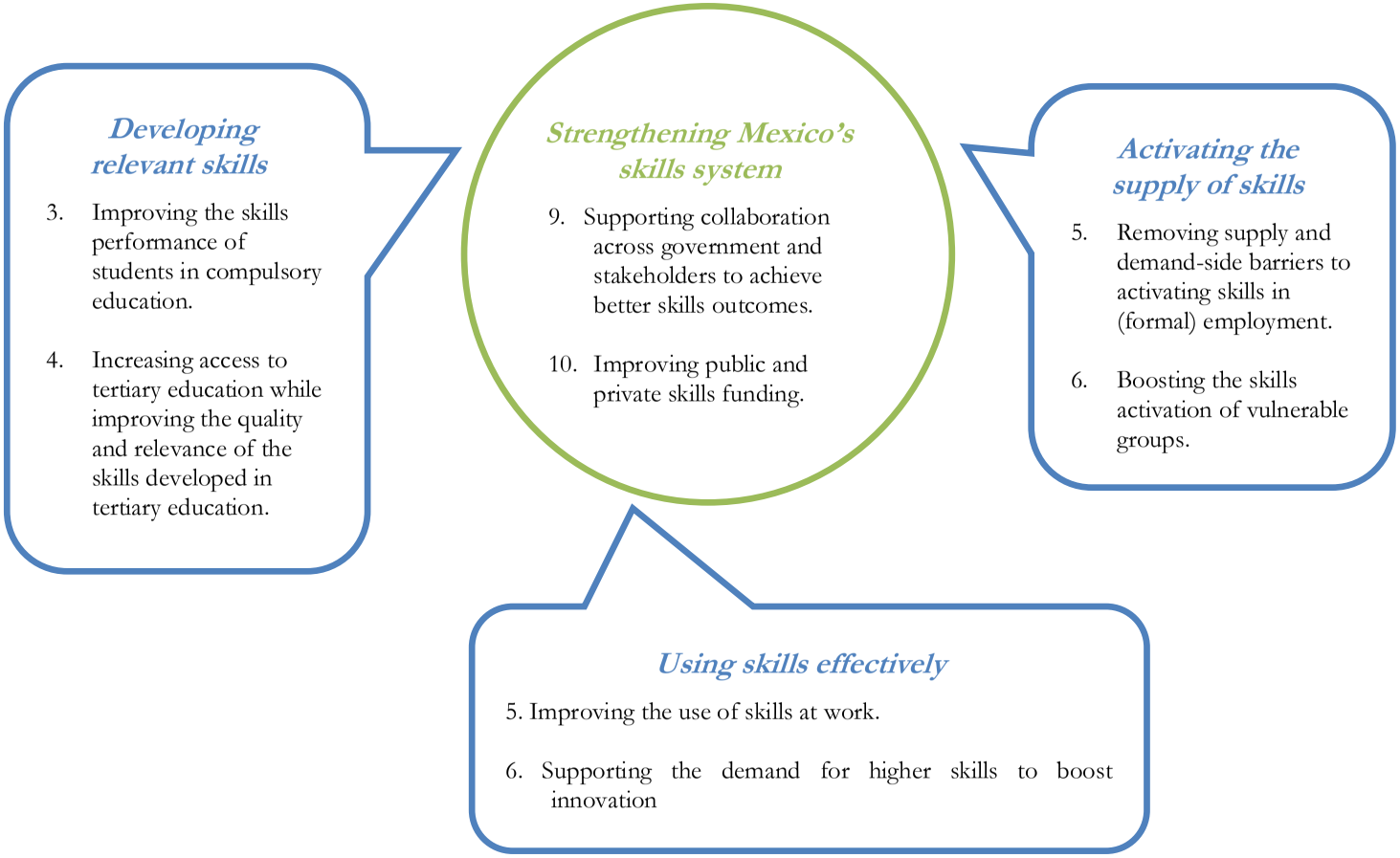
The OECD Skills Strategy defines skills (or competences) as the bundle of knowledge, attributes and capacities that can be learned, that enable individuals to successfully and consistently perform an activity or task, and that can be built upon and extended through learning. This definition includes the full range of cognitive, technical and socio-emotional skills. The concepts of "skill" and "competence" are used interchangeably in this report. The sum of all skills available to the economy at a given point in time forms the human capital of a country.

The OECD Skills Strategy shifts the focus from traditional proxies of skills, such as years of formal education and training or qualifications/diplomas attained, to a much broader perspective that includes the skills people acquire, use and maintain – and also lose – over the course of a lifetime. People need skills to help them succeed in the labour market, contribute to better social outcomes, and build more cohesive and tolerant societies.

Source: OECD (2012), *Better Skills, Better Jobs, Better Lives: A Strategic Approach to Skills Policies,* OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264177338-en.

All of the challenges identified are strongly interlinked, and their connections with each other are identified throughout the report. Failure to look beyond policy silos will have implications for specific groups in Mexico, such as women and youth, as well as for the economy and society's ability to build a solid foundation for future prosperity.

8 SKILLS CHALLENGES FOR MEXICO



Pillar 1: Developing relevant skills

Challenge 1. Improving the skills performance of students in compulsory education

- **Skills developed in compulsory education are the building blocks for individual success in further education, the labour market and life.** Whether students pass through the general academic or vocational education and training (VET) system, they should develop strong foundation skills that allow them to enter directly into the labour market or progress to higher education. Along with its intrinsic value, skills have a positive effect on people's income, their health, and their civic engagement. It also improves individuals' chances to find a job, which means that those who are better educated are less vulnerable to unemployment and informal employment. People with poor foundation skills face a much greater risk of experiencing economic disadvantage, and a higher likelihood of unemployment and dependency on social benefits.

- **Few Mexican youth are developing high levels of skills and completing higher levels of education.** Despite some improvements, Mexico's performance on most measures of skills development ranks at the bottom of OECD countries. According to the Programme for International Student Assessment (PISA), many youth are still not developing high levels of skills with the share of students performing poorly in mathematics 56.6%, in reading 41.7% and science 47.8%. In addition, only 56% of 15-19 year-olds complete upper secondary education, far below the OECD average of 84%.

- **Mexico needs to ensure that all students receive a high quality education regardless of their backgrounds, where they live and what kind of school they attend.** Educational outcomes in Mexico vary greatly. While performance gaps by gender have decreased over time, boys are still outperforming girls in science and mathematics and girls are outperforming boys in reading. This may have implications for how well they are prepared to continue their education in certain subject areas and enter certain professions. Encouragingly, the amount of educational performance that is explained by socio-economic background has decreased from 16.9% in 2006 to 10.9% in 2015. Additionally, the percentage of students that are resilient (12.8% in Mexico compared with the OECD average of 29.2%) has also improved. Resilient youth are those who despite significant socio-economic disadvantage are able to succeed in learning – and resilience is measured by the share of students that are in the bottom quarter of the socio-economic scale within a country and nonetheless perform among the top quarter of students. However, many indigenous students continue to struggle, having lower educational attainment rates and poorer skills outcomes. OECD research shows that performance gaps by gender, socio-economic and family background are not determined by innate abilities and can be reduced by parents, teachers and policy makers by taking action such as providing equal support early on, tailoring teaching to students' specific needs, and reducing potential barriers (e.g. financial, cultural) in order to ensure that all students receive the support they need to realise their full potential and contribute to the economic growth and well-being of society.

- **While the quality of school environments has improved, there remains much to be done.** Grade repetition has decreased from 30% in 2003 to 15.8% in 2015, but still exceeds the OECD average of 11.3%. While more time is spent on learning than before, it is critical that it is spent on quality learning. For that teachers need to be well trained and have professional development opportunities throughout their working lives. Recent education reforms that reward high performing teachers and provide professional development opportunities to those requiring further support should help to improve the quality education in Mexico. Information and career guidance systems can help students to make informed decisions about progression in the education system. While annual expenditure per student has increased in Mexico, expenditure for primary and secondary education in absolute terms is still the lowest in the OECD. The distribution of funds can be made

more efficient – differences in the quality of educational resources between socio-economically advantaged and disadvantaged schools are one of the largest in the OECD.

Challenge 2. Increasing access to tertiary education while improving the quality and relevance of the skills developed in tertiary education

- **Tertiary education provides significant benefits to individuals and society.** Tertiary graduates benefit from higher skills and have higher productivity, which means they are more likely to be employed in the formal economy and earn a higher income. Tertiary graduates also tend to report better health outcomes, have lower crime rates and participate more fully in the political process and society. For society, a more highly educated population is associated with an expanded formal sector, higher tax revenues, lower costs of social transfers and criminality, and increased productivity, thereby supporting economic prosperity and higher standards of living.

- **A small share of Mexican students completes tertiary education.** Only 16% of the population aged 25 to 64 years old in 2015 had attained tertiary education, which is significantly below the OECD average of 36%. Access varies greatly across regions, with participation rates high in Mexico City, and significantly lower in most other regions. While tertiary education participation rates are similar for men and women, there are some differences by field of study. Of particular concern is the participation rate among certain disadvantaged groups, such as indigenous students. Improving access broadly across regions would boost the well-being of graduates, but also the country as a whole. Boosting access for disadvantaged groups could support social mobility and improved social cohesion.

- **Mexico will need to improve the quality and relevance of skills developed in tertiary education to fully realise their benefits.** Rapid expansion and limited oversight may mean that many graduates are not developing skills of the quality and relevance demanded by the labour market. Employer surveys suggest that many tertiary graduates do not have the skills required for their jobs. Furthermore, one out of two tertiary graduates works in an occupation unrelated to their field of study, which may suggest that some tertiary students are completing studies that are not in the highest demand. Incentives to adapt course offerings to labour market needs could be strengthened in both private and public tertiary education institutions, which are responsible for about 33% and 67% of tertiary graduates, respectively.

- **Mexico could improve access to tertiary education, while bolstering the quality and relevance of skills developed in tertiary education.** Better regulation and quality assurance systems could ensure that universities are accountable for increasing access, but also for raising quality and relevance. The quality of teaching could be further improved through the increased use of evaluations and better working conditions. The tertiary curriculum could be made more relevant to the labour market through partnerships between universities and industry, and through the increased use of work-integrated learning. Better information about current and future skills needs and outcomes of tertiary institutions could also support increased quality and relevance. The effective financing of tertiary education could be an important lever to improve tertiary education and its outcomes, particularly when public funding is contingent on outcomes of measurable quality and relevance indicators of tertiary education.

Pillar 2: Activating skills supply

Challenge 3. Removing supply and demand-side barriers to activating skills in (formal) employment

- **Mexico could do a better job of activating the skills of its people in the labour market**. When employed, workers often find themselves in poor quality jobs. Most workers are employed in

informal jobs that are characterised by low pay, long work hours, limited employment protection and limited opportunities for training and career advancement. This under-utilisation of skills in the labour market represents a significant waste of human potential.

- **Improving the activation of skills into high quality (and formal) jobs will mean removing supply and demand-side barriers to employment**. On the one hand, good quality employment services and active labour market programmes, as well as adequate and well-designed income protection systems, are needed to ensure that jobseekers receive the support they need to activate their skills in the labour market. On the other hand, in order for skills to be successfully activated in the labour market, there is a need to create sufficient numbers of (formal) jobs. To this end, measures that tackle demand-side barriers to employment (e.g. high labour costs and/or strict employment protection legislation) are crucial.

- **Employment support provided to jobseekers could be improved**. The Mexican Public Employment Service (PES) reaches few jobseekers and firms. Low funding, the scarcity of case workers, and the fact that the PES does not have responsibility for the administration of (unemployment and/or social assistance) benefits, may help explain why many people find jobs through informal job-search channels (e.g. family and friends). Although existing active labour market programmes have often proved successful in Mexico, insufficient funding has been allocated to these programmes.

- **Income protection is very weak and may push workers into subsistence-level occupations.** The near non-inexistence of unemployment insurance, poorly implemented severance payments, as well as the low generosity and poor targeting of existing benefits, mean that many individuals do not have adequate income protection. This lack of income support may push many jobseekers to accept any job, whether informal and/or poorly paid, to sustain their incomes.

- **Relatively high tax and social security contributions on low-wage earners and complex tax systems may be a brake on (formal) hiring and employment**. Although minimum wages are low, the non-wage costs (i.e. employers' social security contributions) associated with hiring a low-income (hence typically low-skilled) worker are high by international standards. While this high tax burden on firms is typically reduced through targeted tax reductions/exemptions, this approach increases red tape and adds complexity to the tax system.

- **Despite recent improvements, employment protection legislation continues to be strict and may (at least in theory) limit the growth of jobs in the formal economy.** Employment protection legislation (EPL) has become less strict since the introduction of the 2012 Labour Law reform, but remains high by OECD standards. If the cost of hiring people formally is high relative to the output of workers, stringent EPL will increase the incentives for employers to hire workers informally. In practice, however, enforcement remains limited: relatively few labour inspectors exist, and inspections are generally focussed on larger firms, which are less likely to breach existing rules.

Challenge 4. Boosting the skills activation of vulnerable groups

- **Some vulnerable groups are struggling to activate their skills in the labour market**. In particular, youth and women are facing considerable challenges in entering and remaining active in the labour market, and need targeted support. The successful integration of these vulnerable groups into the labour market will depend on the ability of policy measures to increase their employability and work incentives, as well as on the capacity of the Mexican economy to grow and create jobs.

- **Youth are often neither in employment, education or training (NEET)**. This represents a large waste of human capital and a significant cost to society. NEETs in Mexico are typically inactive (and

therefore not actively looking for jobs), they are often low skilled, and are usually female. While the government is working to address the NEET challenge, international experience suggests that further room for improvements exists. Crucial policy channels through which NEET rates can be reduced and school-to-work transition facilitated include: improving the capacity of the Public Employment Service to reach out to youth, promoting access to high quality education (and reducing school dropouts), strengthening family-friendly policies (see below), and providing youth with adequate income support.

- **Women in Mexico are often excluded from the formal labour market because they typically bear the burden of family responsibilities.** Increasing the participation of women in employment will require family-friendly policies that help parents balance work and family life. Despite notable efforts, too few children (aged 0-2) in Mexico are enrolled in childcare facilities, a situation that forces many parents (and mothers in particular) to remain detached from the labour market after their children are born. Both maternity and paternity leave entitlements are weak, which may discourage many women from entering employment in the first place. In addition, workers are expected to work very long hours, and flexible work arrangements (e.g. part-time or remote working) are uncommon, making it even harder for a woman to balance work and family life.

Pillar 3: Using skills effectively

Challenge 5. Improving the use of skills at work

- **Using skills effectively at work is important for the success of Mexico.** It is not sufficient to develop and activate skills; to realise the full benefits to individuals, firms and society, skills must also to be put to effective use. For the individual, the more effective use of skills increases wages and life satisfaction. For the employer and the country, the more effective use of skills means higher productivity and greater competitiveness. Overall, better productivity, wages and benefits mean more resources available to the country to grow the economy and support a better standard of living for Mexicans.

- **The skills of many workers in Mexico are not effectively used.** About 26% of Mexican workers are over-educated, and around 31% are under-educated for their job. Around 40% of employed tertiary graduates work in an occupation that is unrelated to their field of study. Companies are reporting skills shortages and problems finding the skilled labour they need.

- **Factors internal to the firm could improve skills use at work**. The quality of the work environment can affect skills use. Around 34% of workers in Mexico experience job strain. Workers in Mexico work the longest hours across the OECD: around 27% higher than the OECD average, 6% higher than Korea, 25% higher than the United States, and 32% higher than Canada. High performance workplace practices and on-the-job training are important factors in determining how effectively skills are used at work. The prevalence of temporary contracts and informal work arrangements in Mexico will hinder how effectively skills are used in workplaces, as employers will be less likely to invest in workers with whom they have a weak employment relationship. Micro, small and medium enterprises are also less likely than larger firms to implement these practices.

- **External factors to the firm could foster greater skills use at work.** Labour market institutions, such as employment protection legislation, minimum wages, the tax system and collective bargaining, influence the cost of labour, which can have an indirect impact on skills use at work. The availability of quality information and guidance on learning and career pathways can reduce the mismatch of skills and improve their use. The recognition of learning outside of formal education can also help firms identify the skills that workers actually possess, which can improve skills matches within the firm and across occupations and sectors.

Challenge 6. Supporting the demand for higher skills to boost innovation and productivity

- **High-skilled workers, researchers and entrepreneurs are key actors in a country's modernisation efforts.** Entrepreneurs with innovative ideas can drive growth and advancements in global markets. Universities and research institutions generate knowledge that is necessary to support the implementation of innovative ideas. High-skilled workers can use advanced technologies and transform innovative ideas into innovative projects. The share of research and development (R&D) personnel in employment in Mexico is 1%, which is among the lowest in the OECD, and considerably lower than in countries such as Israel, Finland and Denmark, where it is over 20%.

- **The relatively weak research base in Mexico should be improved**. A small group of modern and successful businesses demand and employ high-skilled workers in Mexico. However, the majority of firms do not invest significantly in talent and knowledge. As a result, Mexico lags behind other OECD countries on a number of measures of innovation, such as business expenditure on R&D and number of patents. Both private and public sector R&D investment is well below that of nearly all OECD countries. In 2013, Mexican businesses invested the equivalent to 0.2% of GDP in R&D. By comparison, the OECD average was 1.6% of GDP, and in Korea it was 3.3%.

- **Even though barriers to entrepreneurship remain significant in Mexico, there are several signs that a more entrepreneurship-friendly environment is being developed.** According to the evolution of the OECD indicator on barriers to entrepreneurship, which measures the degree to which policies promote or inhibit competition, Mexico has substantially reduced obstacles to business activity in the last ten years. However, it is still one of the OECD countries with the highest barriers to entrepreneurship.

Strengthening Mexico's skills system

Challenge 7. Supporting collaboration across government and stakeholders to achieve better skills outcomes

- **Skills policies require a set of formal and informal arrangements that secure coherency across ministries and levels of government and that encourage stakeholder engagement**. In Mexico, important efforts have been made to improve formal arrangements for collaboration in skills policies across ministries, levels of government and with stakeholders. However, effective collaboration remains a challenge given the large number of ministries, authorities, public agencies and stakeholders involved in the skills system. At the same time, stronger stakeholder engagement is inhibited by the top-down decision-making processes that continue to dominate policy making.

- **Collaboration across ministries should be reinforced to secure policy coherence**. Given the large number of ministries with responsibilities for skills development, activation and use in Mexico, strong co-ordination is needed to secure coherence in policy design and implementation. The law of the public sector in Mexico is not sufficiently clear about the specific responsibilities that each minister has for policies related to skills development, activation and effective use. As a result, the functional responsibilities of ministries are blurred, which creates gaps and overlaps. The creation of the NPC is a positive step towards improved co-ordination, but NPC efforts and work should be reinforced by more vertical co-operation (there are no representatives from sub-national authorities) and more involvement from stakeholders.

- **Policy alignment across levels of government should be improved to secure responsiveness to regional and local needs**. Policies for the development, activation and effective use of skills should be responsive to the specific needs of regional and local labour markets. Co-ordination and policy alignment between national and sub-national governments is therefore essential to ensure that

skills policies receive strong support from top authorities, and that the needs of sub-national authorities are taken into account. Collaboration is mutually beneficial as sub-national entities are often in a much better position to collect information for the monitoring and assessment of policies. There are a number of initiatives that demonstrate the effectiveness of local and regional authorities in building effective skills strategies (e.g. the aeronautic cluster in Querétaro), but there is still much work to be done in order to empower sub-national authorities and stakeholders to be active players in the design and implementation of coherent skills policies in the country.

- **Reinforcing partnerships with stakeholders should be a priority for skills policies in Mexico**. Strong engagement from stakeholders is critical for achieving good levels of effectiveness in policy implementation. Collaboration between government and stakeholders is also needed to ensure that skills policies are aligned with the needs of the economy and society. Although there is a long tradition of stakeholder organisation in Mexico (employers, unions, universities and other relevant actors in the system are collectively represented in a number of relevant bodies for skills policies), policy making still takes mainly place through top-down mechanisms, where substantial, but not empowered actors (e.g. small and medium-sized enterprises, female workers, youth), have a limited voice and participation. The creation of the NPC, in combination with its binding powers and inter-ministerial and consultative nature, is a promising initiative that is already generating results (with specific sectorial plans for skills development), but more support and attention is needed for these actors.

- **Strengthening governance appears to be the main challenge for the Mexican skills system.** Mexico has undertaken multiple efforts to improve collaboration across different ministries and levels of government, and to promote stakeholder engagement in the skills system. In both cases, there have been only limited results. The public administration in Mexico needs to create a new architecture that removes (mostly legal) barriers for collaboration across ministries, creates stronger (mostly budgetary) incentives for inter-ministerial collaboration, and empowers sub-national authorities and stakeholders through more inclusive policy-making mechanisms that transcend political cycles. In this respect, the NPC is again a good example of the collaborative and policy-oriented efforts that should be supported more extensively in Mexico.

- **A legal architecture that reinforces and finances collaboration across ministries and agencies is needed**. Many participants in the OECD Skills Strategy workshops and technical meetings identified that the main challenge of the skills system in Mexico is to remove the legal barriers that prevent collaboration across different ministries and levels of government. The current law of public administration is not sufficiently concise and precise about the specific responsibilities each minister has, and does not provide more guidance about the limited areas in which inter-ministerial collaboration is expected. Furthermore, the current law does not provide much room for flexibility or incentives for collaboration across different ministries and levels of government. Paradoxically, this rigidity produces policy gaps and overlaps. For example, there are skills challenges in Mexico where there is insufficient government policy attention (such as improving the match between the skills developed in education and the skills needs of the labour market, or improving the quality of VET), while other challenges are tackled by multiple ministries/agencies/levels of government without sufficient co-ordination (such as data collection and training programmes). Therefore, in addition to supporting the work of inter-ministerial bodies (such as the NPC), the whole legal architecture of the public administration in Mexico needs to create incentives for more effective collaboration.

Challenge 8. Improving public and private skills funding

- **The financing of skills systems may impact the effectiveness of skills policies.** Total expenditure on education (in 2013) as a share of GDP in Mexico (5.2%) is close to the OECD

average (5.3%); however, on a per student basis it is comparatively low (USD 3,386 USD in Mexico against USD 9,000 as average for the OECD). For governments and individuals, education spending pays for itself in net present value terms, although improving the quality, targeting and value for money of education spending in Mexico is crucial.

- **Expanding public support for skills investments is important for raising participation in, and the quality of, education in Mexico.** Increasing resources for education can occur either through a reduction in direct costs for students, or, at the tertiary level, through the introduction of a scheme of income-contingent loans. Mexico should also improve the modest levels of support for skills development later in life, for skills activation through active labour market programmes (currently at 0.01% of the GDP, one of the lowest across the OECD), and for better use of skills through supporting employer investment in skills. Tax expenditures offer a potentially important means of supporting skills investments, as reductions in labour income tax liabilities may encourage formalisation. Government financial support for business R&D activity is particularly low and should be improved.

- **Returns to education in the Mexican labour market are high.** These returns more than cover their costs to the government over their lifetime, and are also high for individuals. Profitable educational investments should not be foregone due to lack of access to financing for students.

- **The current tax and social contribution mix constitutes a significant barrier to formalisation in the labour market.** Employers' social contributions are a particular barrier to the activation of those with low earnings potential. While income tax credits go some way to offsetting this effect, they could go further. It is particularly important that labour taxes are reduced for those with low skills and low earnings potential, who are particularly at risk of informality.

Building shared understanding and commitment to action

Effective skills policy design and implementation requires a broad and shared understanding of the need to enhance skills, the current strengths and challenges facing a country's skills system, and priorities for action. The OECD Skills Strategy provides an integrated, strategic framework that can foster inter-ministerial collaboration and effective engagement with all relevant actors, including employers, trade unions, training institutions, students and other stakeholders.

The NPC is the main counterpart to the OECD in defining the scope and strategic direction for this project. It includes representatives from the Ministry of Finance, the Ministry of Economic Affairs, The Ministry of Public Education, the Ministry of Labour and Social Protection, and the National Council of Science and Technology (CONACYT), as well as from trade unions, employers and educational institutions. The NPC is itself a concrete expression of Mexico's commitment to promoting a whole of government and whole of society approach to skills.

As an integral part of the diagnostic phase, two interactive workshops were held in June and September 2016, each of which gathered over 80 participants from employer organisations, trade unions, education and training providers, foundations, and private companies. While many of the skills issues discussed are long standing and were well known to participants, the workshops also generated new insights into how different stakeholders perceived and experienced these challenges. Through their active participation in these events, stakeholders have played an important role in identifying the main challenges faced by Mexico's skills system, and their input has helped to shape this diagnostic report.

From diagnosis to action

The main goal for this joint project between the OECD and the Mexican government on "Building an effective Skills Strategy for Mexico" was to provide a strategic assessment of the national skills system in Mexico, and the way skills are developed, activated and used. This analysis is needed when designing effective skills policies and strategies to meet Mexico's future skill needs, and to improve the match between supply and demand for skills.

Now is the time to focus on improving skills outcomes to boost productivity and innovation, while strengthening the bedrock for Mexico's future economic growth. This diagnostic report represents one input to future action on improving skills outcomes in Mexico. Of equal importance to future success are the "intangible" assets generated by the project through sustained inter-ministerial dialogue and stakeholder engagement over the course of 2015-16. In particular, this report will be used as input for the NPC to develop binding recommendations to pursue a lifelong development skills strategy for Mexico.

This diagnostic report can also be used in many other ways, including: as a basis for raising public awareness, fostering broader public debate about the skills challenges currently facing Mexico, and encouraging social partners and national and regional governments to work together to tackle these challenges in the future. It will serve as the foundation for the upcoming Action Phase to be conducted in 2017, which will move the focus from diagnosis to action. The OECD stands ready to support Mexico in its ongoing efforts in designing and implementing better skills policies for better jobs and better lives.

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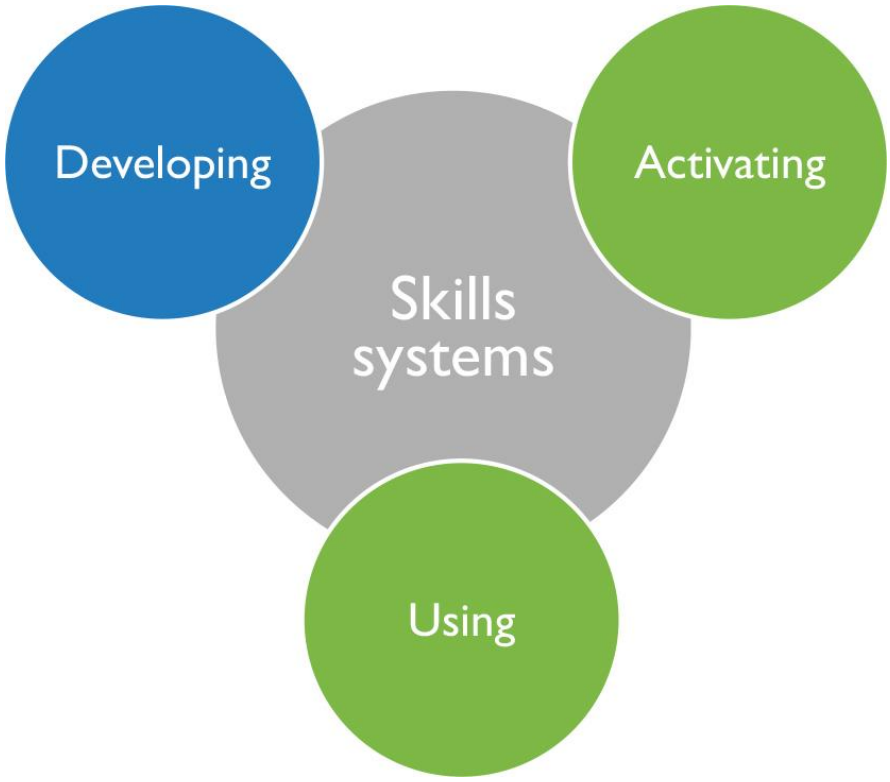
DEVELOPING SKILLS



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INTRODUCTION TO DEVELOPING SKILLS

Skills are critical to people's success in the economy and society. When people have strong skills they are better equipped to succeed in higher education, adapt to the evolving skills needs of workplaces, and participate fully in society. Skills are a key driver of innovation, productivity and, ultimately, economic growth and higher living standards. Two main challenges related to the development of skills have been identified by the government and stakeholders in Mexico: improving the skills performance of students in compulsory education, and increasing access to tertiary education, while improving the quality and relevance of the skills developed in tertiary education.

Improving the skills performance of students in compulsory education. Many Mexican youth are not developing the skills needed for success in work, better engagement in civic life or looking better after their own personal health. While access to education and skills performance has been improving over time, a large share of Mexican youth still is low performers at school. Low performance at school can have severe consequences for individuals and economies. When a large share of the population lacks basic skills, a country's long-term economic growth is constrained. In 2015, 56.6% of students were low performers in mathematics (OECD average 23.4%), 41.7% were low performers in reading (OECD average 20.1%), 47.8% were low performers in science (OECD average 21.2%), and 33.8% were low performers in all three of these subjects (OECD average 13%). Only 55.6% of 15 to 19 year-olds are completing upper secondary education, which is far below the OECD average of 84%. To improve education quality, teachers need to be well trained and have professional development opportunities throughout their working lives, which is one of the aims of the recent education reform. Information and career guidance systems can help students to make informed decisions about progression in the education system. While annual expenditure per student has increased in Mexico, expenditure for primary and secondary education in absolute terms is still the lowest in the OECD. The difference in the quality of educational resources between socio-economically advantaged and disadvantaged schools is one of the largest in the OECD, and the distribution of funds could be made more efficient.

Increasing access to tertiary education, while improving the quality and relevance of the skills developed in tertiary education. In Mexico, the private and public returns on investments in tertiary education are among the highest in the OECD, suggesting that for both the individual and the government, there would be a substantial payoff to further expanding access. Despite this, Mexico has one of the lowest rates of tertiary attainment among OECD countries. To realise the full benefits of investments in tertiary education, the skills acquired must be of high quality and relevant to the labour market. Unfortunately, there is evidence that the skills that many tertiary graduates have acquired in Mexico are not of sufficient quality and/or relevance, as employers often report difficulties in finding people with the right skills, and workers report skills mismatches with their jobs. Better regulation and quality assurance systems could ensure that universities are accountable not just for increasing access, but also for raising quality and relevance. The quality of teaching could be further improved through the increased use of evaluations and better working conditions. The tertiary curriculum could be made more relevant to the labour market through partnerships between universities and industry, and through the increased use of work-integrated learning. Better information about current and future skills needs and outcomes of tertiary institutions could also support increased quality and relevance. The effective financing of tertiary education could be an important lever to improve tertiary education and its outcomes, in particular when public funding is contingent on outcomes of measurable quality and relevance indicators of tertiary education.

CHALLENGE 1: IMPROVING THE SKILLS PERFORMANCE OF STUDENTS IN COMPULSORY EDUCATION

A selection of challenges identified by Mexican workshop participants:

"The resources are insufficient and distributed ineffectively."

"Education and training needs to be more responsive to the needs of the labour market."

"There is a lack of quality evaluations and follow-up."

Acquiring good skills in compulsory education is important for all students. Improving skills during compulsory education from pre-school to upper secondary school offers multiple benefits to both the individual and society. Along with its intrinsic value, skills have a positive effect on people's income, health, and civic engagement. Good foundation skills enable individuals to pursue further education and acquire more skills over their lifetime, as shown by longitudinal evidence (Heckman et al., 2013). It also improves individuals' chances of finding a job, meaning that those who are better educated are less vulnerable to unemployment and informal employment. People with poor foundation skills face a much greater risk of experiencing economic disadvantage, and a higher likelihood of unemployment and dependency on social benefits (OECD, 2012a).

The quality of education and the development of skills are important for society. A study using PISA data found that the quality of education and skills drive economic growth (Hanushek & Woessmann, 2012). For example, a 25-point improvement in PISA test results in the 2000s is associated in OECD economies with a cumulative gain of USD 115 trillion during the life cycle of the generation born in 2010 (OECD, 2010a). More skilled workers tend to be more productive. This is particularly relevant for the large number of people working informally. To a large extent, informality appears and is reinforced because low productivity levels do not allow for an output that is sufficiently high to warrant the costs associated with hiring low-skilled workers formally (e.g. social security contributions, minimum wage). At the same time, better skills also mean more tax revenues, as more workers will have higher productivity and be able to work in the formal sector. A more skilled population would also mean a lower risk of dependency on social benefits and lower costs of criminality. Ensuring equitable participation in education helps to overcome social disadvantages and thereby improves social cohesion.

Overview of Mexico's compulsory education

In Mexico, compulsory education encompasses early childhood to upper secondary education. Compulsory education is intended to provide individuals with the foundation skills needed to transition to higher levels of education or enter into the labour market. During 2012, compulsory education was extended to upper secondary education. However, while legally enforceable, a significant share of children at the age of compulsory education is still not attending school. There are two streams in compulsory education: academic track and the vocational education and training (VET) track (the Ministry of Education is in charge of both streams). For an overview of the most recent education reforms, please see Box 3 below.

Box 3. Focus on Mexico: Education reform

Recent reforms, such as the Pact for Mexico (2012) and the Reform of the Mexican Constitution (2013), have strengthened commitments in education. These initiatives seem promising in terms of raising education quality in Mexico, but more time is needed to fully evaluate the impact of these changes.

A new **education model** was announced in 2016 following an open and consultative process involving civil society, the private sector, Congress, the National Institute for Educational Assessment, the National Union of Education Workers, among others. Changes in the education system are scheduled to take effect in the 2018-2019 school year. Proposed changes include making learning outcomes explicit in specific subject areas (language and communication, mathematics, critical and reflective thinking, art and culture, environment) to guide teachers, parents, students and other stakeholders in the education process. Other changes involve introducing innovative pedagogical approaches, for example:

- "School at the center" streamlines all resources and services in the school.
- A new curriculum approach emphasises understanding over memorisation and gives curriculum autonomy to schools for up to 20% of classroom time.
- Professional teacher development to support teachers in the implementation of the curriculum.
- Inclusion and equity in all areas from infrastructure to curriculum.
- Governance of the education system to improve collaboration between the Ministry of Education (SEP) and the main stakeholders of the education system, such as parents, unions, state governments, civic society, the National Institute for the Evaluation of Education and Congress (SEP, 2016a).

The new **professional teaching service** law (2013) was designed to provide coherence to the profession in primary and secondary education. This law aims to clarify selection, recruitment, training, promotion and evaluation for teachers, school leaders and supervisors, and promotes a new technical assistance service for schools. The aim is to reward high performing teachers and to provide professional development opportunities for teachers who need support. In 2016, changes to the teacher evaluation design were announced, making the evaluation mandatory for those who previously obtained insufficient results or those who want to be certified as evaluators. Teachers who want a promotion may attend voluntarily. Those not taking the evaluation will not be penalised, but the gradual evaluation of all teachers will be mandatory from 2017. Teachers from indigenous and multi-grade schools will be evaluated by 2018-2019 (INEE, 2016). These changes are critical, especially considering that around half of teachers evaluated in 2015 for primary and lower secondary school obtained insufficient or only adequate results, the two lowest rating categories out of the scale of four (SEP, 2016b).

Compulsory education has been extended, with pre-primary education made compulsory in 2002. Work continues on improving the quality of urban care centres for children of low-income and working parents, establishing a national system of day care centres, and disseminating a framework syllabus to help pre-primary institutions develop curricula that are adapted to their needs. In addition to making upper secondary education compulsory in 2012 (with a goal of universal coverage by 2022), a National System of Upper Secondary Education (*Sistema Nacional de Bachillerato*, 2009) was introduced to provide a coherent framework of upper secondary education through better academic guidance, increased education offer, a monitoring system for institutions, and mechanisms to deliver education (e.g. teacher training, school leadership professionalisation, infrastructure, scholarships).

A comprehensive reform of upper secondary education in 2008 introduced a **competency-based model**. The competency-based approach provides a common curricular framework that serves as a guide for determining the level of knowledge acquired by a student in a particular discipline/domain. The aim is to have a curriculum that allows students to benefit from the portability of skills so that they can have their knowledge recognised if they leave the school system early and want to resume their studies at a later stage. This is particularly relevant for Mexico as there is a high dropout rate, especially in upper secondary education. However, further areas of improvement remain. The curriculum has not yet been translated into a module-based structure where a person can acquire a given qualification depending on the level of knowledge he/she has about a specific subject. This makes it difficult to address potential deficiencies based on identified learning gaps of the student.

Box 3. Focus on Mexico: Education reform *(continued)*

While the curriculum might be competency based, and teachers may have received a competency based training, there are few assessment mechanisms that are competency oriented. This limits the evidence on whether students are actually developing the profile with the specific competencies that they are supposed to have developed. This highlights the need for improved monitoring and evaluation to ensure that these remaining challenges are effectively addressed.

In order to support the **equitable distribution of support and financing**, several targeted funding schemes and support programmes have been implemented, particularly among disadvantaged schools and states. The *Programa Escuelas de Calidad* (PEC, Quality Schools), which was launched in 2001, allocates grants to finance school-improvement plans. It grants autonomy to schools and encourages shared decision making among directors, teachers, parents, union representatives, former students and community members through School Participation Councils. Nearly half of all schools in Mexico have an affiliated Council. The Strategic Plan for School Transformation *Plan Estratégico de Transformación Escolar* (PETE) helps stakeholders to develop an annual work plan, for which a five-year grant is awarded. Some 70% of the grant for the first four years, and 50% of the funds for the fifth year, are allocated for supplies, infrastructure and other material resources. Between 2009 and 2012, the *Estrategia para la Mejora del Logro Educativo* (EIMLE, Strategy for the Improvement of Educational Achievement) reached more than 7 000 of the lowest-achieving schools by training networks of teachers and building capacity within the schools through mentorships. The *Programa Escuelas de Tiempo Completo* (PETC, Full-time Schools) aims to lengthen the school day by four hours. It mainly focuses on marginalised urban populations, or populations with large proportions of indigenous, migrant, or other low-performing students. Three years after it was created in 2007, PETC had reached over 2 000 schools across 30 states. Meanwhile, ConstruyeT, a programme that focuses on the development of socioemotional skills for students, reaches one-third of Mexico's schools and enjoys the support of the United Nations Children's Fund (UNICEF), the United Nations Development Programme (UNDP), UNESCO and 29 non-governmental organisations (NGOs); and the Better Schools Programme has refurbished 19 000 pre-primary to lower secondary schools most in need of repair. Although these programmes mostly target disadvantaged schools and states, the nature of PISA data cannot establish the extent to which, if at all, these programmes have promoted Mexico's performance in PISA (OECD, 2012b).

As **dropouts** are a significant challenge, some programmes provide incentives for students to stay in school. *Prospera* is a cash-transfer programme targeting health and education for families living below the poverty line. The programme began in 2002 and reached more than five million families in 2012, helping to improve enrolment rates in secondary education, particularly among girls. The *Programa de Becas de Media Superior*, another cash-transfer programme, aims to reduce dropout rates at the upper secondary level. These programmes may have contributed to the reduction of dropout rates, but other factors may also have contributed as well, as dropout rates were declining even before these programmes were implemented (SEP, 2013).

Vocational education and training has been expanded. The government has taken steps to expand the supply of technical education by promoting training and vocational programmes (e.g., CONALEP, *Bécate*, *Modelo de Emprendedores de Educacón Media Superior*). These programmes allow young people to continue to higher education and work if needed. Through technological and polytechnic institutes that provide vocational training, the government is seeking to facilitate the immersion of students in the labour market and the development of skills required by productive sectors and major clusters, such as the aerospace and automotive industry.

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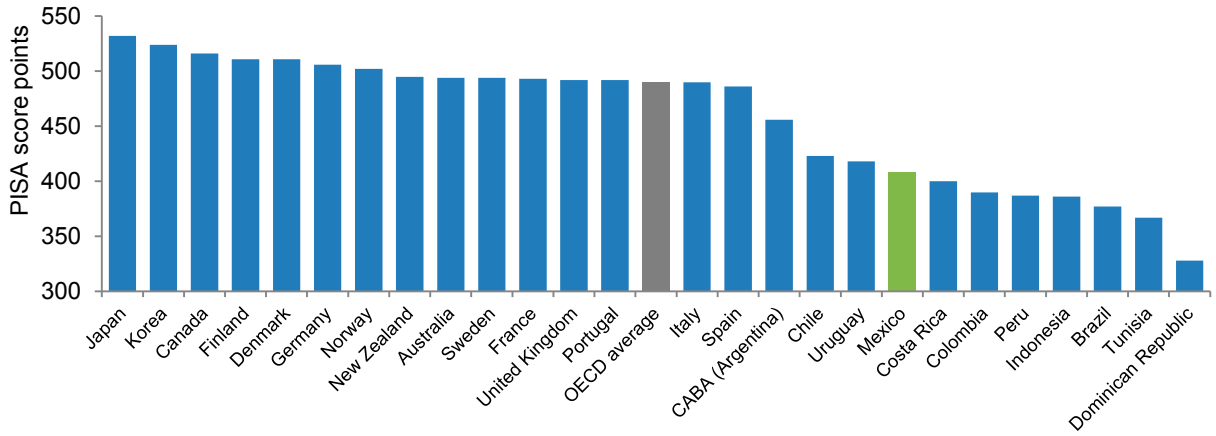
Many Mexican students do not develop the skills in compulsory education that are needed for success in further education and work[1]

Mexican youth have, on average, low levels of cognitive skills when compared with their counterparts in other OECD countries. PISA finds that, on average, Mexican 15-year-olds enrolled in education rank among those in the lower end of the scale in mathematics, reading and science, below the OECD average and slightly above the average of other Latin American countries that participated in PISA. For example, in mathematics, the mean score of Mexican 15-years-olds in 2015 was 408 points, which when compared with the OECD average (490 points) is the equivalent of approximately two fewer years of formal schooling, and when compared with the highest performers, Japan (532 points), Korea (524 points), and Switzerland (521 points), is equivalent to approximately three fewer years.[2] (OECD, 2016c). This places Mexico at the bottom of OECD countries and at a similar level with Uruguay (418 points) and Costa Rica (400 points), but still above Colombia (390 points), Peru (387 points), Brazil (377 points), and the Dominican Republic (328 points) (OECD, 2016c) (Figure 5).

While Mexico's performance in mathematics has improved significantly from 2003 to 2009, it has dropped since then. Performance in reading and science has remained stable. The improvement in mathematics from 385 points in PISA 2003 to 408 points in PISA 2015 converts into an average yearly increase of 1.9 points. However, at this rate of improvement, it would take another 43 years (2058) for Mexico to catch up with the 2015 OECD average (OECD, 2016c).

The performance difference between advantaged and disadvantaged students in Mexico is relatively small. In PISA 2015 across OECD countries, a more socio-economically advantaged student scores 38 points higher in science – the equivalent of more than one year of schooling – than a less-advantaged student. In Mexico, the difference is 19 score points – the smallest among OECD countries – while in other Latin American countries it ranges between 25 and 35 score points (OECD, 2016c).

Figure 5. Mean score in mathematics in PISA 2015



Note: CABA means "Ciudad Autonoma de Buenos Aires".

Source: OECD (2016c), PISA 2015 Results (Volume I): Excellence and Equity in Education, PISA, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264266490-en, Figure I.1.1 Snapshot of performance in science, reading and mathematics.

However, a high proportion of students in Mexico are still low performers at school. Across countries, low performance is associated with a combination of factors, such as students' socio-economic, demographic and education background, their attitudes towards school and learning, teacher and school practices, and policies governing school systems (OECD, 2016a). In Mexico, the share of low performers[3] in mathematics (Figure 6a) and in reading (Figure 6b) decreased by about 11 and 10 percentage points

respectively between PISA 2003 and 2015. However, Mexico still has a long way to go, as in 2015, still 56.6% of students were low performers in mathematics (OECD average 23.4%), 41.7% were low performers in reading (OECD average 20.1%), 47.8% were low performers in science (OECD average 21.2%), and 33.8% were low performers in all three of these subjects (OECD average 13%) (OECD, 2014a). Box 4 provides an example of how other countries support low performers.

Figure 6a. Trends in low performance in mathematics between PISA 2003 and PISA 2015

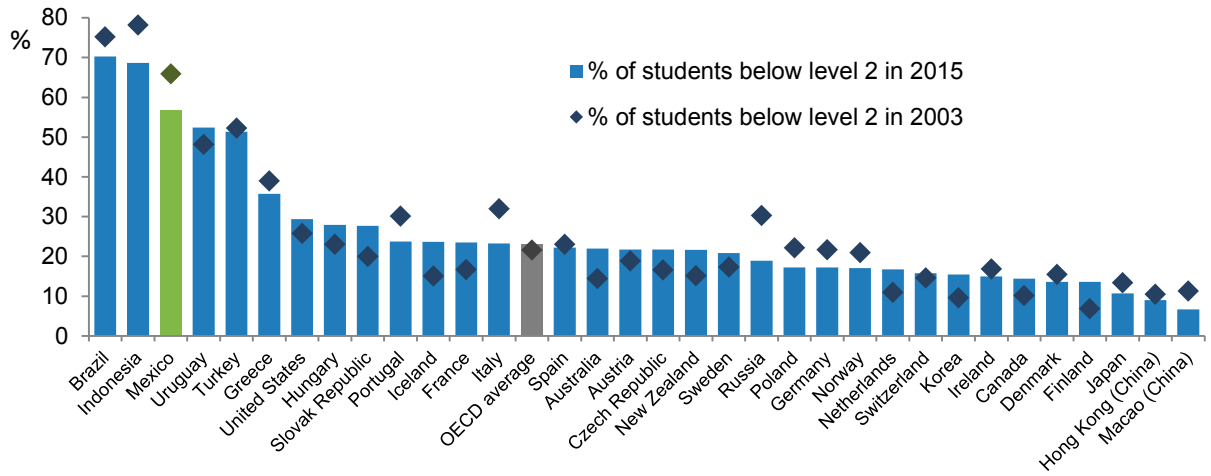
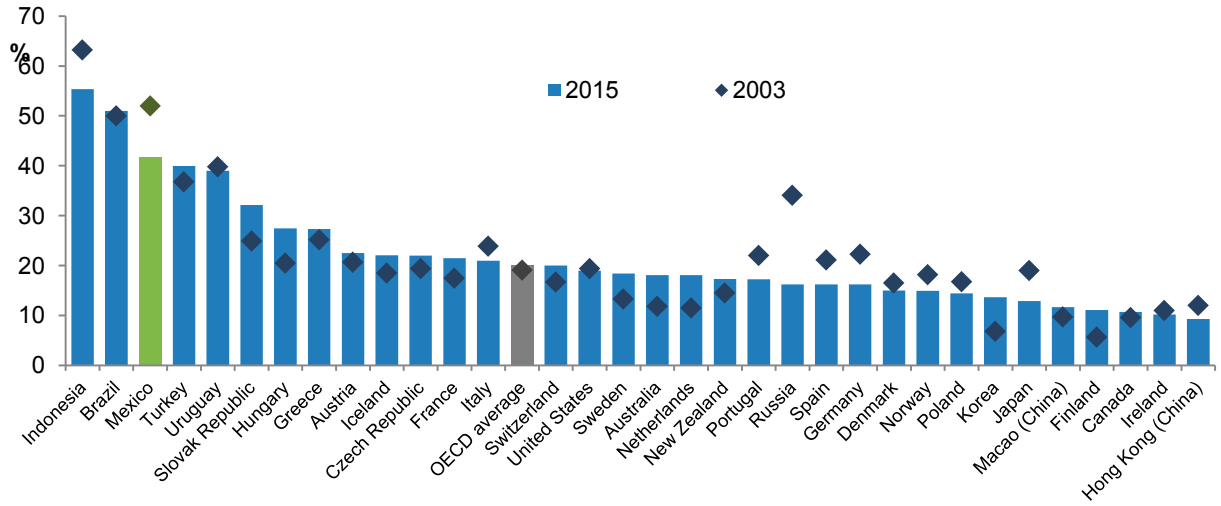


Figure 6b. Trends in the share of low achievers in reading between PISA 2003 and 2015



Note: Countries and economies are ranked in descending order of the share of students who scored below Level 2 in reading in 2015.

Source: OECD (2016c), PISA 2015 Results (Volume I): Excellence and Equity in Education, PISA, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264266490-en, Table I.4.2a Percentage of low achievers and top performers in reading, 2009 through 2015; and OECD calculations based on OECD (2004), Learning for Tomorrow's World: First Results from PISA 2003, OECD Publishing, Paris: http://dx.doi.org/10.1787/9789264006416-en.

Box 4. Policy in focus: Supporting low-performing students

Across OECD countries, the question of how to support low-performing students is of critical importance. Students who are low performing are more likely to dropout. Poor performance at school has long-term consequences for the individual and for society. When a large share of the population lacks basic skills, a country's long-term economic growth is compromised. Across the OECD, one in four students did not attain a baseline level of proficiency in at least one of the three core subjects assessed in PISA: reading, mathematics, and science. The following provides some concrete policy examples from Canada, Ireland and Finland. For more information and more country examples, please consult OECD (2016a), *Low-Performing Students, Why they fall behind and how to help them succeed.*

In Canada, there are intergovernmental agreements to support aboriginal students in provinces and territories, and to improve outcomes for official-language minorities. There are initiatives in areas such as the provision of programmes, student performance, enriching the school environment and support to educational staff. A multilateral multi-year Protocol for Agreements for Minority Language and Second-Language Education with the Council of Ministers of Education, Canada (1983, re-structured in 2013) sets the parameters for this intergovernmental collaboration.

In Ireland, the school completion programme (SCP) aims to prevent students from falling behind and dropping out, at both primary and secondary school levels. This programme includes different activities to support students, depending on the particular circumstances of each school. Examples include: breakfast clubs, afterschool support, homework clubs, out-of-school and holiday programmes, mentoring, learning support, social and personal development and therapeutic support.

In Finland, there is unification of the school curriculum and individualised learning in comprehensive schools. Individualised learning and differentiated instruction have become basic principles. Students build their own learning schedules from a menu of courses offered in their school or by other education institutions. Courses selected can be completed at a different pace, depending on students' abilities and life situations. Students may repeat courses that were not passed satisfactorily.

For more information on approaches to account for disadvantaged students in **school financing**, see Challenge 8.

Sources:

OECD (2016a), *Low-Performing Students: Why They Fall Behind and How to Help Them Succeed*, PISA, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264250246-en.

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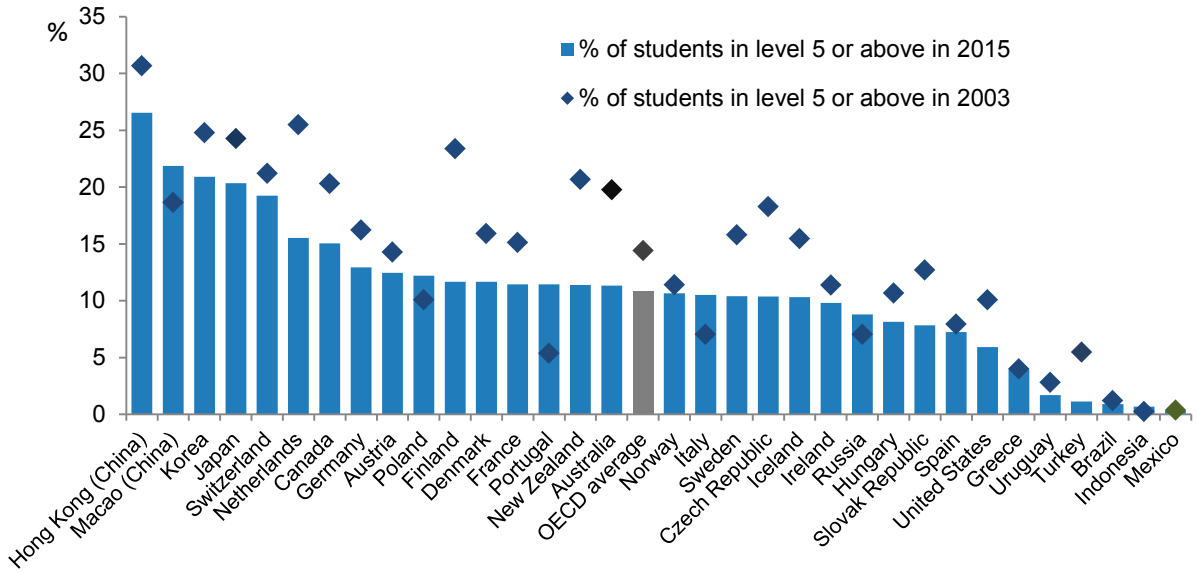
Välijärvi, J. and P. Sahlberg (2008), "Should 'failing' students repeat a grade? A retrospective response", in *Journal of Educational Change*, Vol. 9/4, pp. 385-389.

A very small share of Mexican students are high performers. While across the OECD around 10.7% of students who have taken PISA in 2015 reach the highest levels of 5 and 6 in mathematics, in Mexico it is only around 0.3% (Figure 7). Even top students in Mexico have a similar performance as the average student in Japan (532 points). This tendency is similar in reading and science, where the percentage of students reaching the highest levels of 5 and 6 was only 0.3% and 0.1% respectively, compared to the OECD average of 8.3% and 7.7% for both subjects respectively (OECD, 2016c).

Figure 7. Trends in high performance in mathematics between PISA 2003 and PISA 2015

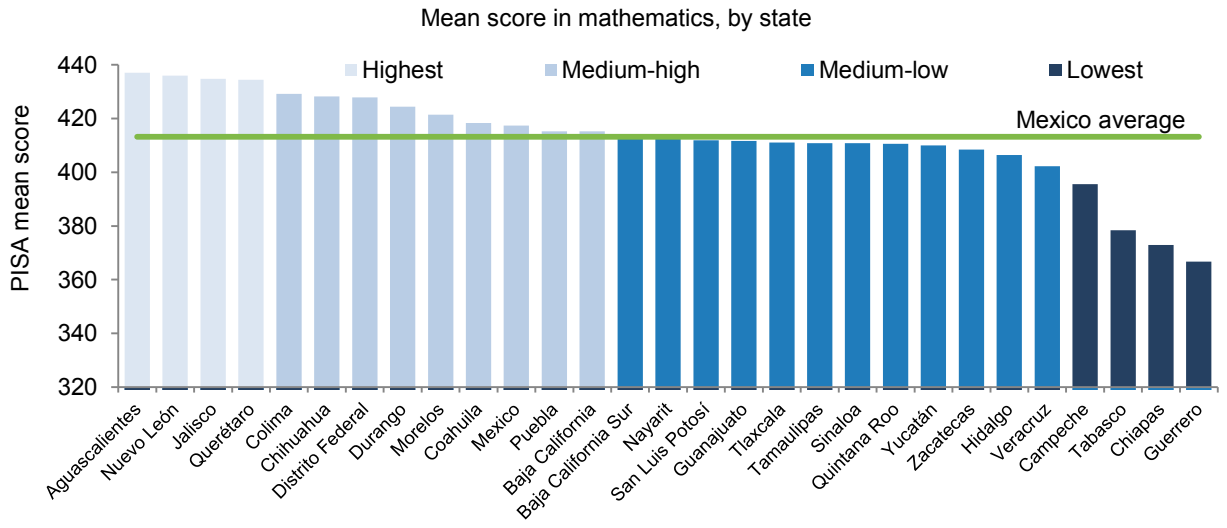


Note: Countries and economies are ranked in descending order of the share of students who scored at Level 5 or above in mathematics in 2015.

Source: OECD (2016), PISA 2015 Results (Volume I): Excellence and Equity in Education, PISA, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264266490-en, Table I.5.2a Percentage of low achievers and top performers in mathematics, 2003 through 2015.

There is wide variation in student performance across regions in Mexico. Since data disaggregated by regions for Mexico is not available in the latest 2015 PISA round, Figure 8 includes data from the previous 2012 PISA round. The best performing regions are Aguascalientes, Nuevo León, Jalisco and Querétaro, with average proficiency scores in mathematics of around 435 points. These regions still rank significantly below the OECD average (494 points), similar to the United Arab Emirates (434 points) and Kazakhstan (434 points), and exceed that of Chile (423 points). At the other end of the skills spectrum are the regions of Guerrero (367 points) and Chiapas (373 points), which are performing similarly to Peru (368 points) and Indonesia (375 points). These two Mexican regions have the largest percentage of students with a low economic, social and cultural status (ESCS)[4] across all Mexican regions, which is likely an important determinant for the low student performance. In Guerrero, 72.9% of students, and in Chiapas 72.7%, have low ESCS, which is much higher than other Mexican regions, such as Aguascalientes (46.6%), Jalisco (54.8%) and Querétaro (52.6%), and significantly higher than even the regions with the lowest student outcomes in other OECD countries, such as Extremadura in Spain (35.7%) and Manitoba in Canada (8.5%) (OECD, 2014a).

Figure 8. Distribution of student performance in PISA across states in Mexico, 2012



Source: OECD (2013a), PISA 2012 Results: Excellence Through Equity: Giving Every Student the Chance to Succeed (Volume II) (Annex B2: Results for regions within countries), PISA, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264201132-en.

Student performance differs by gender. On average, Mexican boys outperform girls in mathematics by 7 points and in science by 8 points. Girls outperform boys in reading by 16 points. The experience in other countries and economies in PISA shows that it is possible to close gender gaps over time (OECD, 2016c). For example, in Shanghai (China) and Singapore, girls perform similar to their male classmates in mathematics. This suggests that gender gaps are not determined by innate abilities, but can be reduced through efforts by parents, teachers and policy makers to ensure that both girls and boys receive all the support they need to realise their full potential and contribute to the economic growth and well-being of society (OECD, 2015a). Lessons on how to combine quality with equity can be learned from Shanghai (China) and Singapore (see Box 5).

Box 5. Policy examples of improving quality and equity in education

The experiences of Shanghai and Singapore provide relevant lessons on how to improve quality and equity in the education system.

Shanghai has been able to raise quality and equity considered through specific measures in curriculum, teacher training and school support. A comprehensive curriculum reform has broadened students' learning experiences, enhanced the relevance of subjects by relating them to broader human and social issues, and concentrated on the development of "capability" rather than accumulation of information and knowledge (OECD, 2011). All new teachers participate in workshops, mentoring and peer observation; they also analyse lessons in groups with experienced teachers. Teachers are able to join teaching research groups in order to discuss techniques. They also must observe experienced teachers conduct lessons in their classroom at least eight times a semester, while new teachers are also observed and given advice on how to improve their lessons and teaching strategies. Experienced as well as new teachers talk through lesson plans and explain their methods and approaches to the lesson plans (OECD, 2015c). Every teacher is expected to engage in 240 hours of professional development within five years. In the "entrusted school management" model poor performing schools are supported by high performing schools with management and professional development. With a decentralised funding system the city government can provide additional funding to weaker school districts. These measures may explain how Shanghai has one of the highest shares of disadvantaged students in the top 25% as tested by PISA and a relatively lower gender performance gap across assessed subjects. This is quite a feat especially considering nearly half of the basic education students being migrants (World Bank, 2016).

Box 5. Policy examples of improving quality and equity in education *(continued)*

Singapore has developed a high-quality system in terms of educational retention, quality and efficiency. There has been a long-term vision and strong leadership in education that supports the skills development of all students regardless of gender and ethnicity. There has been persistent political leadership and alignment between policy and practice and coherence across levels of government. The standards set by the Primary School Leaving Examination and O- and A-levels are high to ensure that all students graduate with strong foundation skills. Teachers and principals are held accountable on the results. Teachers are selected carefully, well-prepared, rewarded based on performance and supported through continuous professional development. Recent measures include the GROW package referring to initiatives to promote teacher Growth, Recognition, Opportunity and Well-being. The best teachers are assigned to the schools that struggle the most. These measures among others could explain how Singapore was able to develop a poor education system in the 1960s to one of the best with its students achieving the highest results in the latest PISA 2015 round (OECD, 2015c; 2016c).

Sources:

OECD (2011), *Lessons from PISA for the United States, Strong Performers and Successful Reformers in Education*, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264096660-en.

OECD (2015c), How your school compares internationally, OECD Test for Schools (based on PISA), OECD Publishing, Paris.

OECD (2016c), PISA 2015 Results (Volume I): Excellence and Equity in Education, PISA, OECD Publishing, Paris. http://dx.doi.org/10.1787/9789264266490-en.

World Bank (2016), How Shanghai does it, World Bank Group, https://openknowledge.worldbank.org/bitstream/handle/10986/24000/9781464807909.pdf.

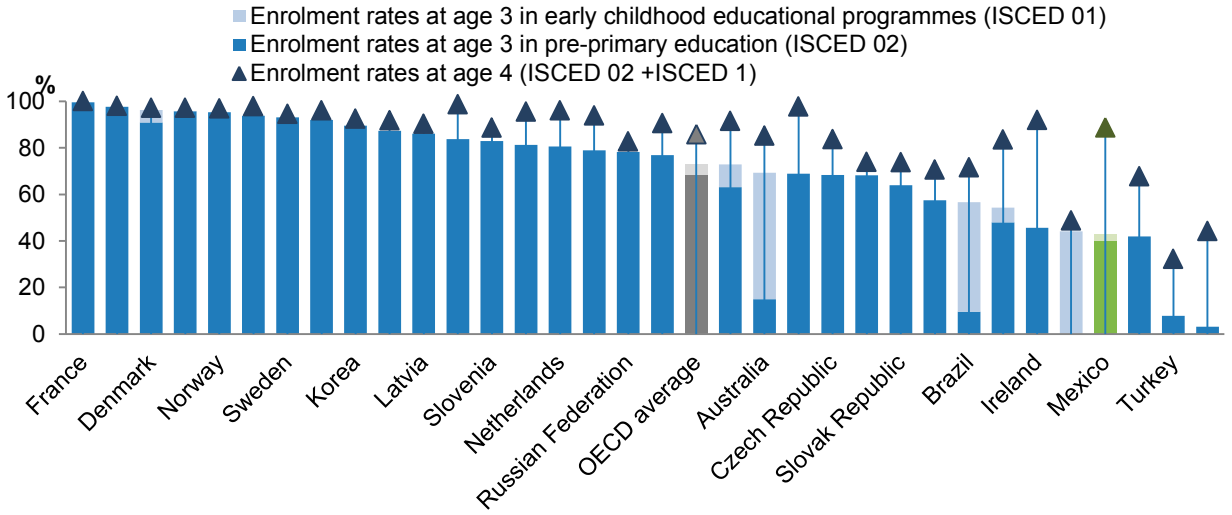
Student performance differs by socio-economic background. The variation in student performance in science attributed to differences in students' socio-economic status reduced from 16.9% in 2006 to 10.9% in 2015, which is below the OECD average of 12.9% (OECD, 2016c). This means that 15-year-olds' chances of becoming high or low-achieving students in 2015 were less related to their socio-economic status than in 2003. This shows that there have been improvements in equity of learning outcomes, which can be largely attributed to a decrease in performance gaps across schools. In particular, schools that had a poorer performance and that served students with the greatest disadvantages improved over time (OECD, 2013b). The percentage of students who are resilient – the share of students in the bottom quarter of the socio-economic scale within a country who perform among the top quarter of students – in Mexico is 12.8%. However, it still falls below the OECD average (29.2%), and is far behind other high performing countries, such as Japan (48.8%), Finland (42.8%) and Korea (40.4%) (OECD, 2016c).

Indigenous students have been performing historically below the average in Mexico. While PISA data doesn't have a direct indicator of whether a student has an indigenous background or not, the student background survey asks students whether they speak a language other than Spanish at home. During the PISA 2012 round, as regional disaggregated data is not available in the PISA 2015 round, in Mexico, students who spoke a different language at home scored, on average, 26 points below students who spoke Spanish at home. This means that, on average, such students are approximately just over half a year of formal schooling behind their peers. According to the latest available information form the National Commission for the Development of Indigenous People (Comisión Nacional para el Desarrollo de los Pueblos Indígenas), around 10% of the Mexican population considers themselves indigenous. Among these, around half speak one of the 62 indigenous languages. The share of students not speaking Spanish at home varies across regions in Mexico, with the largest shares found in Chiapas (12.1%), Guerrero (10.4%), Yucatán (7.5%), Puebla (7.2%), Campeche (6.9%), Quintana Roo (6.2%), San Luis Potosí (6.0%) and Hidalgo (5.6%) (OECD, 2014a). This coincides with the regions that have the largest share of indigenous groups. Educational policies have evolved from a policy of hispanisation (castellanización), which promoted Spanish as the dominant and only language of instruction and learning, to one of intercultural bilingual education (educación intercultural bilingüe), which also values indigenous languages. However, the lack of sufficient resources, political support and teacher training in intercultural bilingual education makes the implementation of this education policy challenging (Lopez & Küper, 1999).

Few youth complete compulsory education.

Enrolment in early childhood education in Mexico has increased significantly, but there is still room for improvement. Early childhood education is important, with studies finding it to have a significant impact on adult outcomes, such as completion of compulsory education, participation in tertiary and further education, employment, earnings, marriage, health and reduced participation in crime (Heckman, Pinto and Savelyev, 2013). This is particularly relevant for children from disadvantaged backgrounds. Since pre-school education became compulsory in Mexico in 2004, enrolment rates at this level have risen, with about 89% of 4-year-old children enrolled in 2013. This is slightly above the OECD average, but still below other OECD countries such as France, New Zealand and the Netherlands, where it is close to 100%. The enrolment rate of 3-year-olds in Mexico is also still well below the OECD average (44% compared to 74%). These differences are particularly important in a country like Mexico, where the difference in skills performance between students who attended pre-primary education (ISCED 0) for more than one year and those who did not is one of the largest among PISA-participating countries and economies (rank 9/61) (Figure 9). Evidence suggests that interventions supporting children as young as 3-years-old, and even in the antenatal period, may be the most effective in ameliorating socio-economic inequalities and the most cost-effective in terms of yielding the highest economic and social returns (Doyle, Harmon, Heckman and Tremblay, 2009).

Figure 9. Enrolment rates of 3 and 4 year-olds in early childhood and primary education, 2014



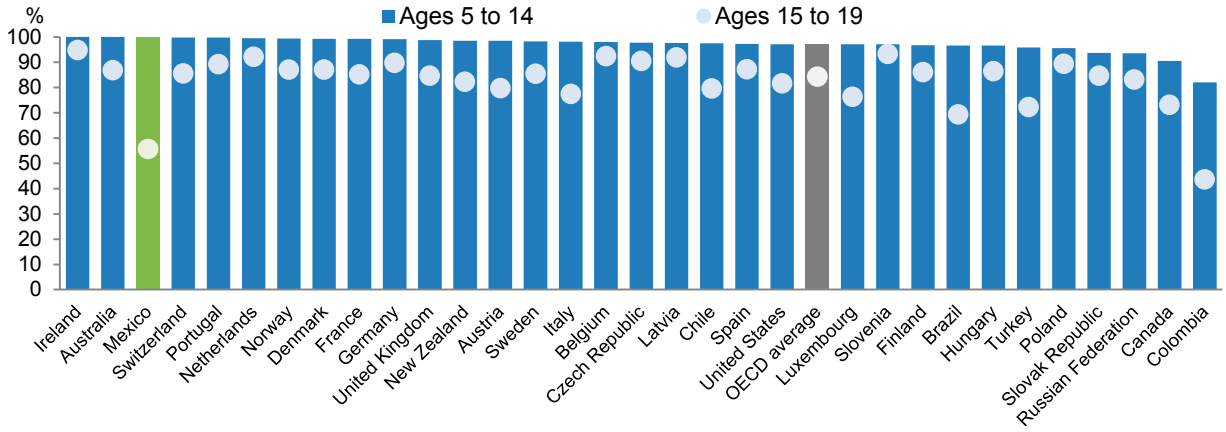
Source: OECD (2016b), *Education at a Glance 2016: OECD Indicators*, Table C2.1, OECD Publishing, Paris, http://dx.doi.org/10.187/eag-2016-en.

While enrolment in primary and lower secondary school is almost universal in Mexico, a large share of students at upper secondary education age are not enrolled in school. The enrolment rate of 15-19 year-olds in all educational programmes (all levels of education, public and private) drops to around 55.6%, the lowest enrolment rate for this age group among OECD countries, and well below the OECD average of 84% (OECD, 2016b) (Figure 10). Dropouts are related to factors that are internal and external to the school. Data from the 2010-2011 National Survey about Dropouts in Upper Secondary Education (*Encuesta Nacional de Deserción en la Educación Media Superior*) reveal some patterns across groups: 55% of dropouts are male and 45% are female; the dropout rate in urban areas is 15.2%, while in rural areas it is 11.9%; the dropout rate varies by education programme, with general high school (*bachillerato general*) at 13.4%, technological high school *bachillerato tecnológico* at 15.7% and professional high school (*professional técnico*) at 22.7%; the dropout rate in private schools is 15.7%, versus 14.7% in public schools (SEP, 2012).

The high dropout rate in Mexico is related to factors internal to the school. A variety of factors, such as students' academic performance, their levels of engagement, the quality and relevance of education services, poor and insufficient career guidance services in schools, and education system level policies (e.g. grade repetition, school violence) can explain dropouts (OECD, 2012c). In Mexico, most dropouts occur once students have registered in upper secondary, rather than in the transition from lower to upper secondary school (INEE 2012). This suggests that it is more important to improve the quality and relevance of upper secondary education than to increase access. This is reflected in a 2009 ENOE survey, in which students in Mexico reported the main reasons for leaving school: 52% said the lack of financial resources to pay for school and the need to support the family household financially; 12% said pregnancy, marriage and partnership; and 11% said a lack of interest in studying (INEGI, 2009). When students are in lower secondary school they have to complete a list of preferences on upper secondary tracks and schools. In the Mexico Metropolitan Area, students are then assigned to a school, but sometimes the assigned school does not match the students' preferences. This means that for some students, the upper secondary track they want to pursue is not available at their assigned school. For example, students who indicated their preference for the general upper secondary track could be assigned to the vocational education and training track. Although this doesn't inhibit their access to higher education later on, it could leave them discouraged, poorly equipped for success in tertiary education, and lead to stigma from other students, parents, and employers, among others. While the 2008 reform (RIEMS) enables students to switch from one school or track to another, it is not yet common practice. These factors are likely to exert influence on students' decisions to dropout (IDB, 2014).

The high dropout rate is also related to factors external to the school. Dropout rates may be related to low socio-economic backgrounds of students and their families, which exert pressure to start generating income sooner rather than waiting until finishing education. This can be exacerbated when the relative demand for low-skilled labour in the manufacturing and informal sectors is high, which raises the opportunity cost of remaining in school. Students from low socio-economic background families also tend to have parents with low educational attainment, which may be reflected in the value they place on education. These parents may convey their feelings to their children and have less ability to support them to succeed in school (e.g. help with homework). Another factor may be the place of residence and the geographic distance to the nearest school offering upper secondary education; students in rural areas may in particular be only able to receive upper secondary education through distance education programmes (*Telesecundaria*), which are less engaging. The migration of household heads to the United States may contribute to higher dropouts by reducing the time parents spend with their children and creating the expectation among children to work in low-skilled jobs in the United States later on in life (OECD, 2015b).

Figure 10. Enrolment rates in education, by age group, 2014



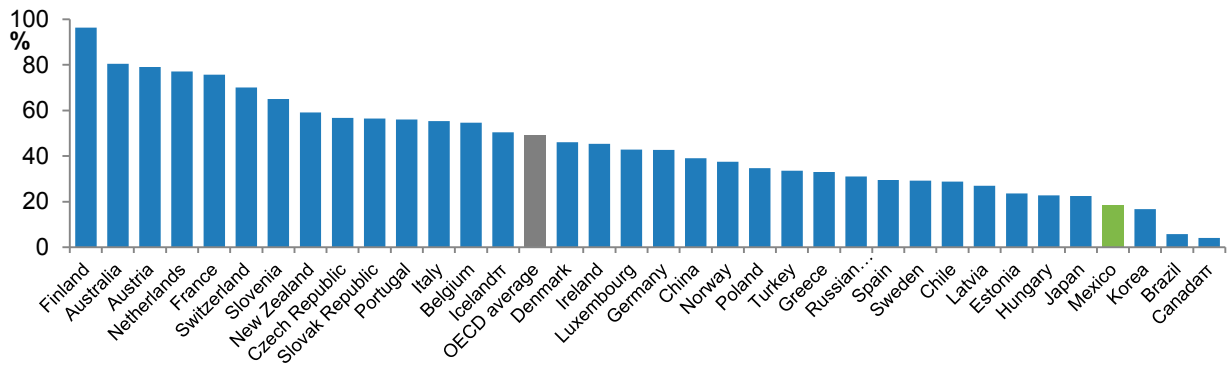
Notes: Data by country are ranked in descending order of enrolment rates of 5-14 year-olds. Data for Canada refers to 2013 and excludes early childhood and post-secondary non-tertiary education.

Source: OECD (2016b), *Education at a Glance 2016: OECD Indicators*, OECD Publishing, Paris, http://dx.doi.org/10.187/eag-2016-en.

Across the OECD, VET is considered an effective measure to reduce dropout, but participation in Mexico is relatively low. Through its practical orientation and connection to the world of work, VET programmes are seen as attractive options for students at risk of dropping out as they provide them with practical skills needed in the labour market and smooth the transition from school to work. The quality of VET can make a major contribution to economic growth and competitiveness, especially considering Mexico's large manufacturing sector (OECD, 2015b). In Mexico, the VET system starts from lower secondary levels (*Secundaria Técnica, Bachillerato Tecnológico, Profesional Técnico*) and continues until tertiary education level (*técnico superior universitario,*). Students can choose to enter the upper secondary education vocational education and training track, which lasts generally three years and aims to prepare students for tertiary level education or employment. These would lead typically to a *bachiller técnico* or a *técnico profesional* (UNESCO/UNEVOC, 2015). The tertiary level options will be addressed in the corresponding section in Challenge 2. Despite many efforts to increase student participation in VET, in Mexico still only 19% of students graduated from a vocational programme in upper secondary education in 2014, compared to 46% across the OECD (OECD, 2016b) (Figure 11).

Figure 11. Vocational upper secondary graduation rates

Data from year 2014



Source: OECD (2016b), *Education at a Glance*, Table A2.4, OECD Publishing, Paris, http://dx.doi.org/10.187/eag-2016-en. See Annex 3 for notes.

Current efforts seek to improve vocational education and training, but more could be done. In 2015, a dual VET system was introduced in Mexico, based on the German Dual system, that allows students to complete an upper secondary technical degree (equivalent to a Technical Baccalaureate). During three years of study, students alternate between classroom instruction (20%) and work-based learning (80%). This system is managed through a partnership between the Ministry of Education and COPARMEX (the Mexican Employers' Association). The offered career tracks are based on the needs of COPARMEX member firms and include sectors such as: industrial electro-mechanics, information systems, administration, accounting, hospitality, and telecommunications. Participating firms pay a monthly quota to cover the co-ordination and management costs of COPARMEX, and also bear the in-house training costs of instructors/trainers. The government covers the costs of the classroom instruction and pays the student a monthly stipend similar to an entry-level salary. The curriculum follows the Common Curriculum Framework, which was introduced in 2008, and specifies the minimum competencies an upper secondary education graduate should have, and the competency standards in the National Competence System (SNC, for more information see Box 6) (IDB, 2016). An example of this system from the automotive industry is the establishment of the Centre for Dual Specialization in Puebla, with support from the German Chamber of Commerce (McKinsey & Company, 2012). However, there is still wide variation both in the quantity and quality of workplace training available for VET students. The number of participating firms is still limited and can thus only accommodate a low number of apprentices. There is still no formal evaluation in terms of graduates' labour market performance. A national

qualification framework would support apprentices' mobility across firms or sectors as the qualification would be a reliable indication of their skills (IDB, 2016; see also Challenge 2).

Linkages between VET and employers could be better, and employers could be more involved in VET policy developments (OECD, 2013c). This is particularly important to ensure that the financial responsibility can be shared between the government and employers. Simply expanding apprenticeship programmes without sufficient cost-sharing would be unsustainable for the government. Employers are more likely to offer workplace training opportunities when the perceived benefits cover the costs (i.e. apprentice wages, time of experienced employees, mistakes by inexperienced apprentices, teaching material, administrative costs, etc.). This is especially relevant for smaller firms. To share the financial burden, countries such as Austria and Switzerland have set up sectoral training funds that all companies from the sector contribute to, and through which the companies that train are reimbursed (Kis et al, 2012). Incentives for schools to develop skills demanded by the labour market also need to be strengthened, as expressed by Mexican experts during technical meetings with the OECD team. High quality data on labour market outcomes of VET graduates in the form of public information could create incentives for VET schools to improve the labour market relevance of their training. Teachers and trainers in the schools could be encouraged to update their vocational skills and could be rewarded through a special funding scheme. VET teachers could spend time in firms and exchange with firm-based employees, which is done in Finland in the Telkkä programme (Kis et al, 2012). Through further efforts in these areas, more youth could perceive VET as an attractive option. In a survey by McKinsey, 65% of youth reported that the academic track was more valued in society than the vocational track (McKinsey & Company, 2012).

Box 6. National Competence System (SNC)

Mexico does not have a comprehensive National Qualifications Framework. Technical and vocational qualifications are based on the National Competence System (*Sistema Nacional de Competencias*, SNC), which is overseen by the National Council for Normalisation and Certification (*Consejo Nacional de Normalización y Certificación de Competencias Laborales*, CONOCER). CONOCER is the only institution in Mexico that grants official certificates of competency. Competency standards for each sector are developed by Competences Management Committees composed of individuals accredited by CONOCER to serve as representative bodies in a given industry.

The aim of the SNC is to improve the recognition and comparability of formal, non-formal and informal learning. The SNC is comprised of three councils that represent employees, employers and the government. The employers have three representatives: the entrepreneurial co-ordination council (C*onsejo Coordinador Empresarial*), the Mexican Employers Confederation (*Confederación Patronal de la República Mexicana*), and the Confederation of Industrial Chambers of the Mexican United States (*Confederación de Cámaras Industriales de los Estados Unidos Mexicanos*). The employees are represented through the Revolutionary Confederation of Workers and Peasants (*Confederación Revolutionaria de Obrerors y Campesinos*), Confederation of Mexican Workers (*Confederación de Trabajadores de México),* and the Labour Congress (*Congreso del Trabajo*). The government is represented through the Ministry of Education (SEP), Ministry of Employment (STPS), Ministry of Economy (SE), Ministry of Agriculture (SAGARPA), Ministry of Tourism (SECTUR), Ministry of Energy (SENER) and Ministry of Finance (SHCP) (AFC, 2015).

Specific Competence Management Committees (*Comités de Gestión por Competencias*) composed of a group of representatives from specific sectors are responsible for defining the competency standards and providing recommendations for the assessment and certification. There are currently 80 committees responsible for diverse economic and social sectors, such as: public administration, agriculture, water, commerce, construction, education, finance, logistics, tourism, and transport (CONOCER, 2016).

Sources:

AFC (2015), Technical and Vocational Education and Training, Mexico Case Study.

Conocer (2016), ¿Qué es un comité de gestión por competencias? http://www.conocer.gob.mx/index.php?option=com_wrapper&view=wrapper&Itemid=183.

Many factors are important for student performance and the completion of compulsory education

Internal and external factors to the school influence student performance and the completion of school. Some factors external to the school include the socio-economic and family background of students, the level of education of parents, and the lure of the labour market. While these factors have to be taken into consideration and addressed through complementary social and labour market policies, well-functioning schools can also play an important role in counterbalancing these factors. The remainder of this section will examine the factors internal to the school that affect skills performance and the completion of compulsory education. These include: grade repetition, information and guidance system, time spent in school, teachers, and financial resources (OECD, 2013b).

Grade repetition matters. While 30% of 15-year-old students participating in PISA in 2003 reported that they had repeated a grade at least once in their schooling, only 15.8% reported so in 2015. While this is still above the OECD average of 11.3%, it is far below other OECD countries such as Spain (31.3%), Portugal (31.2%), and Chile (24.6%). This is a sign of improvement, as grade repetition is negatively related to equity in education. Systems where more students repeat a grade tend to show a stronger impact of students' socio-economic status on their performance (OECD, 2013d). Grade repetition is costly for the individual and society. Instead of being seen as an enabling opportunity, it is often perceived as a form of punishment and social stigma and can be a source of stress and bullying (Anderson, Jimerson and Whipple, 2005). Repeating students are more likely to get involved in high-risk behaviour and dropout. Any slight gains in the retained year also tend to fade in later years. For society, it increases expenditure on education and other social services (Jimerson, Pletcher and Graydon, 2006), while delaying entry to the labour market, and associated tax payments, by a year. In order for Mexico to further reduce grade repetition, a number of policy alternatives could be considered, such as: early support and comprehensive assessment as a form of prevention; train teachers to accommodate for students with diverse skill levels; provide remedial classes before or after school, on Saturdays, or in summer to support low performing students; improve information about students' performance among teachers to recognise and address students' weaknesses more effectively; offer transition programmes that allow students to attend both new and failed classes; allow students to change to other equivalent educational programmes that are better aligned to their learning interests and skills (OECD, 2012c). Some schools, at least at the upper secondary level, are already doing some of these initiatives. However, these measures have not been institutionalised as alternatives available for all schools, teachers and students, regardless of the paths they offer, their source of funding or any other criteria.

Information and guidance systems matter. Career guidance services could provide students and parents with relevant and quality information about learning and career pathways to enable them to make informed decisions about the pros and cons of dropping out of upper secondary education. Many, if not most, may not realise the long-term negative economic and social effects of not completing upper secondary education, and how those outweigh the short-term benefits of earning income through a low-skilled job. Effective information and guidance systems are: based on a comprehensive and accessible database; provide services (brief to extensive) according to personal needs and circumstances; ensure diversity in the types of services available and the ways that they are delivered (e.g. self-help modules, diversity among staff, use of ICT); and have quality assurance mechanisms (e.g. feedback from students) in place linked to the funding of these services (OECD, 2004). The Labour Observatory from the Ministry of Labour is an example of such an initiative, and although it performs an excellent function, it could benefit from further improvements by integrating additional information, making the design more user-friendly and expanding its use to students, schools and parents. A number of online tools exist, as is elaborated in Challenge 2.

Time spent in school matters. In 2012, students in Mexico spent around 253 minutes in mathematics lessons per week; a 15-minute increase from 2003, and above the OECD average of 217 minutes. Increasing the quantity of learning time is important, as evidence suggests that the more time students spend learning, on average, the higher their grades (Fisher et al., 1980; Smith, 2002; Lavy, 2010). Students in other high-performing countries and economies spend even more time in learning mathematics, such as Canada (313

minutes), Singapore (287 minutes) and Shanghai (China) (269 minutes). However, research also shows that the amount of time spent in learning is not all that matters: the quality of the learning experience is also very important for academic achievement (Carroll, 1963, 1989; Sheerens & Bosker, 1997; Marzano, 2003). Some of the highest performing OECD countries, such as Finland (175 minutes) and the Netherlands (170 minutes), spend among the fewest minutes learning mathematics. The quality of the learning experience depends fundamentally on the quality of the teachers, who have to be well-prepared through effective teacher training programmes and sufficiently supported through induction programmes when they first start, and continuous professional development throughout their teaching career.

Teachers play a critical role in improving student learning outcomes

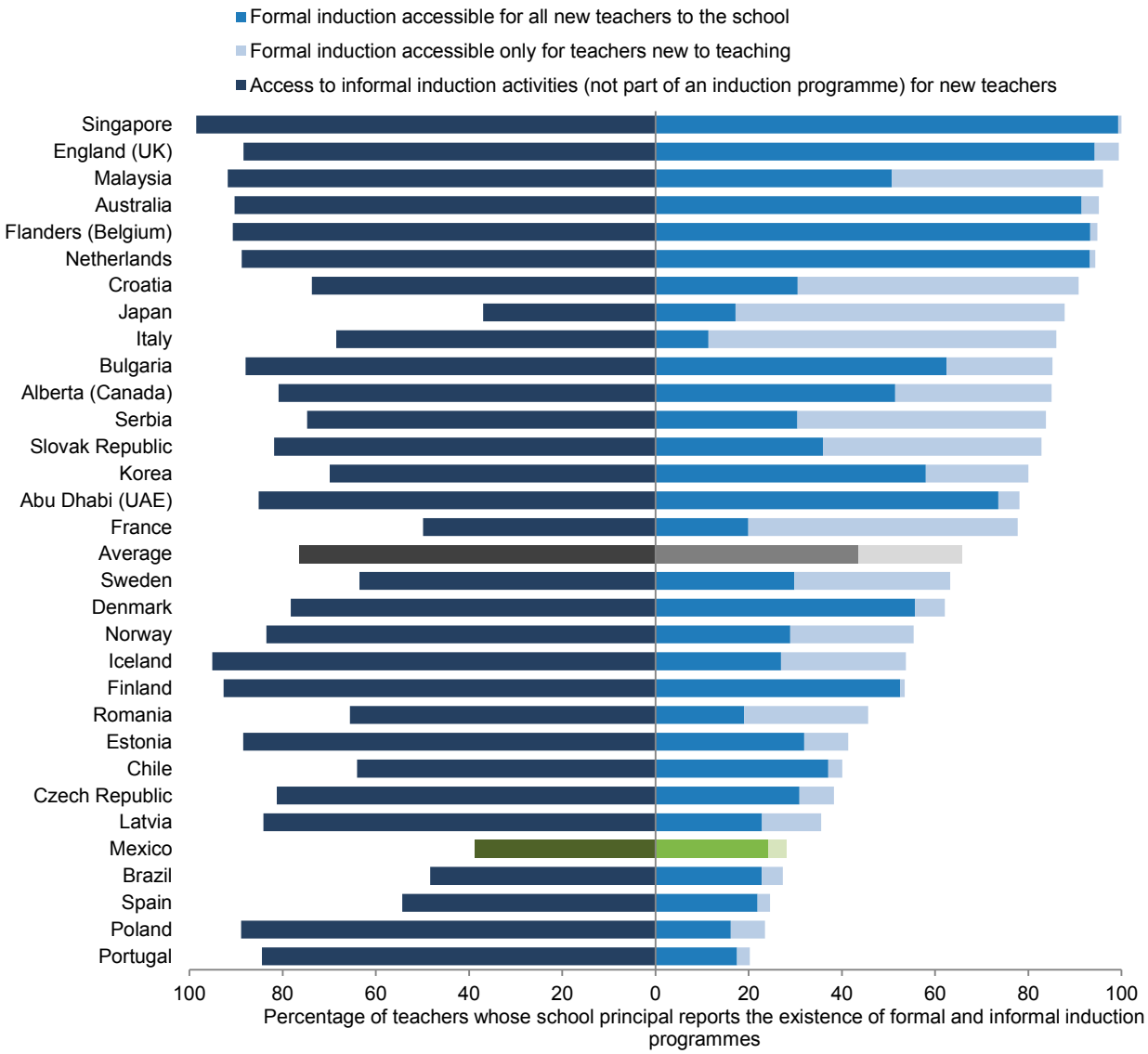
Teachers are the most important factor in affecting student learning outcomes. Studies show that no other attribute of school comes even close to the teacher's influence on student achievement (Darling-Hammond, 2000; Hanushek, 2011; Konstantopoulos, 2006).

Teachers need sufficient preparation to teach well. According to the 2013 OECD Teaching and Learning International Survey (TALIS), Mexico still has a significant high share of lower secondary teachers with less than tertiary education degrees (9% versus OECD average of 2%). However, more attention should be given to improve initial teacher education and the process of obtaining teacher certification, rather than simply raising teacher educational attainment (Clotfelter, Ladd & Vigdor, 2010; Darling-Hammond et al., 2000). This kind of preparation can have positive impacts on teachers' perception of preparedness, their efficacy and career plans (Ronfeldt & Reininger, 2012). Among TALIS countries, Mexico reports the lowest share of teachers having completed a teacher education or training programme (62%), which is far below the TALIS average of 89.9%, and even further below high-performing countries such as Singapore (99.1%), Korea (96.1%), and Finland (92.5%). This situation could explain the significant share of teachers in Mexico that report not feeling prepared in terms of pedagogical techniques (15%) and subject content (19%), which are by far the highest shares across all TALIS countries (1% and 1%) and significantly higher than Singapore (1% and 1%), Korea (3% and 3%) and Finland (3% and 2%) (OECD, 2014c). In order to meet the challenge of preparing teachers well, the General Directorate of Higher Education for Education Professionals (DGESPE) is revising the training of secondary school teachers. An important initiative as part of this is the creation of a Virtual Centre for Educational Innovation (CEVIE), which offers courses in applying the new curriculum framework in pre-school and elementary education, sharpening pedagogical skills, data management for teacher training schools and virtual learning training sessions.

Teachers can be supported through induction programmes. Arriving on the first day of school can be daunting for newly trained teachers. It is common for teachers to experience a "praxis-shock" when the theoretical training received prior to teaching has to be put into practice. If the shock is too great, newly-qualified teachers are at risk of dropping out. This is why all new teachers should be provided with personal, social and professional support in the early years of their careers (European Commission, 2010). Induction programmes exist for this reason, and are defined by TALIS as a range of structured activities including orientation, guidance and mentoring (OECD, 2014c). Research shows that induction programmes for beginning teachers have a positive influence on teachers' commitment, retention and students' achievement (Cohen & Fuller, 2006; Fletcher, Strong & Villar, 2008; Ingersoll & Strong (2011). In Mexico, the majority of teachers do not have access to formal induction (72%) or mentoring programmes (60%) in their institutions, which is far above the TALIS averages of 34% and 26%, respectively (OECD, 2014c) (Figure 12). The new education reform, the 2016 Education Model, is planning to have newly trained teachers accompanied for two years through a programme of tutorials and continuous training activities in order to support their transition to the teaching profession and the school community.

Figure 12. Access to formal and informal induction programmes or activities

Percentage of lower secondary education teachers whose school principal reports the existence of formal and informal inductions



Source: OECD (2013e), *TALIS 2013 Database*, Table 4.1., OECD, Paris, http://stats.oecd.org/index.aspx?datasetcode=talis_2013%20 (accessed December 2016).

Teachers' continuous professional development is important for teaching quality. As the challenges and skill requirements in today's society evolve and change, teaching needs to adapt in order to equip students with the skills for today and tomorrow. Teachers' continuous development is therefore critical for improving teacher effectiveness and for raising student learning outcomes (European Commission, 2012; Yoon et al., 2007; Hill, Beisiegel & Jacob, 2013). Professional development activities include courses, workshops, education conferences or seminars, observation visit to other schools, businesses or organisation, qualification programmes, participation in a teacher network, individual or collective research, and peer observation and coaching. Encouragingly, Mexico has one of the highest participation rates (96%) of teachers who reported undertaking at least one of these professional development activities in the last month. This rate is higher than the TALIS average (88%), and comparable with countries such as Australia (97%), Croatia (97%)

and Singapore (98%). Most teachers in Mexico participate in courses and workshops (90.3% versus TALIS average 70.9%), followed by individual or collaborative research (48.9% versus TALIS average of 31.1%) and qualification programmes (42.7% versus TALIS average 17.9%). However, more important than mere participation in a professional development activity is the quality and relevance of these activities, and the extent to which the lessons learned are transferable and effectively implemented in the classroom. Otherwise, professional development could just be another item on the to-do-list for teachers that has no impact. Teachers in Mexico reported the highest need for professional development in teaching students with special needs (47.4%), teaching in a multicultural or multilingual setting (33.2%) and new technologies in the workplace (28.1%) (OECD, 2014c). While no comparative data are available as to what extent and what kind of training teachers in the VET system receive, it would be important to ensure that VET teachers who have work experience and continue to work in the industry receive pedagogical training before or immediately after they start teaching (OECD, 2015b). For VET teachers who do not continue to work in the industry, it would be beneficial for them to receive continuous professional development with workplace experience. For both groups of VET teachers, sufficient support and training is needed to ensure that they can keep up when VET qualifications are regularly updated. The Inter-American Development Bank (IDB) has conducted a recent analysis of upper secondary teachers who enrolled in competency-based training courses and certification in the programme PROFORDEMS (*Programa de Formación Docente de la Educación Media Superior*), and found that teachers, especially in the *Colegio de Bachilleres* and *Colegio Nacional de Educación Profesional Técnica* (CONALEP), would benefit from further access to such training. Access is particularly low in the Federal District (*Distrito Federal*) and Jalisco. Rates of certification should also be increased, as only 16% of teachers in the public education system are certified. A large barrier to this is the relatively high cost of receiving certification (IDB, 2015).

Box 7. Attracting high quality teachers and encouraging them to teach in disadvantaged schools

High quality teachers are most needed in disadvantaged schools, however, the conditions to teach in such schools are often difficult, with a lack of resources and support. Providing the proper incentives to attract high quality teachers and to support them properly can be an important lever to raise outcomes in disadvantaged schools. The following list provides some country examples across the OECD:

Finland, attracting high quality teachers: Teaching is the most desirable career choice among young Finns. This has been caused by a combination of raising the bar for entry into the profession and granting teachers greater autonomy and control over their classrooms, as well as better working conditions than their peers enjoy elsewhere.

Korea, attracting high quality teachers to disadvantaged schools: Candidates who work in high need schools receive additional salary, work with smaller classes, and work fewer hours. They receive credits for future promotions to administrative positions, and the ability to choose the next school in which to work.

Shanghai (China), induction and mentoring: All new teachers participate in workshops, mentoring, and peer observation; they analyse lessons in groups and join teaching research groups with more experienced teachers to discuss teaching techniques. Novices can participate in district-organised teaching competitions.

Denmark, **certification systems for teachers**: Teachers' skills are regularly assessed and certified. The system targets teachers in primary and secondary school. After their teaching skills are assessed, targeted training can be offered. Participation in the certification process is voluntary.

Sources:

OECD (2010b), Strong Performers and Successful Reformers in Education: Lessons from PISA for Mexico, OECD Publishing, p. 50, http://dx.doi.org/10.1787/9789264107243-en.

OECD (2012c), Equity and Quality in Education: Supporting Disadvantaged Students and Schools, OECD Publishing, p. 135 and p. 133, http://dx.doi.org/10.1787/9789264130852-en.

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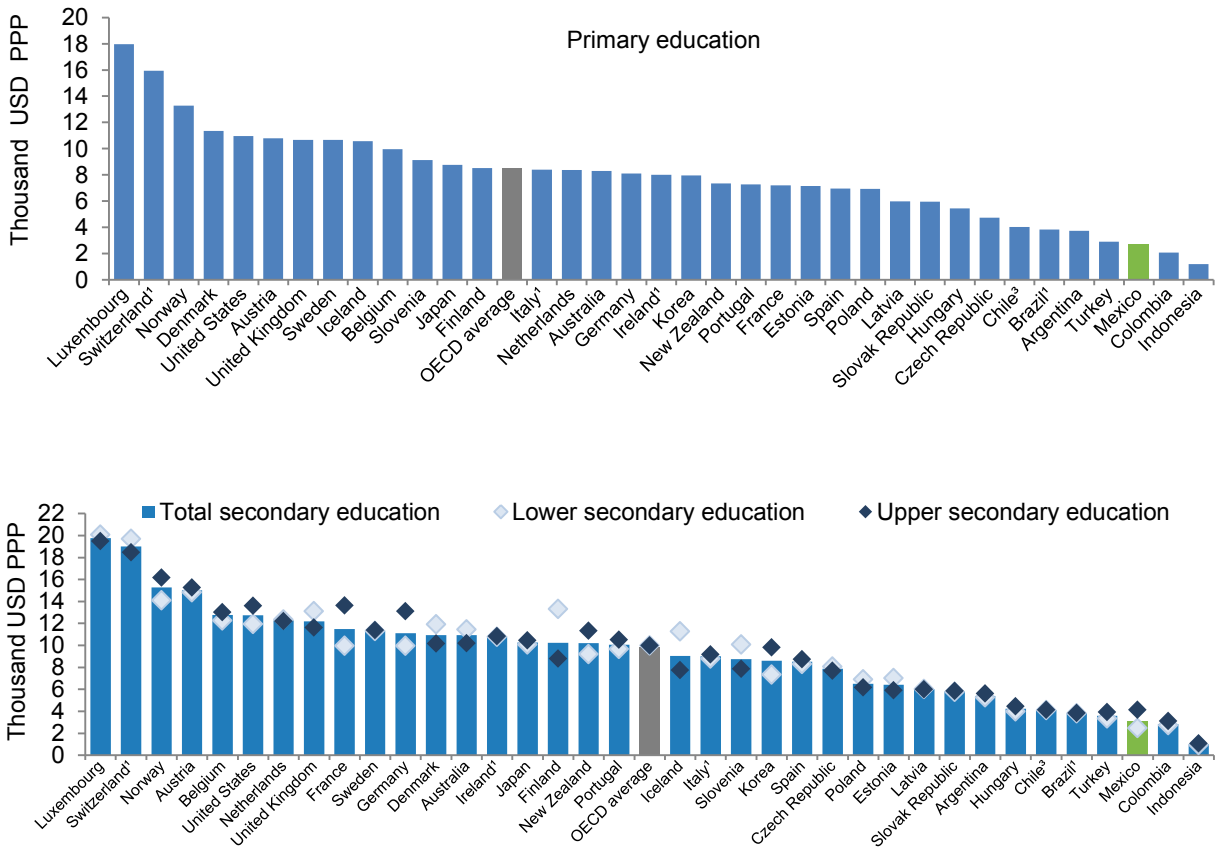
Funding for education matters

Schools often lack the financial resources they need to help students, especially those from disadvantaged backgrounds. Annual expenditure per student[5] has increased in Mexico, and slightly more so than the OECD average. Between 2008 and 2013, annual expenditure by primary and secondary educational and post-secondary non tertiary institutions increased by 18% in Mexico, while the number of students increased by 5%. As a result, expenditure per student increased by 13%. This has been an important and substantial increase, and is slightly higher than the OECD average expenditure per student increase of 8% (see Figure 13. Education represents 17% of total of public expenditure in Mexico (OECD average, 11%). The share of private expenditure in education is also comparatively high at all levels of education, but remained stable between 2005 and 2013. Overall, public and private expenditure on education has been increasing since 2005 (OECD, 2016b). However, in absolute terms, Mexico's spending per student for both primary and secondary education is one of the lowest among OECD countries, and similar to Turkey's. In 2012, Mexico spent USD 2 600 per student (the OECD average was USD 8 200) in primary institutions, and USD 3 000 in secondary institutions (the OECD average was USD 9 500) (OECD, 2016b).

Figure 13. Annual expenditure per student by educational institutions for all services, by level of education (2013)

Expenditure on core, ancillary services and R&D, in equivalent USD converted using PPPs, based on full-time equivalents



1. Public institutions only for tertiary level. 2. Public institutions only. 3. Year of reference 2012.

Countries are ranked in descending order of expenditure on educational institutions per student in primary education.

Source: OECD (2016b), *Education at a Glance*, Table A2.4, OECD Publishing, Paris, http://dx.doi.org/10.187/eag-2016-en. See Annex 3 for notes.

The difference of available resources among advantaged and disadvantaged schools is among the largest across OECD countries. The advantaged schools tend to be urban and private schools, while the disadvantaged schools tend to rural and public schools. The relationship between the shortage of educational materials and student performance is also strong. A one-unit increase on the PISA index of shortage of educational materials is associated with a 15-point drop in science scores, compared to the OECD average drop of 6 points (OECD, 2016c). The distribution of spending on different education levels suggest that there also is room for resource reallocations from the tertiary to the upper secondary level, especially since upper secondary education is a pre-requisite for students to move on to tertiary education, and since the participation of Mexico's young people in upper secondary education is the lowest across OECD countries (OECD, 2016b).

In Mexico, funding for the VET system is weak and substantially different from the experiences of countries with strong VET systems. Across the OECD, more is typically spent with public and private funds on VET per student than on general programmes at the upper secondary level. This can be explained by the often higher costs of technical equipment needed for this type of education. For the 26 OECD countries for which data are available, the difference in the spending on VET per student was USD 889 more than on general programmes in 2013. In countries that have a strong VET system, such as Germany, Austria and Switzerland, annual expenditure per student in VET exceeded that of general programmes by USD 4 489 (Germany), USD 3 294 (Austria) and USD 1 325 (Switzerland). However, in Mexico the reverse is the case, with USD 1 396 less spent on VET programmes per student. This leads to the equipment for VET courses being outdated and irrelevant for labour market needs. Teaching and learning materials used in VET courses with high technological content may not reflect industry trends and needs. This affects the appropriate development of certain skills, since students do not have the opportunity to learn with the required resources. There is also a significant difference across countries in the composition of private and public funds in total expenditure. In Germany and Switzerland, while general education programmes are largely funded through public funds (94% and 100% respectively), vocational programmes receive a large share of private funds (40% and 45% respectively). In Mexico the share of private funds in vocational programmes is only 10%. This shows the low level of engagement of employers in the VET system (OECD, 2016b).

Summary and policy implications

- **Skills developed in compulsory education are the building blocks for individual success in further education, the labour market and life.** Whether students pass through the general academic or VET system, they should develop strong foundation skills that allow them to enter directly into the labour market or progress to higher education. Along with its intrinsic value, skills have a positive effect on people's income, their health, and their civic engagement. Skills also improve individuals' chances of finding a job, which means that those who are better educated are less vulnerable to unemployment and informal employment. People with poor foundation skills face a much greater risk of experiencing economic disadvantage, and a higher likelihood of unemployment and dependency on social benefits

- **Few Mexican youth are developing high levels of skills and completing higher levels of education.** Despite some improvements, Mexico's performance in most measures of skills development ranks at the bottom of OECD countries. Many youth are still not developing high levels of skills, with the share of students performing poorly in mathematics 56.6%, in reading 41.7%, and in science 47.8%. In addition, only 56% of 15-19 year-olds complete upper secondary education, which is far below the OECD average of 84%.

- **Mexico needs to ensure that all students receive high quality education regardless of their backgrounds, where they live and what kind of school they attend. Educational outcomes in Mexico vary greatly.** . While performance gaps by gender have decreased over time, boys are still outperforming girls in science and mathematics, and girls are outperforming boys in reading. This may have implications on how well prepared they are to continue their education in certain subject

areas and enter certain professions. Encouragingly, the amount of educational performance explained by socio-economic background has decreased from 16.9% in 2006 to 10.9% in 2015. Additionally, the percentage of students who are resilient – the share of students in the bottom quarter of the socio-economic scale within a country who perform among the top quarter of students – has also improved. However, many indigenous students continue to struggle with lower education attainment rates and poorer skills outcomes. OECD research shows that performance gaps by gender, socio-economic and family background are not determined by innate abilities and can be reduced by parents, teachers and policy makers taking actions, such: as providing equal support early on, tailoring teaching to students' specific needs, and reducing potential barriers (e.g. financial, cultural) in order to ensure that all students receive the support they need to realise their full potential and contribute to the economic growth and well-being of society.

While the quality of the school environment has improved, much remains to be done. Grade repetition has decreased from 30% in 2003 to 15.8% in 2015, but still greatly exceeds the OECD average of 11.3%. While more time is spent on learning than before, it is critical that it is spent on quality learning. For this, teachers need to be well trained and have professional development opportunities throughout their working lives. Recent education reforms that reward high-performing teachers and provide professional development opportunities to those requiring further support should help to improve the quality of education in Mexico. Information and career guidance systems can help students make informed decisions about their progression in the education system. While annual expenditure per student has increased in Mexico, expenditure for primary and secondary education in absolute terms is still the lowest in the OECD, and the distribution of funds could be made more efficient. The difference in the quality of educational resources between socio-economically advantaged and disadvantaged schools is one of the largest in the OECD.

NOTES

1 Besides the benefits of higher skills associated to smoother transitions to both further education or/and work, higher skills are also positively associated with higher levels of civic engagement (like participation in volunteering activities or reduced crime rates) and with better levels of personal health (as prevention measures are more likely to be adopted by individuals with higher skills) (OECD, 2016a).

2 To gauge the magnitude of score differences, 41 score points corresponds to the equivalent of one year of formal schooling (see Annex A1, OECD 2014).

3 In PISA, low performing students are those students performing below the baseline level 2 in mathematics, reading and/or science. Level 2 is seen as the baseline level considered to be a prerequisite to participate fully in society. For a more detailed description of how PISA defines and measures low performance, see the OECD (2014b), PISA 2012 Technical Report.

4 ESCS refers to the PISA index of economic, social and cultural status. Students with low ESCS are those with a value on the PISA index of economic, social and cultural status lower than -1.

5 Expenditure per student by educational institutions at a particular level of education is calculated by dividing total expenditure by educational institutions at that level by the corresponding full-time equivalent enrolment. Only educational institutions and programmes for which both enrolment and expenditure data are available are taken into account. Expenditure in national currency is converted into equivalent USD by dividing the national currency figure by the purchasing power parity (PPP) index for GDP. The PPP exchange rate is used because the market exchange rate is affected by many factors (interest rates, trade policies, expectations of economic growth, etc.) that have little to do with current relative domestic purchasing power in different OECD countries. For more information please see Annex 2 in OECD (2016a).

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CHALLENGE 2: INCREASING ACCESS TO TERTIARY EDUCATION WHILE IMPROVING THE QUALITY AND RELEVANCE OF SKILLS DEVELOPED IN TERTIARY EDUCATION

A selection of challenges identified by Mexican workshop participants:

"University programmes should respond better to the needs of the industry."

"The university curriculum should be flexible and constantly updated, particularly in the context of globalisation."

"Students who are in need and come from lower socio-economic backgrounds should be better supported through scholarships."

"University teaching staff need to receive continuous professional development."

"Better information portals, such as websites, are necessary for individuals to make informed decisions about careers based on employment rates, salaries and other occupational characteristics."

Ensuring that more people graduate from tertiary education with high quality and work-relevant skills will be important for the success of the Mexican economy and society. Tertiary graduates are more likely than their less educated peers to possess higher skills, have higher productivity, be employed in the formal economy, earn higher incomes, report better health outcomes, and participate more fully in their societies. For society, a more highly educated population is associated with increased productivity, a larger formal sector, higher tax revenues, lower costs of social transfers and lower criminality, thereby supporting economic prosperity and higher standards of living (OECD, 2016a, 2013a, 2012a). Tertiary education can also play a role in promoting social mobility among traditionally disadvantaged groups, which improves social cohesion (Causa & Johansson, 2010; OECD, 2016b). Mexico has substantially improved tertiary attainment levels over recent years. However, in 2015 still only 16% of the population aged 25 to 64 had attained tertiary education, which is low compared to the OECD average of 36%. At the same time, there are many concerns about the quality of higher education and its relevance for graduates' future work and aspirations.

Overview of the tertiary education system in Mexico

The tertiary education system is composed of several subsystems. Universities in Mexico are either public or private. Public universities can be further divided, depending on who oversees them (federal or state government) and their specific focus (technological, polytechnic, intercultural, research, teacher training). The distribution of students is uneven across the tertiary university subsystems. While only 26% of universities are public, they enrol about 67% of tertiary students (see Table 1).

Table 1. Overview of Mexico's tertiary education system

Subsystem	Number of institutions	Percentage	Number of students	Percentage
Public state universities	34	0.89%	1 118 242	26.35%
Public state universities with solidarity support	23	0.60%	64 571	1.52%
Public technological institutes	263	6.87%	556 270	13.11%
Public technology universities	111	2.90%	228 270	5.38%
Public polytechnic universities	60	1.57%	84 650	1.99%
Public intercultural universities	10	0.26%	13 455	0.32%
Public teacher education institutions	263	6.87%	99 289	2.34%
Public federal universities	9	0.24%	563 784	13.28%
Research centres	44	1.15%	8 213	0.19%
Other public universities	182	4.75%	107 181	2.53%
Subtotal public universities	**999**	**26.10%**	**2 844 319**	**67%**
Private universities	**2 829**	**73.90%**	**1 400 082**	**33%**
Total	**3 828**	**100%**	**4 244 401**	**100%**

Source: Secretaría de Educación Píublica (SEP) (2016), Insumos.

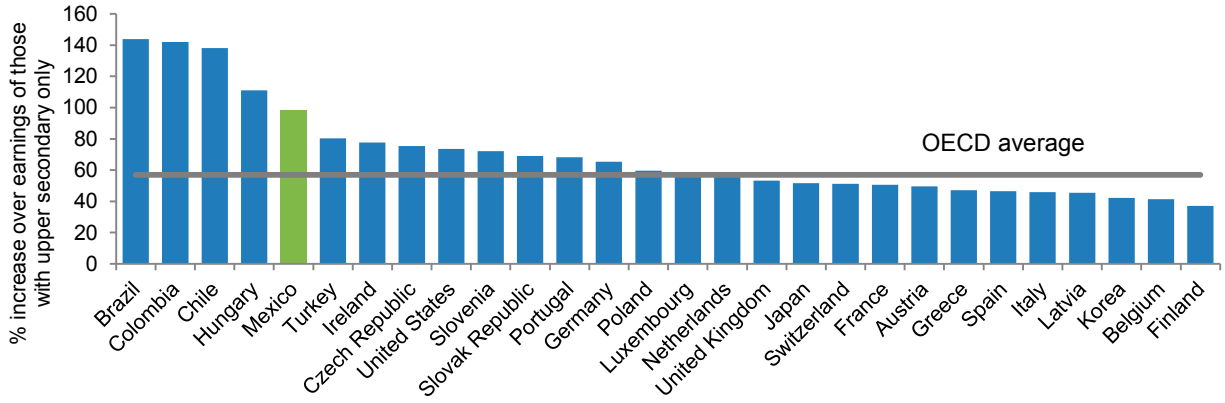
There has been tremendous growth in the number of private institutions of higher education. These are largely financed by tuition fees. However, their quality varies greatly, with some nationally recognised institutions, and a large number of smaller institutions with relatively poor quality (IMCO, 2015). Private institutions can obtain official recognition for their programmes through the "recognition of official validation of studies" (RVOE), awarded by the Ministry of Education (SEP) or the Regional Governments. Private institutions can voluntarily submit their programmes for further evaluation to non-governmental bodies, such as Inter-institutional Committees for Higher Education (CIEES) and the Council for Accreditation of Higher Education (COPAES).

The skills of tertiary graduates provide very significant benefits to both individuals and society

Tertiary graduates enjoy significant benefits. The results of the 2013 Survey of Adult Skills show that, on average, tertiary graduates have higher skills than non-tertiary graduates. Among 25-65 year-olds, tertiary graduates score, on average, 61 points higher in literacy than adults whose highest qualification is less than secondary education (2016a). Additionally, tertiary graduates are more likely to use the skills they possess more intensively at work. This is associated with higher productivity levels and reflected in superior labour market outcomes. While tertiary graduates in all OECD countries have significant labour market premiums, in Mexico they are particularly high. Tertiary graduates in Mexico have the fourth highest earnings advantage in the OECD, relative to graduates of upper secondary school (see Figure 14). Tertiary graduates in Mexico have a monthly salary 95% higher than upper secondary graduates (IMCO, 2014) (see Figure 15). Tertiary graduates also enjoy higher employment rates relative to those with less than a tertiary education. In Mexico, the employment rate of tertiary graduates is 80%, while that of general upper secondary or post-secondary non-

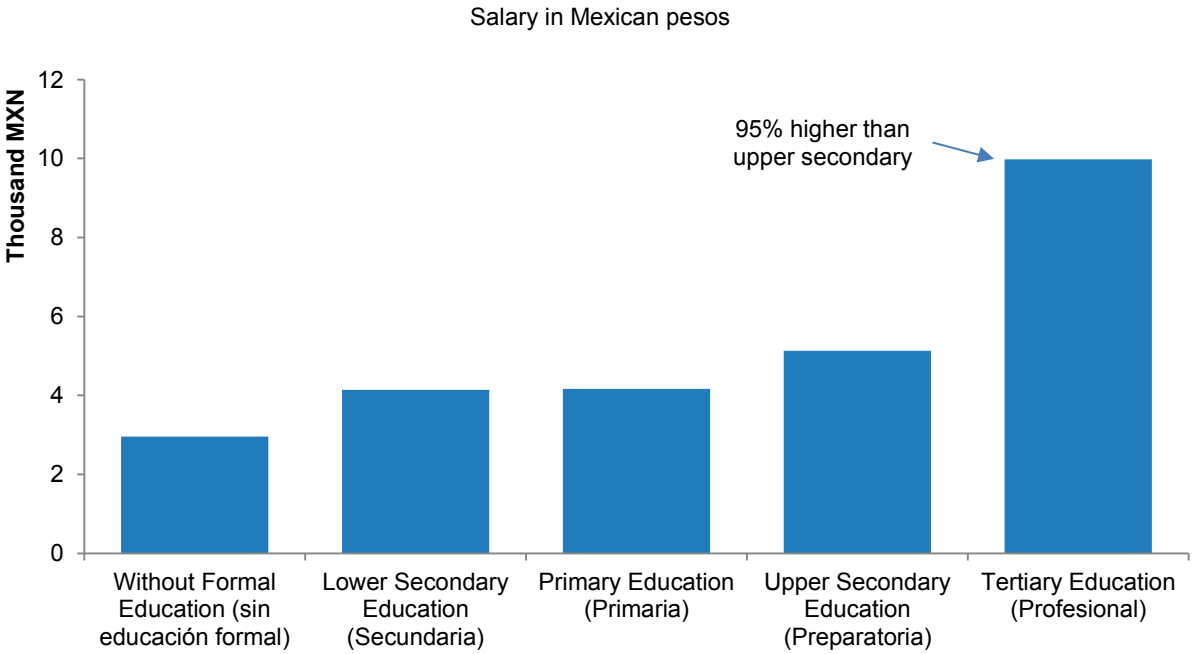
tertiary education graduates is 70%, and for those with below upper secondary education it is only 66% (OECD, 2016a). This suggests that the demand for tertiary graduates is very high in the context of a limited supply. The higher skill levels of tertiary graduates are also associated with higher levels of trust, greater participation in community activities, higher political efficacy and better health outcomes (OECD, 2016a).

Figure 14. The labour market premium for tertiary education relative to upper secondary education



Source: OECD (2016c), Education at a Glance database.

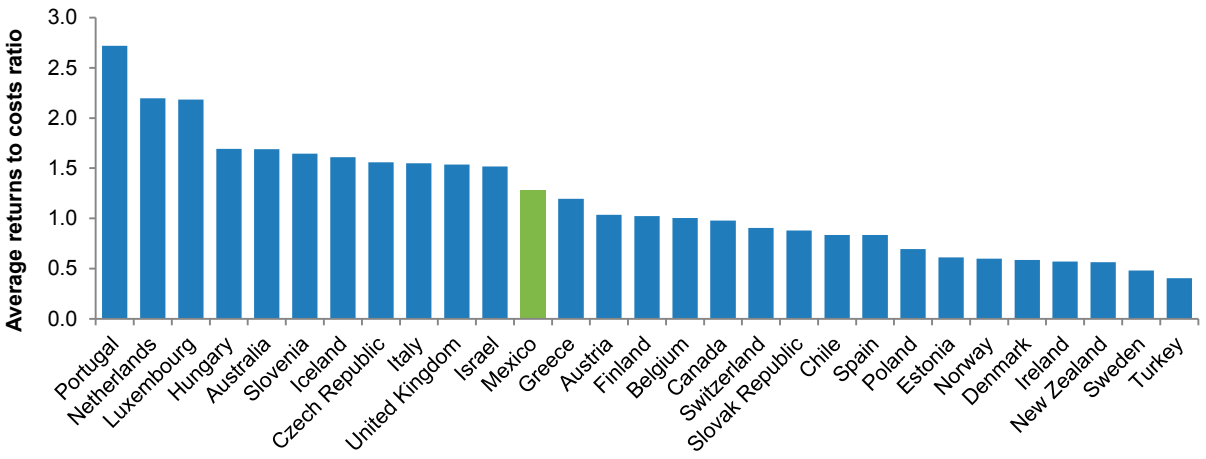
Figure 15. Monthly average salary in Mexico by level of education



Source: IMCO (2014), *Compara Carreras,* based on data from INEGI, ENOE 2013-IV, http://imco.org.mx/wp-content/uploads/2014/04/20140404-Compara-Carreras.pdf.

Tertiary graduates benefit society. The public returns[6] from investing in tertiary education are very high in Mexico, as can be seen in Figure 16. The investment the government makes is reaped in higher tax revenues. As tertiary graduates have higher skills and are more productive they have higher earnings and are more likely to be employed in the formal sector. The higher skill levels of tertiary graduates make it easier for employers to introduce new technologies and new ways of working, which improves overall living standards. The non-economic returns are also significant. The overall higher sense of well-being, such as higher trust, more volunteering, political efficacy and better health outcomes among tertiary graduates means reduced costs of social transfers and lower likelihood of criminality. Tertiary education plays an important role in promoting social mobility, especially among the disadvantaged, and in fostering overall social cohesion (OECD, 2016a).

Figure 16. Average returns to costs ratio of government investment in tertiary education



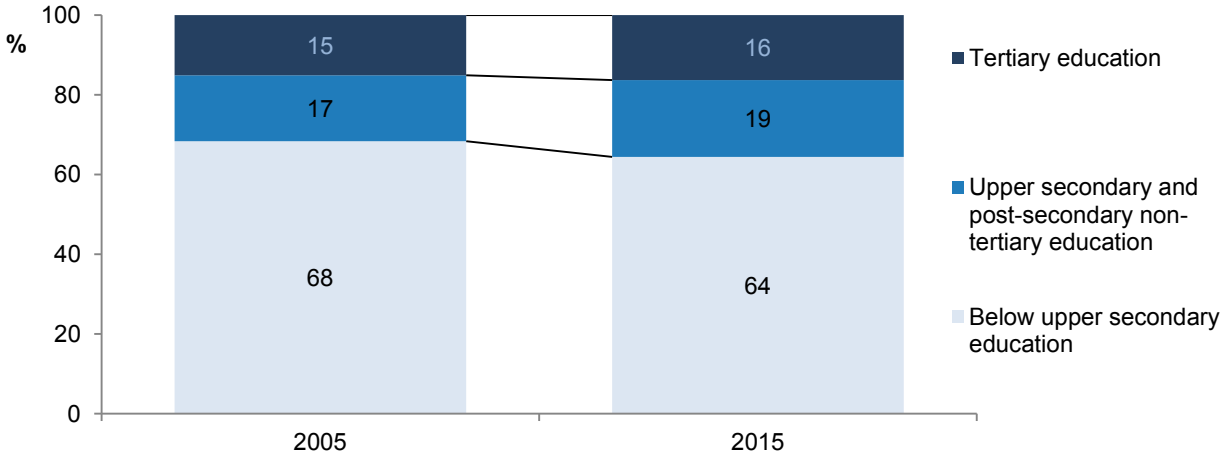
Note: Data are for a 17-year-old single taxpayer with no children, who undertakes a four-year course of non-job-related education, earning 25% of the average wage during schooling. This figure shows results that incorporate tax deductions and tax credits for direct costs, tax exemptions for scholarship income, and reduced taxes on student wage income. Tax incentives in the personal income tax system are incorporated, but not the social security contribution system. They do not incorporate Skills Tax Expenditures (STE) that subsidise parental spending on education or that subsidise firm spending on education. It is assumed that the skills investment is financed wholly with savings: students do not incur any debt to make a skills investment. Labour market data are based on the tertiary education premium earned by 15-64 year-olds.

Source: OECD (forthcoming), *Tax and Skills*, OECD Publishing, Paris.

Despite the importance of tertiary education to individuals and society, a comparatively small share of Mexicans completes tertiary education

Tertiary educational attainment has increased in recent years. While educational attainment in Mexico has been increasing, still only 16% of the population aged 25 to 64 years-old in 2015 had attained tertiary education (Figure 17). This is low compared to the OECD average of 36% and significantly lower than other OECD countries with the highest attainment rates, such as Canada (55%), Japan (54%), Korea (45%) and the United States (45%). As in most countries, young adults (25-34 year-olds) in Mexico have higher levels of educational attainment than their parents (55 to 64 years-old). In 2015, 21% of 25-34 year-olds had a tertiary degree, compared with just 12% of 55-64 year-olds. This shows that there have been some improvements across generations in terms of increasing access to tertiary education. However, the increase is modest when compared with the increase in Korea, where tertiary attainment among 55-65 year-olds is only slightly above that of Mexico (18%), while among 25-34 year-olds it is much higher (69%) (OECD, 2016c).

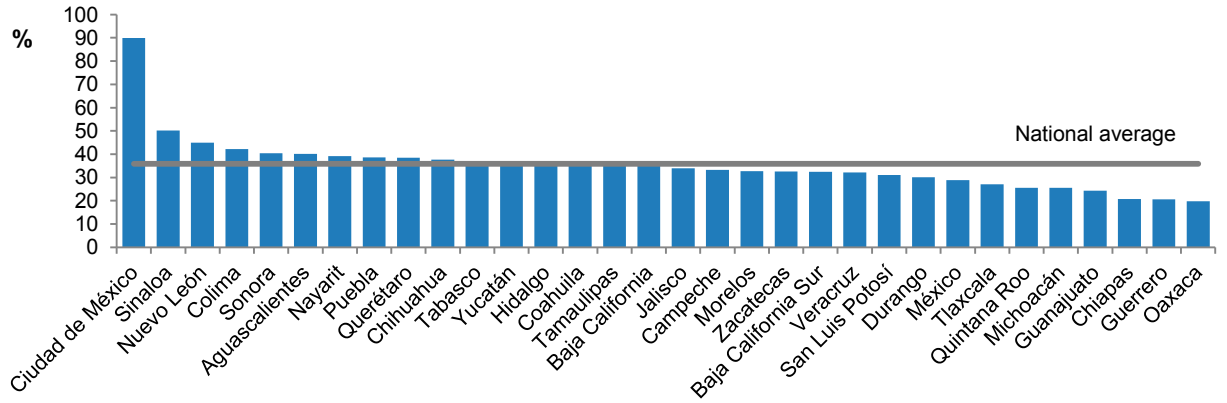
Figure 17. Trends in educational attainment of Mexican adults 25-64 years-old, 2005 and 2015



Source: OECD (2016c), *Education at a Glance 2016: OECD Indicators*, OECD Publishing, Paris, http://dx.doi.org/10.187/eag-2016-en.

Tertiary education participation varies significantly across regions. While the average national coverage is 35.8% the range among regions is large. Mexico City, with 89.9% coverage, is an exception in comparison with the other regions. The regions with relatively high coverage rates are: Sinaloa (50.2%), Nuevo León (44.9%), Colima (42.2%), Sonora (40.1%) and Aguascalientes (40.1%). The regions with the lowest coverage rates are: Michoacán (25.5%), Guanajuato (24.3%), Chiapas (20.7%), Guerrero (20.6%), and Oaxaca (19.7%) (Figure 18). This indicates that there is still room for improvement to increase access in the regions that have low coverage rates in order to meet the 40% national coverage goal set out by the Mexico's 2012 Constitutional Reform (OECD, 2015a).

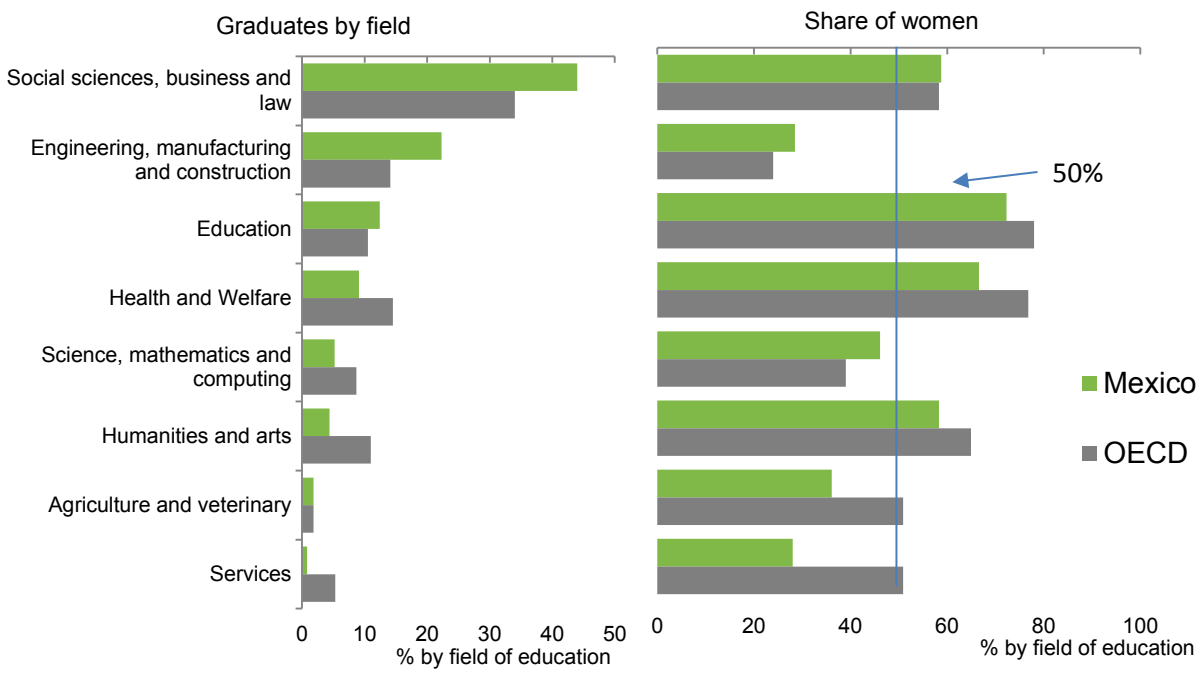
Figure 18. Tertiary education participation rates across regions in Mexico



Source: ANUIES (2016), year 2015-2016, http://www.anuies.mx.

Tertiary education participation varies by gender. Similar to other countries, there has been a reversal in the gender gap in tertiary education in Mexico: women are now more likely to hold a tertiary degree than men. However, women are still less likely to hold advanced degrees from doctoral programmes. In 2014, about 53% of graduates from bachelor's or equivalent programmes, and 55% of graduates from master's or equivalent programmes were women, while at the doctoral level, around 48% of graduates were women. There is still a gender divide in the field of studies. Women are under-represented in fields such as science and engineering, and over-represented in fields such as education, health, humanities, and social sciences (Figure 19). These gender imbalances carry over into earnings and labour market outcomes. Across the OECD, tertiary graduates in, for example, engineering earn on average 10% more than other tertiary graduates, while tertiary graduates in education earn 15% less, on average. In Mexico, employment rates for women with tertiary education and advanced research diplomas are more than 15 percentage points lower than for men with the same education level (OECD, 2016c) (Figure 20). Gender gaps in field of study in tertiary education may be due to early performance differences during compulsory education. As explored in Challenge 1, Mexican boys outperform girls in mathematics and science, which is similar to other OECD countries. In general, girls have less self-confidence than boys in their ability to solve mathematics or science problem. However, when comparing boys and girls who reported similar levels of self-confidence in and anxiety towards mathematics, the gender gap in performance disappears. This indicates that parents and teachers play an important role in providing early equal support and encouragement for both boys and girls to achieve and aspire to careers in fields such as science and engineering. For teachers, this could mean receiving additional training in becoming aware of their own gender biases and acquiring the pedagogical skills to provide equal support for boys and girls (OECD, 2015b).

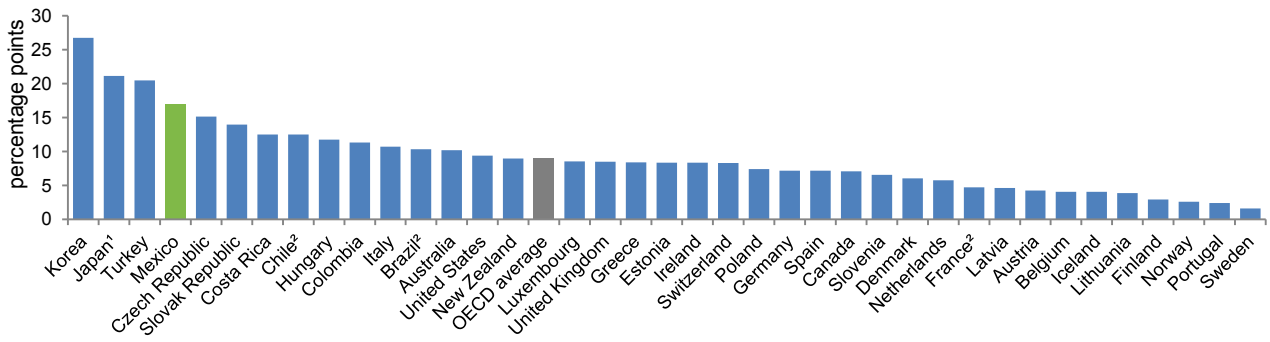
Figure 19. Distribution of graduates at tertiary level by field of education, and share of women by field of education, Mexico and OECD average, 2013



Source: OECD (2015c), *Education at a Glance 2015: OECD Indicators*, OECD Publishing, Paris, http://dx.doi.org/10.1787/eag-2015-en.

Figure 20. Gender difference in employment rates of tertiary graduates (2015)

25-64 year-olds, percentage-point difference (employment rate for men - employment rate for women)



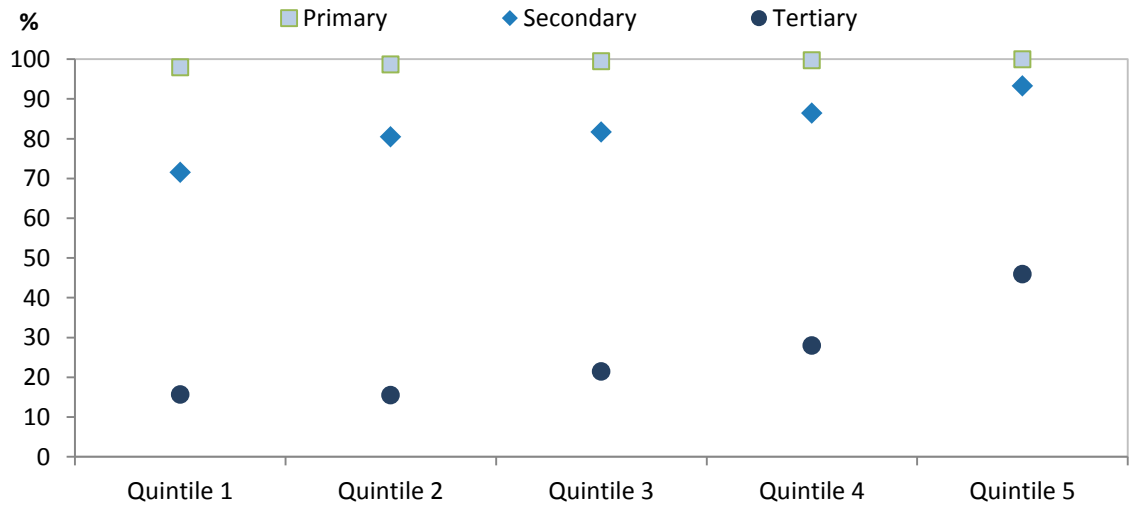
Notes: 1. Year of reference differs from 2015. Refer to the source table for more details. 2. Data for tertiary education include upper secondary and post-secondary non-tertiary programmes (less than 5% of the adults are under this group).

Source: OECD (2016d), "Educational attainment and labour-force status", *Education at a Glance* (database), http://stats.oecd.org/Index.aspx?datasetcode=EAG_NEAC (accessed December 2016). See Annex 3 of OECD (2016c) for notes.

Tertiary education participation varies by socio-economic background. Around 44% of children from the richest families in Mexico (the highest income quintile) are enrolled in tertiary education, whereas this figure is only 15% for children from the poorest families (the lowest income quintile) (Figure 21). Ensuring that children with lower socio-economic backgrounds are able to attend university is critical for reducing wage differentials, promoting social mobility, and raising economic growth (OECD, 2015a).

Figure 21. Children from the richest families are more likely to go to university than children from the poorest families in Mexico

Net enrolment rates by income quintile in percent, 2011



Source: OECD (2015a), Mexico Policy Priorities to upgrade the skills and knowledge of Mexicans for greater productivity and innovation, OECD Publishing, Paris, https://www.oecd.org/mexico/mexico-policy-priorities-to-upgrade-skills-and-knowledge-of-mexicans.pdf. Data from SEDLAC and World Bank (2014), Socio-economic Database for Latin America and the Caribbean.

Tertiary education participation has been particularly low for indigenous students. Historically, indigenous students have had low participation rates in tertiary education. Although there are no reliable figures on the exact percentage of indigenous students, estimates range between 1 and 3%, while they represent about 10% of the overall population (Schmelkes, 2009). Initial attempts to raise their participation rates included assimilating them into the general university system, but this had limited success given cultural and linguistic barriers/differences. In 2003, intercultural universities (universidades interculturales) began to be established in indigenous communities that were based on indigenous philosophies, cultures, languages and histories. Although specifically created for indigenous students, other students are not excluded. The proportion of indigenous students aims to be around 70%, while a quota ensures that at least 20% of students have a mixed (mestizo) background. The idea is to open new opportunities for dialogue between indigenous and non-indigenous communities.

Challenges still exist regarding the indigenous population and higher education. Funding from the federal and state governments is limited, and many students come from families with a low socio-economic background and receive a basic scholarship. The lack of financial resources is often cited as a reason for dropping out, especially in the first year. Many students also have low skill levels, as shown by the average student scores in the national admissions examination to higher education institutions (EXANI II). This is usually due to them having attended a bilingual primary school, a tele-secondary school, and then having gone to a telebachillerato or long distance upper secondary school (Schmelkes, 2009). When applying for admission to general universities, indigenous students are given priority as an affirmative measure (SEP, 2016). Once they are enrolled, additional efforts would be helpful to help ensure tertiary education completion. These could include tutoring services, developing multicultural competencies of university staff, and adapting the learning environment for greater cultural diversity. Students lacking specific skills may also benefit from preparatory courses before they enter the full degree programmes (Orr, Gwosć & Netz, 2011).

Recent policy initiatives have sought to expand the accessibility of tertiary programmes to favour the enrolment of under-represented groups. New institutions, such as technological universities, technological institutes, polytechnic universities7 and intercultural universities, exist in regions traditionally less engaged with tertiary education, which are often in disadvantaged areas, and offer degrees and programmes that attract new groups of students. This is of particular importance, as the main reason students gave for selecting a particular university to study at was the proximity to their home, as indicated in the National Survey of Employment of Tertiary Education Graduates 2012 (Encuesta Nacional de Inserción Laboral de los Egresados de la Educación Media Superior - ENILEMS) (INEGI, 2013). This particularly affects students from rural communities, such as indigenous students.

Many tertiary graduates are not developing the skills most needed in the economy and society

Concerns have been raised about the quality of tertiary education in Mexico

Mexican universities do not rank highly in international rankings. There are no Mexican universities in the top 100 of the Quacquarelli Symonds (QS) world university ranking. The universities ranked highest are: Universidad Nacional Autónoma de México (UNAM) (128th), Tecnológico de Monterrey (206th), Instituto Tecnológico Autónomo de México (601-650th), Universidad Anahuac (651-700th), and Universidad Iberoamericana (651-700th) (QS World Rankings, 2016). The challenge of increasing access while also improving the quality of tertiary education is not unique to Mexico. Rapidly expanding tertiary systems have to accommodate a greater diversity of study programmes and students, and deal with a broader scope of social missions of tertiary education institutions. Countries face pressures to enhance the quality of tertiary education in order to remain competitive and adapt to changing circumstances. In the case of public sector institutions, substantial budgetary constraints make this difficult (OECD, 2015d).

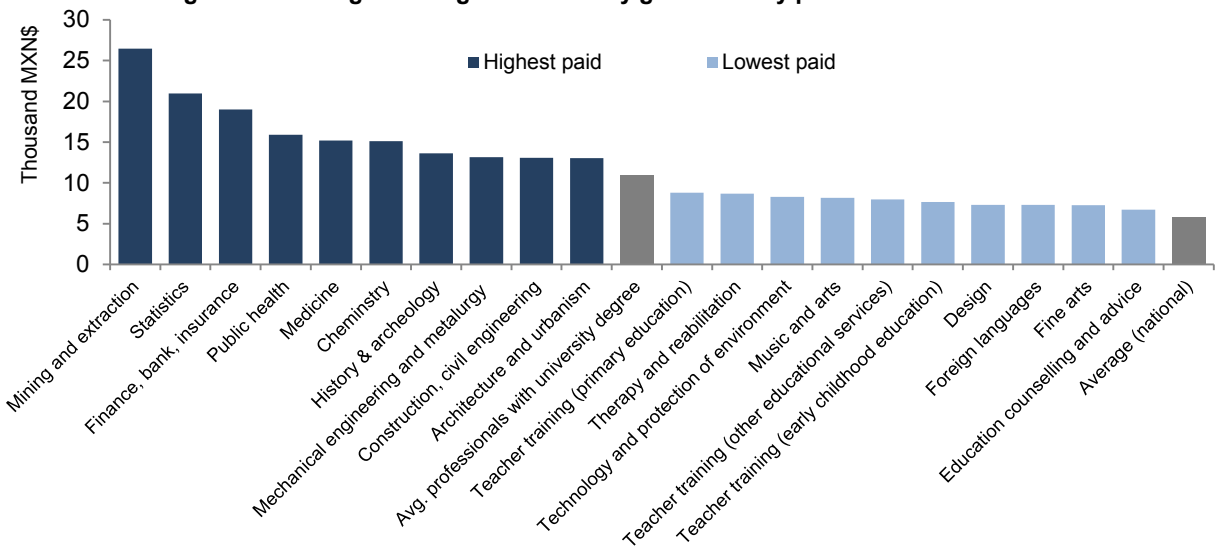
Employers report deficiencies in the skills of tertiary graduates. The 2014 survey on the competencies of professionals, conducted by the Confederation of National Chambers of Commerce, Service and Tourism (CIDAC), found that employers in Mexico reported a lack of skills and behaviours among tertiary

graduates that they had hired, in particular: written communication in Spanish; oral communication in Spanish and English; punctuality; sense of responsibility; initiative and proactivity; capacity to synthesise information; and logical and agile thinking (CIDAC, 2014). This has also been found in other surveys (e.g. McKinsey & Company, 2012), and was mentioned by stakeholders during the National Diagnostic Workshop (9 June 2016) and the Skills Challenges Workshop (22 September 2016). A relative low level of foundational skills, even such as literacy, can also be found in tertiary graduates in other OECD countries. The Survey of Adult Skills shows that tertiary graduates in countries such as Spain, Italy, Turkey and Chile have, on average, literacy skill levels that are at the same level or even lower than those of upper secondary graduates in countries such as Japan and the Netherlands (OECD, 2016a). These countries with low skills outcomes among tertiary graduates also have low skills outcomes after compulsory education, as measured by the Programme for International Student Assessment (PISA). This suggests that gaps in learning outcomes open up very early in life. Strategies to improve the quality of tertiary education must be complemented by measures to improve outcomes further upstream during compulsory education. This is not only related to students' poor foundational skills, which accompany them throughout life, but also to: a curriculum that focuses on the memorisation of concepts instead of understanding and mastery, deficient teaching strategies, ineffective assessment techniques to verify skills, as well as other aspects that need to be reviewed and strengthened. This is particularly relevant for Mexico, which had the lowest PISA scores across all OECD countries, as described in Challenge 1.

Concerns have been raised about the relevance of tertiary education in Mexico

A large share of tertiary graduates are not able to find employment in their field of education. According to data from CIDAC, 55% of tertiary graduates are not able to find work in their field of study (CIDAC, 2014). This high number indicates that a large share of tertiary graduates are not completing studies in fields of education that are in the greatest demand. This is partly reflected in the vast differences of tertiary education premiums by field of education. According to a study by the Mexican Institute for Competition (IMCO), and based on data from The National Institute of Statistics and Geography (INEGI), The National Association of Universities and Higher Education Institutions (ANUIES) and 143 universities, the salary for the average worker is MXN 5 783 (Mexican pesos); for tertiary graduates it is MXN 11 007, but it is much higher in certain fields such as mining, statistics and finance, where it reaches around MXN 20 000. On the other hand, tertiary graduates in fields such as foreign language, art and design only earn around MXN 7 000 (IMCO, 2015) (Figure 22).

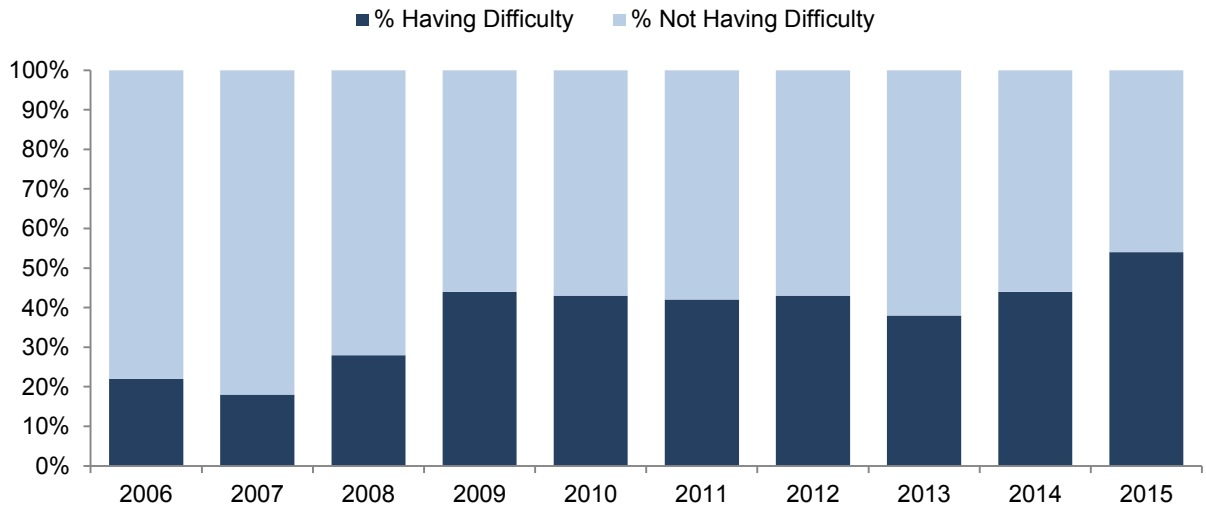
Figure 22. Average earnings of university graduates by professions in Mexico



Source: IMCO (2015), *Compara Carreras 2015*, http://imco.org.mx/wp-content/uploads/2015/08/2015-Compara_Carreras-Presentacion.pdf. Based on Anuario Estadístico ANUIES 2014-2015.

At the same time, employers are reporting difficulties filling vacancies. In the ManPower Survey 2015, around 54% of employers reported facing difficulties in filling jobs (ManPower, 2015) (Figure 23). While this figure is still not as high as pre-crisis levels, it has been slowly increasing since 2008. Similarly, the CIDAC survey found that around 26% of employers couldn't find workers, with the skills required for the job, especially young people, despite having conducted interviews (CIDAC, 2014). Other surveys (e.g. World Bank Enterprise Survey; World Bank, 2015) have reported similar findings and this issue was also mentioned by stakeholders during the National Diagnostic Workshop and the Skills Challenges Workshop. In addition, the ManPower Talent Survey (ManPower, 2015) also showed that technical talent in Mexico is in demand from companies of the automotive industry (34%), mining and metallurgy (14%), aerospace (12%) and IT (12%). Employers prefer to hire candidates with a university degree (Bachelor's or Engineering) with 78.13% indicating such preference. However, when it comes to operating positions, they prefer to hire people with technical upper secondary education with 48.90% indicating such preference.

Figure 23. Share of employers in Mexico reporting having difficulty or not having difficulty filling vacancies



Source: ManPower (2015), Talent Shortage Survey 2015, http://www.manpowergroup.com/wps/wcm/connect/db23c560-08b6-485f-9bf6-f5f38a43c76a/2015_Talent_Shortage_Survey_US-lo_res.pdf?MOD=AJPERES.

Mexico has the opportunity to bolster access to tertiary education while ensuring that graduates develop high quality and work-relevant skills

The remainder of this chapter will examine the factors that can help bolster access while improving the quality and relevance of tertiary education. These include: better regulation and quality assurance systems; the quality of teaching in tertiary education; the tertiary curriculum and its relevance to labour market needs; information about current and future skills needs, and the outcomes of tertiary institutions; and the financing of tertiary education.

Better regulation and quality assurance systems are needed

The quality assurance of higher education in Mexico is complex, which makes it difficult to co-ordinate and enforce. Quality assurance mechanisms are critical for accountability, improvement and transparency purposes (OECD, 2015d). In Mexico, there is no single national quality assurance agency for higher education. Instead, there are a number of institutions and bodies that share responsibility, with limited oversight. These institutions generally do not take into account quality measures, such as to what extent graduates are prepared for the labour market. For public universities, SEP works with the Inter-institutional

Committees for Higher Education (CIEES), the Council for Accreditation of Higher Education (COPAES) and its 31 authorised bodies, and CONACYT, mostly through the National Registry of Graduate Programmes (PNP). Private universities are co-ordinated through the Federation of Mexican Private Institutions (FIMPES) and its system of institutional accreditation (OECD, 2008a). The risk with such a complex system is that there can be discrepancies between the quality standards used by different agencies, in particular between public and private universities (for more about the complexity of horizontal and vertical collaboration in Mexico, please see Challenge 7). This also makes it more difficult to co-ordinate activities and foster the peer learning of best practices across agencies, for example between CIEES and COPAES. The complexity also hinders the dissemination of information about the quality of institutions to external stakeholders, such as students having to decide between academic offerings, and employers having to interpret the value of a potential employee's education (OECD, 2008a). One possible way of addressing this would be to have one single external agency that co-ordinates the quality assurance system and that could initiate a regular external validation of course offerings (OECD, 2008b). Such an agency could also conduct research on quality in tertiary education, share best practice examples and support benchmarking across institutions. While the centralisation of such services would be beneficial, caution is required to avoid potential downsides, such as delays in the delivery of services and difficulties in adapting to local needs.

A national qualification framework could help facilitate quality assurance across public and private institutions. This national qualification framework could be linked with specific learning outcomes and recognition tools (Blomqvist, 2012). The benefits of such a framework would be to have greater transparency about the quality of degree programmes across universities, and more coherence across qualifications. It would allow the comparability of different qualifications and indicate how to progress from one level to another, as well as within and across occupations and sectors. It could capture learning outcomes from formal education, as well as from non-formal education (such as on-the-job training) and informal learning (e.g. at home) (ILO, 2007). This is especially relevant in a country such as Mexico, which has a significant number of young people who have dropped out of formal education (see Challenge 1), many individuals working informally (see Challenge 3) and a large share of workers with a skills mismatch at work (see Challenge 5).

The voluntary nature of existing external quality assessments limits the possibilities for more rigorous quality improvements. Institutions can voluntarily submit their programmes and institutional practices for assessment by CIEES or COPAES, both of which are recognised by SEP. However, evaluations do not affect public funding or programme operations. The incentives for an institution to participate in an assessment are generally to receive public recognition and suggestions for improvements. At the postgraduate level, programme-wide assessments are carried out by SEP and CONACYT in the framework of the National Registry of Graduate Programmes (PNPC). Programmes with a positive assessment are categorised in the registry as either "of international quality" or "of high quality". Currently, 2 087 programmes, offered in 152 public and private tertiary institutions, have been recognised for their quality. This represents about 9% of the total number of tertiary education institutions (SEP, 2016). The voluntary nature of external assessments limits the possibilities of improving the quality of these programmes more rigorously. Once programmes are established, there are no requirements to keep going through quality assessment. Unless the institution initiates and seeks an external assessment, there are no official mechanisms to provide suggestions for improvements. Furthermore, it is not possible to sanction low quality programmes by, for example, removing their public funding (OECD, 2008a). The National Centre of Evaluation to Higher Education (Centro Nacional de Evaluación para la Educación Superior, CENEVAL) has a mandate to evaluate tertiary education institutions, and administers Graduate Professional Exams, which are exit exams for about 100 different career paths to assess whether graduates have the expected skills after finishing their studies. However, results are not made public, and several large public universities do not participate in this process.

A number of initiatives exist to improve institutional quality. Individual institutions have their own internal quality processes, such as student evaluations. However, these practices vary greatly across

institutions, and there are no external validation mechanisms. The federal government has various programmes through which it supports the improvement of institutional quality:

- The Tertiary Education Inclusion and Equity Programme (*Programa de Para la Inclusión y la Equidad Educativa de Tipo Superior*) supports public tertiary education institutes in improving access, especially for the most vulnerable students.

- The Teaching Career Programme (*Programa de Carrera Docente*) recognises full-time professors that make a significant contribution to the improvement of tertiary education indicators.

- The Support Programme for the Development of Higher Education (PADES) supports the professionalisation of academic staff, promotes the diversification of programme offerings, seeks to enhance the relevance of tertiary education through university-industry links, and encourages the internationalisation of tertiary education.

- The Support Fund for the Financial Sanitation and for the Attention to Structural Problems of the Public State Universities fills financial gaps to reduce existing liabilities in pension payments for staff, and supplements subsidies.

- The Programme to Expand Educational Access (PROEXOEES) provides funding for tertiary education institutions that want to create new educational programmes and increase enrolment in undergraduate programmes recognised by CIEES or COPAES, or postgraduate programmes by PNPC of CONACYT (SEP, 2016).

These promising initiatives could be expanded, but would require the necessary financial resources. Some universities with innovative approaches, such as UNAQ in Queretaro, have faced difficulties in accessing the necessary financial resources to expand. Funding for universities could also be made conditional upon specific indicators that measure the quality and relevance of course offerings. Another way to increase institutional quality is through encouraging universities to collaborate more nationally and internationally. UNAQ is a good national example of promoting collaboration among institutions. It has linkages with Tec de Monterrey, CONACYT and other institutions nationally or internationally (schools in France, Canada, etc.). It also has strengthened its curricula, teaching strategies and programmes, and allows academic exchanges for Mexican students. There are other examples of this across the OECD, such as the French initiative, *Pôles de Recherche et d'Enseignement Supérior* (Research and Higher Education Hubs), which groups a number of institutions to work together. The Finnish 2011-16 Development plan for education and research encourages institutions to form national alliances to build strengths in strategic areas to eliminate overlap, better target resources, and enhance the research profile by leveraging the entire research landscape and creating stronger "brands" internationally (OECD, 2014a).

The quality of teaching in tertiary education

Better evaluation of teachers could raise quality. There are some mechanisms in place to safeguard teaching quality, but only in private universities, not in public. Students are regularly asked to respond to questionnaires and provide feedback on the quality of teaching and staff. While this is an important qualitative input, relying only on student feedback is not sufficient and may not even be the best information source to rate teachers on curriculum, content, knowledge or the quality of facilities (Goe, Bell & Little, 2008). Direct evaluation of teaching staff occurs only upon the individual teacher's request when they wish to apply for a new position or receive a performance-related reward. Experiences across the OECD show that teaching quality can be raised through involving teachers from the outset in any initiatives to foster teaching quality. An institution-wide quality teaching and learning framework could be collaboratively developed to define pedagogical skills and teaching standards. Performance could be evaluated based on these standards, and the results taken into account when deciding on tenure and promotion. This would provide professional

development for teachers and academic leaders and encourage peer evaluations that foster a learning community approach to quality teaching. Champions of teaching excellence could be identified and excellent teaching practices disseminated (Hénard & Roseveare, 2012).

The work conditions and environment for teaching could be improved. The remuneration of academic staff consists of a base salary, performance based compensation, and a supplement if they are members of the National System of Researchers (SNI). In most cases, performance criteria are usually related to research in general, but not to the quality of research or teaching. The pension scheme is relatively low, which acts as a disincentive for current staff to retire and makes it more difficult to create posts for new staff, which may impact the universities' ability to adapt course programmes to changing demands in the labour market (OECD, 2008a). A significant share of academic staff are on a temporary contract. For example, in technical and polytechnic universities, around 70% of the teaching staff are on a temporary contract (SEP, 2016). The risk here is that these staff members are less engaged in the institution, and less likely to receive further training (OECD, 2008a).

Existing initiatives could be expanded. Professional development activities for university staff are offered in technological universities and polytechnic universities through the Programme to Strengthen Education Quality (*Programa de Fortalecimiento de la Calidad Educativa*) and the Programme for Professional Development (*Programa para el Desarrollo Profesional Docente*). These include symposiums, conferences, forums, courses, workshops, and seminars to support university staff improve their teaching skills, apply a new curriculum, keep up to date with recent advances in their field, further specialise, and use new technology, etc. (SEP, 2016). These initiatives, if not already existing, could be promoted in other types of universities. Currently, there are some mobility schemes for academic staff to move across universities or to industry and back. These are usually short stays, as career structures typically defined at the institutional level make longer stays more difficult. Greater mobility could have the benefit of improved responsiveness of the institution to adapt to changing demands, a better cross-fertilisation of ideas, and more possibilities for collaboration across institutions. Establishing centres for teaching and learning development could help raise teaching quality. This has been done in Korea with the Centres for Excellence in Learning and Teaching, the Centre for Teaching Excellence in the United States, and the Vocational Education and Training (VET) Development Centre in Australia (oriented to strengthen the professional development of all staff members in VET institutions). The Centre for Teaching Other Initiatives could also include teaching excellence awards, competitions for improvements, teaching innovation funds, teaching recruitment criteria, communities of teaching and learning practices, support to foster student achievement (e.g. counselling, mentoring, career advice), self-evaluation, peer-reviewing, and the benchmarking of practices (European Commission 2013; Hénard and Roseveare, 2012; OECD 2015d).

Box 8. Raising the quality of teaching in higher education

A number of initiatives exist across OECD countries to raise the quality of teaching in higher education. The following are just few examples from Canada, Switzerland and Japan:

Université Laval, Canada, rewarding excellence in teaching for the benefit of all: Each year, Université Laval organises the University Awards for Excellence in Teaching. Faculty members are honoured for their exceptional teaching practices or for the production of high quality educational material. The Academic and International Activities Vice-Rector is responsible for this contest, with the support of the Teaching and Learning Services. The selection committees are composed of the Academic and International Activities Associate Vice-Rector, representatives of faculty members and students from first, second and third cycles.

University of Lausanne, Switzerland, Teaching Innovation Fund to foster quality teaching: The University of Lausanne launched its Teaching Innovation Fund (TIF) in 2007 to achieve two objectives: help individual teachers develop through applied research projects on teaching and learning, and foster institutional change in teaching and learning practices. Teachers can apply for funds to hire staff to help on a specific aspect of teaching, with or without the use of educational technology. Participants are coached during the project period.

Box 8. Raising the quality of teaching in higher education *(continued)*

Ehime University, Japan, evaluation of curriculum redesign: Over the last five years, the University Provost and the Office for Educational Planning and research of Ehime University have requested each school/department to change their curriculum and embed a more outcome-based approach. More than 20 dialogue-based workshops were organised with Educational Co-ordinators, the academic staff in charge of curriculum reform at school/department level. Each co-ordinator set learning outcomes, curriculum maps, curriculum checklists and curriculum assessment checklists.

Source: Hénard, F. and D. Roseveare (2012), *Fostering Quality Teaching in Higher Education: Policies and Practices. An IMHE Guide for Higher Education Institutions*, OECD Publishing, Paris, www.oecd.org/edu/imhe/QT%20policies%20and%20practices.pdf.

Making the curriculum more relevant to labour market needs

It is critical to ensure that the university curriculum responds to the current and future needs of the labour market. In a 2012 McKinsey survey across various countries, employers and education providers had one of the highest reported gaps between the skills assessment of young graduates (McKinsey & Company, 2012). The universities in Mexico that are part of the Comprehensive Programme for Institutional Strengthening (PIFI) are encouraged to improve their course offerings on the basis of graduate labour market outcomes, feedback from graduates and views of employers. However, this is not a requirement. Part of the challenge to continuously update the curriculum is to provide university staff with the incentives and support to receive continuous professional development so that they are able to undertake this activity.

Mutually beneficial partnerships between universities and industry should be encouraged, as they could improve skills development, activation and use. A 2012 McKinsey survey showed that employers in Mexico often perceive youth as having lower skills than they need for the job (McKinsey & Company, 2012). In order to bridge this gap, university-employer partnerships are critical. Such partnerships currently exist and are fostered through the Liaison and Relevance Board (Consejo de Vinculación y Pertinencia) for technological universities, and the Liaison and Social Board (Consejos Sociales y de Vinculación) for polytechnic universities. These arrangements help academic staff research the practical problems companies are facing; they also benefit employees who may receive continuous professional development training. Examples of such partnerships include the e-Carnegie network, CONOCER, PLM National Centre in the Technological University of Aguascalientes, the Querétaro-Peugeot Technological University Training Centre, the Querétaro Aeronautic University, the Puebla-Audi Technological University Training Centre, the Technological University Jalisco Caterpillar Centre, and the Advanced Manufacturing Centre of Aguascalientes (SEP, 2016). Research has found that regular meetings between academics and employers can help with ensuring that programme offerings are revised according to changing demands (De Weert, 2011). OECD examples of such links are the programme advisory committees with employer representation that are found in Canada's colleges and institutes. In Australia, most registered education and training providers have Industry Advisory Groups that meet twice a year and provide feedback to institutions on a range of aspects, such as curriculum content, new technologies used in the industry, or the performance of graduates currently undergoing an apprenticeship or working at the firm. Siemens in Germany partners with tertiary education institutes in Germany, the United Kingdom, Canada and the United States (Siemens, 2016). One risk with such engagement is that employers may focus more on short-term and/or firm-specific needs, which affects the overall provision of skills that may not be aligned to the long-term interests of the economy. In addition, "rent-seeking" may take place as employers try to get public funding to cover their training costs, which they otherwise would take on themselves (OECD, 2016b). Regardless, employers should be encouraged to contribute more to the work undertaken by universities in preparing students, so that the gap between education and skills needed at work can be reduced.

Work-integrated learning can be particularly effective in preparing students with labour market relevant skills; this practice has a prominent role in recent policy initiatives as industry clusters and special economic zones. Work-integrated learning includes field experience, internships, applied research, project learning, service learning, co-operative education placements and mandatory professional practice (OECD, 2016b). These kinds of programme have been shown to have positive impacts, especially in the early labour market outcomes of graduates, as they equip students with the skills sought by employers (Euler, 2013). Some initiatives, as mentioned in Challenge 1, seek to promote these kind of programmes. For example, in the Aerospace Cluster in Queretaro, a number of educational institutions and companies from the aerospace industry have worked together to create a cluster that demands high-skilled workers. Another initiative currently in place is the special economic zones or clusters where the Mexican government supports a historically marginalised area by providing incentives for international and national companies to invest and create jobs. Both clusters and special economic zones aim to encourage partnerships between local universities and companies to ensure the steady supply of skilled workers. Very importantly, universities are expected to offer dual training/learning modalities that require students to complete internship programmes in the relevant companies. Employers play an important role in offering students work-based learning opportunities, providing them with tutors and trainers within the firm, reinforcing certain skills, continuously collaborating with the universities to ensure compliance with the overall learning programme objectives, and, when possible, supporting student participation through financial incentives that complement government support, such as stipends or subsidies. Following the internship, it is expected that a large number of these students will be hired. CONACYT has a programme called Masters and Ph.Ds. in Industry (Maestros y Doctors en la Industria) that organises internship programmes for master and Ph.D. students. Around 63% of the participants are hired by the company that hosted them for the internship upon graduation. Universities also provide continuous development courses, as the skill requirements, especially in specialised technical domains, need to be updated with the arrival of new technologies (SEP, 2016).

Box 9. Encouraging the development and provision of work-integrated learning

Varying mixes of tax breaks, direct subsidies, student grants and levies are often available to encourage the participation of employers and students in work-integrated learning (OECD, 2014c).

Corporate tax deductibility of training costs is widespread across OECD countries, some (e.g. Austria) even allow deductions greater than the costs incurred (OECD, 2014b). Such schemes help to shift the incentive balance towards training rather than recruiting skills externally. Small and young firms generally benefit little from tax breaks, but careful design of the tax arrangements can also create incentives for this group of companies. The Netherlands, for example, recently experimented with an extra deduction from taxable profits on training expenditures, plus an additional deduction for firms spending less than a specified amount. In targeting firms with low absolute levels of training expenditure, the incentive automatically targeted small firms, while minimising deadweight losses (Stone, 2010). However, although targeting can lower deadweight expenditure, it may exacerbate bureaucracy or lead to unintended substitutions.

Direct subsidies in the form of grants or training vouchers may facilitate the targeting of specific groups of enterprises, and thereby may be more effective than tax incentives. This may make it easier to reduce deadweight effects.

In general, subsidies need to be subject to comprehensive eligibility criteria and approval processes in order to alleviate potential moral hazard and adverse selection problems. Evidence from Switzerland suggests that subsidies can be an effective support mechanism for firms not yet involved in workplace training (Mühlemann et al., 2007), but they have limited effect on those firms that already provide training (Wacker, 2007). In addition to grants for enterprises, in many countries young trainees also qualify for grants that complement their wage income

Many countries, especially in Europe, use levies – a compulsory form of collective assistance and cost sharing. Such schemes can result in higher levels of employer-based training, while addressing poaching by requiring all firms to contribute to training expenditures. They also offer considerable scope for facilitating training among small employers through earmarking funds. Some schemes are criticised, however, for encouraging inefficient and inappropriate training, and favouring larger employers. Therefore, levies should ideally be set in a larger context, beyond their function as a financial instrument (Iller and Moraal, 2013).

Box 9. Encouraging the development and provision of work-integrated learning *(continued)*

In Germany, the responsibility for funding vocational schools lies with the *Länder* (region) and local authorities, while companies bear the costs of training in the workplace. In some sectors, there is a general fund to which all companies pay contributions and through which the costs for the apprenticing institutions are covered, while in other sectors, each company bears its own costs.

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Improving learning and labour market information with career and education guidance services

Information about current and anticipated skills needs, and where to develop these skills, is important for ensuing the quality and relevance of tertiary education. Better information about the labour market outcomes of graduates of different institutions and fields of study could help to improve quality and the alignment between skills supply and demand. Employers signal their perspectives on the value of studies through their employment and salary offers. Making information about the employment and earnings of graduates of different institutions publicly available might encourage more students to enrol in institutions that offer the prospect of better employment and earnings. This behaviour would, in turn, create greater competition among institutions, thereby raising quality standards. Similarly, information about the labour market outcomes of graduates of different fields of education would permit prospective students to better understand the relative value placed on these studies in the labour market, thereby encouraging them to make study choices that are better aligned with the needs of the economy. Information about skills is critical for stakeholders to make informed decisions. Mexico is already making a big effort in this regard from different directions, so it is important to better co-ordinate efforts.

A number of tools are currently available. The Mexican Labour Market Observatory (Observatorio Laboral) was launched by the federal government in 2005 and provides information on trends and characteristics of various occupations and professions for students, employers and policy makers. The online platform, Compare Careers (Compara Carreras) by the Mexican Institute for Competitiveness (Instituto Mexicano para la Competividad), provides comparative data on various careers to inform student decisions. Based on a rich database from the National Survey of Occupations and Employment (Encuesta Nacional de Ocupación y Empleo), it visually describes various occupations in terms of salary level, matriculation levels, return on investment, and the quality of investment in choosing to study for a specific occupation. Similar Platforms are Get Connected (Vincúlate) and Talents (Talentos) (SEP, 2016). The Ministry of Education helps young people from upper secondary to tertiary education choose the right career option, through the Decide your Studies (Decide tus estudios) platform. This tool provides information on the different options for enrolment in upper secondary education programmes and training options for employment; it also offers a test, developed in collaboration with CENEVAL, that allows students to identify their skills and professional interests. Students receive a report based on their results and academic background. It is clear that gathering labour market and education data is a priority for several institutions in Mexico; however, it remains unclear as

to what extent these institutions co-ordinate with each other effectively (for more information about co-ordination please see Challenge 7). These tools also need to be improved. For example, they could rank tertiary education institutions according to certain criteria. They could also provide information about public programmes that may support students to continue to the tertiary level and strengthen their training, such as scholarships, internships and apprenticeships. They could customise the interface and information to the needs of different users, such as students, parents, employers and educators.

Gathering and disseminating information is an important first step for skills policy improvement, but it needs to be complemented with mechanisms to ensure it is being used in the most effective way. In a survey of youth in Mexico, one in two reported not having known which careers had the best job opportunities and high wages, or what studies would have high job placement rates (McKinsey & Company, 2012). Self-help online tools need to be accessible through multiple channels (i.e. mobile apps, interactive website) and complemented with social media platform functionalities, face-to-face services and telephone contact. Students and parents could benefit from career guidance services that make clear what information is available and how to interpret this information. It may be the case that those would benefit most from this type of information are simply not aware that it exists. Generic information may need to be presented in a customised fashion and targeted to the specific needs of the individual. Such services need to be provided by trained professionals who are equipped to use guidance, information and communication technologies and know how to interpret labour market information (CEDEFOP, 2015). However, the average earning level of educational guidance and counselling professionals is one of the lowest, which may act as a disincentive for talented university graduates to join this field and improve the quality of its provision (IMCO, 2015).

The rich data sources available would benefit from further integration and co-ordination. Many individual databases exist, but they are not linked and integrated. Information on the supply and demand of qualifications could be connected with a national qualification framework. This would make it easier for employers to specify which skills are required for employment, education institutes can design their programmes to develop these skills, and students would know what skills they would gain from a certain degree programme. This information would also help employers to understand what a qualification from a newly created degree programme means, and how degree programmes across universities are similar or different (OECD, 2008a). This type of arrangement could help to reduce the large amount of mismatch between field and study and work (see Challenge 5).

Box 10. Policy in focus: Informing education and career choices

A number of initiatives exist across OECD countries to provide information on education and career choices. The following provides a few examples from Finland, Germany, and New Zealand:

Finland, a lifelong learning guidance system: Finland's career guidance system covers all parts of lifelong learning, from early childhood and care (ECEC) to adult education. There are also targeted programmes for people at risk or those who are out of the labour market and out of lifelong learning. The ministries of education and employment established a national steering group for guidance and counselling to strengthen cross-sectoral and multi-professional co-operation between the key actors and stakeholders.

Germany, co-operation between schools and the Public Employment Service: In Germany, the Federal Employment Office's career counsellors visit schools, run class talks, and provide small-group guidance and short personal interviews in the penultimate year of compulsory schooling. Many of these counsellors have undertaken a specialised three-year course of study at the Federal College of Public Administration. School classes are taken to the Employment Office's career information centres (BIZ), where they are familiarised with the centre's facilities. They can subsequently re-visit the centre and book longer career counselling interviews at the local employment office.

Box 10. Policy in focus: Informing education and career choices *(continued)*

New Zealand, combined work and training guidance by Career Services: Career Services (CS), a body independent of the education system, is the main provider of career information in New Zealand. CS provides services directly to individuals to help them make informed decisions about work and training. These services include providing labour market information (e.g. job profiles and industry outlooks) and information on tertiary education and vocational training. CS also develops guidance modules for schools. For example, the Creating Pathways and Building Lives programme assists schools in developing effective career advice. Career guidance consists of wide-ranging information on career paths and training opportunities. The New Zealand Qualification Authority provides information about qualifications and diplomas and the quality of learning institutions. The New Zealand Register of Quality-Assured Qualifications provides a comprehensive list of all quality-assured qualifications in New Zealand. In addition, most tertiary education institutions conduct surveys of graduates to structure their programmes. The Department of Labour collects and analyses information on the skills needed in the labour market and on how the tertiary education system interacts with the labour market. By merging this information with that from other sources, the Tertiary Education Commission produces annual "portraits" of tertiary education and training in New Zealand, including indicators of possible under and over supply.

Sources:

CIMO (2013), *Lifelong Guidance*, CIMO, Helsinki, www.cimo.fi/instancedata/prime_product_julkaisu/cimo/embeds/cimowwwstructure/25493_Lifelong_guidance_in_Finland.pdf.

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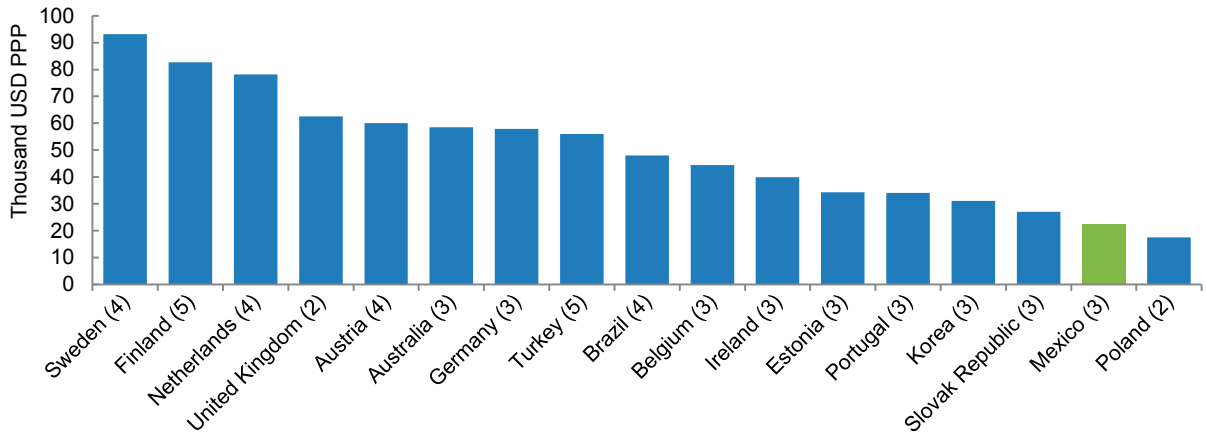
Improving the financing of tertiary education

The amount of funding available, and how it is being spent, have important implications for quality and the relevance of tertiary education. While public expenditure on tertiary education has increased, it has not kept up with the increase in the number of students. Between 2008 and 2013, total expenditure (both public and private) increased by 14%, but the number of students increased by 26%, meaning that expenditure per student in this period decreased by 9%. While there is no direct way to assess the impact on tertiary education quality through a decrease in funding per student, it is probable that less funding could mean a lower likelihood in recruiting quality faculty, a higher student/staff ratio, and lower quality equipment (OECD, 2015d). The average spending per student for the duration of their tertiary studies is one of the lowest across the OECD at USD 22 630, which is significantly lower than other Latin American countries, such as Brazil (USD 47 954), and other OECD countries, such as Finland (USD 82 671) and the Netherlands (USD 78 106) (OECD, 2016c) (Figure 24). How the budget for tertiary education is spent has important implications for the incentives universities have to enhance the quality and relevance of tertiary education. If funding is based on quality and relevance standards, such as the employability of graduates, universities will be incentivised to change their policies and practices accordingly and adapt their course offerings to labour market needs.

Figure 24. Cumulative expenditure per student by educational institutions for all services over the average duration of tertiary studies (2013)

In equivalent USD converted using PPPs for GDP



Notes: The average duration of tertiary studies is indicated in parenthesis beside each country. For Belgium, average duration refers to the Flemish community only. For Brazil and Ireland, expenditure refers to public institutions only. For Germany, average duration does not include mobile students. PPP refers to purchasing power parity and GDP to Gross Domestic Product.

The average duration of studies is calculated using the Chain Method, Approximation Formula or True Cohort. Please see Annex 3 (www.oecd.org/education/education-at-a-glance-19991487.htm) for more information on these methods, as well as on which method was used by each country.

Countries are ranked in descending order of cumulative expenditure in tertiary education over the average duration of studies.

Source: OECD (2016c), Education at a Glance, OECD Publishing, Paris. http://dx.doi.org/10.1787/eag-2016-en. See Annex 3 for notes (www.oecd.org/education/education-at-a-glance-19991487.htm).

Individuals carry a large share of the burden for financing the cost of tertiary education. In tertiary education, 32% of expenditure comes from private sources originating from households, which is well above the OECD average of 21% (OECD, 2016c). While tuition fees exist at both private and public universities, at public universities they tend to be fairly low and represent only a small share of current expenditure, with most expenditure covered by government funding (tuition fees can be relatively high for individuals from disadvantaged socio-economic backgrounds). In private universities, by contrast, tuition fees are the main source of revenue. Generally speaking, tuition fees can support the financial sustainability of institutions and make them less dependent on public funding. They can also provide greater incentives for students to complete their studies on time (OECD, 2008a). Despite the relatively high financial burden on tertiary skills investments in Mexico, they still make financial sense for students and the government alike. As shown in previous paragraphs, and explored further in Challenge 8, the returns to tertiary education are high.

The high private cost of financing tertiary education may hinder the participation of under-represented groups, thereby exacerbating existing economic and social disadvantages. High tuition fees may act as a barrier to accessing tertiary education for students from low-income families. These students may be more risk and debt averse, they may underestimate their skills and returns to tertiary education, and may be more reluctant to pay tuition fees (OECD, 2015d). Tuition should be solidly backed by quality assurance mechanisms to secure good learning quality in tertiary institutions. Flacher et al (2013) argue that in such a context, to ensure equity it would be necessary to provide grants, institute progressive tuition fees and introduce monetary transfers between tertiary education institutions to avoid polarisation between tertiary education institutions with wealthier populations and others. In Mexico, only a limited number of scholarships, and even fewer loan schemes, are available to students (OECD, 2008a). This financial barrier limits the

possibility of increasing access to tertiary education simply by there being more private universities. Without sufficient financial support for these students, who would otherwise not be able to afford to study, access may only be increased for those who can afford private universities. Lessons across the OECD indicate that the provision of financial aid needs to be complemented with raising awareness among potential students from low socio-economic backgrounds about the existence of such support (OECD, 2015d).

The government could take steps to improve access to tertiary education among under-represented groups. The most prominent scholarship scheme are Manutención support grants (formerly PRONABES), which are given out in all states in Mexico to support students from low socio-economic backgrounds in pursuing their undergraduate studies (licenciatura, 4-5 year degree programme; técnico superior universitario, two-year degree programme). The scholarship covers tuition, living expenses and study material costs. This scholarship has increased tertiary access for disadvantaged students and raised completion rates. There are other scholarships specifically for postgraduate studies (PROMEP), or that target students training to become teachers and those involved in education (FAEB, DGESPE), or from specific institutes such as the National Polytechnic Institute (IPN, COFAA-IPN), the National Autonomous University of Mexico (UNAM), the National Pedagogic University (UPN), and the College of Mexico. Aside from these grants, students have to rely on support from their families and part-time/vacation employment to support their studies (OECD, 2008a).

Summary and policy implications

- **Tertiary education provides significant benefits to individuals and society.** Tertiary graduates benefit from having higher skills and have higher productivity, which means they are more likely to be employed in the formal economy and earn higher incomes. They also tend to report better health outcomes, have lower crime rates and participate more fully in the political process and society. For society, a more highly educated population is associated with an expanded formal sector, higher tax revenues, lower costs of social transfers and criminality, and increased productivity, thereby supporting economic prosperity and higher standards of living.

- **A small share of Mexican students completes tertiary education.** Only 16% of the population aged 25 to 64 years-old in 2015 had attained tertiary education, which is significantly below the OECD average of 36%. Access varies greatly across regions, with participation rates exceptionally high in Mexico City, and significantly lower in most other regions. While tertiary education participation rates are similar for men and women, there are some differences by field of study. Of particular concern is the participation rate among certain disadvantaged groups, such as indigenous students. Improving access broadly across regions would boost the well-being of graduates, but also the country as a whole. Boosting access for disadvantaged groups could support social mobility and improve social cohesion.

- **To realise fully these benefits, Mexico will need to improve the quality and relevance of skills developed in tertiary education.** Rapid expansion and limited oversight may mean that many graduates are not developing skills of the quality and relevance demanded in the labour market. Employer surveys indicate that many tertiary graduates do not have the skills required for their jobs. Furthermore, one out of two tertiary graduates works in an occupation unrelated to their field of study, which may suggest that some tertiary students are not completing studies that are in the highest demand. Incentives to adapt course offerings to labour market needs could be strengthened in private and public tertiary education institutions, which are responsible for about 33% and 67% of the total tertiary graduates, respectively.

Mexico can improve access to tertiary education, while bolstering the quality and relevance of skills developed in tertiary education. Better regulation and quality assurance systems could ensure that universities are accountable not just for increasing access, but also for raising quality and relevance. The quality

of teaching could be further improved through the increased use of evaluations and better working conditions. The tertiary curriculum could be made more relevant to the labour market through partnerships between universities and industry, and through increased use of work-integrated learning. Better information about current and future skills needs and the outcomes of tertiary institutions could also support increased quality and relevance. The effective financing of tertiary education could be an important lever to improve tertiary education and its outcomes, in particular when public funding is made contingent on the outcomes of measurable quality and relevance indicators of tertiary education.

NOTES

6 This is measured by taking the ratio of government returns to education (extra tax revenue) from the costs of education (lost tax revenue, direct costs, scholarships and grant income given to a student, and value of skills tax expenditure).

7 Technological universities, technological institutes, and polytechnic universities are innovative in the sense that they were created specifically to adapt better to the needs of employers.

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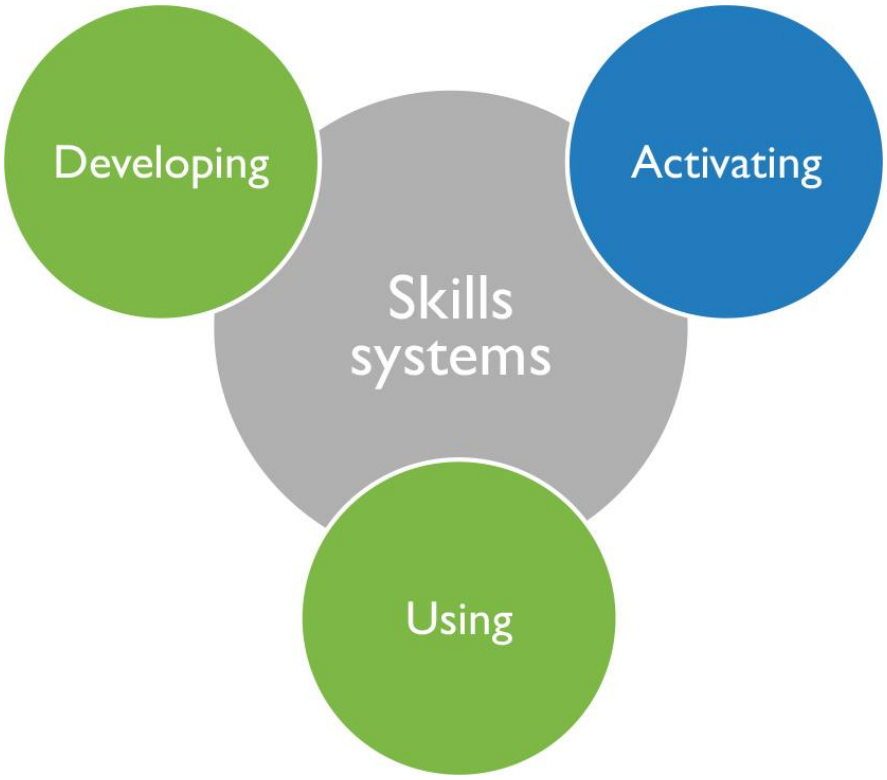
ACTIVATING SKILLS



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INTRODUCTION TO ACTIVATING SKILLS

To realise the full benefits of investments in skills, the skills of working-age individuals must be fully activated in the labour market. The successful activation of skills in the labour market can have positive effects on both individuals and the society at large. On the one hand, individuals who supply their skills in the labour market typically enjoy better economic and social outcomes. On the other hand, by activating all available skills, a country can maximise its economic growth and support the transition towards a more productive, knowledge-based economy. Two main challenges have been identified regarding the activation of skills in Mexico: removing supply and demand-side barriers to activating skills in (formal) employment; and boosting the skills activation of vulnerable groups.

Removing supply and demand-side barriers to activating skills in (formal) employment. Mexico's performance in terms of activating the skills of its population in the labour market could be improved. Participation and employment rates are very low, among the lowest in the OECD area. Even when Mexicans are in employment, it is frequently in poor-quality jobs: over half of employed people work informally and are therefore subject to precarious working conditions, with little protection provided by labour contracts, and poor training and career advancement opportunities. They also typically work very long hours, receive low pay, and often work in demanding jobs. Policies need to encourage people to supply their skills in the (formal) labour market. On the one hand, high-quality public employment services (PES) and active labour market programmes (ALMPs), combined with adequate and well-designed income protection systems, are critical in this regard. One key challenge for Mexico is that the PES and ALMPs lack adequate funding and need more systematic monitoring; in addition, income protection systems are too weak and may push workers into subsistence-level occupations. On the other hand, ensuring that skills are successfully activated in the labour market will partly depend upon the creation of a sufficient number of (formal) jobs. This will require the support of reform measures aimed at tackling barriers (such as high labour costs and strict employment protection legislation) that affect the willingness and ability of employers to hire (formally). While Mexico is currently implementing measures to remove such barriers, labour costs are still too high for firms hiring low-income workers, and employment protection legislation remains stricter than in many OECD countries. Taken together, these (supply and demand-side) barriers must be addressed to ensure that individuals and societies realise the benefits of their investments in skills development.

Boosting the skills activation of vulnerable groups. Boosting the labour force participation of vulnerable groups is critical for inclusive growth. In the context of slow economic growth marked by fewer job opportunities, the risk of vulnerable groups being left behind in the labour market increases. In Mexico, these vulnerable groups are in particular young people and women, who face considerable challenges in entering and remaining engaged in the labour market, and need targeted support. In particular, many young people in Mexico are struggling to transit from school to the world of work, and many end up becoming NEET (neither in employment, education, or training). These young people risk being permanently marginalised from the labour market and society, and are at a high risk of joining gangs or being forced to migrate. Women are also struggling to activate their skills in the labour market. Few participate by international standards, often because they bear the burden of household work and family responsibilities. The under-representation of these vulnerable population groups in the labour market is hampering the full exploitation of Mexico's skills assets and potential, and represents huge costs to the society.

CHALLENGE 3: REMOVING SUPPLY AND DEMAND-SIDE BARRIERS TO ACTIVATING SKILLS IN (FORMAL) EMPLOYMENT

A selection of challenges identified by Mexican workshop participants:

"Creating incentives to boost formal employment should be a priority."

"The National Employment Service needs more resources."

"Employment programmes should be more widely known.'

"The costs of hiring people formally should be reduced or subsidised."

Mexico's performance in terms of activating the skills of its population in the labour market could be improved. Participation and employment rates are very low in the international context, among the lowest in the OECD area. Even when Mexicans are in employment, it is frequently in poor-quality jobs: over half of employed people work informally and are therefore subject to precarious working conditions, with little protection provided by labour contracts, and poor training and career advancement opportunities. They also typically work very long hours, receive low pay, and often work in demanding jobs. On the one hand, policies need to encourage people to supply their skills in the (formal) labour market. High-quality public employment services and active labour market programmes, combined with adequate and well-designed income protection systems, are critical in this regard. On the other hand, ensuring that skills are successfully activated in the labour market will partly depend upon the creation of a sufficient number of (formal) jobs. This will require the support of reform measures aimed at tackling barriers (such as high labour costs and strict employment protection legislation, EPL) that affect the willingness and ability of employers to hire (formally). Taken together, these (supply and demand-side) barriers must be addressed to ensure that individuals and societies realise the benefits of their investments in skills development. Challenge 3 is structured as follows: 1) provides a brief overview of labour market conditions in Mexico from an international comparative perspective; 2) analyses the role of the public employment service and active labour market programmes to help jobseekers (back) into work; 3) investigates social protection mechanisms to mitigate the negative consequences of being out of work; 4) discusses the cost of hiring (including minimum wages and non-wage costs); and 5) analyses the labour market legal framework (i.e. employment protection legislation) under which firms operate in Mexico.

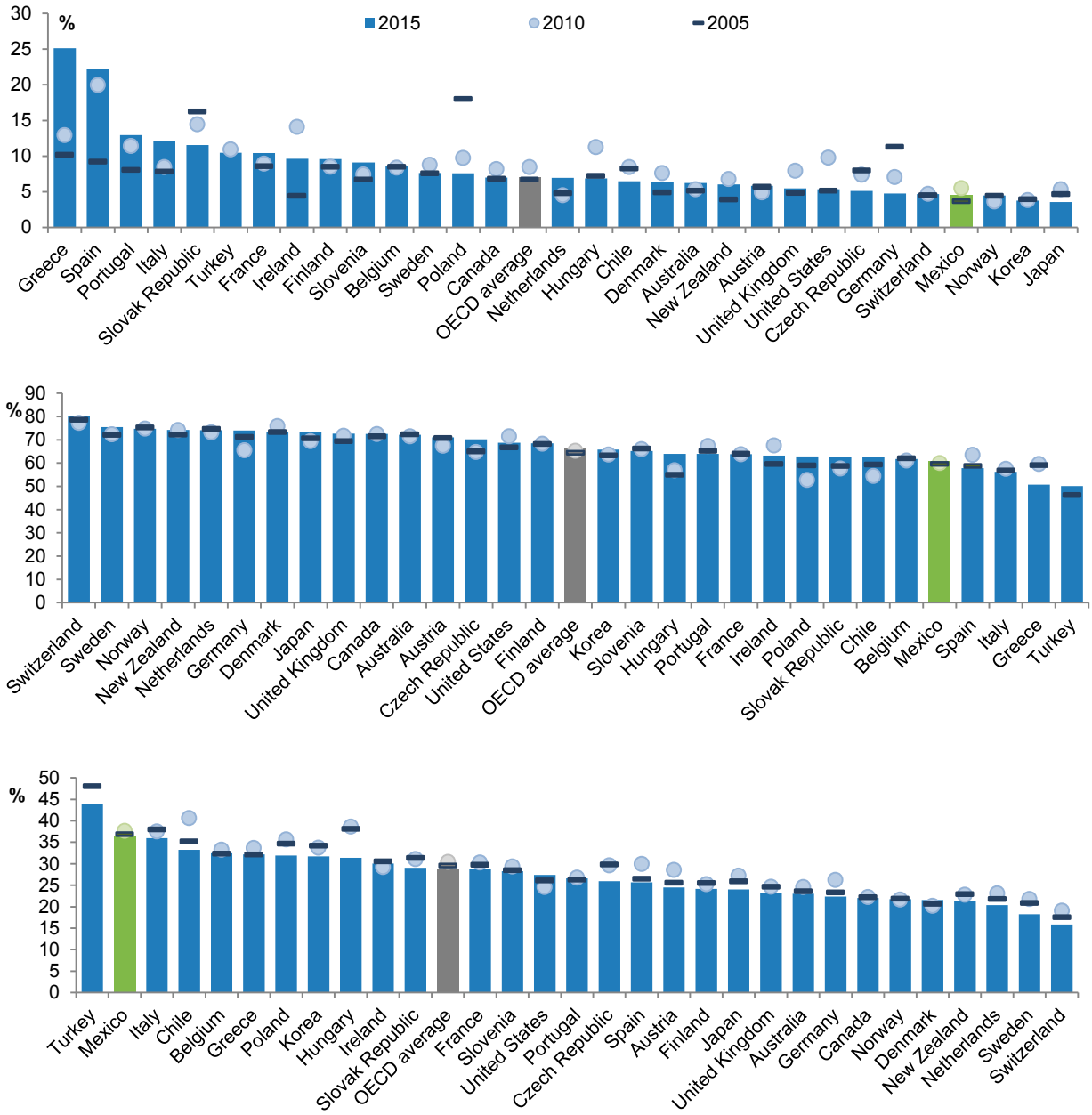
The labour market in Mexico is characterised by low participation, high informality and poor job quality

The skills of many Mexicans are not being activated to their full potential. Despite relatively low unemployment rates (first panel, Figure 25), Mexico's employment rate (at 60.7% in 2015) is one of the lowest among OECD countries, ahead only of Turkey, Greece, Italy and Spain (second panel, Figure 25). The inactivity rate stands at 36.4%, the second highest in the OECD area, after Turkey (third panel, Figure 25). Poor labour market outcomes in Mexico are partly due to the under-representation of disadvantaged population groups in the (formal) labour market, such as youth and women (see Challenge 4 for a discussion). This under-utilisation of skills in the labour market represents a large waste of human capital and a missed opportunity for the country to develop and grow.

The quality of jobs is frequently poor for those in employment. Labour market performance should be assessed not only in terms of the number of jobs, but also in terms of the quality of employment. Mexico fares poorly when compared internationally along several dimensions of job quality. Most employees work informally (see Box 11 for a discussion on informality in Mexico), with poor training or career advancement opportunities, little security provided by labour contracts, and no or little protection in case of sickness or work accidents. Mexico also performs poorly internationally when measuring job quality through the OECD Job Quality Framework. Compared to the average across OECD countries, as well as many other emerging economies, earnings quality is extremely low in Mexico, and is characterised by low average earnings and high inequalities. Job market insecurity is very high; and while the risk of unemployment is typically moderate in Mexico, the risk of falling into extremely low-paying jobs constitutes the most significant source of labour market insecurity. The quality of the work environment is poor compared to many OECD and developing countries, with a very high share of workers working (and often commuting) very long hours and allocating very little time to leisure and personal care (see Figure 26 and OECD, 2015a).

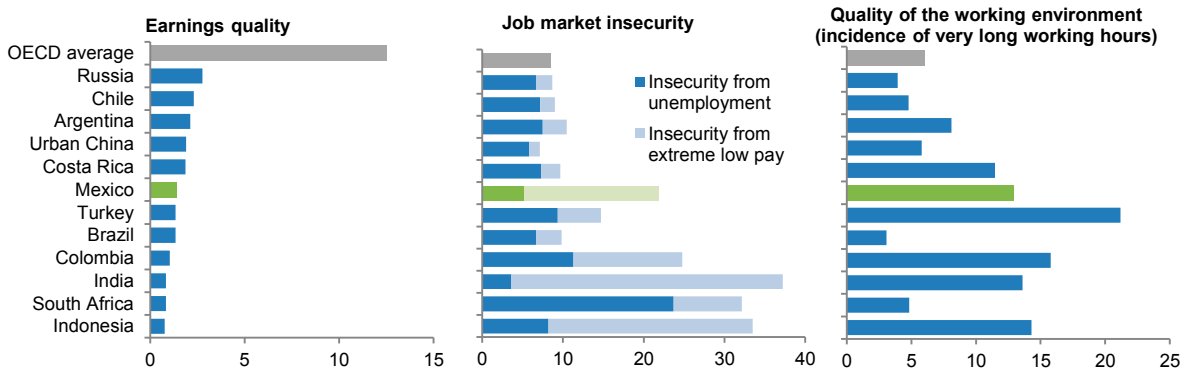
Ensuring that skills are successfully activated in the labour market will depend on the ability and motivation of individuals to work, as well as the creation of a sufficient number of (formal) jobs. The reminder of Challenge 3 explores both the supply and demand-side barriers to (formal) employment, i.e. labour market barriers that affect the willingness and ability of workers and employers to supply and demand skills in the (formal) labour market.

Figure 25. Labour market outcomes, 2005, 2010 and 2015



Source: OECD.Stat (Short-Term Labour Market Statistics).

Figure 26. Job quality in Mexico, North America, and OECD countries



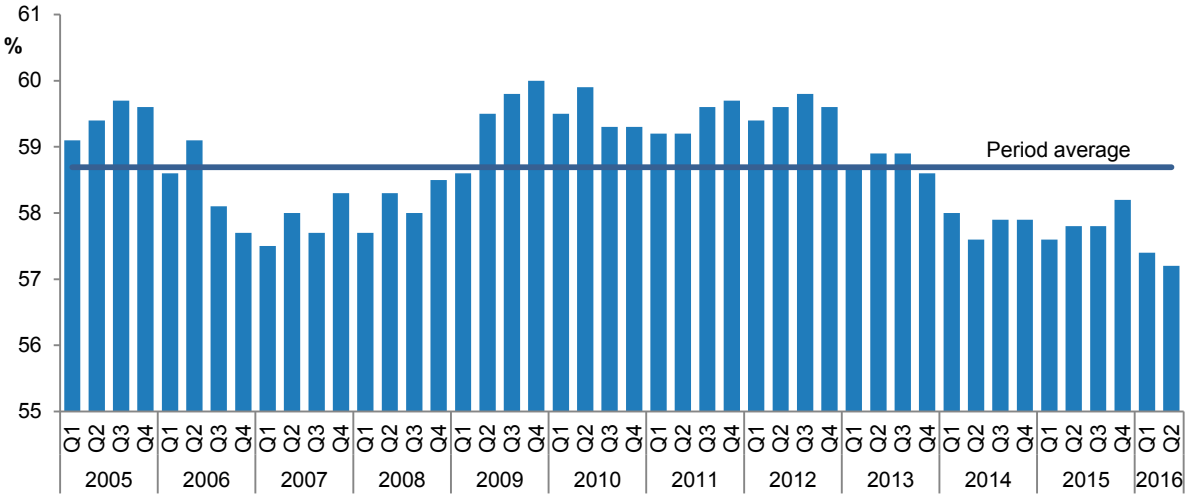
Source: OECD (2016a), "How good is your job? Measuring and assessing job quality", in *OECD Employment Outlook 2014*, OECD Publishing, Paris, http://dx.doi.org/10.1787/empl_outlook-2014-6-en.

Box 11. A focus on informality in Mexico: Why it matters and the key challenges ahead

Informality in Mexico affects the majority of the working population. According to The National Institute of Statistics and Geography (INEGI), informality affects 57.2% of the employed population (in Quarter 2, 2016; INEGI, 2016). Although this is an improvement from a peak of 60% at the end of 2009 (Figure 29), it remains very high in comparison with other emerging economies.[8] Figure 27 shows that the share of informal employment in Mexico is higher than emerging economies such as Argentina, Brazil, Chile, (urban) China, Colombia, Costa Rica, Turkey, Russia, and South Africa; although it is lower than Indonesia and India, where more than 80% of employed people work informally (see Khamis, 2009; OECD, 2008; 2015a).

Figure 27. Informal employment, Mexico, Q1 2005- Q2 2016

As a share of total employment



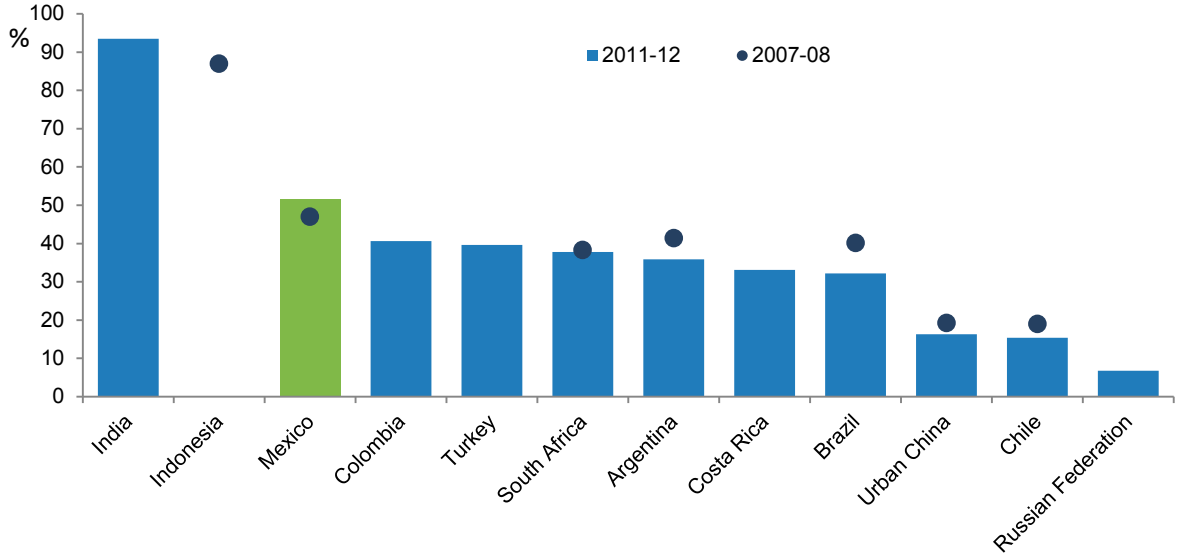
Note: The definition of informal employment is in line with the Seventeenth International Conference of Labour Statisticians (ICLS) "Guidelines concerning a statistical definition of informal employment."

Source: Mexico INEGI, Encuesta Nacional de Ocupacion y Empleo (ENEO, http://www3.inegi.org.mx/Sistemas/infoenoe/Default_15mas.aspx?s=est&c=27736).

Box 11. A focus on informality in Mexico: Why it matters and the key challenges ahead *(continued)*

Figure 28. Incidence of informality in Mexico and other emerging economies

As a share of total employment



Note: Informality is defined to include: 1) employees who do not pay social contribution, except for Colombia, where contract status is used; and 2) self-employed workers who do not pay social contributions (Brazil, Chile, China, India, Indonesia, Turkey) or whose business is not registered (Argentina, Colombia, Costa Rica, Mexico, South Africa).

The figures for China are for 2008 and 2009.

All figures for Indonesia are for 2007.

Source: OECD (2015a), *OECD Employment Outlook 2015*, OECD Publishing, Paris, http://dx.doi.org/10.1787/empl_outlook-2015-en.

High informality rates have important implications for skills. Informal jobs are typically those with low skill content (see Challenge 5) and with limited opportunities for training and skills development (see Challenges 1 and 2).

Informality may also have implications for job quality. In Mexico, as in other countries, many informal workers face considerable wage penalties compared to formal workers (Bargain and Kwenda, 2010; Alcaraz, Chiquiar and Ramos-Francia, 2008; Pagés and Stampini, 2009). They also face large labour market insecurity, financial hardship in the event of job loss, and lack of a contract that defines their working conditions and hours.

Apart from the implications for skills and job quality, informality is one of the main causes of Mexico's low productivity. The link between informality and productivity in Mexico has been widely researched, and authors agree that informality is holding back the country's potential for economic growth (Busso, Fazio and Levy, 2012; Leal-Ordonez, 2013; OECD, 2011; Macias, 2008; Dougherty and Escobar, 2013). In order to escape the control of authorities, informal firms often remain small, adopt fewer technologies, and prefer informal financing or irregular procurement. This misallocation of resources can harm productivity (OECD, 2015b).

The causes of informality are broad in Mexico. To some extent, informality in Mexico relates to a scarcity of formal jobs: firms are not creating formal jobs and/or are reluctant to declare their employees. In many cases, however, informality reflects a choice of the worker (Pagés and Stampini, 2009). Research shows that between only 10 and 20% of informal workers in Mexico would prefer to have a formal job, which suggests that a significant proportion of informal workers (80-90%) choose to work informally (Alcaraz, Chiquiar and Salcedo, 2015). Overall, this is in line with what is observed in other Latin American countries, where informality is often perceived as the outcome of a combination of a burdensome regulatory framework and poor public services (Loayaza, Servén, and Sugawara, 2009).

Box 11. A focus on informality in Mexico: Why it matters and the key challenges ahead *(continued)*

Tackling informality requires a cross-cutting strategy. The cost of formalisation for firms needs to be lowered (while increasing the cost of informality, for example by enhancing the cost of non-compliance with labour and tax laws and strengthening enforcement), and the benefits of formalisation for workers need to be enhanced (ILO FORLAC, 2014; Brandt, 2011; OECD, 2011). Developing a well-functioning system that recognises informal learning may facilitate workers' transition into formal employment (see, for example, Werquin, 2010).

The Mexican government has recently implemented several reforms to tackle informality, with the aim of providing incentives to both firms and workers in order to increase formalisation:

- The 2012 Labour Law reform introduced several clauses with the aim of promoting higher formal employment. For example, it introduced new short-term training contracts, extended trial periods, facilitated hiring in seasonal/temporary and part-time jobs, and increased penalties for breaches of labour laws).
- The government launched a broad publicity campaign to "Go Formal", with the aim of providing information and/or raising awareness of the benefits of formality.
- Mexico's new fiscal regime for small firms includes substantially reduced personal, social security and value added and excise tax obligations in the initial decade of operation. This aims to induce informal firms to regularise their status and start paying taxes (see next sections of this challenge).
- Mexico has strengthened labour inspections regarding the fulfilment of firms' social security obligations.

There are also other factors that go beyond labour market and social policies and that significantly influence informal employment in Mexico. These include: GDP per capita, foreign direct investment (FDI) stocks, the microenterprise share, and corruption (Dougherty and Escobar, 2013). This suggests that successful policies to tackle informality require a broad strategy, the discussion of which goes beyond the scope of this chapter.

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Jobseekers in Mexico could receive better employment support to activate their skills in the labour market

High-quality employment services are important for supporting jobseekers to activate their skills in the labour market. In this respect, Public Employment Services (PES) can play a central role in matching the supply of skills to demand through the provision of information, placement and active support services. PES is usually the primary institution responsible for providing active labour market programmes (ALMPs) to jobseekers. This section discusses the role of PES and ALMPs in Mexico in helping jobseekers supply their skills to the labour market.

Public Employment Services

The Mexican Public Employment Service (*Servicio Nacional de Empleo*) can play a crucial role in getting people closer to (formal) jobs and activating their skills. The Mexican PES provides counselling services to jobseekers, access to several active labour market programmes, and administers job vacancy databases.

Unfortunately PES does not serve the entire workforce in need of its services, and is not commonly used by employers (World Bank, 2013; Flores-Lima, 2010). From January to October 2016, around 2.9 million vacancies were registered by employers in the system, and around 1 million people were placed in a job through SNE services (SNE, 2016).

The under-utilisation of PES can be explained by several factors:

- **PES administration is insufficiently resourced to fulfil its functions** (Weller, 2009). Mexico's current public expenditure on PES and their administration is the lowest in the OECD area: in 2014, it accounted for 0.002% of GDP, compared to an OECD average of 0.13%. Moreover, in recent years, government budget constraints have translated into further decreases in the budget allocated to these services.

- **High caseloads put pressures on PES staff and undermine the adequate provision of services**. In 2014, there were approximately 3 300 staff serving over 5 million customers (OECD/IDB/WAPES, 2015; OECD, 2015c), which amounted to caseloads of above 1 500. These caseloads are very high by international standards. For example, research from European countries shows that caseloads vary from 170-180 to over 500 clients annually (Manoudi et al., 2014).

- **Considering that benefits are not administered by PES, individuals have few incentives to register as unemployed.** PES is not responsible for administering or managing unemployment or other social benefits (OECD/IDB/WAPES, 2015), and recipients are typically not activated. This is in contrast with what is observed in many OECD countries, where unemployed people generally need to register with a PES, provide proof of job-search, and participate in ALMPs in order to receive benefits.

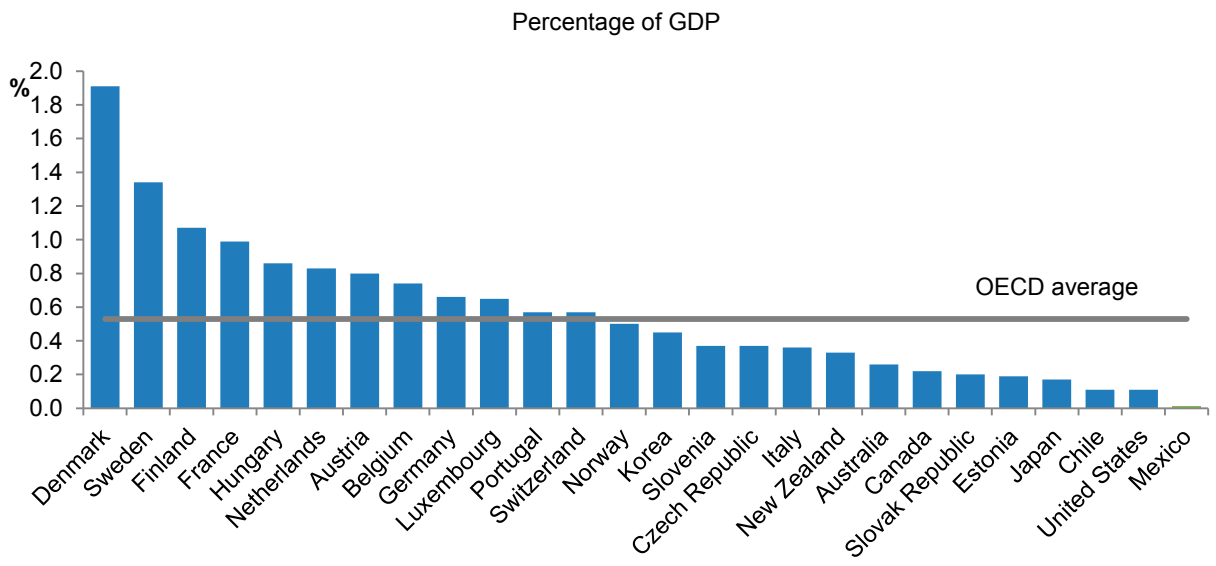
As a result of PES's weak ability to reach out to jobseekers, most people in Mexico still use informal methods for finding a job, mainly through friends and family (ELLA, n.d.). Although job-search through the Mexican PES has been proven to improve the probability of finding good quality jobs in the formal sector of the economy (see Mazza, 2011), too many jobseekers still use informal methods as the primary means of looking for a job. Informal job-search is particularly widespread among disadvantaged groups, such as the low skilled (Mazza, 2011). This translates into a vicious cycle of inequitable opportunities, as these vulnerable individuals also typically have limited networks, and their search tends to be restricted to local markets.

Active labour market programmes

Active labour market programmes may increase jobseekers' employability and motivation, and enhance their employment opportunities. In many OECD countries, ALMPs include training programmes that can promote jobseekers' motivation and employability. Start-up incentive programmes, as well as wage subsidies for firms, may enhance employment opportunities. Careful evaluations of ALMPs across OECD countries indicate that well designed and targeted measures can increase the labour market outcomes of jobseekers in a cost-effective manner (OECD, 2015a).

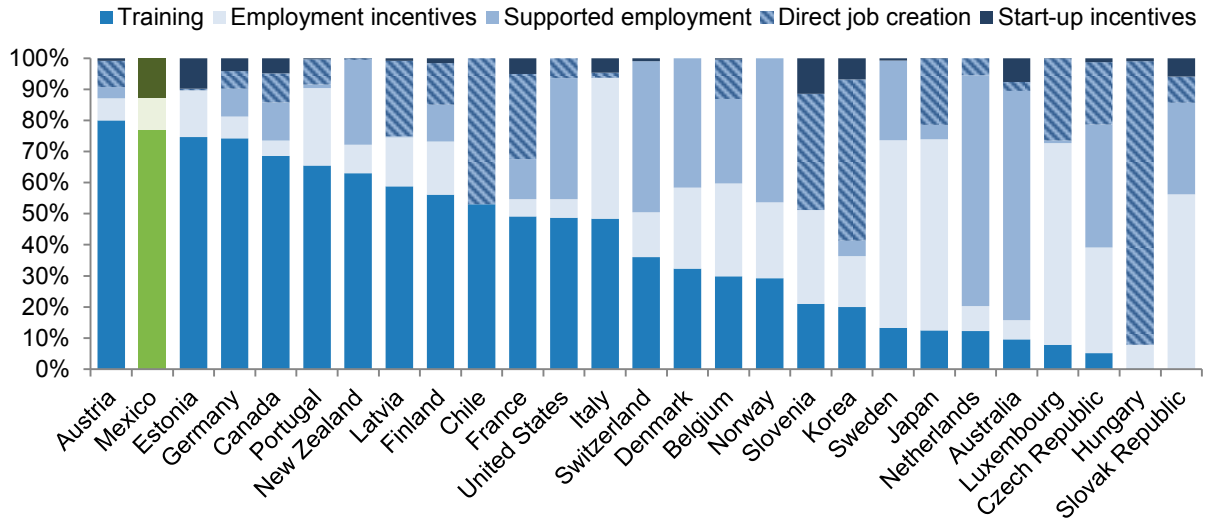
Insufficient funding is being allocated to ALMPs in Mexico, and the programme mix could be improved. At 0.01% of GDP, spending on ALMPs is the lowest in the OECD area, and well below the OECD average of 0.53% (Figure 29). Focus is devoted to financing training programmes, followed by start-up incentives and employment incentives, while virtually no resources are allocated to supported employment and direct job creation measures (Figure 30). Some authors (World Bank, 2013) have argued that most of the resources available are often allocated to programmes that have little likelihood of enhancing people's attachment to the labour market. For example, greater focus is placed on programmes that support start-up firms or self-employment, particularly in rural areas, despite the fact that most unemployment is concentrated in urban areas.

Figure 29. Public expenditure on active labour market programmes (ALMPs), 2014



Source: OECD.Stat (Labour Market Programmes).

Figure 30. Share of labour market programmes expenditures by programme type, 2014



Source: OECD calculations based on data from OECD.Stat (Labour Market Programmes).

Several ALMPs in Mexico show promise, but there is a need to continue evaluating such programmes and scale-up those that are successful. For example, impact evaluation studies of the *Programa de Apoyo al Empleo,* which provides grants for vocational training and support in advertising job openings, show that the programme has had a positive impact and has facilitated beneficiaries' access to paid jobs (CONEVAL, 2010). BECATE, a training programme that is part of the *Programa de Apoyo al Empleo* and operated by PES, is also proving successful, with the impact evaluation showing that it has a positive – albeit small – effect on employability (Delajara, Freije and Soloaga, 2013). The analysis of other data also points to signs of success. In 2013, over 300 000 people participated in BECATE, with around 80% of participants hired by the company in which they were trained.[9] However, there is still room for improvement. Other impact evaluation research shows that one component of the programme (*capacitación mixta*) had a positive impact on participants' employment rates and wages, but other components of the programme (*capacitación en la práctica laboral*) had not been so successful (see Analítica Consultores Asociados, 2015). One key concern is that although training should last one to three months, BECATE's training programmes have recently been particularly short. This may compromise the quality of the training and its potential impact on employment, wages, and overall productivity. This suggests that there is a need to continue monitoring the effectiveness of this programme in the future. The *Programa de Empleo Temporal (*PET) is a programme aimed at providing job opportunities in areas of public interest. Although PET has not been subject to any rigorous impact evaluation, it is considered a successful intervention in supporting the unemployed (CONEVAL, 2012) (see Box 12 for a brief description of these programmes). Considering the low spending on (and participation in) ALMPs in Mexico, there may be scope to scale-up programmes that, after careful evaluation, prove successful.

Box 12. Examples of active labour market programmes in Mexico

BECATE: A job training programme operated by the *Servicio Nacional de Empleo* (Mexico's PES) that is designed to help jobseekers gain formal employment. The programme consists of training organised in co-operation with educational institutions and employers, and a cash grant to cover materials, transport and other costs.

Programa de empleo temporal: PET funds projects that employ local workers, aged 16 and older, in activities that relate to areas such as health promotion, preserving cultural heritage sites, building local infrastructure, alleviating natural disasters, conserving nature and promoting local development. The scheme covers the salaries of the workers – set at 99% of the local minimum wage – for a maximum of 132 days a year, as well as the necessary materials, tools and machines for the project. The programme is run by the Ministry of the Environment and Natural Resources (*Secretaria del Medio Ambiente y Recursos Naturales*), the Ministry of Communication and Transport (*Secretaría de Comunicaciones y Transporte*), and the Ministry of Social Development (*Secretaría de Desarrollo Social*). In 2009, the scope of PET was extended to urban areas, where unemployment had risen due to the economic crisis, and it was renamed *Programa de Empleo Temporal Ampliado* (PETA).

The income support system could be improved to encourage jobseekers to supply their skills in the labour market

An adequate social protection system can play a key role in helping people find (formal) employment. Not only can it shield individuals from poverty, but it can also give them the means to sustain their incomes while looking for productive employment opportunities. In Mexico, the income protection system (both contributory and non-contributory) is very limited, which may push jobseekers into subsistence level, poor quality and/or informal jobs. This section discusses the income support system in Mexico and its implications for the activation of skills in the labour market.

Contributory income support: Unemployment benefits and severance payments

Mexico is the only OECD country without a comprehensive system of unemployment benefits. Unemployed people can receive unemployment insurance support only in two circumstances: 1) formal workers can draw on their pension savings during periods of unemployment; 2) workers who live in Mexico City can have access to an unemployment benefit system (*Programa de seguro de desempleo del Distrito Federal*). The first option is available only to formal employed workers and has the drawback of reducing retirement savings. Moreover, in practice the conditions for withdrawing pension savings before retirement age are very restrictive (OECD, 2013a). Unemployment benefit for Mexico City (*Programa seguro de desempleo del Distrito Federal*) is only paid to individuals (aged 18 or above) who live in the city, who have contributed for at least six months before becoming unemployed, and who have lost their job for reasons beyond their control (and provided that they do not receive other income transfers, e.g. old-age pensions), which means that very few individuals are entitled. Overall, these two options are only available to, and actually used, by a very small proportion of unemployed people (see also OECD, 2015a).

Relying on severance payments to provide income support to the unemployed can be ineffective for facilitating the reactivation of skills. In Mexico, severance pay consists of a bonus of 12 days per year of service. This is higher for certain categories of workers (e.g. people with physical or mental disability, or permanent workers with at least 15 years of service) (OECD, 2013b). As in other emerging economies, in Mexico, generous severance payments are used to compensate for the lack of a comprehensive unemployment insurance system. However, the effectiveness of using severance pay to support the unemployed, as opposed to unemployment benefits, is questionable for several reasons: first, by placing the burden of dismissal on firms, it may undermine (formal) job creation and jeopardise employment opportunities (see Challenge 3). Second, many workers who are eligible to receive severance pay in principle do not receive it in practice. In Mexico, 60% of those dismissed do not receive severance pay although they are eligible, and many individuals end up receiving it after long delays (Buen, Bosch, and Kaplan, 2012; Kaplan and Sadka, 2011). Third, even

when individuals receive severance pay, most of the payment goes on legal fees. Various authors report that the value of the severance pay actually received by the dismissed worker is, on average, only 35% of the amount mandated by law (Alaimo et al., 2015; Buen, Bosch, and Kaplan, 2012; World Bank, 2013).

Ongoing reforms of the contributory income support system go in the right direction. In 2013, the Mexican government proposed to establish an unemployment benefit scheme over the coming years. The reform is planned to guarantee a 6-month benefit for all workers who have contributed at least 24 out of the last 36 months. This is a step in the right direction, as a comprehensive unemployment benefit system may: 1) provide adequate income protection in the case of job loss (and therefore give the unemployed the financial resources to find good-quality jobs); and 2) increase workers' incentives to formalise (by increasing the benefits of formalisation). In the context of the recent relaxation of employment protection legislation (see sections below), introducing a comprehensive unemployment benefit system, which protects workers who might be displaced as a result of more flexible labour rules, becomes all the more important.

Implementing a stronger unemployment benefit system will need to be complemented by additional measures in order to be successful:

- **The unemployment benefit system needs to be carefully designed to keep work incentives high.** If too generous, unemployment benefits can undermine incentives to supply skills. To counter these possible drawbacks, it is important that the introduction of a comprehensive unemployment benefit system is accompanied by the provision of adequate employment services, training programmes, job-search requirements, and effective monitoring and sanctions in case of non-compliance, as is being done in most OECD countries (see Box 13). These complementary measures can ensure that work incentives remain high and that benefits do not become a "subsidy to informality", whereby people receive unemployment benefits while working informally (see Langenbucher, 2015).

- **Developing a successful activation strategy for unemployment benefit will be easier if the administration of benefits and ALMPs are co-ordinated**. Many OECD countries have moved towards a "one-stop shop", generally the Public Employment Service, which administrates benefits as well as counselling and employment services, with the aim of simplifying access to support, exploiting synergies between institutions, and better targeting services to the particular needs and circumstances of clients. For many people, the availability of benefits, including unemployment benefits, represents an incentive to seek contact with the public employment service and register as unemployed, and could therefore have the positive spillover of enhancing the reach of PES (see earlier sections).

The unemployment insurance system in Mexico is being designed to reflect these concerns. In its original design, the unemployment benefit system is supposed to be administered by PES and linked to active labour market programmes (such as BECATE). However, the proposal is still awaiting approval from the Senate, and implementation has not yet begun.

Box 13. Eligibility criteria for unemployment benefits: The experience of OECD and European countries

Eligibility criteria for unemployment benefits are the rules that require benefit recipients to take up suitable job offers, take part in active labour market programmes, and/or actively look for work – at the risk of being sanctioned in case of non-compliance. According to the framework presented in Langenbucher (2015), eligibility criteria include: 1) availability requirements and suitable work criteria; 2) job-search requirements and monitoring; and 3) sanctions in case of non-compliance with these requirements.

Availability requirements and suitable work criteria

Availability requirements and suitable work criteria define whether: 1) a benefit recipient must be available and actively searching for work while participating in ALMPs; and 2) under what circumstances an unemployment benefit recipient is allowed to refuse a job offer without being sanctioned. The latter may relate to the characteristics of the job (e.g. the occupation, wage, geographical location or working conditions) or the circumstances facing the unemployed person (e.g. family responsibilities or health problems), which allow recipients to refuse a job offer without sanctions. International experience shows that a large variation exists across countries. Some countries (such as Malta, Poland, Norway, and Romania) allow unemployment benefit recipients few valid reasons for refusing job offers, and generally require ALMP participants to be available for work. By contrast, other countries (such as Belgium, Bulgaria, Finland, Korea, Lithuania, Spain, Turkey and the United States) allow refusals of job offers for a broad range of reasons, and typically do not require availability during participation in most ALMPs.

Job-search requirements and monitoring

Job-search requirements and monitoring define: 1) whether and how often benefit recipients must prove that they have been independently searching for work; and 2) how benefit recipients need to document their independent job-search efforts. A lot of variation exists across countries. In some countries (e.g. Australia, Portugal and the United Kingdom), job-search reviews need to be provided at least fortnightly. A large number of other countries (such as Austria, Croatia, Estonia, Malta, Iceland, Japan, Korea, Lithuania, Luxembourg, Netherlands, Romania, Sweden, and Switzerland) monitor independent job-search efforts on a monthly basis. In other countries, jobseekers have to prove their job-search efforts more sporadically (e.g. once in two months in Latvia and on a quarterly basis in Denmark). In some countries, the frequency with which job-search efforts need to be proved is higher for jobseekers with longer unemployment spells. For example, in Croatia, some long-term unemployed may be monitored on a weekly basis. Similarly, France starts with monitoring on a monthly basis once jobseekers have been unemployed for four months. Many countries also apply strict documentation requirements, with jobseekers being asked to keep job-search diaries, specify their job-search actions, supply the name and address (or equivalent documentation) of the employers that they contacted, or even provide declarations by employers that they have applied for work within their firm.

Sanctions

Unemployment benefit recipients are typically subject to sanctions if they: 1) voluntarily quit their job; 2) refuse a suitable job offer; and/or 3) refuse/fail to participate in ALMPs and other PES interventions (e.g. counselling interviews) without a good reason. A large number of countries do not pay unemployment benefits in case of voluntary resignations (with the number of legitimate reasons that justify a voluntary resignation varying considerably among countries); in some countries (e.g. Bulgaria and the Czech Republic), benefit payments are not postponed, but the amount is reduced; in others (e.g. Chile, Hungary, Lithuania, and the Slovak Republic) no sanctions apply, as the reason for the previous employment ending is not examined. If the jobseeker refuses a suitable job offer, and/or refuses/fails to participate in ALMPs and other PES interventions, unemployment benefit recipients can be sanctioned. In countries with the strictest rules, benefits are terminated and any remaining benefit entitlement lost; in other countries, benefits are terminated for a certain number of weeks, while other countries apply (escalating) sanctions after subsequent refusals.

Source: Langenbucher, K. (2015), "How demanding are eligibility criteria for unemployment benefits, quantitative indicators for OECD and EU countries", *OECD Social, Employment and Migration Working Papers*, No. 166, OECD Publishing, Paris. http://dx.doi.org/10.1787/5jrxtk1zw8f2-en.

Non-contributory income support system

Because of high informality rates (almost 60%), many individuals may fall between the cracks of contributory schemes. Therefore, even if Mexico reinforced its current income protection system for those formally employed, many individuals would still face a high risk of being left behind. For these reasons, non-contributory schemes, where eligibility criteria are based on an income-test, rather than on (formal) work history, could make a significant contribution to reducing poverty, and could help individuals overcome the barriers of deprivation in finding quality employment.

Several out-of-work cash transfer programmes exist in Mexico. The most significant is *Prospera*, a conditional cash transfer (CCT) programme introduced in 1997 (the original name of the programme was *Progresa*, subsequent administrations renamed the programme *Oportunidades*, and it is now *Prospera* again). Under this programme, cash income support is typically given to mothers on the condition that their children regularly access healthcare facilities and attend school. *Prospera* now redistributes income to almost 7 million families using a multidimensional poverty threshold as its eligibility criterion. It has proved successful across various measures, and evaluations have found positive effects on school attendance, grade progression, nutrition, and health outcomes (see for example Dubois et al., 2012; de Janvry et al. 2006; Fernald et al., 2008; and Levy, 2006), although no study has so far examined the impact of this programme on employment and informality.

Overall income support is limited, which can have implications for the labour market

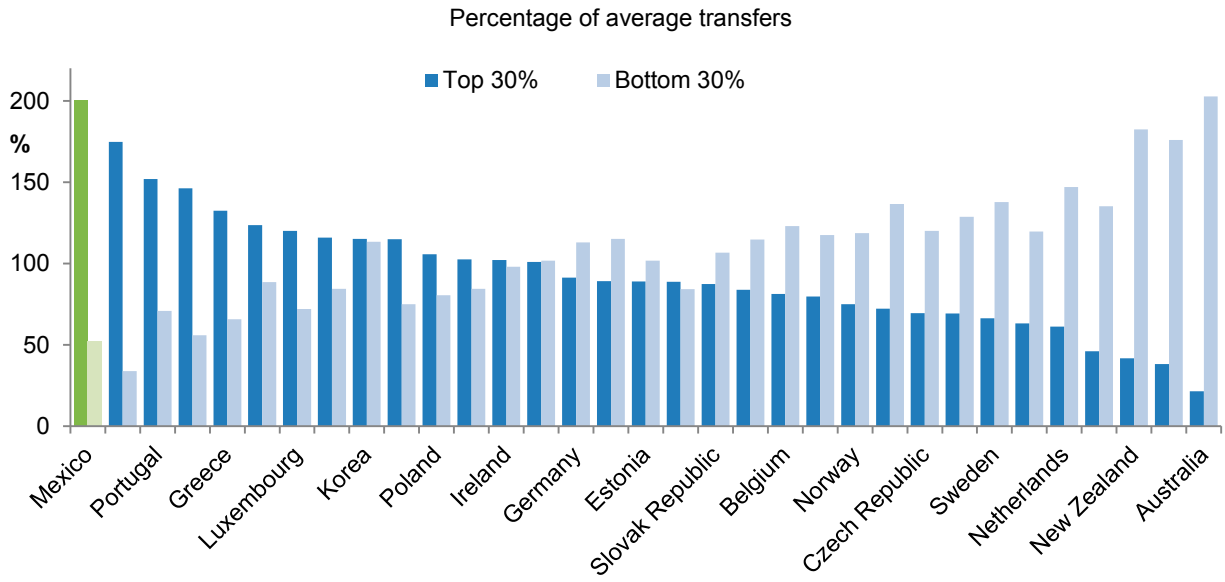
Overall efforts in providing income protection in Mexico are limited. In 2016, public social spending on income support to the working age population (including both contributory and non-contributory support[10]) accounted for an estimated 0.9% of GDP, the lowest in the OECD area and over four-times less than the OECD average of 4.2% (OECD, 2016a).

Although coverage is wide, available benefit amounts are limited and poorly targeted. In 2012, almost 8% of the working age population received cash transfers[11] (e.g. unemployment or social assistance benefits) in Mexico, double the OECD average of 4% (OECD, 2016b). However, the effectiveness of a benefit system cannot be evaluated based on coverage alone, benefit amounts and targeting are also important:

- **Benefit amounts are modest by international standards**. Among adult recipients (aged 30-64) in 2014, only 17% received benefits[12] that were high enough to lift their income above the poverty line – compared to an OECD average of 49% (OECD, 2016b).
- **Benefits are often poorly targeted**. As shown in Figure 31, Mexico spends more on transfers to well-off families (the "top 30%") than to low-income families (the "bottom 30%") (see also Ocampo and Gomez-Arteaga, 2016). This highlights the need for better-tailored income support to ensure that benefits reach the most-in-need segments of the population.

Weak income support can push jobseekers into accepting low quality jobs, often in the informal sector. The lack of a comprehensive unemployment benefit system, poorly implemented severance pay, and the low generosity and poor targeting of existing benefits, mean that individuals do not receive adequate income support when out of work. This also means that many individuals simply cannot afford to stay unemployed for too long, and must take up any job, even poorly paid and/or informal, to sustain themselves or their families (OECD, 2015a). Given these considerations, it is not surprising that Mexico has one of the lowest long-term unemployment rates across the OECD, alongside one of the highest incidence of extreme low-pay and informality. In 2015, only 1.2% of unemployed individuals had been unemployed for more than a year, compared to an OECD average of 33.8% (OECD Labour Force Statistics database). The incidence of extreme low-pay is above 15%, which is much higher than OECD and emerging economies such as Argentina, Brazil, Chile, (urban) China, Colombia, Costa Rica, the Russian Federation, South Africa and Turkey (see OECD, 2015a). As discussed in Box 11, informality affects almost 60% of all workers, a rate that is much higher than most OECD and many emerging economies.

Figure 31. Average total cash transfers received by low and high-income groups, 2010



Note: Transfers include all public social benefits. The reference year is 2009 for Hungary, Japan, New Zealand, Switzerland and Turkey. "Bottom 30%" and "top 30%" refer to average public transfers received by decile groups 1 to 3 and 8 to 10, respectively. Decile groups are determined in relation to household disposable income after accounting for taxes and transfers. All incomes and transfer amounts are adjusted for household size (see www.oecd.org/social/inequality).

Source: OECD (2014), *Society at a Glance 2014: OECD Social Indicators*, OECD Publishing, Paris, http://dx.doi.org/10.1787/soc_glance-2014-en.

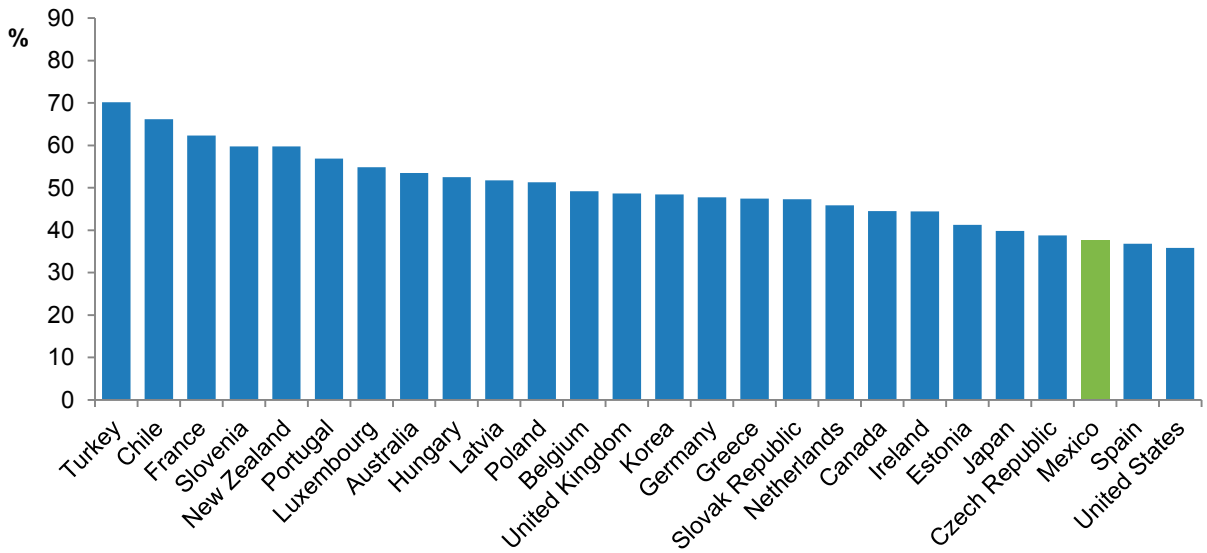
High labour costs of low-income earners and complex tax systems could represent a barrier for firms to hiring (formally)

High labour costs can be a barrier to (formal) employment, given the low productivity of many workers. High labour costs can result from high, and binding, wage costs (e.g. minimum wages), and/or from high non-wage costs (e.g. employers' social security contributions and payroll taxes). These costs may strongly impede (formal) employment. While high labour costs may be a concern in all OECD countries, it is particularly the case in Mexico, where many workers are low-skilled (see Challenges 1 and 2), meaning that their productivity may not be high enough to warrant the costs associated with employment in a formal job. While targeted wage subsidies for firms may help reduce the cost of labour, especially during economic downturns, drawbacks include the risk of increasing red-tape (and therefore reducing take-up), and of generating large inefficiencies if not carefully designed.

Minimum wages

Minimum wages are low in Mexico, when compared internationally, and therefore should not represent a barrier to hiring. International comparison shows that in Mexico, the level of the gross minimum wage, expressed as a percentage of the median wage, is only 37.5%, which is well below the OECD average of 50%, and only higher than the Czech Republic and the United States (Figure 32). It is also lower than other Latin American countries (Gob.mx, 2016). The low ratio of minimum to median wages indicates that the level of the minimum wage should not represent a barrier for employers to hire formally (see Box 14 for a description of the minimum wage in Mexico). While increasing the minimum wage in Mexico may have the drawback of increasing informality (by increasing the cost of hiring formally) (see for example Broecke, Forti, and Vandeweyer, 2017), it may also act as an incentive for employers to invest more in the skills of their workforce.

Figure 32. Minimum relative to median wages of full-time workers, Mexico and OECD countries, 2014



Source: OECD.Stat (Earnings database).

Box 14. A brief overview of the minimum wage system in Mexico

Type: In Mexico, the first minimum wage law was created in 1931. Until 1962, minimum wages were set at the municipal level by municipal committees. The 1962 reform of minimum wages introduced regional committees for the determination of the minimum wage. The reform also introduced minimum wages at the occupational level. In 1986, regional committees were abolished and minimum wages began to be determined at the national level, although different minimum wages for different economic zones remained. Over the years, the number of professions and economic zones for which individual minimum wages had to be set decreased. Currently, the National Committee on Minimum Wages (CONASAMI) sets general minimum wages and occupational minimum wages. Other than occupational differences, there is no variation in minimum wage levels. The minimum wage is determined on a daily basis, assuming an eight-hour workday. People working fewer than eight hours a day get a proportional minimum wage (Bosch and Manacorda, 2010).

Value: The value of minimum wage since 1 January 2016 has been MXN 73.04 (USD PPP 8.84[13]) per day. Occupational minimum wages range from MXN 87.5 (USD PPP 10.6) (for poultry farm manager) to MXN 2018.87 (USD PPP 24.5) (for graphic journalists and repairers of electrical household appliances). As a result of Mexico's generous tax credit for low-wage earners, full-time minimum wage workers face a negative tax burden.

Coverage: The Mexican minimum wage law covers all workers. Non-compliance is low, with a compliance rate of about 90% recorded in the late 2000s (Rani et al., 2013).

Minimum wage setting: The National Commission on Minimum Wages is a tripartite institution made up of representatives from the government, employers and workers. Special boards may be appointed to provide advice. Minimum wage levels are adjusted annually, although they can be revised at any time depending on the economic circumstances. When revising the minimum wage level, several economic and social factors are taken into account. The main criteria the National Commission looks at are: the budget that a family may require to cover material needs, variations in the cost of living per family, the conditions of the labour market and wage levels, the country's overall economic situation, the conditions of life and work, and inflation. In addition, the Committee considers investigations, studies and suggestions made by the organisations of employers and workers.

Box 14. A brief overview of the minimum wage system in Mexico *(continued)*

Enforcement: Labour inspectors may carry out inspections in order to ensure compliance with labour legislation. Fines for non-compliance with the minimum wage range from 50 to 200 times the minimum wage, depending on the severity of the infringement. These fines can be doubled in case of repeat offences. An employer may also be liable to imprisonment for between six months and four years.

Sources:

Background material prepared for Broecke, S., A. Forti, M. Vandeweyer (2017), "The effects of minimum wages on employment in emerging economies: a survey and meta-analysis", *Oxford Development Studies*.

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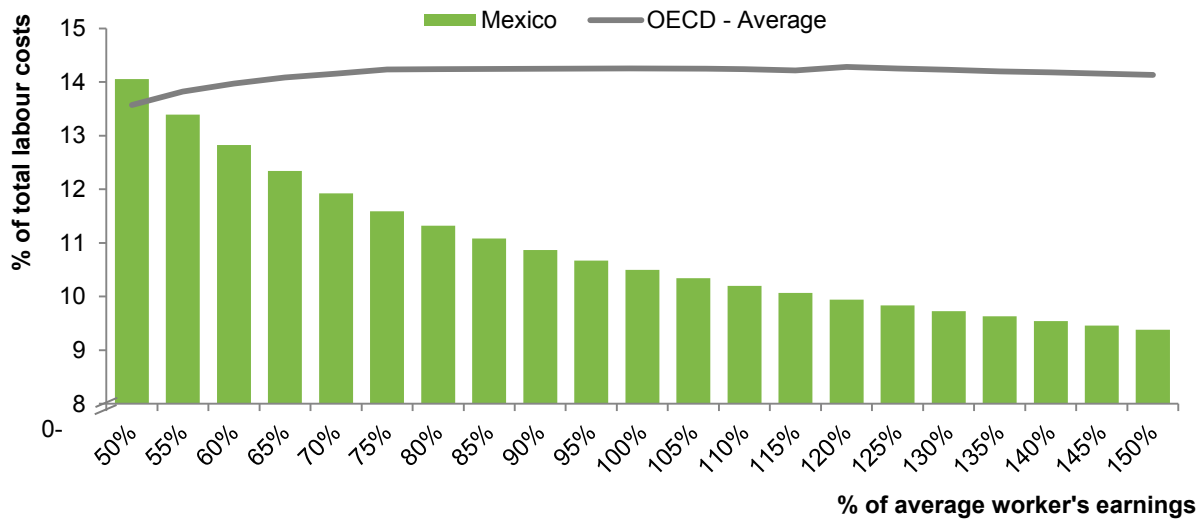
Rani, U., P. Belser, M. Oelz and S. Ranjbar (2013), "Minimum wage coverage and compliance in developing countries", *International Labour Review*, Vol.152/3-4.

Employers' social security contributions

Employers' social security contributions are high for low-income earners (who are typically low-skilled). Figure 33 shows that for Mexican firms hiring low-income earners,[14] employers' social security contributions are high compared to the OECD average: 14.1% of labour costs in Mexico, versus an average of 13.6% across the OECD. Social levies or payroll-tax burdens paid by employers decrease progressively with levels of earnings, suggesting that non-wage costs are inversely proportionate to earnings (see also OECD, 2015b). This high burden on employers hiring low-income earners can be explained by the fact that a large part of employers' social security contributions is the same absolute amount at all wage levels and, therefore, represents a higher share of gross earnings and labour costs for low-wage workers (OECD, 2015b; 2011).

A high tax burden on low-income earners is likely to decrease incentives for firms to hire workers formally, especially the low skilled. Considering that the incidence of low pay is very high (see Figure 28), the high tax burden on low-income earners is likely to affect many employers, and may represent a brake on formal employment and job creation, especially for the low skilled. The low skills of many workers mean that their output may not be high enough to justify their labour costs (i.e. wages and employers' social security contributions), and, as a consequence, employers may only be able to offer them informal employment.

Figure 33. Employers' social security costs by workers' earning level, Mexico and the OECD average, 2015



Note: Average earnings refer to a single person with no children.

Source: OECD.Stat (public sector, taxation and market regulation database).

Tax deductions for firms

The high tax burden on firms hiring low-income earners is compensated by targeted deductions. Mexico's recent tax reforms substantially reduce personal and social security tax obligations in the initial decade of business operation. Social security reductions for low-income workers (earning up to three times the minimum wage) have been introduced, amounting to a 50% subsidy during the first year, and decreasing progressively to 10% in the 10th year. Other fiscal incentives exist for firms hiring older workers (aged 65 and above) as well as people with disabilities.[15] In the past, Mexico has used tax deductions to reduce the cost of labour and encourage hiring. For example, wage subsidies were introduced during economic downturns to encourage firms to keep their workers at a lower cost instead of dismissing them; these have proved successful in recovering employment (Bruhn, 2016). There were also employer social security exemptions for firms hiring workers registered with the social security agency for the first time, *Programa de Primer Empleo*.[16]

While these exemptions and deductions can help, they may not be the most effective way to reduce labour costs and stimulate (formal) hiring. The use of subsidies for employers to reduce the cost of labour could be problematic for several reasons:

- **Compensating high employers' social security contributions (for low-income workers) with tax credits, deductions, and subsidies is a relatively complicated way of ensuring a moderate cost of labour to firms, and may increase red-tape**. According to the World Bank Doing Business Survey, paying taxes, including employers' social security contributions and payroll taxes, is a relatively laborious process in Mexico (World Bank, 2016). This complexity could increase compliance costs for employers and therefore encourage under-declaration (Brandt, 2011; OECD, 2013c; 2008; World Bank, 2016).

- **Frequent changes to tax laws add complexity and legal uncertainty, and could underpin non-compliance** (OECD, 2008).

- **The existence of deduction/exemption programmes does not necessarily mean that they are actually used**. For instance, during the first years of implementation of the *Programa de Primer Empleo*, participation in the programme was weak, as only a small proportion of workers newly registered in the social security system actually enrolled (OECD, 2013c; Weller, 2009).

- **The effects and efficiency of such policies should be carefully evaluated**. If not well designed, these measures could generate large inefficiencies through: deadweight (when hiring with a wage subsidy would have occurred even without the wage subsidy); substitution (when hiring with a wage subsidy reduces unsubsidised hiring by the same employer); and displacement effects (when employers who do not use the subsidy reduce employment, as they lose business to firms that use the subsidy).

Stringent labour rules can further decrease employers' incentives to hire (formally)

Boosting (formal) job creation also means creating a favourable legal framework in which firms can operate. Although strict employment protection legislation can protect workers and increase job stability, it can also undermine firms' ability to adjust to changing economic circumstances, which can create a barrier to (formal) hiring. However, while flexible and simple regulation may facilitate (formal) hiring, it will not necessarily lead to hiring in better quality jobs unless Mexico improves how it develops skills (see Challenges 1 and 2).

Employment protection legislation in Mexico has traditionally been characterised by very stringent rules on both permanent and temporary contracts. Until the introduction of recent reforms (see below), in cases of dismissal, labour court procedures were complex, lengthy, and costly. It was difficult to

dismiss workers on the grounds of repeated poor performance and redundancy, and severance payments were relatively generous, partly reflecting weak income protection systems in case of job loss (see earlier sections of this challenge), especially for new hires (The Economist, 2012). According to many authors, strict labour provisions may have undermined (formal) hiring, and created incentives to rely on undeclared employees or outsource to temporary work agencies or self-employed workers in order to have the additional flexibility to deal with economic fluctuations (OECD, 2016c; 2011; 2008; Arias et al., 2010).

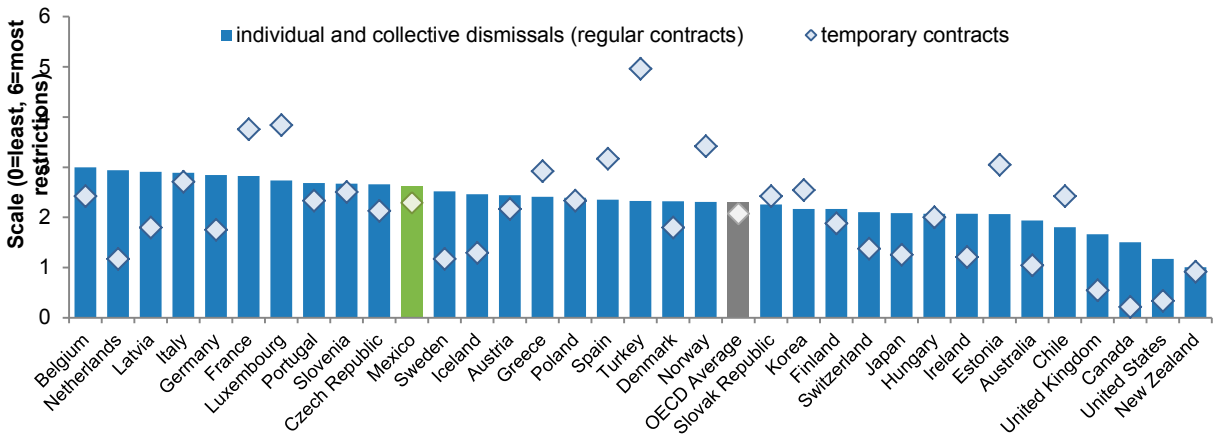
The Labour Law reform, introduced in 2012, considerably relaxes employment protection legislation. In particular, the reform introduces new short-term training contracts and trial periods (up to 6 months), and facilitates hiring in seasonal/temporary and part-time jobs. The reform also makes it easier to dismiss workers by introducing new grounds for fair dismissal. It reduces termination costs by capping severance payments, and limits (to a maximum of 12 months) back-pay while labour litigation is in progress. Moreover, labour inspections regarding the fulfilment of social security obligations are strengthened, and fines for breaches of labour laws increased. These measures are expected to promote higher formal employment and economic growth (OECD, 2015b; 2013c); however, no formal impact evaluation of this reform has yet been carried out.

Despite recent changes, the strictness of employment protection legislation regarding regular and temporary contracts remains above OECD standards. On a scale that goes from 0 (least strict) to 6 (most strict), Mexico scored 2.62 in 2013 (down from 2.71 in 2011) on the OECD indicator on the strictness of the EPL on permanent contracts (both individual and collective dismissal), which is above the OECD average of 2.28. Legislation around temporary contracts is also strict: in 2013, Mexico scored 2.29 (down from 4.08 in 2011), which is above the OECD average of 2.08 (Figure 34). This relatively strict EPL may represent a brake on (formal) employment. For instance, estimates from the World Bank show that if Mexico increased the flexibility of its labour markets to levels found in the United States, its unemployment rate would be 2.4 percentage points lower, as well as less persistent (World Bank, 2013).

Despite strict regulation, enforcement is challenging. The number of labour inspectors is much lower than in many OECD emerging or partner countries. In 2014, there were only 0.2 labour inspectors per 10 000 employed persons, compared to, for example, 1.6 in Chile (2013), 1.4 in Colombia (2015), and 0.3 in Turkey (2015) (ILO database). Moreover, most inspections are conducted in larger firms, which are less likely to be informal and/or hire informal workers (OECD, 2011; 2013c). Huge disparities in the enforcement of labour standards exist within the country, with some regions facing particular difficulties in enforcing legislation (Weller, 2009).

Weak enforcement practices have a cost. Recent studies show that Mexico's labour productivity and output would be between 19% and 34% higher (under perfect and monopolistic competition assumptions, respectively) should taxes be completely enforced (Ordóñez, 2014). Other evidence suggests that enhancing enforcement could be the most effective strategy for reducing informality in the short-run (Bolio et al., 2014). At the same time, it is important that vulnerable workers do not have their livelihoods put at risk by overly strict enforcement practices, especially when informal employment represents their only option.

Figure 34. Strictness of employment protection legislation on regular and temporary contracts, 2013



Source: OECD.Stat (Employment protection).

Summary and policy implications

- **Mexico could do a better job of activating the skills of its people in the labour market**. Many people are inactive or out of employment. Even when employed, workers often find themselves in poor quality jobs. Most workers are employed in informal jobs that are characterised by low pay, long work hours, limited employment protection and limited opportunities for training and career advancement. This under-utilisation of skills in the labour market represents a significant waste of human potential.

- **Improving the activation of skills into high quality (and formal) jobs will mean removing supply and demand-side barriers to employment**. On the one hand, good quality employment services and active labour market programmes, as well as adequate and well-designed income protection systems, are needed to ensure that jobseekers receive the support they need to activate their skills in the labour market. On the other hand, in order for skills to be successfully activated in the labour market, there is the need to create a sufficient number of (formal) jobs. To this end, measures that tackle demand-side barriers to employment (e.g. high labour costs and/or strict employment protection legislation) are crucial.

- **Employment support provided to jobseekers could be improved**. The Mexican Public Employment Service reaches few jobseekers and firms. Low funding, the scarcity of case workers, and a lack of responsibility for the administration of (unemployment and/or social assistance) benefits, may help explain why many people find jobs through informal job-search channels (e.g. family and friends). Although existing active labour market programmes have often proved successful in Mexico, little funding has been allocated to these programmes.

- **Income protection is very weak and may push workers into subsistence-level occupations.** The near non-inexistence of unemployment insurance, poorly implemented severance payments, as well as the low generosity and poor targeting of existing benefits, mean that many individuals do not have adequate income protection. This lack of income support may push many jobseekers to accept any job, whether informal and/or poorly paid, to sustain their incomes.

- **Relatively high tax and social security contributions on low-wage earners and complex tax systems may be a brake on (formal) hiring and employment**. Although minimum wages are

low, the non-wage costs (i.e. employers' social security contributions) associated with hiring a low-income (hence typically low-skilled) worker are high by international standards. While this high tax burden on firms is typically reduced through targeted tax reductions/exemptions, this approach increases red tape and adds complexity to the tax system.

- **Despite recent improvements, employment protection legislation continues to be strict and may (at least in theory) limit the growth of jobs in the formal economy.** Employment protection legislation (EPL) has become less strict since the introduction of the 2012 Labour Law reform, but remains high by OECD standards. If the cost of hiring people formally is high relative to the output of workers, stringent EPL will increase the incentives for employers to hire workers informally. In practice, however, enforcement remains limited: relatively few labour inspectors exist, and inspections are generally focussed on larger firms, which are less likely to breach existing rules.

NOTES

8 The definition of informal employment adopted here is the one used in OECD (2015): informal workers are salaried workers who are not affiliated to social security systems (do not pay contributions) and own-account (self-employed) workers whose business is not registered.

9 See http://g20.org.tr/wp-content/uploads/2014/12/g20_employment_plan_mexico.pdf.

10 Income support to the working-age population refers to spending on the following categories: Incapacity benefits, Family cash benefits, Unemployment and Other social policy areas (see OECD, 2016a).

11 Public transfers include family allowances, disability benefits, unemployment benefits and social assistance. They exclude public pensions only.

12 Public transfers include family allowances, disability benefits, unemployment benefits and social assistance. They exclude public pensions only.

13 Using 2015 USD PPP.

14 Workers earning 50% of average earnings.

15 Firms hiring older people (65 years old and above) can benefit from a subsidy equal to 25% of the gross wage. Firms hiring people with disabilities are exempted from paying taxes.

16 This programme offers an additional tax deduction limited to three years for firms that create new jobs for workers who previously did not belong to the formal sector. In particular, the government subsidises employers' contributions to the social security system during a period of 12 months. The size of the subsidy is calculated based on the salary of the workers: it spans from 100% for workers with a base salary rate of fewer than 10 minimum wages, and then progressively downwards to 10% for workers with a base salary rate of over 20 minimum wages. In order to obtain the subsidy, workers must be hired for at least nine continuous months (Weller, 2009).

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CHALLENGE 4: BOOSTING THE SKILLS ACTIVATION OF VULNERABLE GROUPS

A selection of challenges identified by Mexican workshop participants:

"It is important to generate incentives for firms to hire people from vulnerable groups."

"Youth need more support and guidance to know better about job and career opportunities."

"Better child care policies are needed to support the (re)integration of women into the labour market."

"Responsibilities at home should be more balanced so women might devote the same time to their jobs as men."

As discussed in Challenge 3, Mexico's employment and participation rates are lagging behind internationally, which partly reflects structural barriers that undermine the ability/willingness of individuals and firms to supply and demand skills. This challenge takes a closer look at vulnerable population groups, notably youth and women, who are finding it particularly difficult to activate their skills in the labour market. These vulnerable groups are facing considerable challenges in entering and remaining engaged in the labour market and need targeted support. In particular, many young people in Mexico are struggling to transit from school to the world of work, and many end up becoming NEET (neither in employment, education, or training). These young people risk being permanently marginalised from the labour market and society, and are at a high risk of joining gangs or being forced to migrate. Women are also struggling to activate their skills in the labour market. Few participate by international standards, often because they bear the burden of household work and family responsibilities. The under-representation of these vulnerable population groups in the labour market is hampering the full exploitation of Mexico's skills assets and potential, and represents huge costs to society. This challenge is organised as follows: 1) it discusses the challenges for a successful school-to-work transition of youth; and 2) examines the difficulties faced by women in entering and remaining engaged in the labour market.

Assisting Mexican youth to activate their skills in the labour market

After they have left the education system, young people in Mexico often do not activate their skills in the labour market. Many are neither in employment, education or training, and therefore are neither developing (see Challenges 1 and 2) nor activating their skills. Failing to activate youth's skills in the labour market may represent huge costs to the country. While the government is currently stepping-up efforts to address the NEET challenge, more remains to be done to provide youth with the support they need to integrate into the world of work.

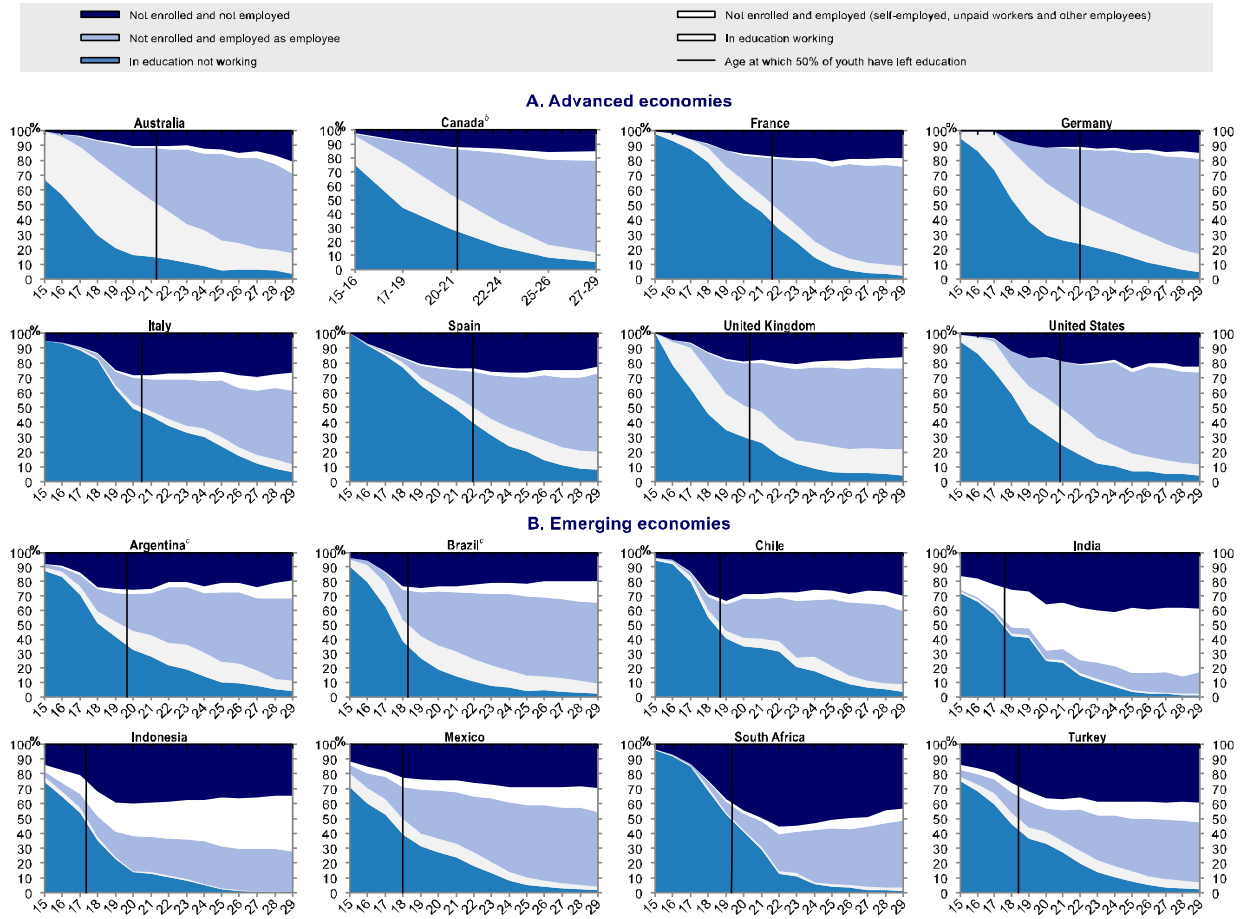
School-to-work transitions are a challenge, and many youth become NEET after leaving education

School-to-work transitions are a challenge in Mexico. Figure 35 illustrates the activity status of youth (aged 15-29) by single year of age for Mexico and a number of advanced and emerging economies, and shows that there are three key challenges. First, youth in Mexico stay in education for a shorter period of time on

average: the age at which 50% of Mexican youth leave education is 18, which is well below what is generally observed among advanced and emerging countries (with the notable exception of India and Indonesia). This result mirrors the high dropout rates and relatively low educational attainment of Mexican youth (see Challenges 1 and 2). Second, very few youth combine study and work,[17] despite international evidence showing that this can help young people transition into the world of work (see also OECD, 2016a). This is particularly true when work is used as a means to further developing skills and gaining professional experience, as opposed to a way of sustaining income while studying. Third, and of particular concern, after leaving education, very few youth in Mexico enter employment, and many become NEET.

Figure 35. Activity status by single year of age, Mexico and selected OECD and emerging countries, 2011

Percentage of youth aged 15-29



Notes:

a) Data refer to 2004 for Indonesia, 2008 for Korea, 2009 for Australia and Chile, 2009/10 for India and 2010 for South Africa.

b) Age in two and three year groups for Canada.

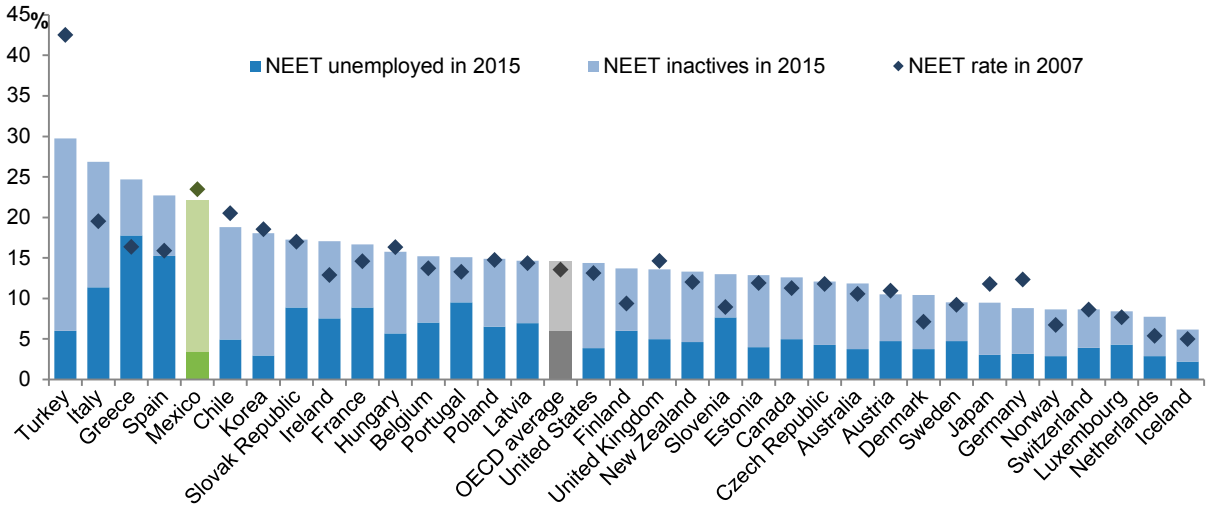
c) Selected urban areas only.

Source: Quintini, G. and S. Martin (2014), "Same Same but Different: School-to-work Transitions in Emerging and Advanced Economies", *OECD Social, Employment and Migration Working Papers*, No. 154, OECD Publishing, Paris, http://dx.doi.org/10.1787/5jzbb2t1rcwc-en.

Many youth in Mexico are NEET by international standards. Around 22.2% of youth (aged 15-29) in Mexico are NEET (called NiNi in Spanish, i.e. *Ni estudian-Ni trabajan*), which is well above the OECD average of 14.6%, and lower only than Turkey, Italy, Greece and Spain (Figure 36).

Figure 36. Youth neither in employment, education or training (NEET)

Percentage of youth aged 15-29, 2007[a]-2015[b]



Notes:

a) 2006 for Chile and 2008 for Korea. No comparable data for Israel.

b) 2013 for Chile and Korea, and 2014 for Israel.

c) OECD is the unweighted average of 34 OECD countries (Israel not included).

Source: OECD calculations based on national labour force surveys.

Young NEET differ greatly in socio-demographic characteristics, level of education, and the barriers they face in supplying their skills in the labour market. In particular:

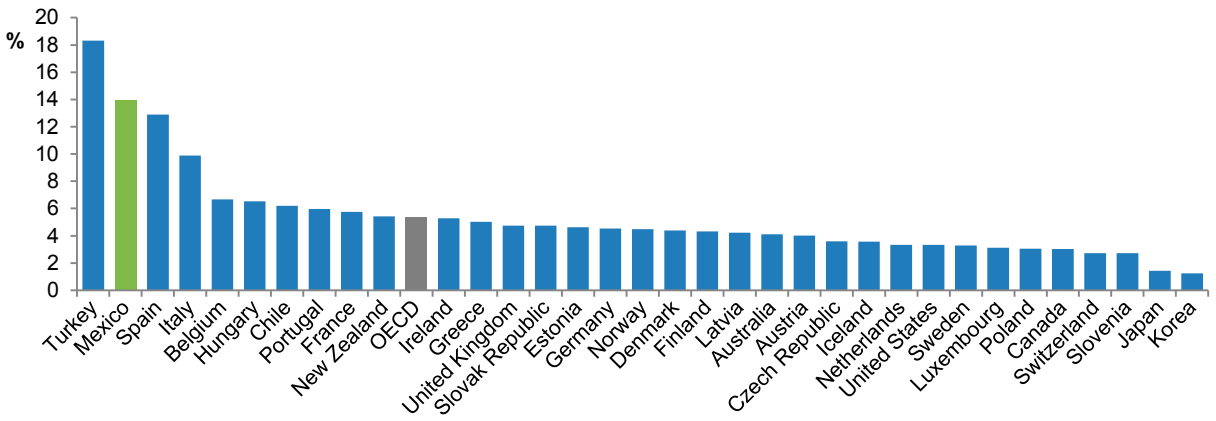
- **A worrying majority of young NEET are inactive, and therefore not even looking for jobs**. Around 18.8% of all youth are inactive NEET (the highest in the OECD area), and only 3.4% are unemployed NEET (Figure 36; see also OECD, 2016b). While inactivity may reflect the choice of some young people (who may decide to take care of their family, for instance), in other cases it may reflect youth's discouragement and detachment from the labour market.

- **Young NEETs are often low skilled.** In Mexico, more than 14% of young people are low-skilled NEET, the second highest in the OECD area (after Turkey), compared with under 6% across the OECD as a whole (Figure 37). Overall, more than one in two NEET are low-skilled in Mexico, compared to only one in three across the OECD, on average (OECD, 2016c; 2016d). This partly reflects high dropout rates and low educational attainment of the young population in Mexico (see Challenges 1 and 2).

Being a woman also worsens the risk of becoming NEET. There is a large gender gap in NEET rates, as young women are three times more likely to be NEET as young men in Mexico, compared to only 1.4 times across the OECD, on average (Figure 38). This suggests that high NEET rates for women in Mexico

may reflect, at least to some extent, the traditional gender-related assignment of roles, with women doing most of the unpaid domestic work and caring for children (see later sections of this Challenge).

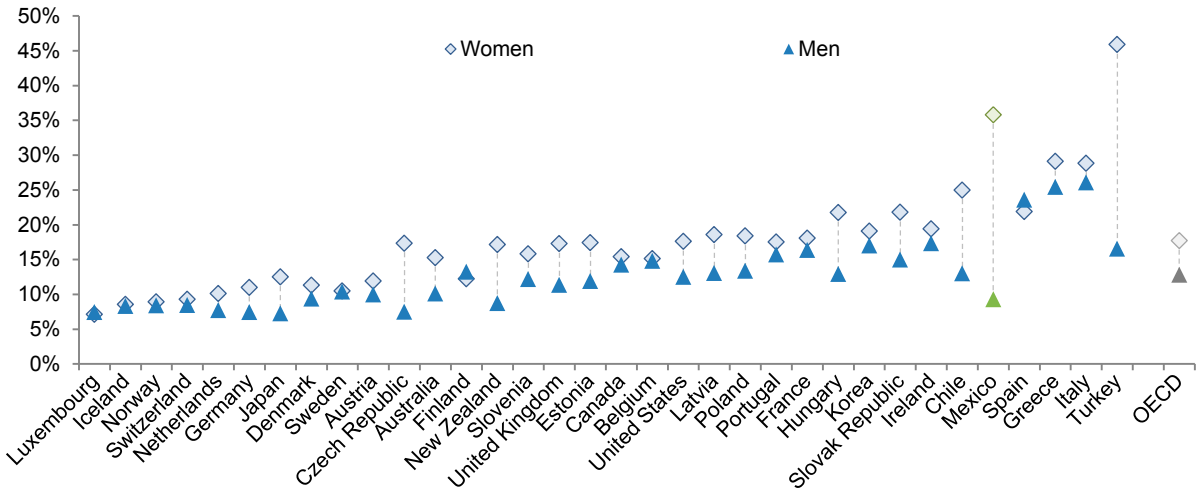
Figure 37. Low skilled NEETs as a percentage of youth population (aged 15-29), 2015



Note: Low-skilled NEETs are youth neither in employment nor in education or training who have not finished upper secondary schooling.

Source: OECD (2016e), "Recent labour market developments and the short-term outlook", in *OECD Employment Outlook 2016*, OECD Publishing, Paris, http://dx.doi.org/10.1787/empl_outlook-2016-5-en.

Figure 38. NEET rates for women and men as percentages of the 15 to 29 year-old population, 2014



Source: OECD (2016a), *Society at a Glance 2016: OECD Social Indicators*, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264261488-en.

Young NEETs risk being marginalised, and failure to activate their skills may come at a high cost

Young NEETs risk being marginalised from the labour market and society. OECD research shows that among OECD countries, the first ten years in the labour market are crucial for career prospects (OECD, 2015), and long unemployment and inactivity spells can leave permanent scars on youth employment

outcomes. Evidence analysis for Mexico shows that being NEET increases the probability of remaining out of employment, at least in the medium term (i.e. one year after) (Ranzani and Rosati, 2013), and transiting into informality (Cunningham and Salvagno, 2011). Besides the bleak prospects for their labour market opportunities, these young people are also at a higher risk of joining gangs or being forced to migrate to look for jobs (Petrone and Aho, 2012). For example, empirical research shows that a growth in the number of NEETs in Mexico has corresponded with increases in the size of the illegal market and criminal demand for youth labour (de Hoyos, Gutiérrez, and Vargas, 2015; see also de Hoyos, Rogers, and M. Székely, 2016).

The under-representation of youth in the labour market represents a large waste of skills and huge costs to societies. Youth make up a large share of the population in Mexico: in 2015, they accounted for 27% of the working age population (20-64), the highest share in the OECD area (see also OECD, 2016a). The economic implications for failing to activate the skills of young people in the labour market are therefore huge. OECD (2016a) provides estimates of the "NEET cost", i.e. the gross labour income NEETs could command if they were employed, measured as the gross labour cost (including social security contributions),[18] which can be considered as a proxy of the forgone productivity of NEETs. The results show that in Mexico, the NEET cost represents 0.9% of GDP[19] (similar to the OECD average[20]). Additional costs are associated with having high NEET rates (which are not included in the above mentioned estimates), such as the deteriorated health status of young NEETs, more crime, and the out-of-work benefits that some receive.

Mexico is undertaking the right reforms, but much remains to be done

Recognising the NEET challenge, the Mexican government has recently introduced a number of measures to improve the school-to-work transition of youth:

- The government has implemented several active labour market programmes (ALMPs) targeted at (or available to) youth. While many ALMPs are available to and typically used by (although not specifically targeted at) youth (e.g. BECATE) (see Challenge 3), some programmes are also designed specifically for the needs of young people. For example, *Capacita-T* (administered by the Ministry of Education, *Secretaría de Educación Pública*, SEP) provides youth with training opportunities and certification that recognises the skills acquired in the programme. Under certain conditions, scholarships are offered to participating youth. More than 85 000 young people were enrolled in this programme in 2016. Another example is *Crédito Joven*, which offers different types of loans (from approximately USD 3 000 to 150 000) to young people (18-30 year-old) who do not necessarily have a credit record, in order to initiate a start-up or consolidate a business.

- Additional efforts focused on youth include the provision of internship and apprenticeship opportunities to youth enrolled in the education system at both the upper secondary and tertiary level. An impact evaluation of the internship programme at the upper secondary level (*prácticas profesionales*, formerly *becas de pasantía*) found a positive impact on employment rates, wages and the probability of accessing a formal job. Participation in apprenticeship or internship programmes can represent an invaluable opportunity for youth to try out sectors in which they are interested, get work experience, and build links with employers. It also allows firms to test their potential workers before offering them a job.

- As part of the National Development Plan, the government developed a website (www.observatoriolaboral.gob.mx) that provides young people with labour market information (e.g. labour market indicators by occupations, incomes, as well as geographic location), and information regarding education and training opportunities (OECD, 2016c). This initiative should help young people make more informed choices about the education and career paths they wish to pursue.

- The government is stepping up efforts in career guidance. SEP helps young people from upper secondary to tertiary education choose the right career option through the "Decide your studies"

(*Decide tus estudios*) platform. This tool provides information on the different options for enrolment in upper secondary education programmes, and training options for employment. It also offers a test, developed in collaboration with the National Centre of Evaluation to Higher Education (*Centro Nacional de Evaluación para la Educación Superior*, CENEVAL), which allows them to identify their skills and professional interests. After taking the test, students receive a report based on their results and academic background.

- The 2012 labour reform has taken steps to assist the integration of youth into the labour market. The introduction of initial training contracts and probationary periods should improve the hiring prospects of young, inexperienced, workers. Similarly, the possibility of part-time jobs could facilitate young people's access to the labour market, for example by allowing youth to combine work with studies.

These reforms need to be carefully evaluated to ensure that they are attaining their objectives. While the above-mentioned measures seem to be steps in the right direction, much of their effectiveness depends on the way they are designed and implemented, and they therefore need continuous monitoring. Three examples are presented here to illustrate this challenge. First, stakeholders claim that the effectiveness of *Capacita-T* may be undermined by the lack of modern equipment, deficiencies in teachers' mastery of new technologies, and/or relevance of the training provided. Many courses focused on entrepreneurship do not provide a close follow up, meaning there is no certainty of their real potential to grant better opportunities to young people. Moreover, some courses are still oriented towards low productive sectors (e.g. cosmetology, dressmaking). Second, public schools tend to have career/vocational counsellors to help youth in their decision-making processes. However, they are often overloaded with work that is not necessarily related to career counselling, so the time they actually spend advising students is low. Certain schools are understaffed, and the ratio of student to counsellor does not allow the counsellor to reach all students or provide them with quality advice. Moreover, sometimes counsellors have few resources to guide their work and provide information that is useful, relevant and responsive to the local labour market dynamic. Third, the implementation of the 2012 labour reform may have the drawback that it allows firms to use trial periods and/or part-time jobs as a means to obtaining cheap labour. This suggests that careful impact evaluation of these reforms should be carried out to ensure that these programmes effectively help youth transiting to the world of work.

International experience suggests that Mexico needs to adopt a cross-cutting strategy to address the NEET challenge. Particular areas for further improvement include:

- **Promoting access to education and enhancing the quality of teaching are crucial policy channels through which NEET rates can be reduced** (see also Quintini and Martin, 2014). As discussed in Challenges 1 and 2, Mexico has the highest school dropout rate in the OECD area, as well as relatively low educational attainment. Because low educational attainment is such an important risk factor of becoming NEET (Figure 37; OECD, 2016a; 2016b), providing youth with good skills (see Challenges 1 and 2) is an important policy levy through which the NEET challenge can be addressed.

- **Many young NEETs need targeted outreach strategies**. A breakdown of NEETs into those unemployed (actively seeking a job) and inactive (not actively seeking a job) (see Figure 36) shows that in Mexico, the vast majority of NEETs are not looking for work. Because inactive NEETs are typically not registered with public employment services (PES), they can be particularly hard to reach. International evidence shows that important components of successful outreach strategies include: implementing collaboration strategies between schools and PES (for example those implemented in Japan and Norway, Box 12); providing (e.g. social assistance or unemployment) benefits through PES (as in most OECD countries) (see Challenge 3); relying on non-governmental actors to reach out to disengaged youth (as in countries such as Australia, Japan, Norway and

Sweden, see OECD, 2016a); and/or devolving outreach to a single actor who screens all early school leavers (as in Norway and Sweden) (see also OECD, 2016a; see Challenge 3 for a discussion on the Mexican PES).

- **Family-friendly policies are needed to help young women cope with family responsibilities while working**. As discussed, young girls in Mexico are three times more likely to be NEET than young men (see Figure 38), suggesting that young women are often responsible for (unpaid) domestic work and caring for children. Implementing family-friendly policies will likely help to reduce NEET rates (see below).

- **Young NEETs need to receive adequate income protection to look for well-matched, good-quality jobs**. Because Mexican youth typically have less work experience and more often work under informal arrangements, compared to adult peers (e.g. see OECD, 2015), they do not have much to draw from their pension savings. Severance payments are typically lower for youth compared to adults, reflecting their lower tenure. Mexican youth also rarely receive non-contributory income support: in 2014, only 6% of youth (aged 16-29) in Mexico received some type of non-contributory income support (i.e. social assistance or housing benefits), well below the OECD average of 15% (OECD, 2016a: Figure 5). The generosity of benefit (both contributory and non-contributory) amounts are very low for youth: among young recipients (aged 16-29), only 15.5% receive benefits[21] that are high enough to lift their income above the poverty line in Mexico, which is among the lowest in the OECD area (only after the Turkey and the United States), and well below the OECD average of 41% (OECD, 2016a: Figure 5). Overall, weak income protection may undermine the ability of Mexican youth to look for productive employment opportunities, and may push them to accept any job, whether of bad quality, informal, and/or low-paid, to sustain their income (see Challenge 3 for further discussion).

Box 15. Implementing collaboration strategies between schools and PES: Japan and Norway

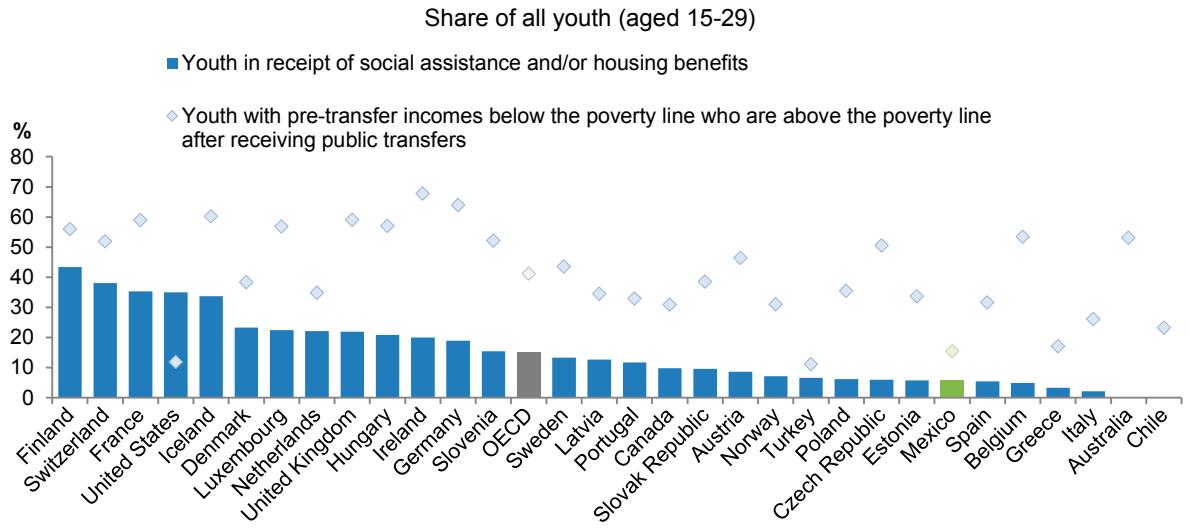
Successful collaboration between schools and PES can help reach out to the most disengaged youth. With the help of teachers and school management, PES have the potential to give early career advice to youth, raise youth's awareness of the services it provides, and identify youth who are at high risk of becoming NEET after leaving school. In many OECD countries, there is a long way to go to integrate PES and schools. However, Japan and Norway provide a successful example of co-operation.

The Japanese PES, "*HelloWork*", collaborates with high schools and universities through targeted youth services, the so-called "Hello Work for New Graduates". This service offers counselling, job-search assistance (e.g. training and preparation for interviews and student job fairs) and placements. It also informs schools about existing vacancies, offers on-site counselling in schools, and helps schools provide career guidance to students. The collaboration between schools and PES has proved successful so far, in particular by helping students who do not wish to pursue tertiary education to find a job after high school.

Norway's PES (National Welfare and Employment Agency, NAV) is currently running a pilot project that places youth into upper secondary schools for four days a week. The aim of the project is to prevent school dropout by providing career guidance, helping students find work experience opportunities and supporting school-to-work transition, as well as identifying and supporting young people with multiple barriers.

Source: OECD (2016a), *Society at a Glance 2016: OECD Social Indicators*, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264261488-en.

Figure 39. Youth who receive transfers, Mexico and OECD countries, 2014



Note: Transfers refer either to social assistance and/or housing benefits (bars); or family allowances, disability benefits, unemployment benefits and social assistance (excluding pensions) (dots).

Source: OECD elaborations based on OECD (2016a), *Society at a Glance 2016: OECD Social Indicators,* OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264261488-en.

Helping women to fully activate their skills in the labour market

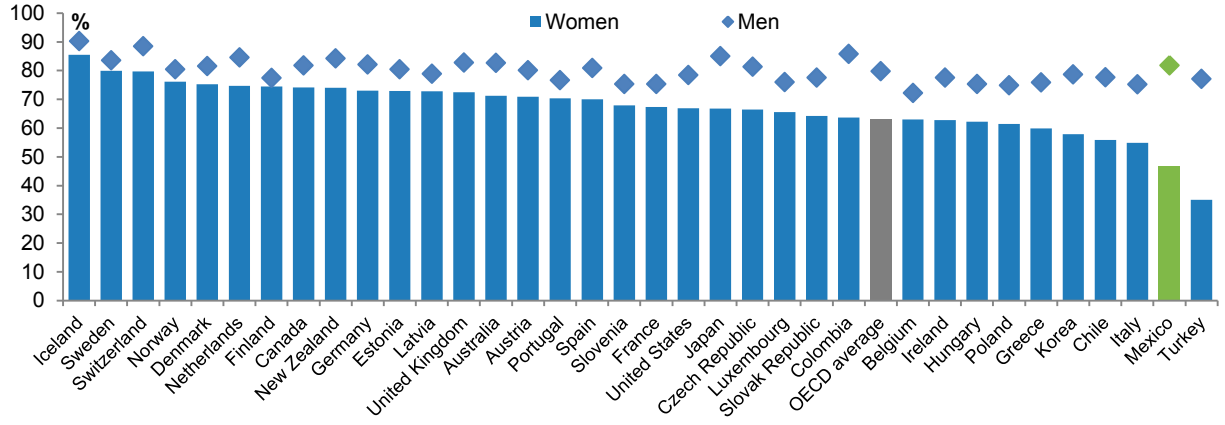
Very few women in Mexico participate in the labour market, and the gender gap in participation is among the highest in the OECD. Considering the high and growing number of well-educated women, this under-representation of women in the labour market represents a huge cost to the country, and missed opportunities to activate the skills previously developed in the education system. Several factors help explain the under-representation of women in the labour market, such as stereotypes, social norms, and discrimination towards women. Mexico acknowledges these challenges, and is currently implementing measures that aim to help women reconcile work and family life. However, Mexico has still a long way to go to achieve women's full activation of skills. Particularly crucial are: child-related leave, affordable and good quality childcare, flexible work arrangements, and legislation that protects women against discrimination in the workplace.[22]

Women could participate more extensively in the labour market

Women often do not activate their skills in the labour market. While the participation rate of women in Mexico has risen to some extent during the past two decades, many women still face major obstacles to participating fully in the labour market. In 2015, Mexico's female labour force participation rate was 46.6%, one of the lowest in the OECD area, only ahead of Turkey. The gender gap in participation, measured as the percentage point difference in labour force participation rates between men and women, was 35.2 in 2015, well above the OECD average of 16.7 (Figure 40) and even higher than some Latin American countries (see OECD, 2016d).

Figure 40. Labour force participation rate of women and men, 2015

Percentage of the working-age population (aged 15-64)



Source: OECD.Stat (Labour force statistics).

The under-participation of women represents huge costs to society

Gender gaps in the labour market, and therefore insufficient skills activation of women, come at a high cost. Considering Mexico's sizeable (and growing) pool of well-educated women (see Challenges 1 and 2), the economic implications of the under-representation of women in the labour market are huge. OECD projections show that eliminating the current gender gap in labour force participation (among 15 to 74 year-olds) by 2025 could add 1.2 percentage points to average annual growth of GDP per capita. This is one of the largest projected pay-offs to gender equality in the labour market across the OECD (Adema et al., 2015).

Mexico is moving in the right direction, but more effort is needed

A number of measures have recently been implemented by the government to increase the labour force participation of women. An effective policy package aimed at curbing gender gaps in the labour market includes a number of policy domains. For example:

- The recent introduction of paid paternity leave to fathers working formally in the private sector[23] is a step towards splitting family responsibilities more equally between men and women.

- Childcare services have been expanded since 2007 through *the Programa de Estancias Infantiles para Apoyar a Madres Trabajadoras*, a federal daycare programme for working mothers that provides substantial subsidies (covering about 90% of childcare costs) for community and home-based daycare. The programme offers both demand and supply-side incentives: grants for individuals and civil society organisations to facilitate setting up and running child care institutions, as well as targeted subsidies to low-income mothers who enrol their children. This programme has increased the probability of women working, obtaining more stable jobs and increasing labour incomes, and has reduced the time they devote to childcare (see for example Calderón, 2014).

- The *Programa de Apoyo a las Instancias de Mujeres en las Entidades Federativas* aims to implement prevention measures to avert violence against women. This programme is operated by the *Instancias de Mujeres en las Entidades Federativas* (IMEF) in co-ordination with other public and social institutions.

- The 2012 Labour Reform also favours women's labour market participation, for example, by reducing discriminatory hiring and firing practices[24]; outlawing workplace harassment; allowing more flexible use of maternity leave; reducing working time after childbirth for breastfeeding purposes; and introducing the right to request family-friendly arrangements, such as part-time work and remote working (OECD, 2016d; 2017).

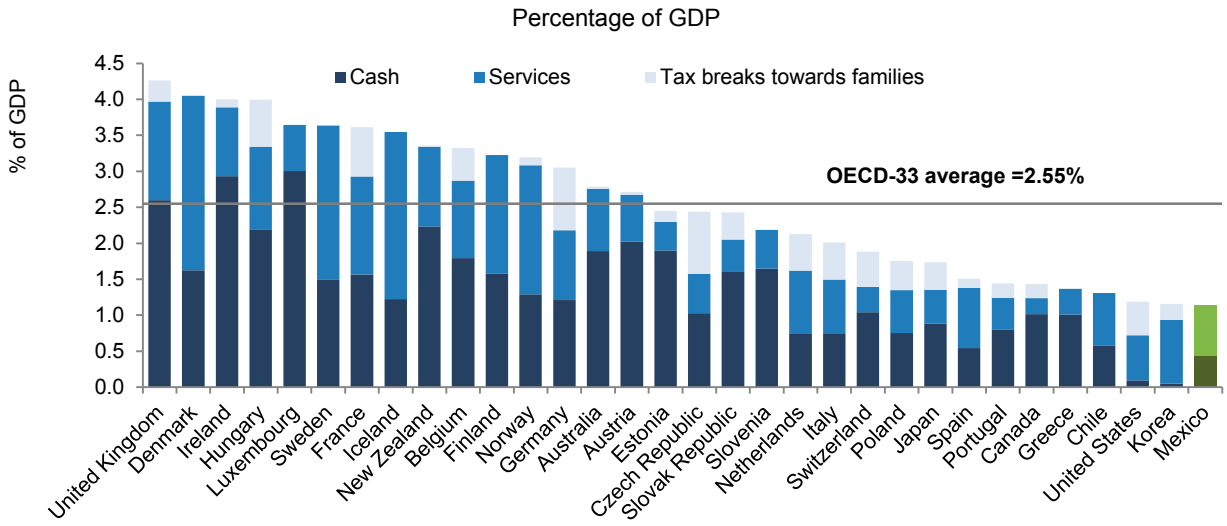
- Other programmes have had positive unintended consequences on female labour force participation. For example, the conditional cash transfer programme *Prospera* (see Challenge 3) has given mothers further control over resources entering the household (OECD, 2017). There is also evidence that the introduction of *Seguro Popular* (the non-contributory health insurance scheme) in Mexico has helped to bring more women into the labour force by freeing them from some of their caring duties (Del Valle Suarez, 2014; OECD, 2011).

Despite these efforts, many women still do not feel the benefits of these reforms in their daily lives (see below). At home, Mexican women still spend 4 hours more per day on unpaid work than men, one of the largest gaps in the OECD area, and well above the OECD average of 2.2 hours. These hours in unremunerated work restrict time that can be spent in the labour market. High rates of adolescent pregnancy (Arceo-Gomez, 2014),[25] a rising share of single mother households (Arias et al., 2010),[26] and increases in life expectancy,[27] which comes with a growing need for elderly care, usually provided by women, present ongoing challenges for the full activation of women's skills in the labour market. This evidence suggests that despite notable progress, there is significant room for improvement in Mexico to help women (re-)enter the labour market.

Overall spending on family policies remains limited

Overall, there is a lack of adequate financial resources allocated to family policies. Public spending on family benefits in cash, services and tax measures represent only 1.13% of GDP in Mexico, well below the OECD average of 2.55% and at the bottom of the OECD distribution (Figure 41).

Figure 41. Public spending on family benefits in cash, services and tax measures, 2011



Source: OECD (2016f), *OECD Family Database*, OECD, Paris, http://www.oecd.org/els/family/database.htm (accessed December 2016).

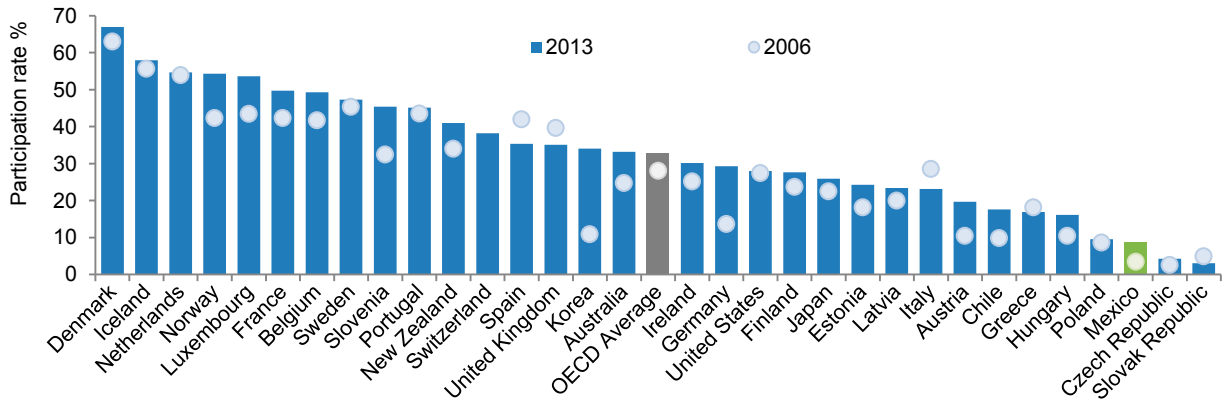
Access to good quality childcare remains low for families with young children

In order to help parents, particularly mothers, into employment, it is essential that good quality childcare is easy to access. The experience of OECD countries suggests that poor access to good quality and affordable childcare may undermine the ability of women to re-integrate into the labour market after childbirth, or even discourage them from entering employment in the first place.

In Mexico, the availability of childcare facilities for children aged 0-2 is limited. Despite recent efforts to increase access to childcare (e.g. *Programa de Estancias Infantiles para Madres Trabajadoras* – see above), and remarkable increases in the enrolment rates of children aged 3-5 (see also OECD, 2017), childcare capacity remains insufficient to meet demand for children aged 0-2: fewer than 10% of children under the age of two receive formal childcare, which places Mexico at the bottom of OECD countries (only after the Czech Republic and the Slovak Republic), and over three-times less than the OECD average (almost 33%) (Figure 42). Publicly funded out-of-school hours (OSH) care services, which are widely used in many European OECD countries to support parents, are also largely non-existent in Mexico (OECD, 2017).

Financial mechanisms to reduce the costs of childcare could be improved. While subsidised childcare (e.g. *Estancias Infantiles*) can help, other financial incentives to encourage access to childcare used in Mexico are questionable. For example, the childcare tax deductions available (as also seen in one third of OECD countries) are likely to be less effective than the free provision of childcare in a country such as Mexico, where there is a large informal sector (i.e. where many workers do not pay taxes) (OECD, 2016d).

Figure 42. Participation rates for 0-2 year-olds in formal childcare and pre-school services, 2006 and 2013



Notes: OECD average considers 30 countries for which data is available for both years. Data for Mexico do not include services provided by the private sector. Data for Japan refer to 2010, and for Australia, Chile, Mexico, and the United States to 2011.

Source: OECD (2016f), *OECD Family Database*, OECD, Paris, http://www.oecd.org/els/family/database.htm (accessed December 2016).

Child-related leave entitlements are limited, especially for fathers

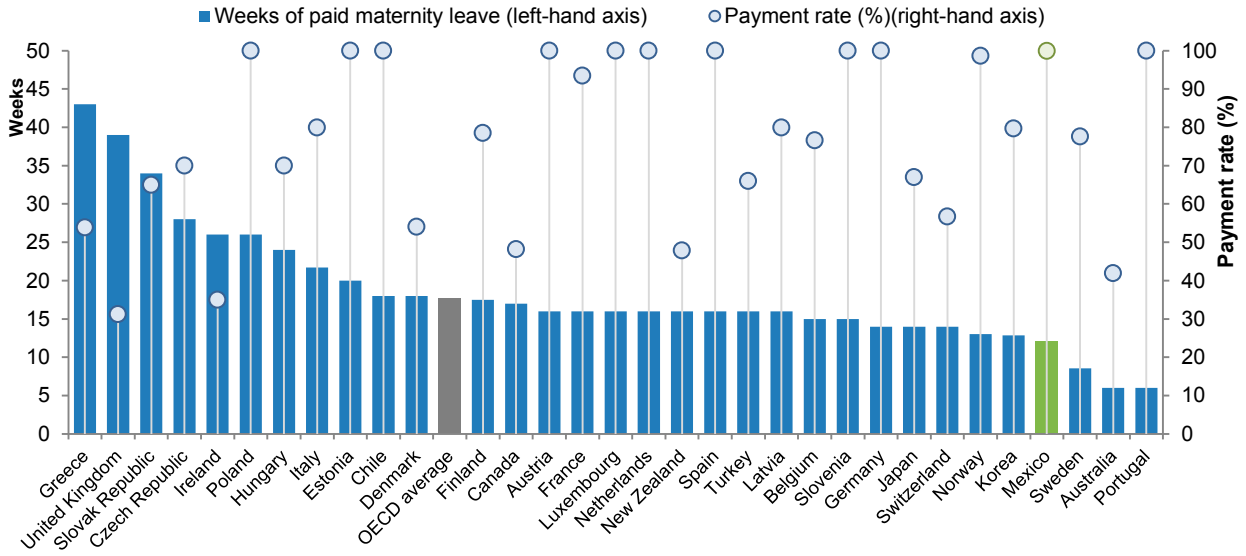
Child-related leave is a period of employment-protected leave available to working parents around childbirth. Apart from its benefits for the well-being of the mother and child, it also has positive effects on the labour market outcomes of women as it allows for a greater degree of job continuity (and/or encourages women to look for a job in the first place).

Maternity leave entitlements are limited in Mexico. Although paid at 100% of last earnings, it lasts just 12 weeks, which is below most OECD countries, and the OECD average of 17.8 weeks (Figure 43). Importantly, it is also lower than the 14 weeks of paid maternity leave stipulated by the International Labour Organisation's (ILO) Maternity Protection Convention (ILO, 2010), and the World Health Organization's recommended 16 weeks (WHO, 2000). Moreover, maternity leave only covers women in formal employment (i.e., less than half of working women), and, among them, only those who have contributed for the minimum amount of time (i.e. thirty weeks in the 12 months before the start of maternity leave).[28] If the working woman has not reached the minimum contribution period, then the employer must pay 100% of wages during maternity leave, a rule that may potentially enhance employers' discrimination against young women at the time of hiring.

Fathers' entitlements to child-related leave are also weak. Fathers in the formal sector are entitled to five days of employer-sponsored paid paternity leave, which is well below the OECD average of eight weeks.[29] By law, employers (rather than social security, as is the case in many OECD countries) must pay fathers' wages during paternity leave, which may discourage take-up. Unlike many OECD countries, Mexico has no system of shareable parental leave after the maternity and paternity leave periods end (OECD, 2017).

Figure 43. Paid maternity leave, 2015

Duration of paid maternity leave and the average payment rate across paid maternity leave for an individual on national average earnings



Source: OECD (2016f), *OECD Family Database*, OECD, Paris, http://www.oecd.org/els/family/database.htm (accessed December 2016).

Workers typically work long hours, and flexible work arrangements are rarely used

Most workers in Mexico are expected to work long hours. At 44.7 hours per week, Mexico has one of the highest rates of average usual weekly working hours in the OECD (OECD Labour Force Statistics database). Workers also typically have to engage in long commutes every day. This makes work even less compatible with family and childcare responsibilities.

Flexible work arrangements (e.g. part-time employment, remote working, and condensed/compressed work weeks) are rarely used in Mexico, meaning that women struggle to combine long hours of unpaid work with the long working hours expected in many jobs. According to the 2016 OECD Survey on Gender in Public Employment in Mexico, flexible work arrangements are typically

not an option within the general employment framework of Mexico's public service. In the private sector, flexible working hours are sometimes used, but generally only by unionised staff (OECD, 2017). As women are most often expected to take care of family responsibilities, this lack of flexibility in work arrangements may represent a fundamental barrier to their labour market participation.

A cultural shift in workplaces is needed. While flexible work arrangements may allow parents (and especially women) to participate in the labour market after childbirth, it is worth noting that they also risk trapping them in jobs with few career advancement opportunities (see OECD, 2017). In many workplaces, employees who decide to opt for flexible work arrangements may be "punished", for example by denied promotions, reduced visibility, or exclusion from important projects. A cultural shift whereby leaders and managers recognise that working long hours is not necessarily associated with better quality work or more productivity is therefore needed to ensure that the adoption of more flexible work arrangements translates into better employment outcomes for working mothers.

Women have traditionally been discriminated against

Discriminatory attitudes towards women may undermine their full activation in the (formal) economy. Stereotypes, social norms, and discrimination still limit women's labour market choices and outcomes in Mexico (OECD, 2017). In the past, labour legislation and institutions have discriminated against women. For example, until the introduction of the Labour Law reform in 2012, non-pregnancy certificates could be requested by employers as a requirement for hiring, and pregnancy could be used as grounds for fair dismissal (OECD, 2016c). An impact evaluation of Mexico's PES (Flores-Lima, 2005; 2010) emphasised that the use of PES showed positive results (both in terms of income and reduced unemployment spells) for men, but not for women, possibly pointing to discriminatory attitudes towards women within PES (Mazza, 2011).

Summary and policy implications

- **Some vulnerable groups are struggling to activate their skills in the labour market**. In particular, youth and women are facing considerable challenges in entering and remaining active in the labour market, and need targeted support. The successful integration of these vulnerable groups into the labour market will depend on the ability of policy measures to increase youth and women's employability and work incentives, as well as on the capacity of the Mexican economy to grow and create jobs.
- **Youth are often neither in employment, education or training (NEET)**. This represents a large waste of human capital and a significant cost to society. NEETs in Mexico are typically inactive (and therefore not actively looking for jobs), they are often low skilled, and are usually female. While the government is working to address the NEET challenge, international experience suggests that further room for improvements exists. Crucial policy channels through which NEET rates can be reduced and school-to-work transition facilitated include: improving the capacity of the Public Employment Service to reach out to youth, promoting access to high quality education (and reducing school dropouts), strengthening family-friendly policies (see below), and providing youth with adequate income support.
- **Women in Mexico are often excluded from the formal labour market because they often bear the burden of family responsibilities.** Increasing the participation of women in employment will require family-friendly policies that help parents balance work and family life. Despite notable efforts, too few children (aged 0-2) in Mexico are enrolled in childcare facilities, a situation that forces many parents (and mothers in particular) to remain detached from the labour market after their children are born. Both maternity and paternity leave entitlements are weak, which may discourage many women from entering employment in the first place. In addition, workers are expected to work very long hours, and flexible work arrangements (e.g. part-time or remote working) are uncommon, making it even harder for a woman to balance work and family life.

NOTES

17 On the other hand, higher education, which could help students combine work and study, has been gaining momentum in recent years.

18 For further information, see OECD (2016a).

19 This refers to the lower point estimate – which assumes that NEETs could only command a "low-wage", defined as two-thirds of the median wage among youth of the same gender and age-group. For further information see OECD (2016a).

20 The cost of having a high NEET rate in Mexico is moderated by relatively low wage levels.

21 Public transfers include family allowances, disability benefits, unemployment benefits and social assistance. They exclude public pensions only.

22 A comprehensive review on the situation of women in Mexico *"Building an Inclusive Mexico: Policies and Good Governance for Gender Equality"* has recently been published by the OECD (OECD, 2017).

23 Fathers in some segments of government had pre-existing access to paid leave.

24 Before the introduction of the 2012 Labour Law reform, non-pregnancy certificates could be requested by employers as a requirement for hiring, and pregnancy could be used as a ground for fair dismissal (OECD, 2016b).

25 According to World Bank data, the adolescent fertility rate (i.e. birth per 1 000 women aged 15-19) is 63 in 2014.

26 The percentage of single mother who are heads of households increased from 14.6% in 1992 to around 25% in 2008 (Arias et al., 2010).

27 Life expectancy at birth increased from 57.5 years in the 1960s to 75 years in 2015 (OECD stat).

28 If an employee does not reach the minimum contribution period before the start of maternity leave, her employer is obliged to pay the full salary (OECD, 2017).

29 This is measured as the total weeks of paid paternity and parental leave that can only be taken by the father.

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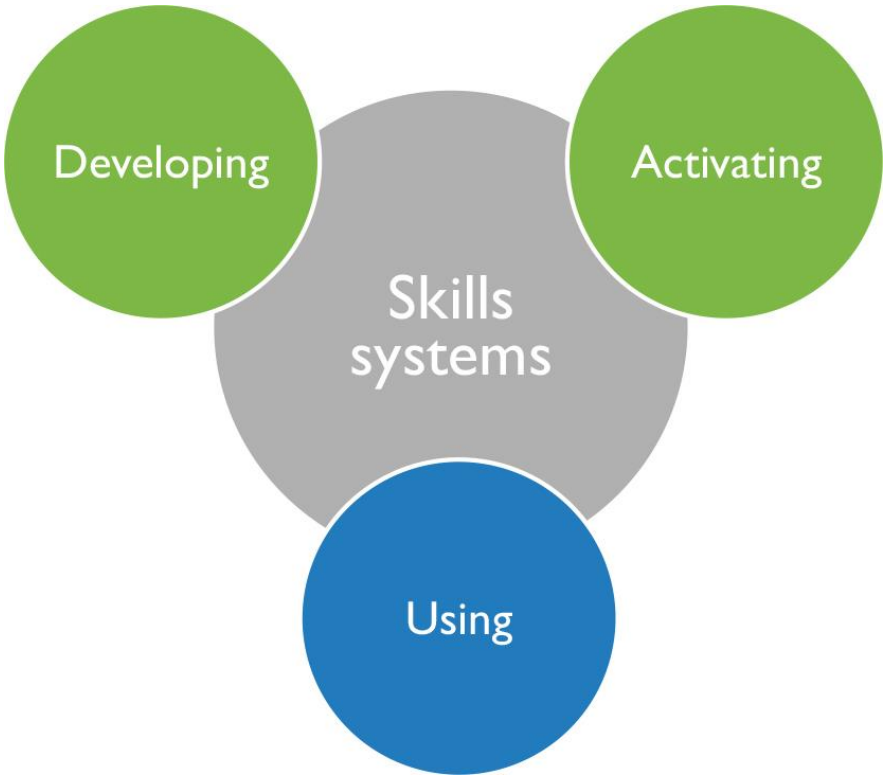
USING SKILLS



INTRODUCTION TO USING SKILLS

Investment in developing and activating skills is critical for ensuring that individuals have the skills they need for economic and social success, as well as the opportunities to use these skills. However, successful skills policies also need to ensure that skills are used effectively so that investments in skills provide the maximum returns to the individual and society. In adulthood, skills are, to a large extent, developed informally through work experience. Skills that are not fully utilised tend to atrophy, and represent a lost opportunity to increase innovation, productivity, competitiveness and growth for the benefit of individuals, firms and society as a whole. Two main priorities have been identified regarding the use of skills in Mexico: improving the use of skills at work, and supporting the demand for higher skills to boost innovation and productivity.

Improving the use of skills at work. Developing and activating skills are necessary but insufficient for improving productivity, reducing levels of informality and improving the quality of work. The effective use of skills increases wages, job satisfaction and the sense of well-being. Improving the use of skills, and thereby raising productivity, is critical for Mexico's future growth. However, there is a significant mismatch, with 26% of workers estimated to be over-educated, and 31% under-educated for the job they are performing (OECD, 2016b). The prevalence of these mismatches suggests an inefficient allocation of skilled workers across the economy, and/or (in the case of over-educated workers) a lost opportunity on the part of firms to reorganise their workplaces to make better use of the available talent to boost their productivity and competitiveness. Collaboration between firms and educational institutions could reduce these mismatches, while effective firm-sponsored training could reduce skills gaps and improve skills use in the workplace. Greater efforts are needed to raise awareness among firms of the importance of making the effective and intensive use of skills in the workplace a central component of their business strategies. Better human resource practices can help workers to make optimal use of their skills, and set incentives for continuous learning and skills development. In this respect, the increased adoption of high performance workplace practices may be very important for improving skills use.

Supporting the demand for higher skills to boost innovation and productivity. Boosting innovation and research are critical for Mexican firms to improve productivity and move up the global value chain, which would increase the demand for higher skills. Higher levels of skills enable the introduction of new products, markets and business ideas, while also ensuring that workers can adapt more quickly to the organisational and productive transformation generated by the transition towards more value-added activities. Higher levels of skills can also facilitate the transition from informal to formal jobs. In Mexico, a growing number of large modern firms demand and employ high-skilled and well-educated workers, but many other firms still demand relatively low-skilled workers attached to relatively low value-added activities. In Mexico, there is a relatively weak research base. Both private and public sector research and development (R&D) investment is well below that of nearly all OECD countries. In 2013, Mexican businesses invested the equivalent of 0.2% of GDP in R&D, compared to an OECD average of 1.6% of GDP, and a high in Korea of 3.3% of GDP. Furthermore, the share of R&D personnel in total employment, at 1%, is lower in Mexico than in other countries, such as Israel, Finland and Denmark, where it is more than 20%. Supporting the demand for higher skills implies supporting firms to develop their innovation potential. Upward labour mobility towards higher productive occupations should, therefore, rely on mechanisms of broader skills upgrading, rather than taking the best existing workers from low productive occupations. Moreover, increasing the stock of highly skilled individuals who can perform innovation activities and design innovative products could address Mexico's weak innovation performance regarding R&D and patenting activities. Education and skills could play an important role in building an entrepreneurial culture (such as the efforts made by the National Institute for Entrepreneurship) and developing the skills needed to support the development of new products for high demand sectors.

CHALLENGE 5: IMPROVING THE USE OF SKILLS AT WORK

A selection of challenges identified by Mexican workshop participants:

"The relationship between education institutes and companies needs to be strengthened."

"Create mechanisms to incentivise the participation of employers in providing the conditions for lifelong learning in the workplace."

"Better information is needed on what kind of skills shortages and mismatches exist."

"One of the reasons for skills shortages is that the salaries are too low."

"Work environments could be improved by having a more horizontal structure."

Developing and activating skills are necessary but insufficient to improve productivity and competitiveness; how skills are used is also important (OECD, 2016a, 2015a). In Mexico, many employers report difficulties filling jobs and finding individuals with the skills they need. This is related, in part, to a mismatch between skills supply and demand, as a large number of Mexicans either exceed or fall short of the skills requirements of jobs. Economic performance and aggregate growth are critical factors determining skills demand. The effective use of skills is also diminished by the absence of high-performance work practices. Such practices can increase firms' internal flexibility to adapt job tasks to the skills of new hires, increase workers' autonomy and discretion, while also promoting a better allocation of workforce to required tasks. In Mexico, however, such high-performance practices appear to be less common. Around a third of workers experience difficulties, with the demands of their jobs exceeding the resources they have to deal with these demands. Mexican workers work longer hours and have fewer opportunities for formal training to upgrade their skills, especially in small and medium-sized enterprises (SMEs), which employ about two-third of Mexican workers. Other external factors such as labour market institutions, may also affect the use of skills in Mexico (OECD, 2016a).[30]

The effective use of skills brings economic and social benefits for individuals, employers and society

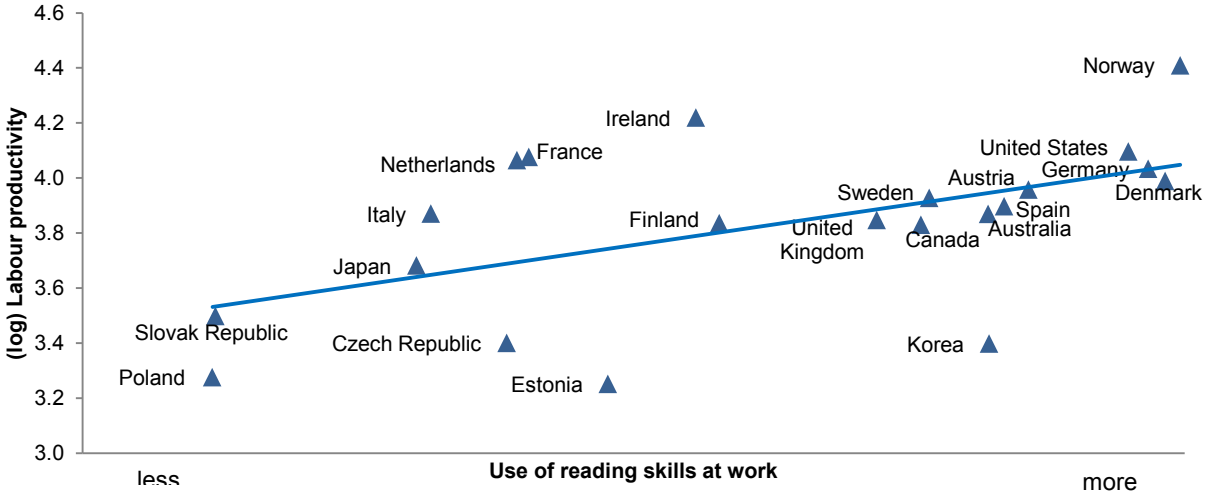
The effective use of skills[31] increases wages, job satisfaction and sense of well-being. Individuals who use frequently their information-processing skills at work are more likely to earn higher wages. The positive effect of using information processing skills at work on job satisfaction is found to be significant across many countries. In general, the effective use of skills contributes to the improved well-being of workers (OECD, 2013a).

More effective use of skills has various benefits. As already mentioned in the introduction, for firms, increased use of skills means higher productivity, as measured by output per hour worked (UKCES, 2014). The 2013 Survey of Adult Skills shows that the use of reading and writing skills correlates strongly with

productivity (OECD, 2013a). Use of skills also stimulates investment, employee engagement and innovation (Wright and Sissons, 2012) (Figure 44).

Figure 44. Labour productivity and the use of reading skills at work

Adjusted for literacy and numeracy proficiency



Notes: Lines are best linear predictions. Labour productivity is equal to the GDP per hour worked in USD current prices (Source: OECD.Stat). Adjusted estimates are based on Ordinary Least Squares (OLS) regression, including controls for literacy and numeracy proficiency scores. Standard errors in parentheses.

Source: OECD (2012), *Survey of Adult Skills (PIAAC)*, (database), Table A4.4, www.oecd.org/site/piaac/surveyofadultskills.htm.

Improving the use of skills and raising productivity is critical for Mexico's future growth. While school enrolment has increased, labour productivity has not risen. In order to raise productivity, it is not sufficient to raise the quantity of education, it is also necessary to improve its quality (Hanushek & Woessmann, 2012) and ensure that skills are used effectively in the workplace (OECD, 2016a). Contextual factors affecting skills use and productivity include aspects such as the availability of technology, capital and investments. As in other Latin American countries, productivity growth in Mexico has been weak in recent decades. Encouragingly, productivity levels have picked up in recent years, specifically in sectors that have been through structural reforms, such as energy (electricity, oil and gas), financial and telecom sectors. However, Mexico still had the lowest level of labour productivity across OECD countries in 2015: 60% lower than the OECD average, and 70% lower than the United States (as mentioned in Challenge 3). The productivity gap has increased over the past two decades because productivity has grown more slowly in Mexico, increasing at an annual average rate of only 0.7% versus an OECD average of 1.6%. While some sectors in Mexico, such as the automotive and aerospace industry, have witnessed high productivity levels and growth, other sectors, such as the food and beverage industry, have low productivity levels and are characterised by a large number of small and often informal firms (McKinsey & Company, 2014).

Skills are not being fully and effectively used in Mexico

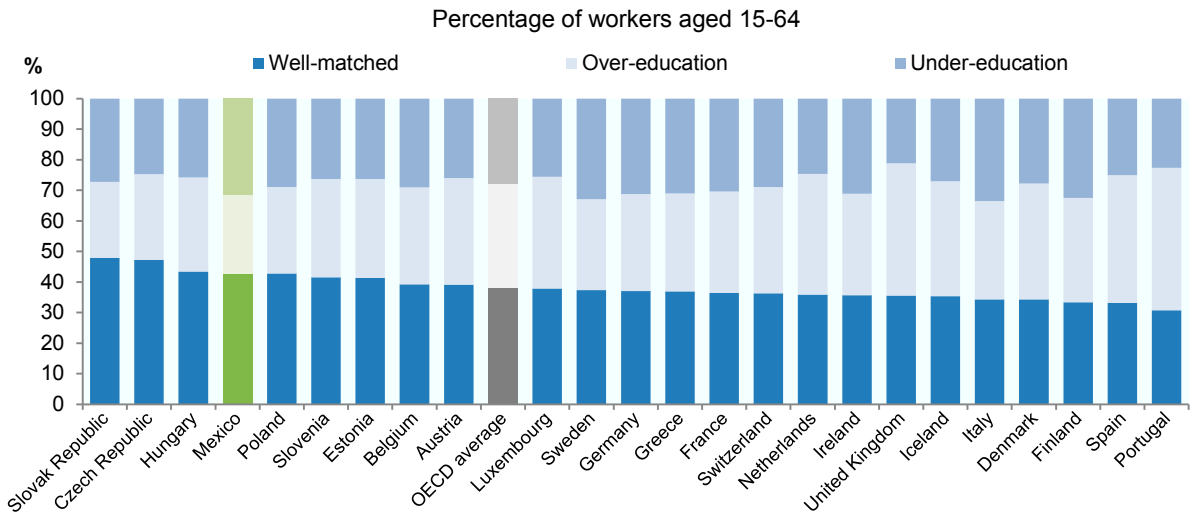
Skills can only be used fully and effectively when the skills supply of workers and the skills demand of jobs are aligned (OECD, 2016a). While direct outcome measures of adult skills in Mexico will only become available after the third round of the Survey of Adult Skills, to be released in 2019, there are proxies of skills, such as years of education and fields of study, that can be used in the interim to analyse the extent to which mismatch occurs. The current level of skills shortage in Mexico indicates a misalignment between the skills employers are looking for and the skills job candidates bring on a macro level. When

employers struggle to fill certain occupations with adequately skilled workers they are forced to either hire less skilled workers or have already employed workers fill in the skill gaps. This constitutes a major constraint to using skills effectively as the needed skills are not present in the first place, and underscores the importance of developing relevant or quality skills more during compulsory and tertiary education (see Challenges 1 and 2).

There is a significant mismatch in Mexico, with a quarter of workers estimated to be over-educated for the job they are performing. Estimates based on Mexico's National Occupation and Employment Survey (*Encuesta Nacional de Ocupación y Empleo*) show that, on average, about 25.6% of Mexican workers are over educated for their job (OECD, 2016b). Over education is measured as having at least two years of education more than the median required in a specific industry and occupation. Over education becomes less prevalent with increasing age, which reflects the tendency that young people take time to be well-matched in the labour market, and that educational attainment overall has risen over time. The level of over-education suggests that the education system is not producing the skills most needed in the labour market, resulting in workers having lower levels of skills than would normally be expected from someone with a given level of education. It could also mean that there are structural constraints (e.g. mobility or certification barriers) to matching that force employers to hire workers who are under qualified for the job. The literature finds that the returns to over education are positive, with more skilled workers having higher productivity, which is reflected in a premium for over-education. In Mexico, workers who are over educated earn 16% more in hourly wages than workers who match the education requirements of their jobs (Ortiz & Ñopo 2015).

A large share of Mexican workers are under educated for their job. Around 31% of workers are under educated, which is higher than the OECD average of 28% (OECD, 2016b) (Figure 45) Under education may be due to people having acquired further skills on the job that make them well-matched, or a sign that employers are being forced to hire workers with lower levels of skills than they require due to a lack of well-matched workers. The penalty of under education in Mexico is 11% less on the hourly wage than someone who is well-matched in terms of education for the job (Ortiz & Ñopo, 2015). This means that they are not earning as much as they are not as productive as well-matched workers. These individuals and society at large would benefit if a more efficient allocation of labour could be achieved. This has been shown across OECD countries using skills mismatch measures (Adalet & Andrews, 2015).

Figure 45. Over and under education, Mexico and selected OECD countries, 2013



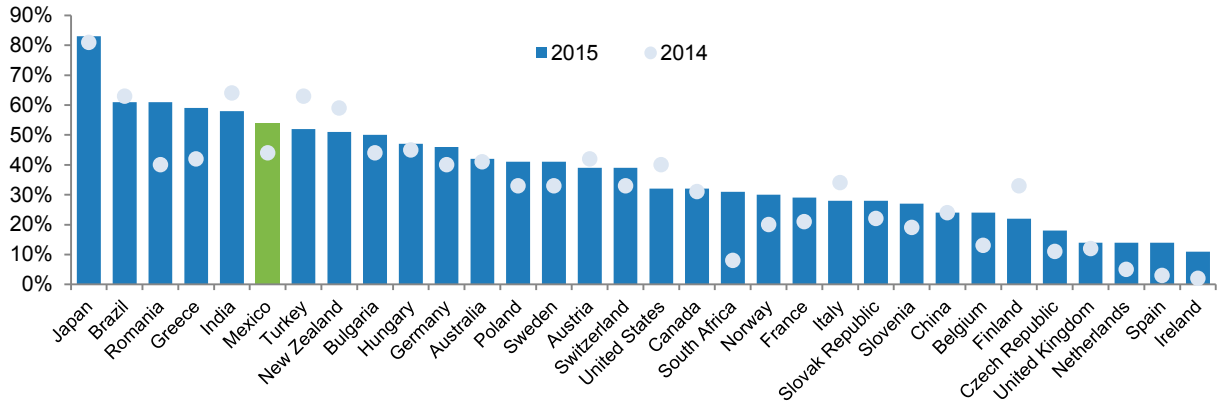
Source: OECD Calculations based on Mexico's National Occupation and Employment Survey (Encuesta Nacional de Ocupación y Empleo) and the European Labour Force Survey.

A large share of workers are mismatched by field of study. A recent study that looked at the field of study match for university graduates found that, on average, 40% of those employed in Mexico work in an occupation that is unrelated to their field of education. The sectors where field of study mismatches in Mexico are the highest are: transportation and material moving, protective service, healthcare support, production, and building and grounds cleaning and maintenance (Ortiz & Ñopo 2015). Some field of study mismatch is to be expected as individuals may not be able to find jobs in the exact field they have studied for, and demands for certain skills may shift. A recent study on field of study mismatch using data from 22 countries participating in the Survey of Adult Skills found that as workers get older, their past working experience, rather than their formal education, may matter more for determining a match. When field of study mismatch is associated with over qualification, this leads to lower wages for the individual worker, as well as increased likelihood of unemployment and lower levels of job satisfaction (Montt, 2015). Workers may also experience frustration with the inability to find work in their field. From the employers' perspective, mismatched workers may be less productive, less motivated, and more costly; there may also be increased need to receive job-specific training and a higher chance of turnover, as workers may be looking to move into a job more suitable for their field. For the economy, field of study mismatch could mean that the resources invested in developing specific skills may not be recovered as they are not being used (Montt, 2015). Field of study mismatch serves as a useful but imperfect proxy to analyse skills gap, and needs to be interpreted with caution. Field of study mismatch is a response to the broader labour market context that is driven by employers' demands and the supply of graduates. When the supply of graduates from a particular field is greater than demand in that field, then graduates must look elsewhere, and mismatched employment is preferable to unemployment. The implication of these findings is, therefore, to encourage employers not to prefer recruits in the adequate field of study, which could lead to higher unemployment levels when certain fields are saturated, and artificially enforce labour market rigidities that inhibit mobility across sectors. Instead, attention should be given to measures such as skills anticipation systems and skills forecast exercises that improve alignment in skills supply and demand to reduce the chances of mismatches occurring later. Examples of this exist in Denmark, Finland and Ireland (Commission of the European Communities, 2009). Another useful mechanism could be a national qualification framework that makes skills more visible for employers and that facilitates mobility across occupations and sectors (see Challenge 2) (Montt, 2015).

There is a significant skills shortage in Mexico. According to the World Bank's Enterprise Survey, 30.9% of firms report "an inadequately educated workforce"[32] as a major constraint to their current operations. This is significantly higher than the OECD average of 17% and the world average of 22.2% (World Bank, 2013). In a similar survey, employers in Mexico reported high levels of difficulties in hiring, with 54% struggling to fill jobs. This is significantly above the OECD average of 32%, but still lower than other Latin American countries (Manpower, 2015). In a 2012 McKinsey survey across various countries, 40% of employers in Mexico responded that the lack of skills is a common reason for entry-level vacancies, and causes "significant problems in terms of cost, quality, and time", or worse (McKinsey & Company, 2012). Although there are some variations across these surveys, they indicate that employers are facing challenges in finding the skills they need. These difficulties are not limited to highly skilled jobs. The top 10 jobs in which Mexican firms experience the greatest recruitment difficulties are a mixture of occupations: sales representatives; secretaries, assistants, administrative personnel, and receptionists; skilled trades; engineers; production and machine operators; technicians; accounts and finance staff; sales managers; management; and IT Personnel (Manpower, 2015). The main reasons that employers report difficulties filling jobs are: lack of available applicants (34%), lack of technical skills (24%), lack of experience (22%), looking for more pay than is offered (12%), and lack of workplace soft skills (11%) (Manpower, 2015). This type of information on skills shortage needs to be interpreted with some caution for policy purposes.

Figure 46. Percentage of employers having difficulty filling jobs

As a percentage of all firms with ten or more employees



Sources: Manpower Group (2015), Manpower Talent Shortage Survey 2015, http://www.manpowergroup.com/talent-shortage-2015/talent+shortage+results.
Manpower Group (2014), Manpower Talent Shortage Survey 2014, www.manpowergroup.com/wps/wcm/connect/0b882c15-38bf-41f3-8882-44c33d0e2952/2014_Talent_Shortage_WP_US2.pdf?MOD=AJPERES.

Practices and policies could foster a better use of skills at work

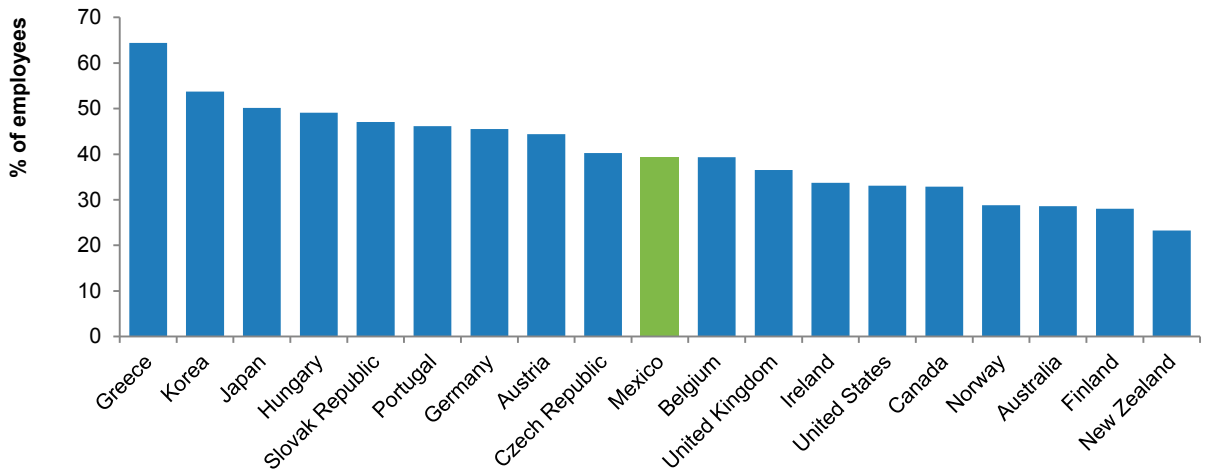
There are a variety of factors that can improve skills use at work. Factors internal to the firm, such as the work environment (e.g. working hours, high performance work practices) can have a direct impact on skills use at work. Factors external to the firm can also have an impact, although often indirectly. For example, labour market institutions influence the cost of labour and therefore the incentives of firms to make use of workers' skills. This can have an indirect impact on skills use. Other external factors include, for example, the availability of good information on current and future skills needs, and the existence of effective mechanisms for the recognition of prior learning and skills acquired outside formal education. The following section elaborates on some of the factors affecting skills use in Mexico. The list of these factors is not exhaustive, and more empirical research is needed to analyse the extent to which these factors affect skills use in Mexico.

Factors internal to the firm that affect the use of skills

The quality of the work environment can affect the use of skills. The quality of the work environment is one of the three dimensions of the OECD job quality framework, elaborated in Challenge 3 (OECD, 2015a). Work environment quality includes aspects such as working hours, workplace practices and on-the-job training. A low-quality work environment is often characterised by high demands and insufficient support, which causes stress for workers and leads to them experiencing "job strain"[33] (OECD, 2014a). Around 39% of workers in Mexico experience job strain (OECD, 2015a) (Figure 50). This occurs when the job resources (e.g. autonomy, learning opportunities and good workplace relationships) are not sufficient to meet the job demands (e.g. time pressure, physical health risk factors). This is lower than other OECD countries, such as Greece (64%), Korea (54%) and Japan (50%). However, it is still higher than other OECD countries, such as Norway, Australia, Finland and New Zealand, where it is below 30%. These kinds of conditions may make it more difficult for workers to put their skills to effective use. Since a large share of workers are employed in the informal economy, in general their working conditions are even lower than those who are working in the formal economy (see Challenge 3). Informal firms typically employ low-skilled workers in jobs with low-skilled work, and provide limited options for further skills development.

Workers in Mexico work the longest hours across the OECD. The average annual hours worked per worker in Mexico are 2 246 hours, which is higher than the OECD average of 1 766 hours and around 60% higher than other countries such as Norway (1 424 hours), the Netherlands (1 419 hours) and Germany (1 371 hours) (see Figure 51). This may be due to difficulties from the Mexican labour legislation that was imposed, until very recently, on part-time jobs. Studies suggest that working very long hours impairs workers' physical and mental health, particularly when employees have little control on the number of hours they work and/or on their work schedule (Bassanini & Caroli, 2015; Frijters et al., 2009; Dembe et al., 2005; Burke et al., 2009; Caruso et al., 2004). Long working hours contribute to a poor work environment, which has implications for workers' health, and is estimated to increase sickness absence by 40% (OECD, 2014a). As sickness absence goes up, workers are less available to use their skills at work.

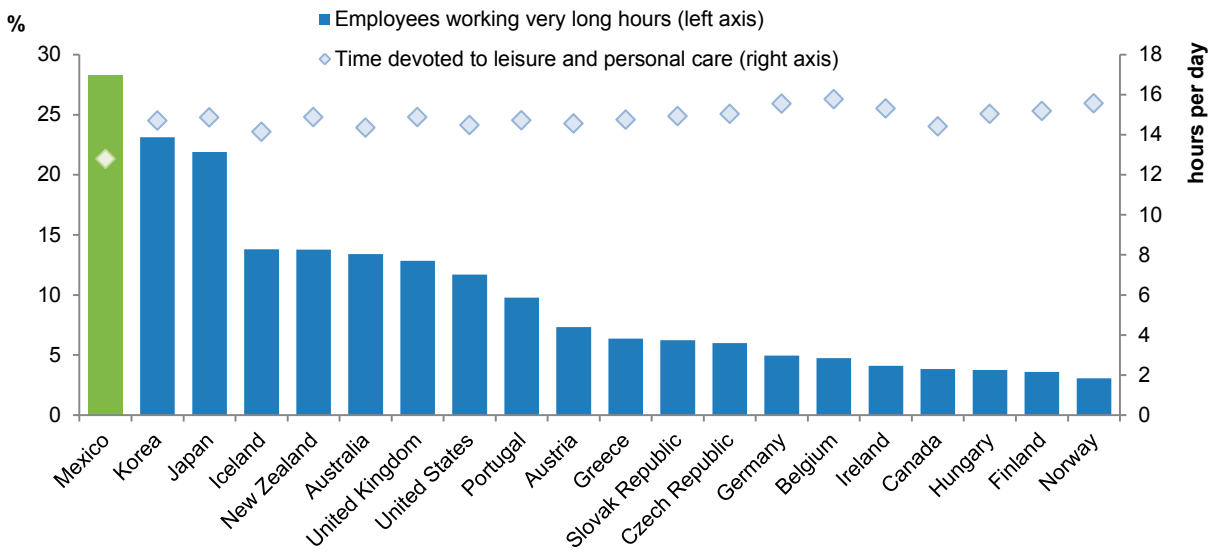
Figure 47. Work environment in Mexico (job strain)



Note: Data on job strain are for 2015, except for Australia, Canada, Japan, Korea, Mexico, New Zealand, Norway and the United States, for which data are for 2005. Job strain is defined as jobs where workers face more job demands than the number of resources they have at their disposal. Taking into account of data availability, two types of job demands are identified: i) time pressure which encompasses long working hours, high work intensity and working time inflexibility; and ii) physical health risk factors, such as dangerous work (i.e. being exposed to noise, vibrations, high and low temperature) and hard work (i.e. carrying and moving heavy loads, painful and tiring positions). Similarly, two types of job resources are considered, namely: i) work autonomy and learning opportunities which include workers' freedom to choose and change their work tasks and methods, as well as formal (i.e. training) and informal learning opportunities at work; and ii) Social support at work which measures the extent of which workers receive social support from colleagues and supervisors. The composite Job Strain index, thus, refers to those jobs where the workers face one demand but have no resources, or face two demands but have one or no resource.

Source: OECD (2016), Better Life Index database 2016 (http://stats.oecd.org/Index.aspx?DataSetCode=BLI) and Job Quality database (http://stats.oecd.org/Index.aspx?DataSetCode=JOBQ); and OECD (2016c), "How good is your job? Measuring and assessing job quality", Chapter 5, OECD Employment Outlook 2015, OECD Publishing, Paris. http://dx.doi.org/10.1787/empl_outlook-2014-6-en.

Figure 48. Work-life balance

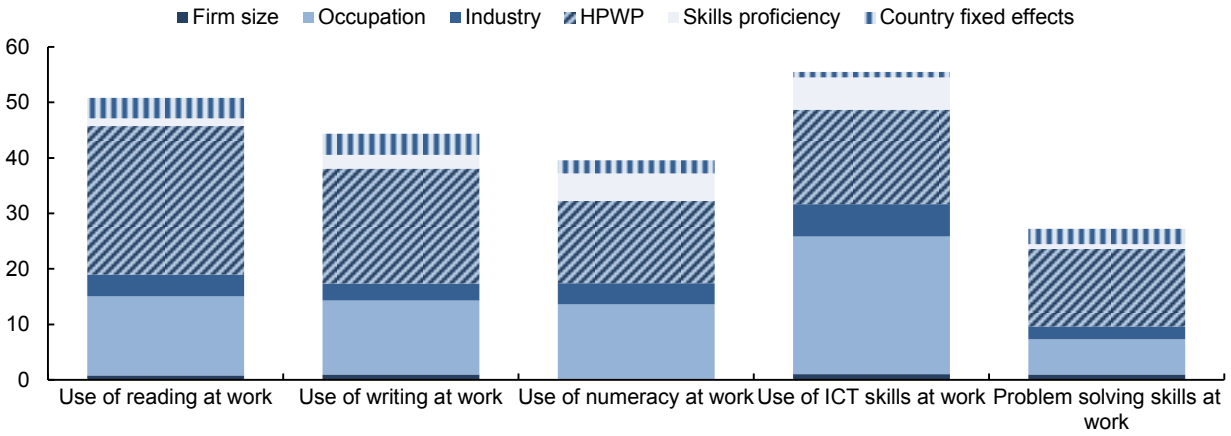


Notes: Employees working long hours: Proportion of dependent employed whose usual hours of work per week are 50 hours or more. Time devoted to leisure and personal care: Estimate of the number of hours per day that, on average, full-time employed people spend on leisure and on personal care activities.

Source: OECD (2016), Better Life Index database 2016 (http://stats.oecd.org/Index.aspx?DataSetCode=BLI) and Job Quality database (http://stats.oecd.org/Index.aspx?DataSetCode=JOBQ); and OECD (2016c), "How good is your job? Measuring and assessing job quality", Chapter 5, OECD Employment Outlook 2015, OECD Publishing, Paris. http://dx.doi.org/10.1787/empl_outlook-2014-6-en.

Work practices are an important determinant of the use of skills. The Survey of Adult Skills shows that human resource practices influence the use of skills. High-performance work practices (HPWP) increase a firm's flexibility to make better use of workers' skills through a more effective allocation of workforce to the job task demands, and through adaption of job tasks to the skills workers bring. Such practices include mentoring, job rotation, on the job training, autonomy, teamwork, bonus pay and flexible working hours (OECD, 2016a). Figure 49 shows that across the countries that participated in the Survey of Adult Skills, HPWPs are the largest contributor to skills use, explaining about 27% of the variation in reading use at work, and about 14% in the use of problem-solving skills at work. Workers who benefit from HPWP make greater use of skills than those who do not. This is in line with other studies that have shown strong links between HPWP and productivity and company performance (Applebaum et al, 2000; Becker & Huselid, 1998; Boning, B. G. Ichniowski & K. Shaw, 2007; Bloom, N. & J. van Reenen, 2010; Dostie, 2014; Gambin et al., 2009; Stone, 2011; Teuber et al, 2016).[34]

Figure 49. The contribution of high-performance work practices and other factors to the variance of skills use at work



Note: Results obtained using regression-based decompositions proposed by Fields (2004), with one model estimated for each skill. The height of the bar corresponds to the total R-squared of the full regression model. The subcomponents show the contribution of each factor (or set of regressors) to the total R-squared. The Fields decomposition is explained in more detail in OECD Employment Outlook 2014, Box 5.4 (OECD, 2014b). Occupation and industry are included as 1-digit codes of the International Standard Classification of Occupations (ISCO) and 1-digit codes of the International Standard Industrial Classification (ISIC) Rev. 4 codes, respectively. High-performance work practices include whether workers have any flexibility in deciding on the sequence of tasks they perform, how they do the work, the speed of the work, and working time; how often they organise their own time and plan their own activities; how often they co-operate or share information with others; how often they instruct, teach or train other people; whether they received education/training in the past 12 months; and whether they received a bonus payment. Skills proficiency corresponds to literacy proficiency for the use of reading and writing at work, numeracy proficiency for the use of numeracy skills at work, and problem solving in technology-rich environments for ICT and problem solving at work. Italy, France and Spain are excluded from the regressions on the use of ICT and problem solving at work because they did not administer the problem solving in technology-rich environments module in the Survey of Adult Skills. Including them when using literacy or numeracy scores as controls for proficiency does not change the results.

Source: OECD (2016d), Skills Matter: Further Results from the Survey of Adult Skills, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264258051-en. OECD (2013a), OECD Skills Outlook 2013: First Results from the Survey of Adult Skills, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264204256-en.

The incidence of high-performance work practices varies. Across countries that participated in the Survey of Adult Skills, HPWP are distributed more widely among jobs in large firms (251+ employees), followed by micro firms (1-10 employees), medium firms (51-250 employees), and lastly by small firms (11-50 employees). This "U shape" could be explained by the additional resources that large firms have to implement HPWP, and the necessity of micro firms to be agile and flexible in allocating scarce resources. Across occupations, HPWP declines with occupation status. Managers, professionals, and associate professionals are most likely to benefit from HPWP. Industries with the highest presence of HPWP are computer programming, consultancy and related activities; scientific research and development; programming and broadcasting activities; and information service activities. Industries with the lowest presence of HPWP are traditional manufacturing and service industries, such as leather and related products, services to buildings and landscape activities, poster and courier activities, and land transport and transport via pipelines. Employees in full time jobs and open-ended contracts are more likely to have jobs with a large number of HPWP than those who do not (OECD, 2016d). While comparative data on HPWP for Mexico is not available, information about on-the-job training as one aspect of HPWP is available.

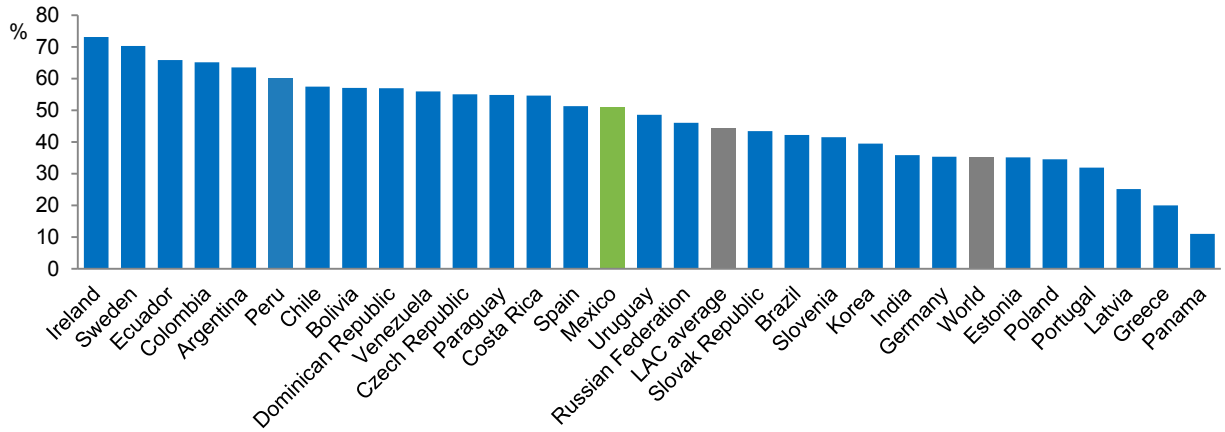
Firms benefit from providing on-the-job training for their workforce as it improves productivity and competitiveness. Employers know best what skills they need, and providing on-the-job training ensures that their workers develop these skills. Training could be general (e.g. team management, negotiations, writing) or firm-specific training (e.g. using in-house software). On-the-job training can reduce recruitment costs, as

employers have more options to hire, raise the reputation of the firm, and raise the life satisfaction of employees. Benefits for the firm include higher productivity and competitiveness, and greater chances of innovation, as workers continue to acquire new skills. Some OECD countries, such as Korea and Ireland, have introduced policies and programmes to improve skills training in the workplace (see Box 16). Literature also suggests that employers may have disincentives to invest in employee skills under certain conditions, particularly when on-the-job training addresses general rather than company-specific skills, although most training provision falls somewhere in the middle (Becker, 1994). If the usefulness of the training is not limited to the company, the possibility of poaching by other companies once investment in skills training has occurred remains a risk. Employers may also consider the expected time necessary to recuperate their investment in employee skills. This may be particularly relevant for older workers, women and temporary workers who have less time left due to upcoming retirement, reduced work capacity due to family responsibilities, and uncertain work conditions. Another limiting factor may be the skills that employees already possess. While low-skilled workers may need training the most, employers may favour high-skilled workers for skill investments, since the relative cost for marginal skills upgrading will be lower (OECD, 2013a).

Around one in two firms in Mexico provides training. According to the Global Competitiveness Index 2014-15, published by the World Economic Forum, one of the elements that generate a greater lag in terms of efficiency in the economy are the gaps in higher education and training of workers (Székely, 2016). Across firms of all sizes (micro, small, medium and large), on-the-job training is offered to the workforce in 50.8% of firms in Mexico, which is above the average for Latin America (44.4%), and higher than in Brazil (42.2%), Korea (39.5%) and Germany (35.4%), although lower than in Colombia (65%), Argentina (63%), Peru (60%) and Chile (57.5%) (World Bank, 2014) (Figure 50). If one takes out large firms, the percentage of firms offering training in Mexico drops to 12.6%, as shown by ENOPROCE 2015 and explained further below (INEGI, 2015). Since many of the firms in Mexico and other Latin American countries are informal, the actual share of firms providing training would most likely be even lower. The most recent World Economic Forum Competitiveness Report ranks Mexico 62nd after Uruguay and before the Slovak Republic, which is far behind the frontrunners Switzerland (1st), Netherlands (2nd), Belgium (3rd), Finland (4th) and Singapore (5th) (World Economic Forum, 2016).

Figure 50. Percentage of firms offering formal training

2014 or latest data available



Source: World Bank (2014) Enterprise Surveys (http://www.enterprisesurveys.org), The World Bank.

Larger firms are more likely to invest in training than smaller firms (OECD, 2013a). As in other countries, most firms in Mexico are micro (94.3%), small (4.7%) and medium (0.8%) enterprises. Only 0.2% of firms are large (Table 2). Participation in training varies greatly by firm size. Based on the ENAPROCE 2015 survey, workers receive training in only 11.5% of micro enterprises, 55.8% of small enterprises, and 73.7% of

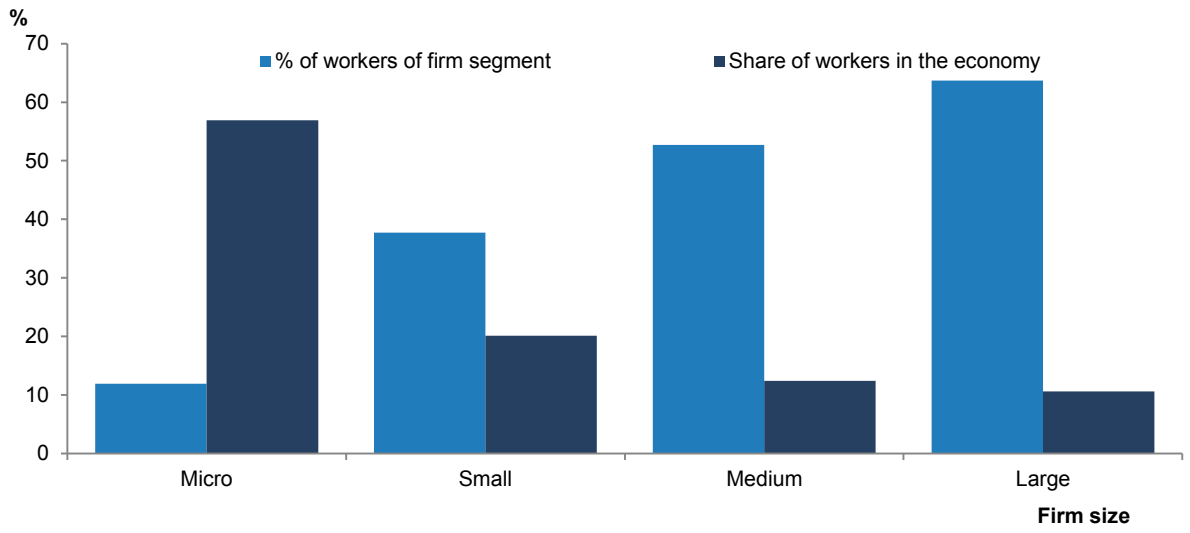
medium enterprises (INEGI, 2015). However, larger firms in Mexico more often carry the costs of providing training for their workers than medium, small and micro companies (Figure 51). While larger firms have the resources to provide finance training for employees, and do so for 63.7%, these firms are only employing 10.6% of the labour force. Micro companies employ 56.9% of the labour force, but sponsor only 11.9% of the workers who take part in training. Some promising national initiatives to raise training participation in SMEs already exist, such as the Comprehensive Quality and Modernisation (CIMO) programme, which was created in 1987 and changed its name in 2001 to the Training Support Programme (PAC). Instead of providing training directly to SMEs, the CIMO approach offers SMEs a package that subsidises the provision of tailored training and other support services by public or private providers. The programme is operated by the Ministry of Employment (STPS) through a regional network of training promotion units (UPC) based in local associations and chambers of commerce. Where possible, firms are matched with local service providers on a group basis, which fosters the clustering of local firms and reduces overall costs. CIMO subsidises up to half of the participating firms' costs with a maximum ceiling. Evaluation conducted by the World Bank showed that CIMO participating firms increased investments in worker training, had higher rates of skill use, and were more likely to adopt quality control practices (Tan & Acevedo, 2005). Similar programmes also exist from the Ministry of Economic Affairs.

Table 2. Distribution of firms in Mexico, 2013

Firm size (employees)	Number of firms	%
SMEs (1-249)	**5 643 553**	99.8
Micro (1-10)	5 332 788	94.3
Small (11-50)	263 041	4.7
Medium (51-250)	47 724	0.8
Large (251+)	10 461	0.2
Total	**5 654 014**	**100**

Source: INEGI (2014).

Figure 51. Workers with training financed by the employer, by firm-size (2009)



Source: Mexico Ministry of Finance (SHCP) with data from INEGI.

Box 16. Training programmes for existing workers and SMEs

Korea

All training programmes for existing workers in Korea are financed through the Employment Insurance Fund. Most programmes comprise subsidies paid to employers who provide skills development programmes for their employees. The government refunds training expenses to insured employers when they provide, either directly or through outsourced providers, vocational training authorised by the Ministry of Education and Labour. A subsidy can also be paid to cover training costs and minimum wages when an employer offers training leave to employees with one or more years of service.

There are also a number of programmes to encourage SMEs to provide training to their employees. SMEs can be reimbursed for all or part of the training costs for their employees who take part in authorised training programmes to improve performance of "core tasks", such as sales, marketing, production and quality management, human resources and organisation management.

There is also support for groups setting up a "training consortium" to help provide vocational training to SME workers. The government subsidises training expenses and facility and equipment expenses to the consortium, which could be comprised of companies, employers' federations, universities or other training providers. Around 250 000 employees from 120 000 SMEs participated in the consortium project in 2011, a very small proportion of all SME employees in Korea.

Ireland

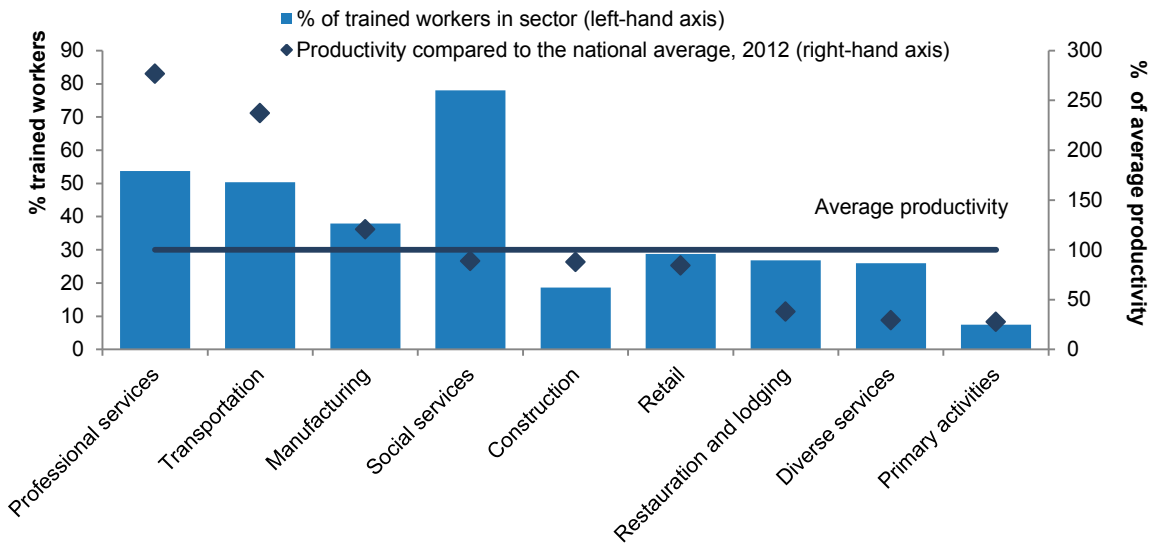
Ireland Skillnets was established in 1999 to promote and facilitate workplace training and upskilling by SMEs. It is the largest organisation supporting workplace training in Ireland. In 2011, it had 70 operational networks, through which it trained over 40 000 people for a total expenditure of EUR 25 million. It is a state-funded, enterprise-led body that co-invests with enterprises, particularly SMEs, when they co-operate in networks to identify and deliver training suited to their workforces. A network of SMEs, which are mostly sectorial or regional, is guided by a steering group of local enterprise representatives. The steering group gives strategic direction and guidance to a network manager, who co-ordinates all operational activity, leading to the delivery of an agreed training plan with learning interventions suited for the member company workforce. The national programme is co-ordinated by Skillnets Ltd., who contract with all networks and provide programme support and monitoring to ensure the delivery of agreed quantitative and qualitative target outputs. In 2011, 30 networks were located in Dublin, but these were predominantly sectorial networks with a national remit and company membership. Some 25% of Skillnets member companies, and 33% of trainees, are Dublin-based.

Sources: OECD (2014c), Employment and Skills Strategies in Ireland, OECD Reviews on Local Job Creation, OECD Publishing. http://dx.doi.org/10.1787/9789264207912-en.

OECD (2013b), Korea: Improving the Re-employment Prospects of Displaced Workers, Back to Work, OECD Publishing, Paris. DOI: http://dx.doi.org/10.1787/9789264189225-en.

Participation in training varies across sectors. Around 50% of workers in the sectors of service professionals and transportation receive training. These two sectors also have the highest productivity levels. Around 38% of workers in the manufacturing sector receive training, and their productivity level is also above the average. The sector with the highest share of workers receiving training is the service sector, where 78% of workers receive training (see Figure 52). However, the productivity level is below the average. This indicates that simply increasing access to training may not be sufficient to improve the use of skills at work, and thereby productivity, but it is also important to consider the quality of training and whether other aspects of HPWP, such as mentoring, job rotation, autonomy, teamwork, bonus pay and flexible working hours, are present in the workplace. The sectors with the lowest share of workers receiving training are construction (18.6%) and the extractive industry (7.5%). Box 17 provides a national example of how on-the-job training occurs in the automobile industry in Mexico.

Figure 52. Participation in job-related training



Source: Mexico, Ministry of Finance (SHCP) with data from INEGI.

Temporary workers are less likely to use their skills than permanent workers. In the last year with comparable data, temporary workers in Mexico represented around 20% of dependent employment, which doesn't include those self-employed (OECD, 2016e). Evidence from the Survey of Adult Skills indicates that temporary workers are using their skills less than permanent workers (OECD, 2016e). This may reflect their lack of incentive and motivation to do more, as they are typically less attached to the firm, have lower job security and receive less support than permanent workers. Temporary workers may also enjoy less flexibility in the way work is carried out and have less voice in the firm's decisions. This decreases their incentive to proactively look for ways to innovate and find efficiencies that improve firm performance. At the same time, employers are usually less inclined to tailor job content to the skills of temporary workers and invest in developing the job-related skills of temporary workers. This limits the potential of temporary workers to increase their productivity and exacerbates the effect of qualifications and skills mismatches. A number of studies across OECD countries indicate that workers hired on temporary contracts are less likely to receive on-the-job training (Autor, 2001; OECD, 2016e, 2006).

Workers in the informal economy are less likely to use their skills than workers in the formal economy. A large share of informal firms are micro and small in size. Most of these firms are characterised by low levels of productivity, which forces workers to compensate with long working hours. These firms also tend to have fewer resources and capacities to implement high performance workplace practices or provide on-the-job training. Although further research is needed, these factors indicate that informal workers are likely to use their skills less intensively.

Factors external to the firm affect skills use

Labour market institutions may affect the use of skills. Higher labour costs as a result of higher minimum wages, higher tax wedges, stricter employment protection legislation and stronger collective bargaining institutions tend to be associated with a stronger link between skills proficiency and skills use, as firms attempt to make the most of their workers' skills (OECD, 2016a). While Mexico has one of the lowest tax wedges across the OECD, there has been a steep decline in the real value of the minimum wage, which is currently amongst the lowest (relative to the average wage) across the OECD (Bosch and Manacorda, 2010; OECD, 2015a; see Challenge 3). Since the passing of the 2012 reform of the Federal Labour Law, Mexico's employment protection legislation has been made less stringent (see Challenge 3), but the full impact of the law

is still uncertain. The potential benefits of higher labour costs for skills use have to be weighed against the potential negative consequences for employment and labour market segmentation (Adalet McGowan & Andrews, 2015). Other macro factors, such as the rate of job creation, also play an important role in determining the incentives to invest in skills more rapidly.

Trade unions, along with other stakeholders such as academics and government representatives. may affect the way skills are used (OECD, 2016a). Strong collective bargaining institutions can play a crucial role by encouraging the participation of workers in their firms' decisions, thus facilitating employee buy-in to changes in work organisation and management practices that would improve skills use (OECD, 2016a). Box 18 features an example from Belgium that explains how trade unions have played a role in promoting better skills utilisation.

High quality information and guidance on learning and career pathways could reduce skills mismatch and thus improve skills use. While more research is needed on the effectiveness of information and guidance systems, students who have to make a decision on how much education to pursue, and in what field, may need support to understand the implications for their career. This requires up-to-date and easy to understand information on skills needs, as well as learning and career opportunities (OECD, 2016b). It should also be complemented with personalised career guidance. This will help students make informed choices and have realistic expectations about their jobs (Quintini, 2011, 2014; Rosenbaum, 2001). Information is also needed for current workers who may want to participate in training opportunities, receive certification in a specific domain and find other job opportunities. The information and guidance system would have to be customised to the specific needs of the user. In Mexico, a wide range of information systems on learning and career pathways exist, such as observatorio laboral, compara carreras, vincúlate and talentos (see Challenge 2). Information on skills supply and demand could also be used to adjust the content of programmes of study to ensure that they are well aligned with these needs (in terms of the number of places available and programme of study content). Some countries, such as Denmark, Finland and Ireland, make use of forecast exercises to determine the seating allocations in VET or university-level programmes, and adjust course content based on anticipated future skill needs (European Commission, 2008). Other countries, such as Australia, Turkey and Northern Ireland, consider the list of occupations facing shortage conditions when allocating funding for apprenticeships (OECD, 2014b).

Recognition of prior learning and skills acquired outside of formal education could strengthen skills use. This recognition system could inform firms about the actual skills possessed by workers and reduce mismatch and the inefficient use of available skills. This would help employers reduce on-the-job training costs, as workers could be better matched. Workers would benefit from being more productive from the beginning. Recognising newly acquired skills since finishing their formal studies would also facilitate the transfer of workers across occupations and fields (see also Challenge 2). However, the recognition of prior learning through certification is only meaningful when competency standards have demonstrated value for the labour market. Only one-third of workers who are already part of the labour force have obtained some type of training during their working lives. In recent years, Mexico has implemented several active labor policies and created programs that have proven their efficiency. The main sources of training of active workers, independent of that provided by companies, are the Public Training Centers (SEP), tertiary education institutions and some institutions of secondary and upper secondary education such as CONALEP. Public Training Centers (C*entros de Formación para el Trabajo*) offers training and agreements with local companies to provide programs tailored to the requirements of specific companies. In addition, these centers deliver online education services and a certification process through which workers can complete a theoretical course and receive a certificate of skills. However, there is little evidence on the relevance of such certifications (Ricart, Morán y Kappaz, 2014).

In addition, the main policies implemented by the STPS began in the mid-1980s and are still in force. Those policies are the following: (i) a scholarship-job training program operated by the Mexican Public Employment Service designed to help jobseekers gain formal employment named PROBECAT, currently

operated under the name of Bécate; and (ii) a program whose objective is to improve on-the-job training of active workers and provide technical assistance and public financing to companies that provide training for their employees, originally called the Industrial Labor Training Program (CIMO), which operated from 1988 to 2002 and later became Training Support Program (PAC) and Productivity Support Program (PAP) (Ricart, Morán y Kappaz, 2014).

Box 17. CONOCER

The National Council for Standardization and Certification of Labor Competencies (CONOCER) is a parastatal entity of the Mexican Government, sectored in the Ministry of Public Education (SEP) and with tripartite participation (government, business and labor); in charge of contributing to the economic competitiveness and educational development of Mexico based on the National System of Competences of the People (SNC).

The CONOCER was founded in 1994 with the objective of develop a certification of competition standards system, and as a signaling tool on the skills required by the labour market, which could respond to the structural changes resulting from the signing of NAFTA and membership of Mexico to the OECD (Ricart, Morán and Kappaz, 2014).

CONOCER's main responsibilities are focused on the regulation of labor competency standards, training aligned to those standards and certification processes. A key element in the operation of the competency system is the participation of sectoral management committees by competencies (*comités sectoriales de gestión por competencias)* integrated by industry and workers leaders of productive sector who are spected to define the human capital agenda for the competitiveness of the sectors they represent specially through the integration of technical groups for the development of standards. Once the competence standards have been developed, they are registered in the National Register of Competence Standards of CONOCER and are available for the sectors to use as a reference in the processes of evaluation and certification of people, and as an input for educational sectors (Ricart, Morán and Kappaz, 2014).

Among the main achievements of CONOCER are: 1) in the period from January to September 2016 61,625 people were certified, 35.8% more than those certified in the same period of the previous year; 2) during this administration, 318,123 people have been certified, which is 73.4% of the people certified since the creation of CONOCER until the beginning of 2013; 3) from September 30, there are 704 valid standards; 4) with the formation of the Competence Management Committee of the Mexican-German Chamber of Commerce and Industry A.C (CAMEXA), 8 competition standards have been developed, with which it will be formed and certified in the dual model (CONOCER, 2016).

Despite the progress made in labor competency certification, CONOCER still faces a number of challenges in improving its operation, including: i) its processes do not include the registration of international standards generally recognized by Mexican companies (ii) some companies consider that under the new regulation, the system is more bureaucratic, costly, and represents uncertain returns, which has motivated its exit from the process (Székely, 2014); iii) limited technical capacity to capture productive trends and make prospective analyzes; iv) low utilization of standards by the productive sector (since 2007, only 35% of existing standards have been used, while 39% of standards have never been used for certification purposes (Székely, 2014); v) low level of interaction with the productive sector, due to a lack of trust on the part of the companies in the processes carried out by CONOCER, as well as a perception of low value added by the institution, and vi) in spite of the presence of other Ministries such as Economy, Labor and Social Security, Tourism, etc., in its governing body, it presents a low level of articulation and joint work with these bodies.

Box 18. Promoting the better use of skills in Flanders, Belgium

In Flanders, Belgium, collaborations have been built between unions, academics and government representatives to help managers promote better skills utilisation in a number of different sectors. Such collaboration is particularly evident in the province of Limburg. The fragility of the local economy, which has traditionally been based on low-skilled work and a few large employers, was recently demonstrated by Ford's decision to leave the region. Local policy makers are now faced with the problem of finding new employment for low skilled ex-factory workers whose transferable skills are limited. At the same time, the ambition is to move the region towards more productive, higher-skilled employment. The local Christian Trade Union (ACV) has responded by setting up "best practice labs" for innovative work organisation in co-operation with a coalition between academics, unions, enterprises and consultants (Flanders Synergy), subsidised by the Flemish government.

Best practice labs have been set up in the construction, logistics, healthcare, social economy, social service/care sector and agricultural sectors. Each functions as a learning network where companies share experience. Each lab covers seven themes, each representing a domain in which managers can have an influence. One theme has been exploring new ways that firms can expand their market base, while also improving job quality; another has been exploring ways of involving workers more in decision making. The workshops have proved so useful that one sector, construction, is now running its own labs, independent of public funding. The Foundation for Innovation in Work (*Stichting Innovatie en Arbeid*) in Flanders also collects examples of initiatives that combine skills utilisation and work organisation, and makes them available through a website.

The health and social care sectors in Flanders have been the focus of restructuring to produce better quality jobs in a number of regions, spurred on by local labour and skills shortages. In Limburg, the Provincial Development Agency (POM Limburg) set up a platform, Platform Care Limburg *(Platform Zorglandschap Limburg*), in 2010 to address work organisation issues within the care sector, with support from the provincial government. This scheme has focused on improving work organisation within local hospitals and nursing homes to create more flexible work organisation and increase labour productivity. One workstream has focused on combining part-time jobs across organisations to create full-time jobs. This shows the potential for the public sector to improve skills utilisation and job quality in its own workforce, which can be particularly important in rural areas where the public sector is a significant local employer.

Source: OECD (2015c), *Employment and Skills Strategies in Flanders, Belgium*, OECD Reviews on Local Job Creation, http://dx.doi.org/10.1787/9789264228740-en.

Summary and policy implications

- **Using skills effectively at work is important for the success of Mexico.** It is not sufficient to develop and activate skills. To realise the full benefits to individuals, firms and society, skills must also to be put to effective use. For the individual, the more effective use of skills increases wages and life satisfaction. For the employer and society in general, the more effective use of skills means higher productivity and greater competitiveness. Overall, better productivity, wages and benefits means more resources available to grow the economy and support a better standard of living for Mexicans.

- **The skills of many workers in Mexico are not effectively used.** Around 26% of Mexican workers are over-educated, and around 31% are under-educated for their job. Many are also mismatched by field of study. Around 40% of employed tertiary graduates work in an occupation that is unrelated to their field of study. Companies report skills shortages and problems finding the skilled labour they need.

- **Factors internal to the firm could improve skills use at work**. The quality of the work environment can affect skills use. Around 34% of workers in Mexico experience job strain, and workers in Mexico work the longest hours across the OECD: around 27% higher than the OECD average, 6% higher than Korea, 25% higher than the United States and 32% higher than Canada.

High-performance workplace practices and on-the-job training are important factors in determining how effectively skills are used at work. The prevalence of temporary contracts and informal work arrangements in Mexico will hinder how effectively skills are used in workplaces, as employers will be less likely to invest in workers with whom they have a weak employment relationship. Micro, small and medium enterprises are also less likely than larger firms to invest in their workers.

- **Factors external to the firm could foster greater skills use at work.** Labour market institutions, such as employment protection legislation, minimum wages, the tax system and collective bargaining, influence the cost of labour, which can have an indirect impact on skills use at work. The availability of quality information and guidance on learning and career pathways can reduce skills mismatch and improve skills use. Recognition of learning outside of formal education can also help firms identify the skills that workers actually possess, which improves skills matches within the firm and across occupations and sectors.

NOTES

30 Comment by the Ministry of Education: "In almost all industries there is a lack of communication between the employers and universities regarding what companies need in terms of skills; if we create a space of dialogue between academicals institutions and companies; we will have better skills and competences in graduate students."

31 Use of skills is typically measured by the Survey of Adult Skills. As Mexico is part of the third round of the Survey, direct measurement results will be available by 2019.

32 Percentage of firms identifying an inadequately educated workforce as a major constraint. The computation of the indicator is based on the rating of the obstacle as a potential constraint to the current operations of the establishment.

33 Job strain refers to the condition in jobs when workers face a higher number of job demands than the number of resources they have at their disposal. Two indicators of job demand and two resources are used. Job demands include: 1) time pressure, which encompasses long working hours, high work intensity and working time inflexibility; and 2) physical health risk factors, such as dangerous work (i.e. being exposed to noise, vibrations, high and low temperature) and hard work (i.e. carrying and moving heavy loads, painful and tiring positions). Job resources include: 1) work autonomy and learning opportunities, which include workers' freedom to choose and change their work tasks and methods, as well as formal (i.e. training) and informal learning opportunities at work; and 2) social support at work, which measures the extent to which supportive relations prevail among colleagues. The overall Job Strain index, thus, refers to those jobs where workers have greater demands than resources (See OECD 2015b, pp 24-26; OECD 2014a, pp 104-114).

34 Comment by the Ministry of Education: "We should be thinking about applying these type of programmes to senior students in many universities so they can learn more about working in a firm that is pertinent to their studies."

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CHALLENGE 6: USING HIGHER LEVELS OF SKILLS TO BOOST INNOVATION AND PRODUCTIVITY

A selection of challenges identified by Mexican workshop participants:

"Lack of public and private investment in innovation, science and technology."

"Increasing the budget for research and development."

"Low generation of patents."

"Knowledge sharing in small and medium-sized enterprises."

Highly skilled workers, firms, entrepreneurs, universities and research institutes are central to a country's innovation system. Highly skilled workers conduct research leading to innovations that can be commercialised in the form of new products and services. They also embody the know-how needed to adopt, adapt and implement innovations and new technologies in the workplace, thereby boosting profits, productivity and growth. Entrepreneurs take risks that are needed to bring new ideas to the market. Partnerships between universities/research centres and firms are essential to transfer new knowledge and train the highly skilled workers and entrepreneurs that firms need to innovate and grow.

In Mexico, a growing number of large modern firms demand and employ high-skilled and well educated workers. These firms, where productivity has risen by 5.8% a year from 1999 to 2009 (McKinsey Global Institute, 2014), are driving a fast and successful process of diversification into sophisticated electronics manufacturing, as well as an advanced automobile and food industry. In many respects, this group of firms appear to be taking full advantage of the trade liberalisation process started by Mexico during the last decade of the 20th century.

However, other parts of the economy are still characterised by high informality, low-skilled work, weak productivity and out-of-date technologies. Around 57.2% of workers had an informal employment relationship in Mexico during the second trimester of 2016 (INEGI-ENEO, 2016). A growing strand of the economic literature shows a clear link between informality and firms' productivity (La Porta and Schleifer, 2014). In order to help these firms escape from the low-skill equilibrium in which they are trapped, it is important that the government supports and "shapes" the demand for high-level skills (OECD, 2012). High-skilled workers are a key-component of firms' innovation strategies, as they are more likely to be able to use advanced technologies (OECD, 2016a), accomplish non-routine tasks (Marcolin et al., 2016), bring creativity, and foster the creation and accumulation of knowledge-based capital (OECD, 2015a). Advanced skills are fundamental for firms that want to increase process and product sophistication and move up global value chains.

Supporting the demand for higher skills implies removing the obstacles that prevent firms from developing their innovation potential. Besides the large size of the informal sector, these obstacles include high tax rates, low levels of financing, high crime and corruption rates, scarce collaboration between educational institutions and businesses, and skill gaps.

Low skills are pervasive across small and medium-sized enterprises, low-value added sectors, and poor regions, which keeps productivity low

A large part of the Mexican economy seems trapped in a low-skills equilibrium. Labour productivity in Mexico is strikingly low in comparison to other OECD countries (Figure 53). However, these aggregate measures mask important differences across sectors, regions and firm size, with some parts of the economy investing in skills and innovation, and others (the largest segment) specialising in low skills and low quality production. To invert this trend, it will be essential to remove disincentives to invest in skills and barriers to growth, especially in these low-productive areas of the economy.

Mexico's slow productivity growth is partly due to not sufficiently reallocating labour from low to high productivity sectors (OECD 2015b). A recent paper produced by the Mexican Ministry of Finance shows that the least productive sectors (tourism, retail, and agriculture) represent nearly 51% of the labour force, while the most productive sectors (including manufacturing, professional and financial services, transport, and electricity) only account for 28.2% (López-Córdova and Márquez-Padilla, 2016).

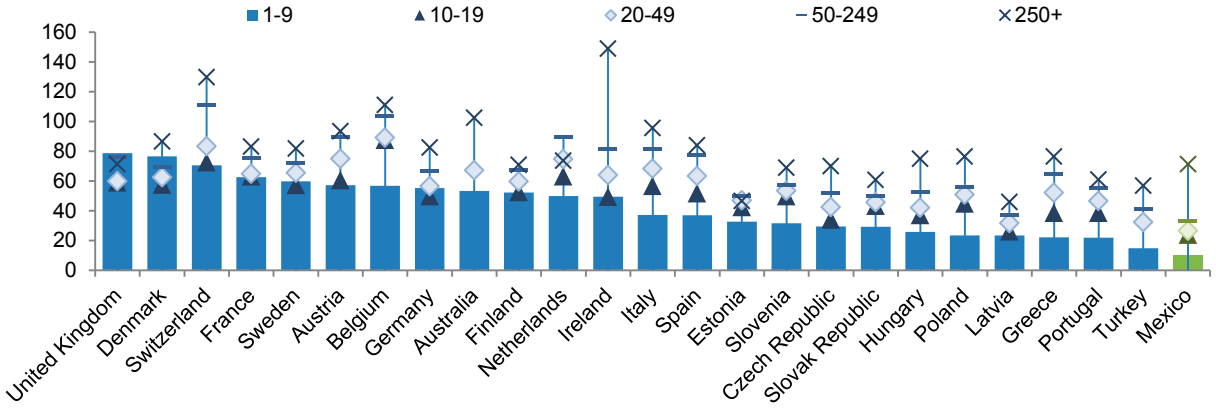
There is significant variation in regional labour productivity levels. López-Córdova and Rebolledo (2016) provide descriptive evidence showing that most productive firms are located in the north of the country, while two decades of low investment in human capital and infrastructure have left the south far behind in terms of productivity performance. As a result, the northern regions are now two-times more productive than the southern.

The productivity divide does not only exist across sectors and regions, but is particularly striking across firm size. According to the last Economic Census conducted by Mexico's National Statistical Agency (INEGI) in 2014, around 94.3% of Mexican businesses are micro-enterprises (firms with 1-10 employees). Together with small (11-50 employees) and medium enterprises (51-250 employees), these businesses employ around 60% of the workforce (INEGI, 2014), with the majority operating in the informal, low-productive sector (OECD 2015b). The McKinsey Global Institute (2014) report shows that, while the productivity of large Mexican firms has risen by 5.8% from 1999 to 2009, the productivity of microenterprises has been falling by 6.5% a year in the same period.

As a consequence, the productivity gap between micro and large firms in Mexico is now one of the biggest across OECD countries with available data. As shown in Figure 53, while the value-added per person of large firms in Mexico is around 70 000 US dollars, in line with the OECD average, the labour productivity of microenterprises is only one tenth of this, and the lowest across OECD countries. These figures suggest that micro and small firms are responsible for Mexico's weak growth in recent decades, and that efforts to support demand for higher skills should be concentrated on these firms, and in particular those operating in low-performing sectors and regions.

Figure 53. Labour productivity by firm size, total business economy

Value added per person employed, thousands of USD, current PPPs, 2013, or latest available year



OECD (2016), Entrepreneurship at a Glance 2016, Figure 3.1, OECD Publishing, Paris, http://dx.doi.org/10.1787/entrepreneur_aag-2016-en.

The scarcity of intermediate-sized businesses suggests the existence of significant disincentives and barriers to firms' growth and demand for higher skills. Small to medium firms represent fewer than 6% of businesses, compared to an average of 8% across OECD countries. In addition, a disproportionate share of business creation takes place in enterprises hiring between 1 and 4 employees (OECD 2012). This suggests that microenterprises are not only insufficiently productive, but that they also struggle to grow (Hsieh and Klenow, 2013).

On the one hand, business activity that relies on low quality and standardised production may hinder firms' incentives to invest in high skills. Many low-productive firms may have low incentives to demand higher skills and innovate as they specialise in the production of low-cost/low-quality items. An example of this is described in the McKinsey Global Institute (2014) report. The auto parts sector accounts for 60% of Mexican automotive production and comprises successful multinationals, such as the German metal stamping company, Benteler International. Thousands of low-productive players are also involved, usually contracted by global firms to assemble auto parts using low-cost labour and imported components. This production process hinders the incentives of low-productive firms to look for local high-skilled workers and innovate. Results of the National Survey on Productivity and Competitiveness of Micro, Small and Medium Businesses (ENAPROCE), conducted in 2015 by INEGI together with the National Institute of the Entrepreneur (INADEM) and the National Bank for Foreign Trade (BANCOMEXT), found that while 85% of firms declare that they would like to expand their activity, almost 15% claim that they do not intend to grow. Among these, 25% say this is because they are satisfied with their size.

On the other hand, factors such as administrative costs, the large size of the informal sector, high tax burdens and limited access to credit may create external barriers to demanding higher skills, and achieving productivity enhancements for small and medium-sized enterprises (SMEs). There is evidence that even firms that would like to upgrade their production process may find it difficult to do so. Even among firms declaring in ENAPROCE that they would not like to expand their activity, 28% report insecurity to be the main cause for this, followed by administrative (24%) and tax (10%) burdens. According to the 2010 World Bank Enterprise Survey (World Bank, 2016), SMEs claim that the practices of the informal sectors, tax rates, and access to credit represent the main obstacles to business development. As other Challenges in this report deal extensively with informality and tax burdens (Challenges 3, 4 and 8), this challenge only reaffirms three points. First, firms operating in the informal sector have lower access to training-support measures, which lowers opportunities to upgrade the skills of their workforce. Second, the

presence of a large and low-productive informal sector that demands low levels of skills may induce many individuals to curb their investment in skills acquisition. Third, a high tax wedge may discourage firms from becoming more formal, therefore reinforcing the negative effects of informality.

The government has taken important steps to help SMEs escape the low-skills equilibrium

Credit constraints represent a significant obstacle to skills investment. If firms lack the financial means to invest in new technologies and acquire advanced equipment, they may have fewer incentives to demand high-skilled workers who would complement these investments. Almost 70% of firms participating in ENAPROCE report that they would not accept a bank loan, and 60.1% of microenterprises, 52.6% of small and 46.5% of medium businesses declare that this is due to excessive cost. Among the minority of firms with access to funding in 2014 – 10% of microenterprises, almost 30% of small and 40% of medium businesses – many accessed finance from outside the formal financial sector. Almost 30% of microenterprises declared using their own funds, while around 40% of small and medium firms relied on their suppliers to obtain credit.

The government has embraced several initiatives to expand access to credit for SMEs in recent years. These include, in particular, the 2014 Financial Reform that aims to reduce the cost of credit through increased competition in the banking sector and a strengthened role of development banks as credit providers. The creation of the National Institute of the Entrepreneur in 2013, whose main role is to design and implement schemes to address entrepreneurs' needs, including the creation of venture capital (see Box 19). There has also been the rapid expansion of a national credit guarantee system designed to issue lines of credit to non-bank, financial institutions willing to support SME investments.

The government has started to adopt a whole-of government approach to achieving productivity enhancement through skills investment. In 2013, the Mexican government set up the NPC, as previously described, in order to boost productivity across all sectors, regions, and firm size (see Challenge 7 for more information about this institution).

Box 19. The National Institute of the Entrepreneur

Founded in 2013, the National Institute of the Entrepreneur (INADEM) is a public institution created to foster and support entrepreneurs and micro, small and medium firms. Its main role is to design and implement innovative guidelines and strategies aimed at promoting national policies in support of businesses.

INADEM is creating a network to support entrepreneurs in creating a legislative and juridical environment that is favourable to business development and growth. It aims to promote an entrepreneurial culture and strengthen firms' organisational capital. Its objectives include facilitating access to credit for start-ups and SMEs, helping them develop their technological, innovative and productive potential, and promoting their access to global value chains.

In the framework of the financial reform approved in 2014, INADEM offers special credit conditions for young people willing to start their own business with the programme *"Crédito Joven"*. It also proposes on-the-job training programmes for SMEs on topics such as product marketing, production process innovation, customer services, exports, and franchising. It organises continuous events to gather entrepreneurs to discuss topics such as e-commerce, and promotes business activities in strategic sectors such as food and beverage manufacturing, jewel design, or renewable energies.

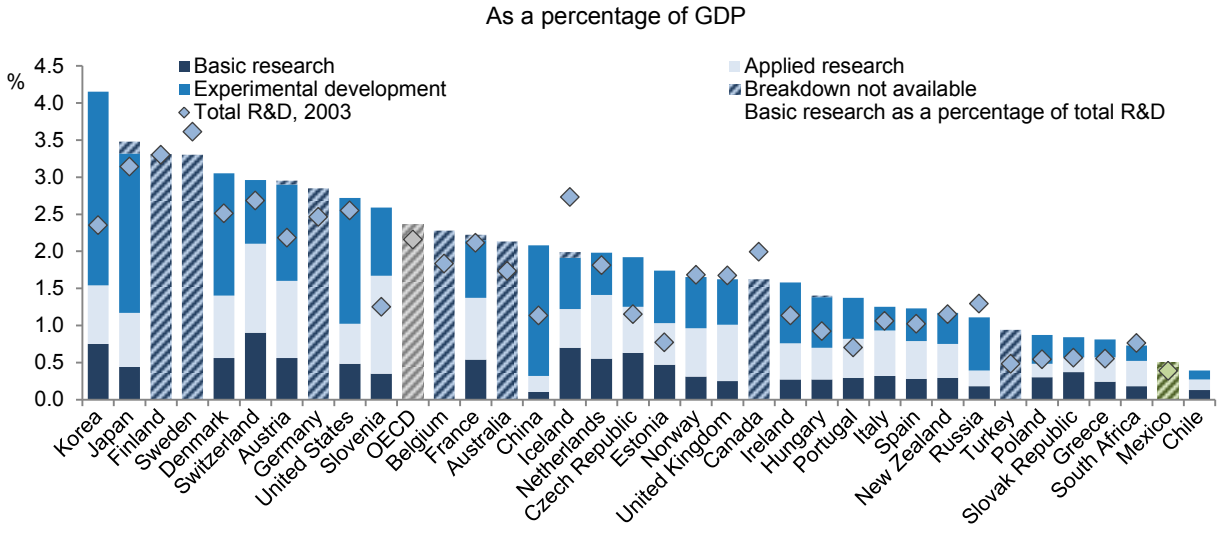
Source: INADEM (2016).

High skills can help Mexican firms to innovate

Mexico lags behind most other OECD countries in several measures of innovative efforts, which are closely related to investment in skills. Research and development (R&D) investment is one of the key indicators in this respect. The OECD has created a database to measure countries' R&D investment, defined

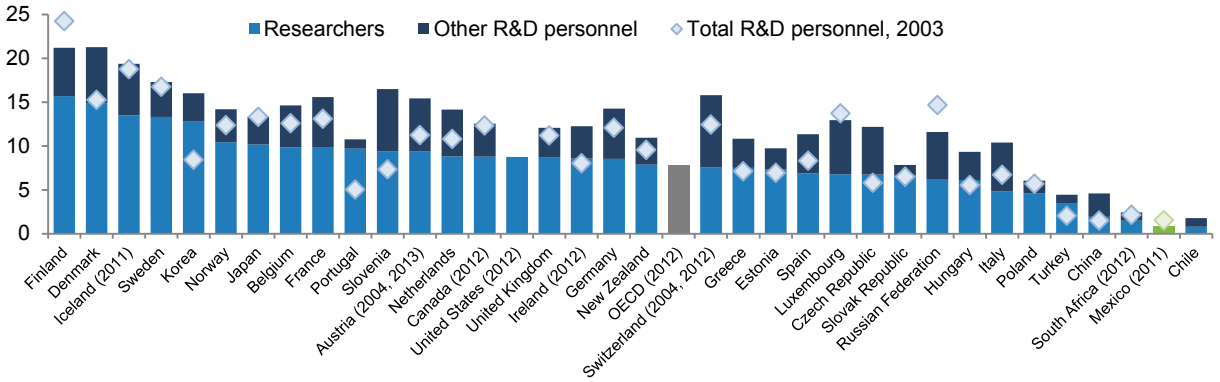
as the combination of basic research, applied research and experimental development. As shown in Figure 54, in 2013, Mexico spent only 0.5% of its GDP on R&D expenditure, in comparison to an average of 2.4% across OECD countries. Accordingly, the share of R&D personnel in total employment, measured on a full-time equivalent basis, is 0.8%, one of the lowest across OECD countries (Figure 59).

Figure 54 Gross domestic expenditure on R&D, by type, 2013



Source: OECD (2015), *OECD Science, Technology and Industry Scoreboard 2015: Innovation for growth and society*, Figure 2.12, OECD Publishing, Paris, http://dx.doi.org/10.1787/sti_scoreboard-2015-en.

Figure 55. R&D personnel, 2013

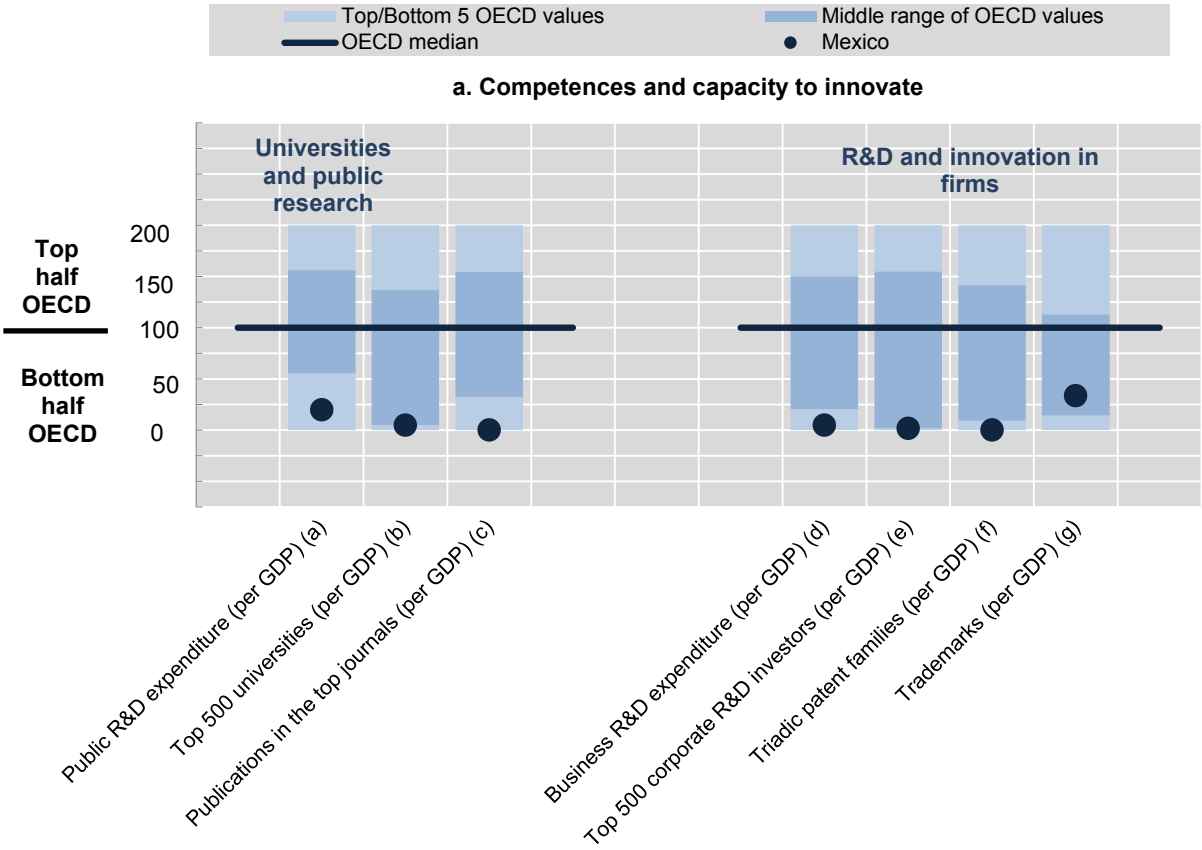


OECD (2015), *OECD Science, Technology and Industry Scoreboard 2015: Innovation for growth and society*, Figure 2.12, OECD Publishing, Paris, http://dx.doi.org/10.1787/sti_scoreboard-2015-en.

Mexico scores poorly in measures of innovation outputs, such as patents and top scientific publications. Although investment in R&D relative to GDP has increased more in Mexico than in other countries in the last 10 years, this has not yet translated into better outputs, such as patents and top scientific publications (OECD 2015c) (Figure 56). However, low levels of patent production in developing countries may not be the best indicator of business innovation activity. A recent survey on high growth SMEs in Brazil, Chile, and Mexico, conducted by the Inter-American Development Bank (Loossens, 2009), shows that many

of these firms do engage in innovation activities, especially in terms of product innovation, but they often rely on informal methods of intellectual capital protection, such as employee loyalty and/or limited access to confidential information. The main reason for this is that formal measures are often perceived to be too complex, costs too high, and advice and supportive information scarce. Bodies such as INADEM may be particularly useful for identifying the potential benefits of patents and licences, and providing support in the required application steps.

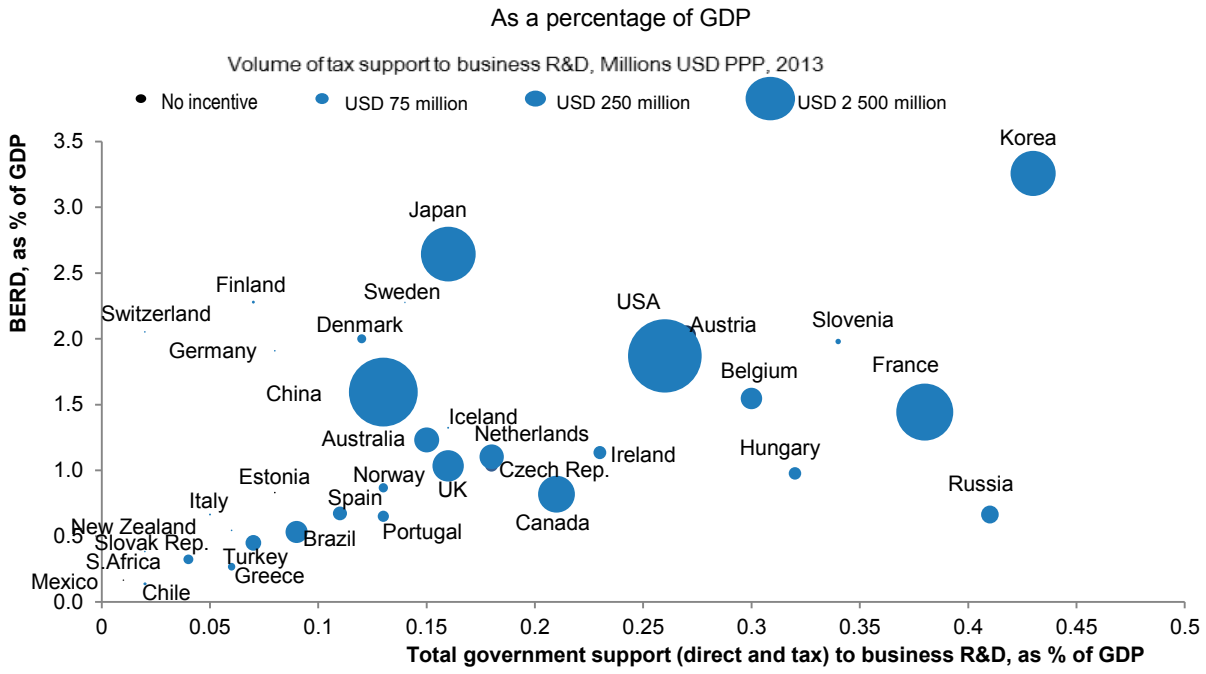
Figure 56. Comparative performance of national science and innovation systems, 2014



Businesses and public institutions should increase their efforts to demand more highly skilled workers and create the right conditions for innovation. The business sector in Mexico commands a lower fraction of R&D personnel in comparison with other OECD countries. Only 30% of researchers are employed in the private sector, against an average of almost 50% across all OECD countries, and this proportion has decreased by around 10 percentage points in the last ten years. Higher education institutions, which are the main employers of researchers in Mexico, spend less than all other OECD countries, with the exception of Russia, on R&D, as a percentage of GDP (OECD 2015b).

Strengthening the collaboration between the public and the private sector could boost demand for highly skilled individuals and increase investment in knowledge. There is a positive correlation (0.4) across OECD countries between the level of government funding of business R&D and R&D intensity in the business sector. As shown in Figure 57, the Mexican government could do much more to incentivise this activity.

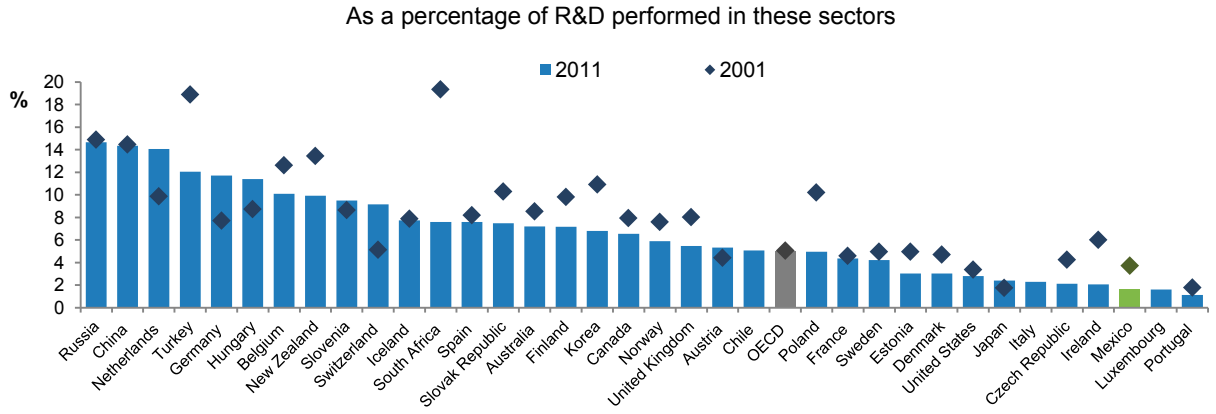
Figure 57. Business R&D intensity and government support to business R&D, 2013



OECD (2015), *OECD Science, Technology and Industry Scoreboard 2015: Innovation for growth and society*, OECD Publishing, Paris, http://dx.doi.org/10.1787/sti_scoreboard-2015-en.

Limited collaboration between the public and the private sector is also represented by the scarce amount of business-funded R&D performed in higher education and government institutions. In 2011, less than 2% of R&D performed in the public sector was financed by private firms, while this figure reaches 5% on average across OECD countries (OECD 2016d) (Figure 58).

Figure 58. Business-funded R&D in the higher education and government sectors, 2001 and 2011

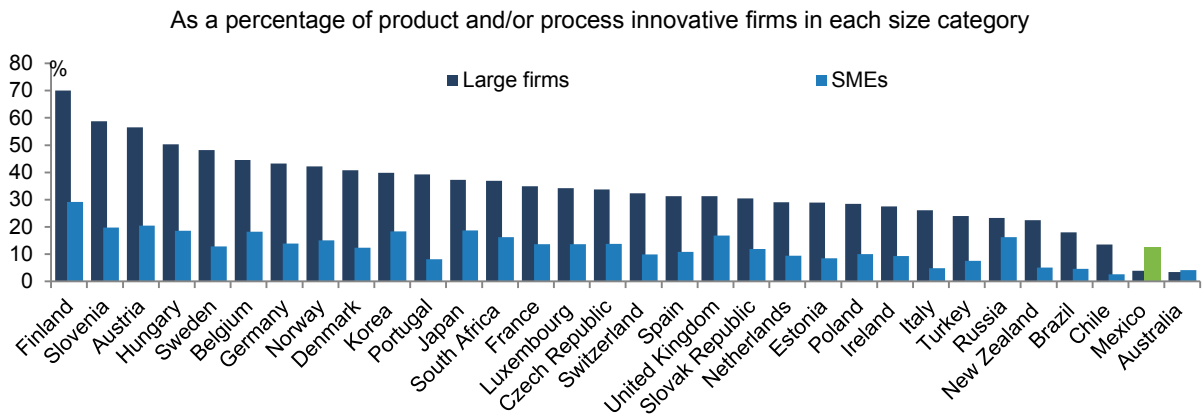


OECD (2013), *OECD Science, Technology and Industry Scoreboard 2013: Innovation for Growth*, OECD Publishing, Paris, http://dx.doi.org/10.1787/sti_scoreboard-2013-en.

There are signs that SMEs collaborate much more with higher education institutions (HEI) or private research institutions (PRI), than larger businesses. As shown in Figure 59, while only around 4%

of large firms engaged in product and/or product innovation co-operate with research institutions (this proportion is only lower in Australia), the percentage of businesses among innovative SMEs who collaborate with HEI or PRI is 12%, which is in line with the OECD average (OECD, 2013a).

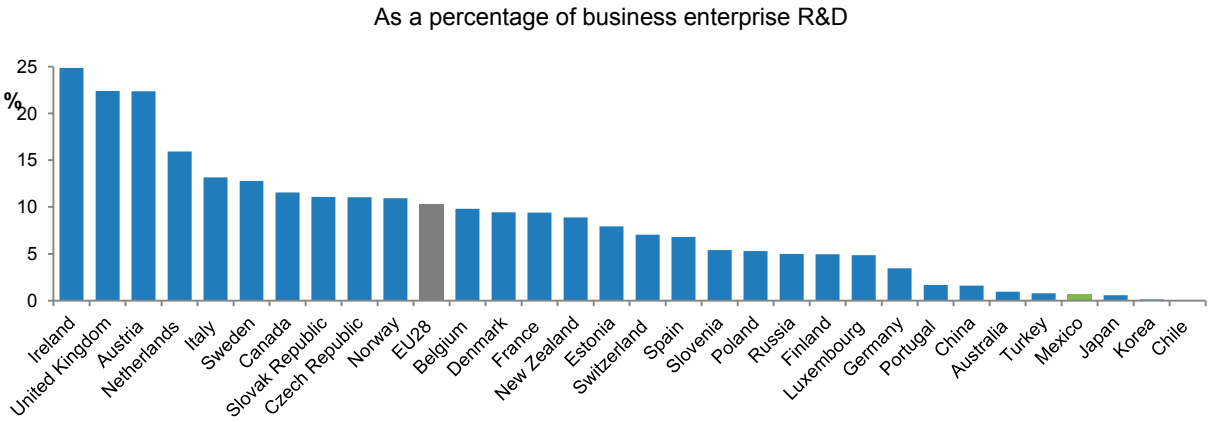
Figure 59. Firms collaborating on innovation with higher education or public research institutions, by firm size- selected countries, 2008-10



Source: OECD, based on Eurostat (CIS-2010) and national data sources, June 2013.

Mexican firms may want to exploit the increasing openness of their economy to attract funding from abroad to invest in high skills and innovation. At present, less than 1% of funds for business R&D come from abroad in Mexico, in comparison with 5 to 15% in other OECD countries (Figure 60). Mexican businesses could exploit the internationalisation opportunities created by the trade agreements the government has recently signed to seek more R&D funding from foreign firms and institutions, following the example of Austria (see Box 19).

Figure 60. Business enterprise R&D funded from abroad, selected countries, 2011



Source: OECD (2013), *OECD Science, Technology and Industry Scoreboard 2013: Innovation for Growth*, OECD Publishing, Paris, http://dx.doi.org/10.1787/sti_scoreboard-2013-en.

In recent years, the Mexican government has expanded its initiatives to address the innovation challenge. In particular, in 2013, Mexico's General Council for Scientific Research, Technological Development and Innovation recognised the CONACYT as the principal body in charge of co-ordinating

Mexico's science, technology and industry system. In 2014, CONACYT's allocated budget was increased by 20%. The government has also assigned more funds to increase the number of research positions and the share of young researchers in public research. CONACYT has introduced the National System of Researchers (SNI) to reward excellence in research, in both public and private institutions.[35]

Fostering science-industry linkages is becoming a priority for the government. The successful case of the Querétaro Aerospace Cluster is a clear example of the government's efforts to foster science-industry linkages. In 2008, the Aerospace Research and Innovation Network of Querétaro (RIIAQ), a network of businesses, education and research institutions, was created, which was key to the development of this advanced manufacturing cluster (OECD, 2015b). Between 2009 and 2014, the government doubled the budget allocated to CONACYT's Innovation Incentives Programme, which favours co-operation between businesses and research institutions, by covering 50% of total expenditure on innovative projects if an SME collaborates with an HEI or PRI (only 35% is covered in the absence of co-operation). The government aims to boost the commercialisation of public research through the strengthening of Knowledge Transfer Offices and the reform of intellectual property regulation in public research institutions.

The educated Mexican diaspora can be leveraged to foster innovation in the country. Despite the proportion of foreign funding for business R&D still being low, linkages with international researchers are strong, as indicated by the level of Mexico's international co-authorship and co-invention rates, which are in line with the OECD average. This may suggest that the educated Mexican diaspora represents both a challenge and an opportunity.

Box 20. Innovation policies across OECD countries

Making public R&D investment efficient and effective: Korea's National Science & Innovation Service (NTIS). The Korean Ministry of Science, ICT and Future Planning acknowledges the increasing importance of R&D investments, and in 2003 developed an R&D knowledge portal to collect information and monitor R&D projects from their creation to evaluation. The initiative is addressed to academic researchers, businesses and government staff, and particularly aims to promote the utilisation of high-cost R&D equipment in the following ways: sharing, opening, and collaborating national R&D information throughout the different ministries, scientists and firms; minimising the administrative procedures required for accessing high-quality R&D information; providing the results of R&D projects to enable researchers to utilise the information for further research, technology transfer and commercialisation of the technology. The Korean government claims that since its creation, the portal has enabled savings of up to USD 532 million from 2005 to 2012, mainly through prevention of redundant projects and sharing of national R&D equipment.

Attracting foreign funds for R&D: the successful case of Austria. Among OECD countries, Austria has one of the highest proportions of business R&D funded from abroad: 22% compared to an average of 10% in the European Union. This achievement is the result of a clear strategy that Austria has pursued since the end of the 1990s to foster R&D expenditure and strengthen business-researcher linkages. As described in Gassler and Nones (2008), all of the programmes set up to support R&D investment by Austrian governments have strictly followed a principle of national non-discrimination, which has encouraged local businesses and foreign-owned companies to participate. An example of such an initiative is the Competence Centers for Excellent Technologies programme (COMET). Established in 2007 as a successor to the Kplus-programme, its explicit goal is to support research projects of international excellence and encourage the involvement of companies and scientists operating worldwide. The programme provides funds, through formal partnerships between universities and businesses, for three types of project: K1 centres, K2 centres and K-lin. K1 centres implement top-level research with a focus on scientific and technological developments to qualify for the markets of the future. K2 centres work on more risky projects and aim to gain more international visibility. K-line projects are especially designed to foster collaboration between public and private entities, as at least three companies should participate in the consortia that finance the projects. Although the impact of the programme has not yet been rigorously evaluated, the European Commission Website reports that, between 2008 and 2010, COMET financed the creation of 16 K-1 Centres, 5 K-2 Centres and 25 K-Projects.

Source: Gassler, H, and Nones, B (2008) "Internationalisation of R&D and embeddedness: the case of Austria". *Journal of Technology Transfer,* 33 (4), 407-21 and European Commission (2016).

Fostering the supply of high-skilled workers

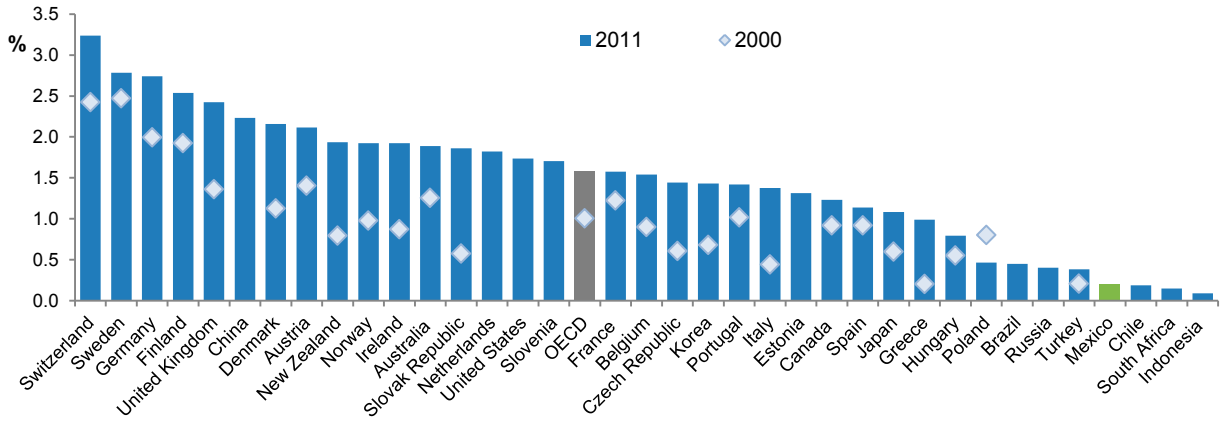
In order to leverage the ability of highly skilled individuals to foster innovation, firms and research institutions need to be able to find advanced skills in the labour market. Among OECD countries with available data, Mexico has one of the lowest percentages of young people expected to graduate from tertiary education during their lifetime. Challenge 2 focuses on the challenges Mexico face in fostering the supply of college graduates.

The proportion of tertiary graduates in innovation-driving fields of study is lower in Mexico than in other OECD countries (OECD, 2013a). The overall proportion of tertiary graduates is low in Mexico in comparison with other OECD countries, and among those who graduate, only 5% pursued a degree in science, mathematics or computing, almost half the OECD average of 9% (see Challenge 2 for further details). This is particularly concerning when considering that scientific skills are especially relevant for firms seeking to obtain productivity and innovation enhancement. More positively, Mexico has an above-average share of tertiary graduates in engineering, manufacturing and construction, 22% compared to the OECD average of 14%. These graduates are equally important for increasing the sophistication of a firm's production processes.

In Mexico, the supply of doctorate holders is particularly low compared to other OECD countries. Mirroring the country's performance at lower levels of tertiary education, in 2011, the graduation rate at doctoral level in Mexico was just 0.2%, placing the country at the bottom of the OECD ranking on this indicator (Figure 61). In addition, and closely related to the figures reported above, fewer than 30% of PhD holders graduated in natural science or engineering, the lowest proportion across all OECD countries with available data.

Figure 61. Graduation rates at doctoral level, 2000 and 2011

As a percentage of the population in the reference age cohort



OECD (2013), *OECD Science, Technology and Industry Scoreboard 2013: Innovation for Growth*, OECD Publishing, Paris, http://dx.doi.org/10.1787/sti_scoreboard-2013-en.

A whole-of-government approach is needed to tackle the challenge of brain drain. The Mexican government is trying to respond to the phenomenon of brain drain. Initiatives to reward young researchers working in Mexican institutions are increasing, and the government has designed programmes to promote repatriation (like the ones administered by CONACYT). However, one of the main obstacles to the success of these programmes is the lack of adequate positions for many high-skilled expatriates. As a result, Mexican firms declare that they cannot find enough skilled workers to drive their innovation upgrade (Mexico is part of a region in which 30.9% of firms report difficulties finding required skills, compared to the OECD

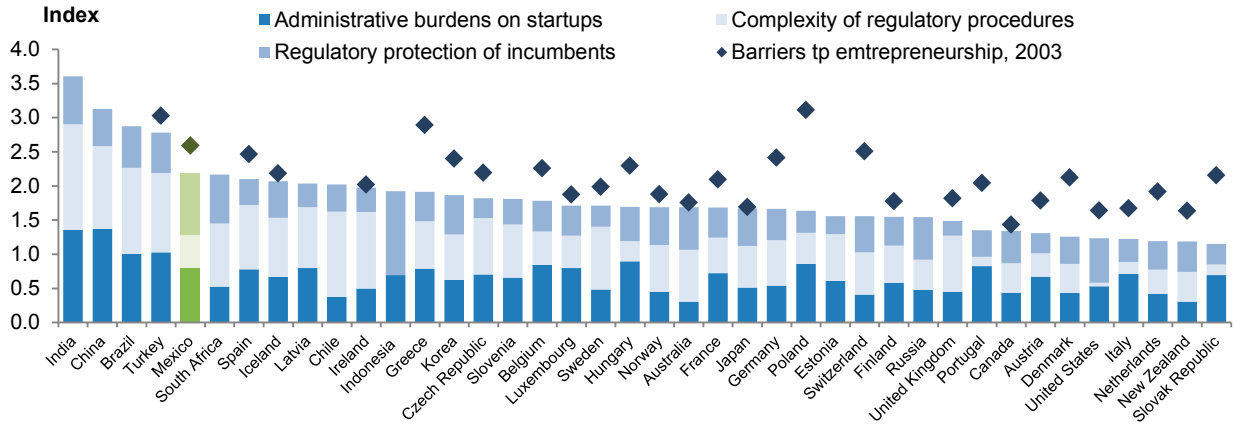
average of 14.8% (OECD, 2015c), while at the same time, highly-educated Mexicans are looking look for better employment opportunities abroad. A whole-of-government approach is the strategy needed to tackle this kind of issue.

Brain drain can also be considered an opportunity when it becomes brain circulation. This can happen when the educated diaspora is leveraged to foster research and innovation in the country, with the establishment of solid linkages between researchers working in Mexico and those located in foreign institutions.

Supporting investment in talent and skills entails encouraging knowledge-based entrepreneurship and easing the way to starting a business.

Figure 62. Barriers to entrepreneurship, 2013

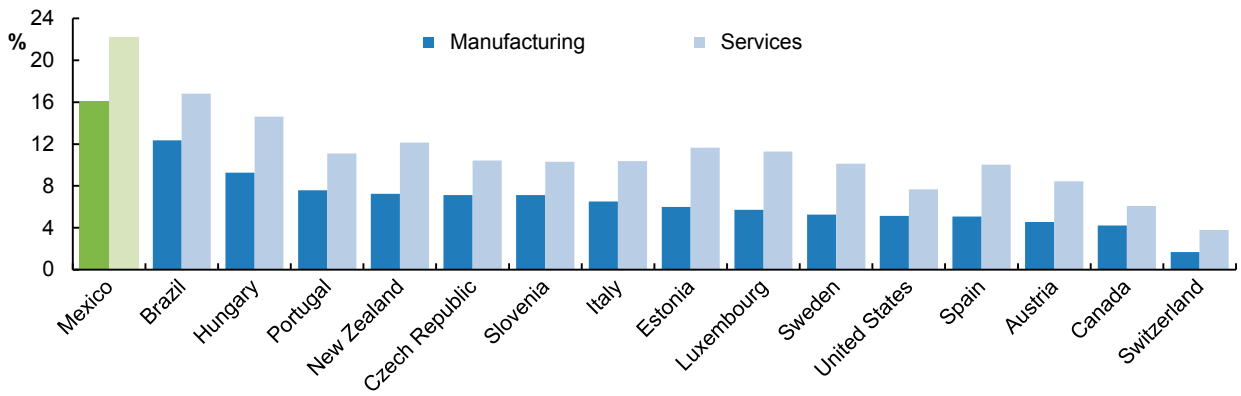
Scale of 0 to 6 from least to most restrictive



Source: OECD (2015), *OECD Science, Technology and Industry Scoreboard 2015: Innovation for growth and society*, OECD Publishing, Paris, http://dx.doi.org/10.1787/sti_scoreboard-2015-en.

There are several signs that Mexico is developing a more entrepreneurship-friendly environment. According to the evolution of the OECD indicator on barriers to entrepreneurship (a comprehensive and internationally comparable set of indicators on product market regulations that measure the degree to which policies promote or inhibit competition), Mexico has substantially reduced obstacles to business activity in the last ten years. Despite decreasing less than in other OECD countries with available data, this indicator has lowered by 29% in Mexico from 1998 to 2013. However, Mexico is still one of the OECD countries with the highest barriers to entrepreneurship (Figure 62), and of particular concern is that the regulatory protection of incumbents has actually increased during this time, contrary to the other components of the OECD indicator. However, in an international comparison of employer enterprise birth rates in 2008, Mexico was the top-ranked country in both manufacturing and services (Figure 63). In this regard, it is worth noting that the 2016 World Bank Report that compiles data on the ease of doing business in a country, Doing Business,[36] ranks Mexico 38th position out of 189, first of all Latin American countries (World Bank, 2016b).

Figure 63. Employer enterprise birth rate, 2008



*Source:*OECD (2012), *Entrepreneurship at a Glance 2012*, Figure 4.3, OECD Publishing, Paris, http://dx.doi.org/10.1787/entrepreneur_aag-2012-en.

Mexicans feel confident about using their entrepreneurial skills. Figure 64 shows that when surveyed about their entrepreneurial attitudes, Mexicans have an above-average propensity to perceive good opportunities for starting a business in the next six months. They are also less likely to be held back from starting a business by fear of failure, and are especially likely to expect to start a business in the next three years, compared to the average for OECD economies.

Figure 64. Entrepreneurial attitudes and perceptions in OECD economies, 2011

As a percentage of population aged 18-64

Note: Fear of failure is measured with respect to the 18-64 age group perceiving good opportunities to start a business.

Source: Global Entrepreneurship Monitor.

The Mexican government is making a particular effort to ease the conditions for people to activate and use their entrepreneurial skills and start a business. The figures highlighted in this Challenge reflect the efforts made by the government in recent years to decrease barriers to start-ups, especially regarding access to credit and entrepreneur training and coaching activities. In this respect, besides the creation of the National Institute of the Entrepreneur in 2013 (see Box 15), another positive initiative has been the

introduction of the Financing Programme for Entrepreneurs, a credit guarantee fund operated by the National Development Bank *Nacional Financiera* and launched in 2011 by the Ministry of Economy with the objective of incentivising commercial banks to extend credit to entrepreneurs with promising projects (OECD, 2016a).

Summary and policy implications

- **High-skilled workers, researchers and entrepreneurs are key actors in a country's modernisation efforts.** Entrepreneurs with innovative ideas can drive growth and advancements in global markets. Universities and research institutions generate knowledge that is necessary to support the implementation of innovative ideas. High-skilled workers can use advanced technologies and transform innovative ideas into innovative projects. The share of research and development (R&D) personnel in employment in Mexico is 1%, which is among the lowest in the OECD, and considerably lower than in countries such as Israel, Finland and Denmark, where it is over 20%.

- **The relatively weak research base in Mexico should be improved**. A small group of modern and successful businesses demand and employ high-skilled workers in Mexico. However, the majority of firms do not invest significantly in talent and knowledge. As a result, Mexico lags behind other OECD countries on a number of measures of innovation, such as business expenditure on R&D and number of patents. Both private and public sector R&D investment is well below that of nearly all OECD countries. In 2013, Mexican businesses invested the equivalent to 0.2% of GDP in R&D. By comparison, the OECD average was 1.6% of GDP, and in Korea it was 3.3%.

- **Even though barriers to entrepreneurship remain significant in Mexico, there are several signs that a more entrepreneurship-friendly environment is being developed.** According to the evolution of the OECD indicator on barriers to entrepreneurship, which measures the degree to which policies promote or inhibit competition, Mexico has substantially reduced obstacles to business activity in the last ten years. However, it is still one of the OECD countries with the highest barriers to entrepreneurship.

[35] In recent years, the Mexican government has expanded its initiatives to address the innovation challenge. CONACYT programmes are aligned around the goals of formation, consolidating, retaining and activating high-level human capital. For example, scholarships are focused on the formation stage and represent about one-third of CONACYT´s total budget. In the consolidation stage, the national system of researchers has about one sixth of the budget. Other important programmes consolidate high-level human capital, such as postdoctoral stays. The repatriation programme is in place to recover high-level human capital. CONACYT has also started an ambitious programme for young researchers called "Cátedras CONACYT". In addition, there are programmes that encourage the activation of human capital in labour markets. For example, the innovation stimulus programme provides additional resources to firms that are linked to higher education institutions or research centres. This encourages consolidated researchers to contribute to the technological modernisation of firms (CONACYT, 2016).

NOTE

36 This ranking is constructed as the average of countries' performance relative to the best practices along 10 dimensions: starting a business, dealing with construction permits, getting electricity, registering property, getting credit, protecting minority investors, paying taxes, trading across borders, enforcing contracts and resolving insolvency.

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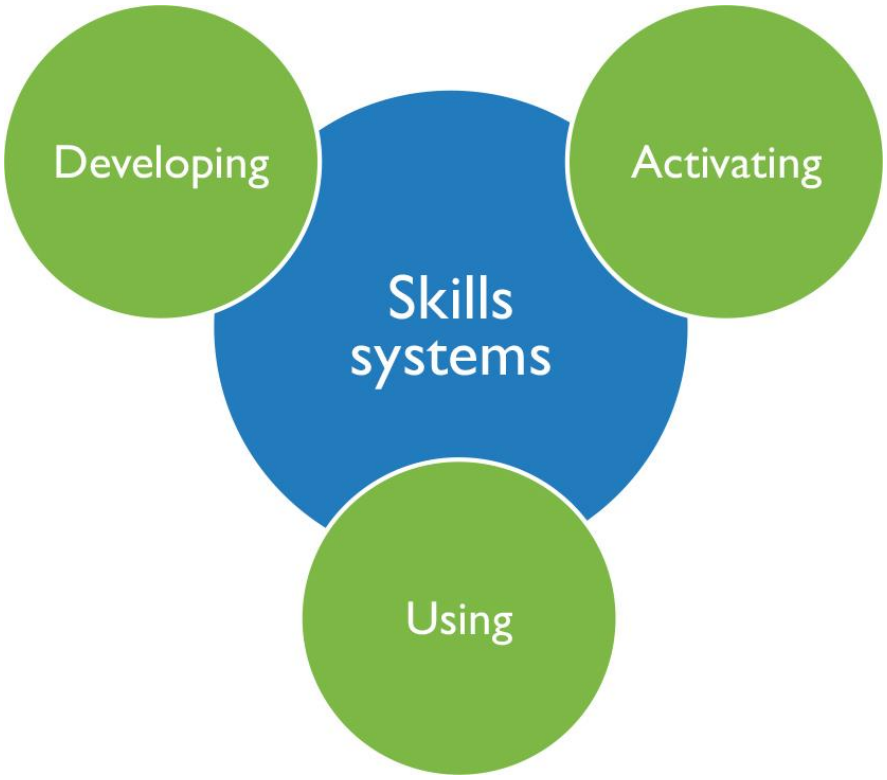
STRENGTHENING MEXICO'S SKILLS SYSTEM



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INTRODUCTION TO STRENGTHENING MEXICO'S SKILLS SYSTEM

Skills policies require a set of formal and informal arrangements to secure coherency and consistency across ministries, levels of government and stakeholders. Improving performance in the development, activation, and use of skills in Mexico requires all actors and mechanisms with an impact on skills to work together as a coherent and mutually reinforcing skills system. Two challenges have been identified for strengthening Mexico's skills system: 1) supporting collaboration across government and stakeholders to achieve better skills outcomes; and 2) improving public and private skills funding.

Supporting collaboration across government and stakeholders to achieve better skills outcomes. Given the vast array of factors that impact skills development, activation and use, and the wide distribution of responsibilities in these areas across many ministries and all levels of government, effective governance structures are critical for policy coherence and continuity. These are particularly important in the context of the long-term horizon needed for certain skills policies, and education policy in particular, to bear fruit. For example, the NPC has developed long-term vision strategies in different sectors to generate structural change through the co-ordination of public, private, social, labour and academic sectors. In particular, a skills strategy aims to foster a high-skilled workforce to improve productivity and distribute its benefits. While Mexico has a number of governance structures in place to facilitate dialogue and collaboration, these typically focus on specific segments of the skills system, such as education or employment. More needs to be done to facilitate dialogue and co-ordination across the entire skills system. It is also necessary to build better partnerships to ensure that policies are responsive to changing skills needs. While governments play a central role in the skills system, there are limits as to what they can achieve alone. Improving skills outcomes requires collaboration and co-operation among the various actors with a stake in the outcomes of the skills system, including individuals, firms, employer associations, unions, and educational institutions. Mexico would benefit from more regular and formalised partnership arrangements for involving all actors further upstream in the planning and decision-making processes of the skills system.

Improving public and private skills funding. How skills systems are financed may affect the effectiveness of skills policies. Government spending and taxation policies can create incentives or disincentives for the development, activation and use of skills. A central objective of skills policies should be to ensure that the costs of effective and equitable education and training are shared among individuals, employers and government, in accordance with the expected benefits. In Mexico, total expenditure on developing skills is low on a per student basis (USD 3 386), although it is close to the OECD average as a share of GDP. For both governments and individuals, increased education spending can pay for itself in net present value terms. The evidence in Mexico suggests that when accounting for direct spending and foregone earnings, the private sector (individuals, businesses, and other entities) bears an above-average share of the cost of skills investments. Therefore, expanding public support for skills investments is important to raise participation in, and the quality of, education in Mexico. Increasing education spending can occur either through a reduction in direct costs for students, or, at the tertiary level, through the introduction of a scheme of income-contingent loans. Mexico should also improve the modest levels of support for skills development later in life, for skills activation through active labour market programmes (currently at 0.01% of the GDP, one of the lowest across the OECD), and for better use of skills through supporting employer investment in skills. In Mexico, tax expenditures offer a potentially significant means of supporting skills investments through the tax system, largely because reductions in labour income tax liabilities may encourage formalisation.

CHALLENGE 7: SUPPORTING COLLABORATION ACROSS GOVERNMENT AND STAKEHOLDERS TO ACHIEVE BETTER SKILLS OUTCOMES

A selection of challenges identified by Mexican workshop participants:

"We need clear strategic goals on skills policies so everyone can collaborate more effectively."

"Consultation processes are good but they need to be translated into specific policy developments and actions."

"The needs and voices of state municipal authorities should be considered in the design of skills policies."

"Ministries, agencies and stakeholders need to collaborate with each other for a long-term vision."

"Partnerships with stakeholders are essential to improve the quality and responsiveness of the skill system to the needs of the economy and the society."

"Inter-ministerial programmes show the intention to strengthen the skills training for the improvement of productivity in Mexico"

Skills policies require a set of formal and informal arrangements to secure coherency across ministries and levels of government, and to encourage stakeholder engagement. In Mexico, significant efforts have been made to improve formal arrangements for collaboration in skills policies across ministries, levels of government and with stakeholders. However, effective collaboration remains a challenge in Mexico, given the large number of ministries, authorities, public agencies and stakeholders involved in the skills system. Stronger stakeholder engagement is inhibited by the prevalence of a top-down decision-making architecture that still dominates policy making in the country.

The participation of multiple actors in the skills system requires better co-ordination in Mexico

Multiple ministries hold responsibilities related to skills policies. The Ministry of Public Education has responsibility for compulsory education, higher education, technical education, adult learning and some specific education (such as agricultural education in co-ordination with the Ministry of Agriculture). The Ministry of Labour and Social Protection has responsibility for Public Employment Services and, in co-ordination with the Ministry of Public Education, for developing and implementing workforce-training policies in the country. The Ministry of Finance has responsibility for co-ordinating the elaboration of the national development plan and allocating resources accordingly, as well as for developing tax policy, which can create incentives or disincentives regarding the development, activation and use of skills. The Ministry of Economic Affairs has responsibility for developing and implementing industrial policy, overseeing foreign trade and for monitoring goods distribution policies in close co-ordination with relevant ministries. Other ministries that

have responsibilities for issues related to skills development, activation and use include the Ministry of Agriculture, the Ministry of Ecology, the Ministry of Defence and the Ministry of Health (Cámara de Diputados, 2015a).

A number of agencies and inter-ministerial bodies, at different levels of government, carry out work that is relevant for skills policies:

- CONACYT (the National Council for Science and Technology) is responsible for the development and administration of scientific and technological activities in Mexico, and sets government policies on these matters.

- COFEMER (the Federal Commission for Regulatory Improvement) is responsible for improving the provision of goods and services from the public sector.

- COFECE (the Federal Competition Commission of Mexico) is responsible for securing fair competition standards in all economic activities in the country.

- CONOCER[37] (the National Council of Standardisation and Certification of Labour Competences) is responsible for developing skills standards regarding people's competencies, in close co-ordination with relevant Ministries (e.g. Education and Labour).

- CNP (the National Productivity Committee, NPC in English) is responsible for developing policy initiatives to improve productivity in the country (it is an inter-ministerial body with the participation of the Ministries of Education, Labour, Economic Affairs, and Finance, plus CONACYT).

- CONAMM (the National Conference of Municipal Authorities of Mexico) aims to voice the collective interest of municipal authorities in the country, and CONAGO (the National Governors' Conference) does the same for state/provincial level authorities.

These are just some examples of Mexico's collaboration efforts that are relevant for the skills system. In all of these cases, the agencies are also expected to undertake their work in co-ordination with stakeholders.

Many stakeholders, especially those of more prominent size and public visibility, are also organised in Mexico. Examples of entities that co-ordinate the collective efforts of Mexican stakeholders, and that are relevant for improving skills outcomes include: COPARMEX (the Employers' Association of Mexico); CANACINTRA (the National Association of the Manufacturing Industry); CONCAMIN (the National Manufacturing Association of Mexico); CONCANACO (the National Services Association of Mexico); ANUIES (the National Association of Higher Education institutions in Mexico); CTM (the Workers' Central Union of Mexico); and UNT (the National Union of Workers). Some of these entities (CANACINTRA, COMPARMEX, CONCAMIN, CTM) already participate in inter-ministerial bodies, such as the National Competitiveness Committee.

The complexity created by the considerable number of ministries, agencies and stakeholders involved in skills development, activation and use, underscore the importance of effective horizontal/vertical co-ordination across government, and of the need to improve stakeholder engagement for strengthening policy coherence and implementation. In many countries, tax policies are developed with little regard for their impact on skills formation and activation, and ministries with the greatest responsibilities for skills policies often have little tradition of working together. In Mexico, there has been a tendency for ministries to take an "isolating" approach to the design and implementation of skills policies, focusing only on their areas of direct responsibility. This situation creates a fragmentation that is often the unintended consequence of a public sector architecture that aims to make public administration more effective and accountable by allocating specific responsibilities to each ministry[38] (Cámara de Diputados, 2015a).

Despite recent efforts, Mexico's skills policies still face collaboration challenges between ministries

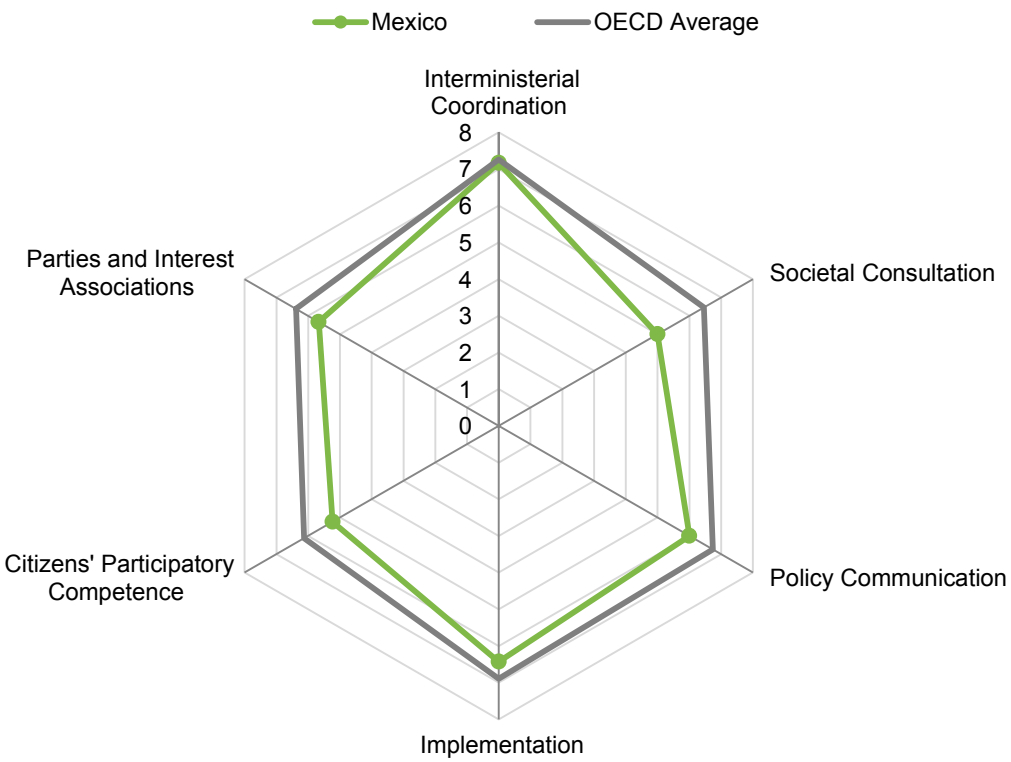
The lack of appropriate mechanisms limits the effectiveness and responsiveness of collaboration efforts. The fragmentation of responsibilities for skills policies in Mexico does not facilitate co-operation across ministries, which creates policy gaps and overlaps across the system. Ministries often undertake skills-related policies in isolation, with no attempt to co-ordinate with other ministries, for example, there is usually no strong collaboration in the planning of education, employment and economic development strategies. This was confirmed by the responses of ministries to the OECD Diagnostic Toolkit questionnaire. Officials from the ministries involved indicated that there are considerable differences across ministries in terms of their priorities and opinions about the skills system in the country.

Consultation processes could be reinforced, and decision making among different stakeholders in skills policies improved. The fruits of institutional co-ordination can be diluted during policy design and implementation stages, which jeopardises policy sustainability in the long run. In this regard, one of the essential tasks of the NPC is to formulate long-term policy for skills development, in close consultation with all the ministries and stakeholders involved.

Mexico's performance can be improved in a number of specific governance indicators

Mexico's governance performance lags behind many of its OECD peers in a number of areas. According to the Bertelsmann Foundation (2016), in 2015, Mexico performed below the OECD average on a number of measures of good governance. Governance is understood as the set of formal and informal arrangements that take place within governments and with stakeholders to design and implement public policy. It can be composed of a number of different elements, namely: societal consultation (the extent to which economic and social actors are consulted in the course of policy preparation); policy communication (the extent to which government co-ordinate policy communication to ensure statements align with government strategy); implementation (the extent to which a government implements policies effectively); citizens' participatory competence (the extent to which citizens possess the information and knowledge needed to evaluate government policies); and parties and interest associations (the extent to which parties' internal decision making is inclusive and open and proposes coherent and reasonable policies) (Bertelsmann Foundation, 2016). Bertelsmann assessed Mexico's inter-ministerial co-ordination (the extent to which government decision making is co-ordinated across institutional lines) as about average for an OECD country (Figure 65).

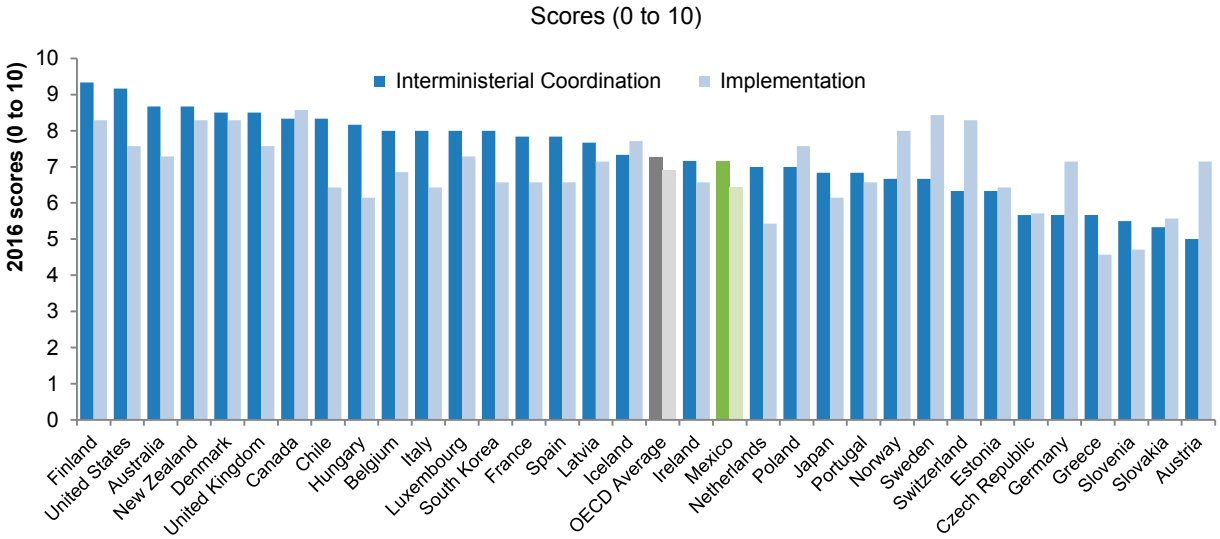
Figure 65. Governance indicators, Mexico and OECD average, 2015



Source: OECD Calculations based on Bertelsmann Foundation (2016), *Sustainable Governance Indicators: Mexico Report 2016*, Bertelsmann Foundation, www.sgi-network.org/docs/2016/country/SGI2016_Mexico.pdf.

Relatively good levels of inter-ministerial co-ordination do not seem to translate into equally good levels of policy implementation in Mexico. According to the Bertelsmann Foundation (2016), Mexico performs below the OECD average in inter-ministerial co-ordination, which itself is below the OECD average for implementation. This combination is a lost opportunity, as relatively good levels of co-ordination and communication across ministries are not translated into more effective implementation of public policies. As shown in Figure 66, across the different countries studied, inter-ministerial co-ordination and implementation rarely obtain almost identical levels (as in Estonia or Czech Republic), however, in general the magnitude of the separation between these two indicators is not very large. Furthermore, implementation seems to follow a similar trajectory to those indicators closely related to stakeholder engagement (e.g. societal consultation, parties and interest associations), which indicates that a high level of stakeholder engagement is important to improve implementation.

Figure 66. Scores on inter-ministerial co-ordination and policy implementation in Mexico and selected OECD countries, 2015

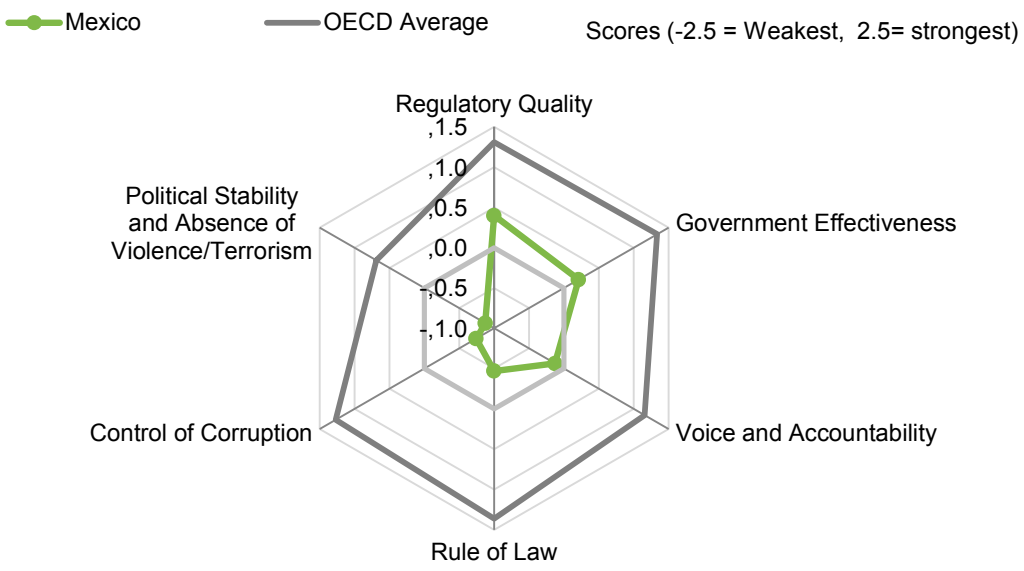


Source: OECD Calculations based on Bertelsmann Foundation (2016), *Sustainable Governance Indicators: Mexico Report 2016*, Bertelsmann Foundation, www.sgi-network.org/docs/2016/country/SGI2016_Mexico.pdf.

Mexico's governance challenges have been analysed by other international organisations

The World Bank's perception of Mexico's different governance dimensions in 2015 is less positive than Bertelsmann's. According to the World Bank, Mexico scores below the OECD average in all six dimensions that it measures: regulatory quality, government effectiveness, voice and accountability, rule of law, control of corruption, and political stability and absence of violence/terrorism (World Bank, 2016) (Figure 67). Although some of these dimensions appear to be weakly related to skills policy, they still affect the way in which individuals and groups make decisions that touch upon skills policy (such as investment or entrepreneurship decisions).

Figure 67. Perceptions of governance performance dimensions, Mexico and OECD Average, 2015



Source: OECD calculations based on World Bank (2016), *Worldwide Governance Indicators (WGI)*, World Bank, Washington DC, http://info.worldbank.org/governance/wgi/#home.

Collaboration remains a top priority for ministries, agencies and stakeholders

Many ministries, sub-national governments and stakeholders advocate transversal and collaborative efforts to develop co-ordinated skills policies. Despite the obstacles, many actors in Mexico's skills system manage to undertake regular informal collaboration across ministries, levels of governments and stakeholders. The downside of informal collaboration is that it makes the system less transparent, efforts less accountable, and the system less forward-looking in its relationship with stakeholders, other ministries and levels of government. However, the OECD team has witnessed a large degree of interest in having a more formal transversal agenda for skills.

In recent years, Mexico has made considerable efforts to build a transversal skills agenda. Following the creation of the NPC in 2013, the Law to Promote Productivity and Competitiveness of the National Economy was established in 2015. The NPC is administered from the Economic Productivity Unit at the Ministry of Finance (Box 21). Among other responsibilities, the NPC mandate includes the design of a long-term skills strategy development plan for Mexico. The NPC has already established recommendations to improve skills training and productivity in Mexico for specific sectors, such as automotive, aerospace and energy sectors.

Box 21. The National Productivity Committee and the Law for Productivity and Competitiveness in Mexico

The National Productivity Committee (NPC) is part of the 153-K article of the Federal Labour Law. On 17 May 2013, the NPC was formally established by a decree published in the Official Journal of the Federation. Formally, the NPC is an advisory body of the executive power (exercised by the executive branch of the Mexican government, which is headed by the President of the country).

On 6 May 2015, the Law for Productivity and Competitiveness was established. This law gives the NPC a role in supporting economic development in the country through designing and implementing policies to improve productivity.

Priority topics of the NPC are: 1) supporting the formalisation of the economy; 2) supporting innovation in science and technology; 3) supporting training and certification of workers; 4) creating labour incentives to improve productivity; and 5) supporting SMEs and entrepreneurs.

The membership of the NPC is composed by members from four different ministries (Finance, Education, Labour, and Economic Affairs); the National Council for Science and Technology (CONACYT), plus representatives of trade unions, employers and educational institutions.

Fully unleashing the country's potential requires a comprehensive strategy to better equip students with the skills demanded by employers and to strengthen the active labour force by providing continuous training. The importance of skills and human capital has been recognised as a priority for the Mexican Government. Therefore, the NPC has developed three high-impact strategies:

1. Lifelong Skills Strategy, in collaboration with the OECD, to ensure that Mexican people will have the skills needed to move toward higher productivity and higher value added economic activities while contributing to more inclusive economic growth and development.
2. Sectoral strategy, which consists of developing binding recommendations on high-employment and high-productivity economic activities. The NPC works to strengthen school-business linkage, dual formation, relevant education programmes, and skills certification in the auto parts, aerospace, retail and energy sector, among others.
3. Regional strategy, complementary human capital policies are developed by the NPC to form the technical and transversal skills required by the productive sector in the special economic zones.

Sources:

NPC (2016), NPC website, www.gob.mx/productividad/articulos/comite-nacional-de-productividad-cnp, (Accessed 9 December 2016).

Cámara de Diputados (2015b), *Ley para impulsar el incremento sostenido de la productividad y la competitividad de la economía nacional*, México.

The architecture of policy design and implementation in skills policy should be made more flexible and supportive of vertical and horizontal collaboration

A legal architecture that reinforces and finances collaboration across ministries and agencies is needed. Many participants in the OECD Skills Strategy workshops and technical meetings said that the main challenge of the skills system in Mexico is to remove the legal barriers preventing collaboration across different ministries and levels of government. The current law of public administration is not sufficiently concise and precise about the specific responsibilities of each ministry, and does not provide guidance about the limited areas in which inter-ministerial collaboration is expected. Furthermore, the current law does not provide much room for flexibility or incentives for collaboration across different ministries and levels of government. This rigidity produces policy gaps and overlaps. For example, for some skills challenges in Mexico there is insufficient government policy attention (such as improving the match between the skills developed in education and the skills needs of the labour market, or improving the quality of vocational education and training [VET]), while other challenges are tackled by multiple ministries/agencies/levels of government at the same time, without sufficient co-ordination (such as data collection and training programmes).

Effective governance mechanisms can help to close multi-level governance gaps. In many countries, including Mexico, typical governance gaps between different levels of government include: policy, objective, administrative, information, capacity and funding (Table 3). For example, in Mexico, regional and local authorities do not seem to be represented in many of the bodies or forums where transversal policies are discussed. This gap should be fixed to resolve information asymmetries between the national and the sub-national levels of government when designing, implementing, and delivering public policy. Sub-national entities have a stock of regional and local knowledge that is crucial for delivering effective policies.

Table 3. Multi-level governance gaps

Multi-level governance gaps	Definition
Policy gap	Overlapping, unclear allocation of roles and responsibilities.
Objective gap	Lack of alignment among the objectives of different ministries or different actors.
Administrative gap	Mismatch between the spatial area of an administrative unit and the optimal space of intervention.
Information gap	Asymmetry and incompleteness of information between central and sub-national governments.
Capacity gap	Lack of technical capacity, staff, infrastructure, etc.
Funding gap	Unstable, not timely, insufficient financial resources to effectively implement policy.

Source: Adapted from Charbit, C. and M. Michalun (2009), "Mind the Gaps: Managing Mutual Dependence in Relations among Levels of Government", *OECD Working Papers on Public Governance*, No. 14, http://dx.doi.org/10.1787/221253707200.

Effective governance mechanisms for vertical co-ordination can take place in multiple forms. To cope with the complexity of collaboration during the development of a coherent policy agenda that fits the needs of different levels of government, OECD countries have developed multiple types of co-ordination mechanism, including: 1) legal mechanisms (often used to allocate fiscal resources and administrative competences); 2) standard setting mechanisms (used as instruments to secure homogeneous quality in the provision of public services and goods across a country's territory); 3) contract mechanisms (used to establish mutual obligations); and 4) strategic co-ordinating committees and partnership group mechanisms (perhaps the most flexible and convenient mechanisms when there is also an aspiration to engage stakeholders in addition to government actors) (Box 22).

Box 22. Main mechanism for vertical co-ordination in OECD countries

Legal mechanisms (binding laws and legislation) are the strongest methods for organising multi-level governance relations. This mechanism is often used regarding fiscal resources, and to allocate competencies.

Standard setting. Many OECD countries establish universal standard-setting to ensure a similar level and quality of service provision across the country. In Sweden, for example, municipalities enjoy a high degree of autonomy in the provision of public services, although they need to meet nationally set standards and regulations.

Contracts or agreements between national and sub-national governments concerning their mutual obligations, i.e. assignment of powers of decision, distribution of contributions (including financial commitments) and contract enforcement mechanisms. These arrangements offer several advantages: 1) they allow for customised management or interdependencies; 2) they are useful tools for dialogue that can be used for clarifying responsibilities and making mutual commitments explicit; 3) they open possibilities for judicial enforcement; and 4) they can be used as learning mechanisms. In federal and decentralised countries, "contracts" are a particularly important tool for promoting co-operation, coherence and synergies among levels of government. Examples include: "arrangements" in Canada; "joint tasks" in Germany; "*accordi*" in Italy; and "*convenios*" in Spain. Challenges observed across OECD member countries in the use of contracts include: high transaction costs, a power bias towards higher levels of government, and insufficient evaluation procedures to ensure compliance by all parties.

Box 22. Main mechanism for vertical co-ordination in OECD countries *(continued)*

Strategic co-ordinating committees and partnership groups. The interests and inputs of key actors from different levels are co-ordinated through joint representation on administrative bodies or working groups. These committees can serve as forums for improved communication and dialogue in subjects of common interest. They can help align interests and timing, and establish the basis for signing contracts and agreements among government levels. They can also help disseminate good practices between different levels of government, or horizontally across regions. In some countries, co-ordinating bodies are leading actors in fiscal capacity building as they represent the interests of the local or regional level to national level decision makers. In Norway, for example, the Association of Local and Regional Authorities provides a forum to discuss the framework for distributing revenues in relation to the tasks carried out by local governments, the financial situation of local government, and efficiency measures. In the Czech Republic, the Union of Municipalities and the Association of Regions have representatives on the national government's Board of Deputy Ministers for Regulatory Reform and Effective Public Administration, and represent regions' interests in the Czech parliament, the Cabinet and in European institutions.

Source: Charbit, C. and M. Michalun (2009), "Mind the Gaps: Managing Mutual Dependence in Relations among Levels of Government", *OECD Working Papers on Public Governance*, No. 14, http://dx.doi.org/10.1787/221253707200.

The engagement and co-ordination of different levels of government and sectors can be accomplished by a single body. Due to the complexity of the skills system, countries can test a variety of collaboration models that include national authorities (ministries), and sub-national authorities (regional, state and municipal). Box 23 offers examples of how Germany and Sweden integrate sub-national authorities in bodies that aim to make dialogue and co-operation with the national government more effective and direct.

Box 23. Strengthening the role of horizontal inter-regional co-ordination

Horizontal inter-regional co-operation can make it easier to find shared positions in negotiations with the central government, which facilitates vertical co-ordination. Horizontal inter-regional co-operation can also provide a forum to exchange knowledge and best practices among regions, or to conduct shared projects or initiatives. The examples of the German Council of Prime Ministers (*Ministerpräsidentenkonferenz*), the Council for the Australian Federation and the Association of Regions of the Czech Republic demonstrate the advantages of the horizontal and vertical co-ordination of such institutional arrangements.

Germany: The governments of the German *Länder* (region) co-operate through the Council of Prime Ministers and 19 subject-specific standing conferences of ministers. The council/standing conferences are not part of the German government and cannot pass legislation, however, they play an important role in the federal system. Councils have two primary functions. In policy fields where legislative powers reside with the *Länder*, they are the main forum for policy co-ordination across the *Länder*. In policy fields where the *Länder* has limited powers, council/conference resolutions articulate common interests of the *Länder* to other actors, such as the federal government or the European Commission. Co-operation in the council/conferences is consensus-based, and most decisions are made unanimously. Formally, the Council of Prime Ministers, and most other permanent conferences, require the approval of 13 of the 16 German *Länder* to pass a resolution. Although resolutions are not legally binding, they have a strong symbolic power, and are almost always enacted by *Länder* governments. Some permanent conferences also draft model laws and regulations to support state administrations and to further harmonise laws across states. The Council of Prime Ministers is convened four times a year. After council meetings, prime ministers meet with the German Chancellor. Subject-specific permanent conferences have their own meeting schedule and tend to meet between one and four times a year. The federal minister in charge of the respective portfolio typically attends the meeting as an observer. Several permanent conferences have established additional committees to discuss particular topics in more detail. The administrative structure of permanent conferences varies depending on their responsibilities. Some permanent conferences have their own permanent secretariats with sizable staff numbers, while others use the administration of the state that holds the rotating presidency of the permanent conference.

Box 23. Strengthening the role of horizontal inter-regional co-ordination *(continued)*

Sweden: The Swedish Association of Local Authorities and Regions (SALAR) represents the government, professional and employer-related interests of Sweden's 290 municipalities, 18 county councils and 2 regions. Its mission is to provide municipalities, county councils and regions with better conditions for local and regional self-government. There is no hierarchical relation between municipalities, county councils and regions, since all have their own self-governing local authorities. In Sweden, municipalities are responsible for a larger share of public services than in most other countries: three quarters of the activities carried out by municipalities are related to childcare, school education and elderly care. Other examples of municipalities' responsibilities include spatial planning, refuse collection, waste disposal and rescue services. The activities of the county councils and regions cover two main areas: healthcare and regional development. SALAR also acts as an employer's association and promotes the interests of its members. It concludes collective agreements that are binding for municipalities, county councils and regions. It signs collective agreements with the central trade union organisations representing more than 1.1 million employees, which makes it one of the largest employer's organisations in Sweden. SALAR is politically controlled, and the members appoint 220 representatives to the association's congress, the highest decision-making body. The congress meets every four years and elects the board, which is responsible for the activities of the association. The daily work is led and co-ordinated by a chief executive, and the administrative office is organised in eight divisions with a total workforce of 450. All municipalities, county councils and regions in Sweden are members of SALAR, and membership is voluntary. The association's operations are financed by fees paid annually by members in relation to their tax base. SALAR is independent from the Swedish government and a member of Council of European Municipalities and Regions (CEMR) and United Cities and Local Governments (UCLG). It is considered to be one of the strongest associations of its kind due to a long tradition of decentralisation and recognition of the local political level in the Swedish constitution.

Sources:

OECD (2014a), *Spain: From Administrative Reform to Continuous Improvement*, OECD Public Governance Reviews, http://dx.doi.org/10.1787/9789264210592-en.

SALAR (2016), SALAR website, Sveriges Kommuner och Landsting (Swedish Association of Local Authorities and Regions), http://skl.se/tjanster/englishpages/aboutsalar.995.html (Accessed 9 December 2016).

Effective partnerships with stakeholders are critical to the effectiveness of skills systems

In Mexico, partnerships between government and the private sector regarding skills development, activation and use could be improved. Participants in OECD Skills Strategy workshops and meetings often remarked that companies were not sufficiently involved in ensuring that the skills developed in the education system effectively responded to their needs (OECD, 2015). While governments play a key role in the skills system, there are limits as to what they can achieve alone. Improving outcomes in terms of the development, activation and use of skills requires collaboration and co-operation with the many actors of the skills system, including individuals, firms, employer associations, unions, and educational institutions. Mexico could benefit from more regular and formalised partnership arrangements for involving all actors in the system in planning and decision making (OECD, 2015).

Partnerships between training institutions and employers can help to ensure that the skills being developed meet the needs of the economy. Many OECD countries are taking steps to increase employer involvement in the design and delivery of education and training. Many employers are also seeking a more active role in designing and delivering education and training programmes to ensure that they have access to the highly skilled workers that they currently need or anticipate needing in the future (OECD, 2015). It is critical that the involvement of employers is translated into very specific and tangible actions, such as offering workplace training places for students and teachers, or contributing financially or with equipment to the development of training programmes.[39] Each of these aspects includes a second layer of tangible responsibilities and commitments that need to be clear to all stakeholders. For instance, work-based learning opportunities require firm participation in the development and fulfilment of a learning plan for trainees; financial incentives whenever they are possible; and feedback mechanisms with educational institutions and training centres to convey changes in curricula or training contents.

Across OECD countries, there are a variety of examples of how this partnership can be strengthened. In Ontario, Canada, employers advise community colleges (which offer tertiary non-university programmes, typically with a duration of between one and three years) on the skill needs of their firms, sectors and the regional economy, through participation in Programme Advisory Committees. In the United States, community colleges are able to rapidly develop courses to meet changing skills needs because they make use of industry representatives as trainers. The use of trainers from industry also helps to build good relationships between the education and private sectors. In some cases, community colleges have created a separate branch of their institution that offers more traditional academic courses to help them respond quicker to local needs. Community colleges are also represented on Workforce Investment Boards (WIBs) in the United States, thereby helping to strengthen connections with employment services, economic development agencies, and local employers, who make up the majority of membership. In Australia, the co-ordination of employment policies at the local level is a priority. One of the measures includes the identification of Priority Employment Areas (areas most vulnerable to expected downturn and future unemployment) to ensure that these areas receive their appropriate share of additional funding and support (Box 24).

Box 24. Locally-based collaborative governance structures

Workforce Investment Boards in the United States: In the United States, Local Workforce Investment Boards (LWIBs), responsible for providing employment and training services within a specific geographic area, have played a key role in creating more integrated strategies to address employment and skills within broader local economic development strategies. There are over 600 LWIBs across the United States at the state and local level, and they are strongly business-led. Each Local Workforce Investment Area is governed by an LWIB. The LWIB administers Workforce Investment Act services, as designated by the Governor and within the regulations of the federal statute and U.S. Department of Labour guidelines. There are also designated seats for representatives from labour unions and local educational institutions, with economic development officials sitting on the boards in many states. LWIBs are typically an extension of a local government unit and can include more than one government entity. They are not agencies of the federal or state governments, and staff are not comprised of federal or state employees.

Local Workforce Planning Boards in Ontario, Canada: There are 25 workforce planning areas in communities across Ontario. These boards conduct localised research and engage organisations and community partners in local labour market projects. Each board is as individual as the community it serves, and each addresses labour market issues in its own way. All have a mission to identify workforce issues that are characteristic of the local community and to provide collaborative solutions by engaging stakeholders and working with partners. The Ministry of Training Colleges and Universities sets a broad direction for the boards through annual operating and reporting requirements, but the board decides how to address that direction. Funding for each board is small, around CDN 250 000 annually, which allows for an executive director, researcher and administrative help. Other resources are volunteered within the community or are part of individual project funding from either the federal or provincial governments.

Each board publishes detailed reports about its labour market projects, activities and partnerships. The boards champion local workforce development solutions for their communities and help to strategically align the actions of all local stakeholders in the community. In a recent report on reforming Ontario public services, a recommendation was made that the role of the boards should be expanded to provide a greater emphasis on engaging employers and promoting workplace training.

Local employment co-ordinators in vulnerable areas in Australia: The Keep Australia Working strategy has made the co-ordination of employment policies at the local level a priority. One of the measures includes the identification of Priority Employment Areas (areas most vulnerable to expected downturn and future unemployment) to ensure that these areas receive their appropriate share of additional funding and support. In each Priority Employment Area, Local Employment Co-ordinators (LECs) were appointed and advisory committees established comprising local stakeholders from employment, vocational education and training, as well as economic development backgrounds. LECs assist in driving local responses to local labour market problem areas. LECs are agents of the federal government and their main role is to identify the area's skills/labour needs or shortages and structural barriers, and match skills needs with employment, education and training opportunities.

Box 24. Locally-based collaborative governance structures *(continued)*

The LEC also identifies projects that may be funded through allocated federal funding, the Flexible Funding Pool, and organises a Jobs and Skills Expo that brings together employers, employment service providers, labour and recruitment agencies, and registered training providers.

Sources:

OECD (2014b), *Employment and Skills Strategies in Australia*, OECD Reviews on Local Job Creation, http://dx.doi.org/10.1787/9789264207899-en.

OECD (2014c), *Employment and Skills Strategies in the United States*, OECD Reviews on Local Job Creation, http://dx.doi.org/10.1787/9789264209398-en.

OECD (2014d), *Employment and Skills Strategies in Canada*, OECD Reviews on Local Job Creation, http://dx.doi.org/10.1787/9789264209374-en.

OECD (2013), "Local Job Creation: How Employment and Training Agencies Can Help, United States", *OECD Local Economic and Employment Development (LEED) Working Papers*, No. 2013/10, http://dx.doi.org/10.1787/5k44zcpz25vg-en.

Collaboration and co-operation among firms can also help to increase workplace skills development. Given the large number of micro and small enterprises in Mexico, inter-firm collaboration in training could be an effective way of sharing the cost of training that is responsive to their specific needs. Formal arrangements for dialogue across firms and sectors can be an important step towards developing collaborative training arrangements that increase both the quantity and quality of training by firms, especially SMEs. Box 25 (below) provides an example of a partnership among employers in Ireland.

Box 25. Ireland: Building partnerships among employers to better align skills development opportunities with the world of work

Skillnets was established in 1999 to promote and facilitate workplace training and upskilling by SMEs. It is the largest organisation supporting workplace training in Ireland. In 2011, it had 70 operational networks through which it trained over 40 000 people for a total expenditure of EUR 25 million. It is a state-funded, enterprise-led body that co-invests with enterprises, particularly SMEs, when they co-operate in networks to identify and deliver training suited to their workforces. A network of SMEs, which are mostly sectoral or regional, is guided by a steering group of local enterprise representatives. The steering group gives strategic direction and guidance to a network manager who co-ordinates all operational activity leading to the delivery of an agreed training plan with learning interventions suited for the member company workforces. The national programme is co-ordinated by Skillnets Ltd, which contracts with all networks and provides programme support and monitoring to ensure the delivery of agreed quantitative and qualitative target outputs.

In 2011, these networks were predominantly sectoral, with a national remit and company membership. However, 30 of the networks were located in Dublin. In addition, 25% of all Skillnets member companies and 33% of trainees were Dublin-based. While Skillnets has a national impact, its influence is largely confined to SMEs, which account for 94% of its 10 000 member companies. Although it was originally set up to cater exclusively for the employed, since 2010, Skillnets has had a mandate to include the provision of training for jobseekers. This happens both in an integrated manner (with jobseekers attending programmes with employees), and also through the provision of dedicated longer-term programmes exclusively for the unemployed (e.g. the Jobseeker Support Programme), which includes work placement. Skillnets has also launched a pilot training initiative, Management Works, which provides management training to the SME community, with a key focus on owner-managers.

Source: OECD (2014e), *Employment and Skills Strategies in Ireland*, OECD Reviews on Local Job Creation, http://dx.doi.org/10.1787/9789264207912-en.

Partnerships can help to support the identification of current and future skills needs

Adequate co-ordinated systems to identify current and future skills needs are critical for a successful skills system in Mexico. Many countries have systems in place to identify current or future skills needs in the form of vacancy surveys, skills mismatch studies, occupational forecasts, and foresight exercises, etc. While a range of information on skills needs is available in Mexico, there are many information asymmetries and shortcomings in the dissemination and tailoring of information to the needs of specific user groups (OECD, 2015). For example, many educational institutions, labour authorities, unions, employers and sub-national governments collect skills-related information (e.g. student's degrees and qualifications, job vacancies), but this information is not collected to feed policy design, implementation and assessment.[40]

Strong partnerships between government and stakeholders are essential to help identify current and future skill needs. Stakeholders hold important information about current and anticipated skills needs. However, they are rarely involved in the assessment of skills needs in Mexico. Several countries have developed mechanisms to facilitate stakeholder input in these exercises. These include involving stakeholders in the advisory boards of key agencies (e.g. Denmark, Finland, Norway, Wallonia/Belgium), or actively involving them through thematic workshops (e.g. Canada, Norway). Some countries have used the development of national skills strategies as a means to facilitate dialogue on skills needs across the country (e.g. Austria, Germany, Korea, Ireland, Switzerland, United States). Many countries choose to engage employers in skills policies at the local-regional level, as this appears most appropriate for identifying stakeholders' specific needs and the context in which they operate. Box 26 offers some general guidance on how to build successful locally based partnerships.

Box 26. How to build successful locally based partnerships

A locally based partnership is usually designed to bring together all relevant actors within a region to address a specific issue within a community and/or improve its overall economic well-being. However, bringing together all relevant actors is not an easy task: it implies bringing together different government institutions (usually of different levels), as well as social partners, employers, non-governmental organisations (NGOs), training institutions, and representatives of civil society. Regardless of the reason for setting up a partnership, there are certain factors to bear in mind:

- Organisational structure: To be efficient, a partnership should have a recognisable and autonomous structure to help establish its identity. The structure should have stability and permanence as well as flexibility, and the credibility that derives from a certain independence from political influence. It is also important to review lines of communication to ensure that all partners are kept informed and involved. Equity should be a guiding principle in building a partnership, as should (for many partnerships) a "bottom-up" structure. Sufficient human and financial resources are also needed.

- Preparation: Preparatory work is crucial for developing a steady and effective partnership. Careful research into the context in which the partnership will be operating must be part of this phase. The strengths and weaknesses of the area should be assessed and effective measures designed. One of the most important aspects of this phase is to identify the right partners and establish clear roles for each.

- Work plan: Partnerships need to develop a long-term strategy if they are to work effectively and have a lasting effect. For area based partnerships, this strategy should include a vision for the region that focuses on the outcome to be achieved, an action plan that identifies shorter-term priorities, and a co-ordinated working programme that includes activities and measures that contribute to the achievement of long-term outcomes. The work programme should indicate the interests and targets of all partners and include activities and measures that will contribute to the improvement of the territory.

Box 26. How to build successful locally based partnerships *(continued)*

- Implementation: In this phase, partners are in regular contact to co-ordinate implementation, to extend and supplement the working programme with new measures, and, in some cases, to test new approaches. Public relations activities should inform the wider public of the targets, activities and measures of the partnership.

- Monitoring: A comprehensive monitoring system should be used to assess a partnership's achievements, determine improvements to be made and adapt further planning. A partnership should be evaluated periodically and should publish reports to demonstrate the added value of its work.

Source: Adapted from OECD (2006), *Successful partnerships: A guide*, www.oecd.org/cfe/leed/36279186.pdf.

Box 27. Challenges for a more effective transversal skills policy, according to the Ministry of Labour

According to the Ministry of Labour, some of the main challenges to achieving a more effective transversal skills policy in Mexico include:

- **A blurred division of labour between ministries.** In some cases, the law of public administration does not clearly establish the specific responsibilities or the target population for each ministry. These blurring boundaries generate overlapping and gaps in the system.

- **Fragmented planning.** There are no strong administrative/legal mechanisms to ensure that all sectorial, regional and institutional programmes are coherently connected with each other. In principle, they are all aligned with the National Development Plan (so there is vertical alignment), but horizontal alignment (across the programmes of different sectors and ministries) is not guaranteed.

- **Disconnection between planning and resources.** Although there is a performance evaluation system, in practice, resource allocation is not often governed by transparent and objective criteria. The Ministry of Finance defines the spending ceilings for each ministry and, very often, those ceilings are not determined by the results of performance evaluations.

Source: STPS (2016b), *Responses to questions to the OECD team*, Mexico City, Mexico.

Partnerships can aid universities and research centres to support innovation in firms. Very often, firms need an expert partner to support their innovation efforts on number of fronts (production, distribution, human resources management, etc.), and this partner can often be found in research centres and universities. However, the right incentives should be in place to facilitate communication and co-operation. In Mexico, CONACYT administers a number of programmes oriented to improve collaboration between educational institutions and industry. Of particular relevance are CONACYT's sectoral funds, which aim to support educational institutions, research centres and firms that are committed to developing a specific scientific/technical solution to a challenge in a particular industry (CONACYT, 2016a). These sectoral funds cover the whole range of public sector policy and are attached to relevant ministries and agencies, such as: energy, water, information, agriculture, tourism, social development, ecology, and health (CONACYT, 2016b).

Box 28. Skills Strategy Norway: Inter-ministerial and stakeholder co-operation

The OECD's Skills Strategy Diagnostic Report: Norway was published in Feb 2014. One of the challenges identified in the report was the lack of a whole-of-government approach to skills policy development.

Following the Skills Strategy Action Report: Norway, published in Sept 2014, the Norwegian government started the preparation of a white paper to the Storting (the supreme legislature of Norway). White paper No.6 (2015-16), entitled, Social Inclusion and a Second Chance: Co-Ordinated Efforts for Adult Learning, recommends national initiatives that aim to give all adults in Norway better possibilities to strengthen their basic skills, increase their chances of accessing upper secondary education and vocational education and training, and improve language training for new immigrants. The main objective of the white paper was to ensure that each individual is able to acquire the skills needed to develop a stable and durable attachment to working life. Many of the recommendations require a cross-sectoral approach. In recognition of this, the document was prepared by the Norwegian Ministry of Education and Research in co-operation with the Ministry of Labour and Social Affairs and the Ministry of Justice and Public Security.

As a follow-up to the Skills Strategy Action Report, the Norwegian government is currently developing a new national Skills Strategy Plan. The document will be published before the end of February 2017. The framework for this task states that to succeed with the development and implementation of the strategy, Norway depends on co-operation between all relevant stakeholders: the co-operation of the social partners is of particular importance. The Norwegian working life model has traditionally been the foundation for a solid capacity for change, and has promoted active learning in the workplace. The country now faces new challenges regarding this capacity for change, and the need for upskilling puts all stakeholders under new pressure. The new process must again rely on the close co-operation that already exists among all stakeholders in Norwegian working life, and ensure that this model can contribute to a successful and sustainable new strategy.

Source: Norwegian Ministry of Education and Research / Vox, Norwegian Agency for Lifelong Learning (2016) «Skills Strategy Norway – Inter-ministerial and stakeholder co-operation» A note for the OECD Skills Strategy Diagnostic Report for Mexico.

The government could sponsor entrepreneurship partnerships between firms and individuals to tackle challenges in the industry. Firms often face challenges associated with the lack of forward or backward linkages in their value chain. Very often, individuals identify these needs and are willing to create firms to fill this gap. The government, in collaboration with client firms, can help entrepreneurs in this endeavour. The Ministry of Economic Affairs is one of the most visible actors, given its close co-operation with firms. One of the most important programmes of this ministry is the National Fund for Entrepreneurship (INADEM), which is focused on the development, activation and use of entrepreneurship skills through different sub-programmes, such as: developing global value chain networks; regional economic productivity; economic reinvigoration; professionalisation of finance skills; and network support for entrepreneurs (SE, 2016).

Box 29. Skills policy co-ordination in Korea

Korea's skills system has been described as highly centralised. Since the 1960s, the economic development of Korea was led by a "developmental state", which used well-trained elite bureaucrats to perform micro inventions, such as the establishment of individual enterprises, along with macro interventions, such as the design and implementation of the Five-Year Economic Development Plan. The core department for government intervention was the Economic Planning Board (EPB). The director of the EPB was sole Deputy Prime Minister, and the EPB exercised dominant influence on detailed policies of various government ministries as the controller of the economic development strategy. However, as the economic structure become more complex for this level of centralised intervention, the developmental state model lost its efficacy. Therefore, in 1994, with the dissolution of EPB and the stoppage of the preparation of the Five-year Economic Development Plan, the stage of developmental state-led economic growth ended.

Box 29. Skills policy co-ordination in Korea *(continued)*

Since then, major policies in Korea's skills system are established and promoted almost autonomously by each ministry, rather than being led by one ministry. After the dissolution of EPB, there have been attempts to re-establish centralised control of skills policies. For example, to solve the problem of the similarity and overlaps of human resource development programmes of several ministries, the National Human Resource Committee was established in 2007, with the Ministry of Education and Human Resources taking the role of executive office. The National Human Resource Committee was chaired by the President of the Republic of Korea, and ministers related to skills policies, and representatives of employers and trade unions also participated. Its main task was the preparation of the National Human Resource Development Plan that integrated, in principle, all of the policies related to the development and utilisation of human resources by central and local governments.

However, this committee longer exists. There were conflicts between the Ministry of Labour and the Ministry of Education and Human Resources (the core ministries of skills policy) regarding the leadership of skills policies. In addition, the Ministry of Finance and Economy conflicted with the Ministry of Education and Human Resource, which had demanded budget deliberation authority for skills policy. There was no agreement on how the control over skills policies at the national level should be undertaken in a new social and economic environment. As the National Human Resource Committee was supposed to play the key role of preparing the Five-Year National Human Resource Development Plan, and monitoring its nationwide implementation, this could be seen as the rebirth of past EPB in the skills policy area. However, as the socio-economic contexts of specific skills policies are extremely diverse and complex, there was scepticism over the relevance of such a centralised system. Thus, even with the broad consensus about the necessity of close co-ordination, the conflicts among the ministries became acute and, as a result, the committee was dissolved after the beginning of the new administration in 2008. After the National Human Resource Committee there was a trend to carry out policy co-operation and co-ordination on specific policies among concerned ministries, rather than a specific ministry overseeing all skill policies at the national level (with the Presidential Office playing a pivotal role).

Nowadays, there is a system for broad policy co-ordination among various ministries. For skills policy, the Meeting of Social Policy Ministers, chaired by the Minister of Education, has been operating since 2015 according to a Presidential decree. The participants of the meeting are ministers from: the Ministry of Planning and Finance; the Ministry of Science, ICT and Future Planning; the Ministry of Government Administration and Home Affairs; the Ministry of Culture, Sports, and Tourism; the Ministry of Health and Welfare; the Ministry of Environment; the Ministry of Employment and Labour; the Ministry of Gender Equality and Family; the director of Government Co-ordination; and the Secretary of Education, Society, and Culture in the Presidential Secretariat. Compared to the past National Human Resource Committee, this committee does not prepare a National Human Resource Development Plan, but the forum is used to discuss policies, while each ministry operates its policies independently.

Skills related policies are now developed and implemented independently by each concerned ministry. Despite the fact that two key ministries, the Ministry of Employment and Labour and the Ministry of Education, play a certain role in overall co-ordination, there is not close dialogue and co-ordination among skills related ministries. The concern is that each ministry tends to implement individual policies without close consultation with other ministries, which results in duplication or conflicts regarding similar policies. However, it is possible to find some cases of close co-ordination and co-operation on skills policies. Recent noticeable cases among relevant ministries include the development of the National Competency Standards (NCS) and the operation of the Work-Study Dual programme.

These initiatives are part of the national agenda of the current administration, which means that the influence of the Presidential Office is critical in setting the policy agenda and promoting the implementation process. Relevant ministries should co-operate to achieve the goal set by the Presidential Office, although such high pressure from the Presidential Office may have serious drawbacks. First, ministries tend to neglect long-term sustainability when focussing on achieving short-term goals. For instance, generous subsidies to attract employers to the Work-Study Dual programme may undermine the long-term sustainability of that programme if employers are only interested in receiving a government subsidy instead of providing relevant training to trainees. Youths may also then become reluctant to take part in the programme. Second, ministries may tend to marginalise the voices of civil society and pay more attention to directions from the Presidential Office. Despite strong arguments for the necessity of establishing the institutional setting for articulating voices from industry and civil stakeholders, ministries may not pay proper attention to civil stakeholders if their requests appear to contradict or are not in line with the national agenda. This will clearly hamper the development of a more democratised skills system.

Source: Adapted from Choi (2016), "Skills policy co-ordination in Korea", document prepared for the OECD Skills Strategy Diagnostic Report for Mexico.

Summary and policy implications

- **Skills policies require a set of formal and informal arrangements that secure coherency across ministries and levels of government, and to encourage stakeholder engagement**. In Mexico, significant efforts have been made to improve formal arrangements for collaboration in skills policies across ministries, levels of government and with stakeholders. However, effective collaboration remains a challenge in Mexico given the large number of ministries, authorities, public agencies and stakeholders involved in the skills system. Stronger stakeholder engagement is inhibited by the top-down decision-making processes that continue to dominate policy making in the country.

- **Collaboration across ministries should be reinforced to secure policy coherence**. Given the large number of ministries with responsibilities for skills development, activation and use in Mexico, strong co-ordination is needed to secure coherence in policy design and implementation. The law of the public sector in Mexico is not sufficiently clear about the specific responsibilities that each minister has for policies related to skills development, activation and effective use. As a result, the functional responsibilities of ministries are also blurred, which creates gaps and overlaps. The creation of the NPC is a strong step towards improving co-ordination, but NPC efforts and work should be reinforced by more vertical co-operation (there are no representatives from sub-national authorities) and more involvement from stakeholders.

- **Policy alignment across levels of government should be improved to secure responsiveness to regional and local needs**. Policies for the development, activation and effective use of skills should be responsive to the specific needs of regional and local labour markets. Co-ordination and policy alignment between national and sub-national governments are essential to ensure that skills policies receive strong support from top authorities, while taking into account the needs of sub-national authorities. Sub-national entities are often in a much better position to collect information for the monitoring and assessment of policies, so collaboration is mutually beneficial. There are a number of initiatives that demonstrate the effectiveness of local and regional authorities in building effective skills strategies (e.g. the aeronautic cluster in Querétaro), but there is still much work to be done in order to empower sub-national authorities and stakeholders to be active players in the design and implementation of coherent skills policies in the country.

- **Reinforcing partnerships with stakeholders should be a priority of skills policies in Mexico.** Strong engagement from stakeholders is critical for achieving good levels of effectiveness in policy implementation. Collaboration between government and stakeholders is also needed to ensure that skills policies are aligned with the needs of the economy and society. Although there is a long tradition of stakeholder organisation in Mexico (employers, unions, universities and other relevant actors in the system are collectively represented in a number of relevant bodies for skills policies), policy making in Mexico still works through top-down mechanisms, mainly where substantial, but not empowered actors, have only limited voice and participation (e.g. SMEs, female workers, youth). The creation of the NPC, in combination with its binding powers and inter-ministerial and consultative nature, is a promising initiative that is already offering specific results (with specific sectorial plans for skills development), but more support and attention is needed for this kind of institutions.

- **Tackling the fragmentation of multiple efforts appears to be the main challenge for the Mexican skills system**. Mexico has undertaken multiple efforts to improve collaboration across different ministries and levels of government, and to promote stakeholder engagement in the skills system. In both cases, there have been only limited results. The public administration in Mexico needs to create a new architecture that removes (mostly legal) barriers for collaboration across ministries, creates stronger (mostly budgetary) incentives for inter-ministerial collaboration, and empowers sub-national authorities and stakeholders through more inclusive policy-making

mechanisms that transcend political cycles. In this respect, the NPC is again a good example of the collaborative and policy oriented efforts that should be supported more extensively in Mexico.

- **A legal architecture that reinforces and finances collaboration across ministries and agencies is needed**. Many participants in the OECD Skills Strategy workshops and technical meetings pointed out that the main challenge of the skills system in Mexico is to remove the legal barriers preventing collaboration across different ministries and levels of government. The current law of public administration is not sufficiently concise and precise about the specific responsibilities of each minister, and does not provide guidance about the limited areas in which inter-ministerial collaboration is expected. Furthermore, the current law does not provide much room for flexibility or incentives for collaboration across different ministries and levels of government. This rigidity produces policy gaps and overlaps. For example, there is insufficient government policy attention for some skills challenges in Mexico (such as improving the match between the skills developed in education and the skills needs of the labour market, or improving the quality of VET), while other challenges are tackled by multiple ministries/agencies/levels of government at the same time, without sufficient co-ordination (such as data collection and training programmes). In addition to supporting the work of inter-ministerial bodies (such as the NPC), the whole legal architecture of the public administration in Mexico is needed to create incentives for more effective collaboration.

NOTES

37 CONOCER is undertaking efforts to promote the certification of skills in those sectors and regions considered strategic. Such efforts are embodied in what is called Integral Projects (*Proyectos Integrales*) that consider the development of skills along the whole value chain, that is: 1) development of standards or competency/skills norms; 2) promoting the training of workers, job seekers, and work-oriented learning for upper secondary and higher education students, through federal and state training centres; and 3) assessment and certification of competencies competencies/skills based on the standards and norms established (SEP, 2016). During the workshops and technical meetings, a number of government officials and stakeholders expressed to the OECD their concern about the performance of CONOCER. In general terms, it is perceived that although the enormous effort undertaken by CONOCER, its work remains insufficiently linked to the needs of both industry and workers. A careful assessment of CONOCER's performance requires further and deep investigation, given its crucial role in the skills system in Mexico.

38 In the case of Mexico, the law of public administration also establishes specific areas of co-ordination/collaboration between ministries (Cámara de Diputados, 2015).

39 In order to improve the involvement of employers at state level, the federal government established in co-ordination with the National Conference of Governors (CONAGO), that one of the priorities of the educational reform would be to strengthen the link between tertiary education and the productive sector through mechanisms to improve soft skills using dual training frameworks (SEP, 2016).

40 In most cases, each education subsystem designs the best strategies for the formation of skills based on their educational models, and they do so in co-ordination with representatives of the education sector, productive sector and government. In the case of technological universities and polytechnic universities, modifying these strategies is carried out every three years, in the technological national of Mexico it is carried out every six years, and it is variable in the remaining institutions of higher education (SEP, 2016).

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CHALLENGE 8: IMPROVING PUBLIC AND PRIVATE SKILLS FUNDING

A selection of challenges identified by Mexican workshop participants:

"Adequate funding for the skills system should be a priority for the country."

"We need more tax incentives to incentivise skills investment."

"Financial support for the training of low-income/low–skilled workers should be a priority."

"Resources should be allocated to those in more need."

"Public expenditure on education and training should be protected from budget cuttings."

A key part of making skills systems successful is ensuring that they are adequately financed. Financing skills is a cross-cutting component of skills policy that requires concerted action from many different ministries and agencies. Often, ministries may not see incentivising skills investment as a key part of their agenda. Different policy levers, such as spending, scholarships, fees, taxes and subsidies to students and employers, must all work together. For this reason, skills financing is a key challenge that requires a whole-of-government approach.

How skills systems are financed is central to the overall effectiveness of skills policies. Government spending and taxation policies can create incentives or disincentives for the development, activation and use of skills. At the same time, skills policies should aim to ensure that the costs of education and training are shared among individuals, employers and government. The skills system of skills policies in a country should ensure that individuals and firms all have the right incentives to invest in skills, and that profitable skills investments are not constrained by market failures, externalities and credit constraints.

Government financial support for skills in Mexico should be a priority. The fiscal picture in Mexico is challenging, and in 2015, Mexico recorded a budget deficit of 3.5% of GDP. The strained fiscal circumstances render increased financing of skills investments difficult. However, this Challenge highlights the high returns to skills investments for both governments and individuals. It suggests that increasing skills spending is a crucial part of the policy mix if Mexico is to continue along a path of inclusive economic growth.

Returns and costs of skill investments are shared between the different skills actors. Skills actors should share the costs of education, just as they share the returns to skills, and for this it must be ensured that each has an incentive to finance skills to a socially optimal level. Table 4 illustrates the distribution of costs and benefits for businesses, individuals and government.

Table 4. How the financial costs and benefits to tertiary and adult skills investments are apportioned

	Government	Individuals	Firms
Costs	• Foregone taxes • Education spending • Costs of scholarships and grants to students • Cost of skills tax expenditures for individuals and businesses	• Foregone after-tax earnings during education • Direct costs, such as fees	• Payments into training funds • Direct costs such as fees • Reduced employee work time during training
Benefits	• Higher taxes after education • Reduced spending on social benefits, including unemployment benefits • Higher economic growth	• Higher after-tax wages • Better employment prospects • Better social and health outcomes	• More productive workforce and higher profits • Potentially reduced social and health expenditure

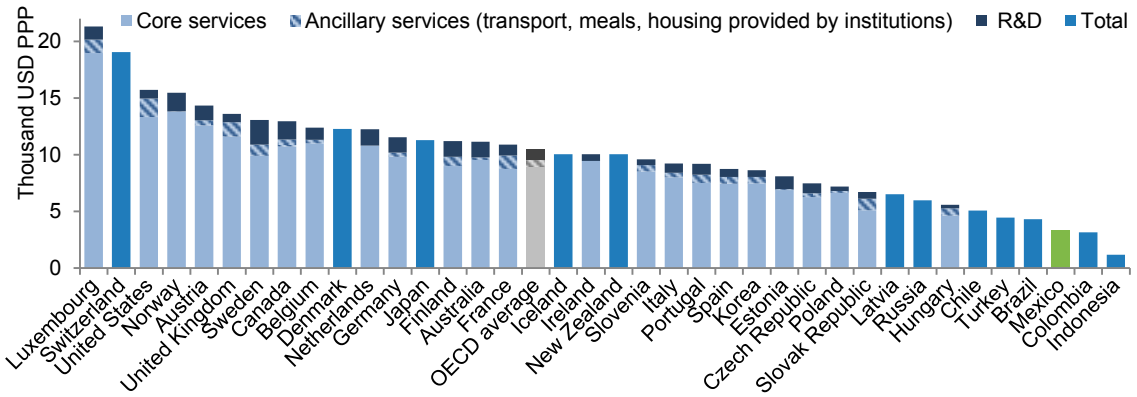
Financing Skills in Mexico

Total expenditure on developing skills in Mexico is close to the OECD average as a share of GDP, although it is low on a per student basis

Education spending in Mexico, as a share of GDP, is near the OECD average. In 2013, Mexico spent 5.2% of GDP on educational institutions from primary to tertiary levels, the 16th highest value in the OECD, and slightly below the OECD average of 5.3%. Mexico's expenditure on primary to tertiary educational institutions as a percentage of GDP has increased from 4.4% in 2000 to 5.2% in 2013.[41]

Even though Mexico spends an approximately average share of GDP on education, spending remains low when measured on a per student basis, which can limit quality and access. Mexico spends an estimated USD 3 386 per student on educational institutions, the lowest in the OECD. The average spending per student in the OECD is USD 9 000 (see Figure 68).[42] Raising the level of financial support is crucial for the future development of skills in Mexico. This means that as Mexico's economy continues to grow, it is important the education spending also continues to expand. It is also important that increases in this level of expenditure are financed by both public and private sectors effectively and equitably.

Figure 68. Spending on educational institutions per student, in PPP USD



Note: Data in equivalent USD converted using PPPs, based on full-time equivalents, for primary through tertiary education. Data are for 2013.

Source: OECD (2015a), *Education at a Glance 2015: OECD Indicators*, OECD Publishing, Paris, http://dx.doi.org/10.1787/eag-2015-en.

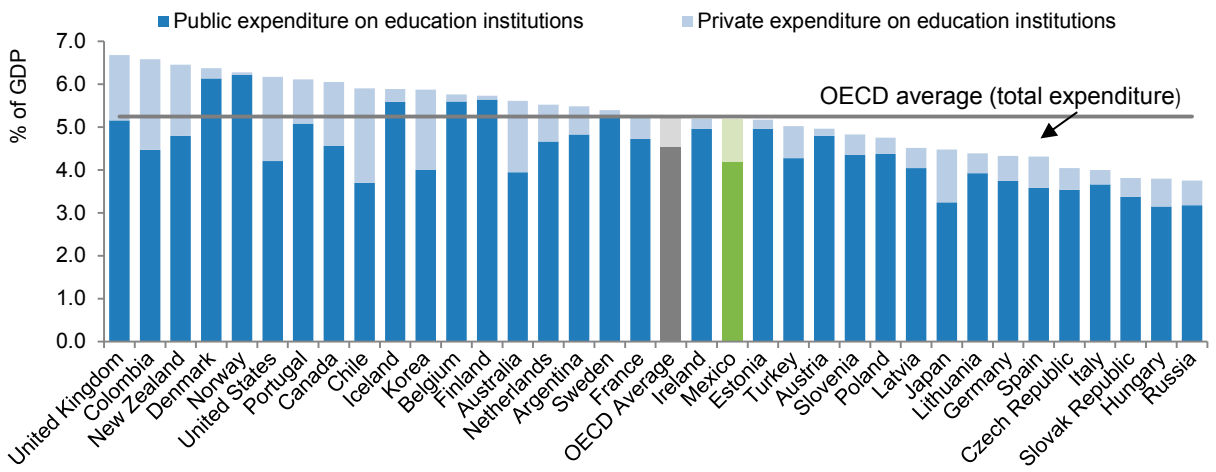
Skills investments in Mexico are primarily financed by the public sector, but private expenditure is also important

While low in dollar terms, the private sector (individuals, firms and other entities) has a relatively large share of the overall burden of direct spending on skills in Mexico. Private spending on educational institutions was estimated at nearly 20% of total education expenditure in 2013, or 1% of GDP (see Figure 69).[43] Private spending on skills can be useful for supplementing public spending, however, it can also lead to inequalities in education spending and perpetuate educational disadvantage.

The mix of costs between the public and private sectors regarding foregone earnings is also important. In addition to bearing a relatively high share of the direct costs of education, the private sector also bears a significant share of costs through foregone earnings. Skills investments require students to take time out of the labour force, which represents lost income, particularly for tertiary and adult education. Foregone earnings are often a significant cost of skills, and represent over 60% of the total cost of skills investments on average across the OECD (OECD, 2017a).

Evidence in Mexico suggests that when accounting for direct spending and foregone earnings, the private sector (individuals, businesses, and other entities) bears an above-average share of the cost of skills investments. This is true at both tertiary and pre-tertiary levels. Where households are expected to finance a large share of the financial cost of skills investments, there is a danger that low-income families may not be able to access education. High-income families can make up for low public support for skills investments with private funds. However, low-income families may be unable to engage in significant skills spending due to either high fees or high levels of foregone earnings, and an inability by parents and families to support students. Lack of access to financial support for skills investment may mean that profitable skills investments are not undertaken, which is a form of market failure that Mexico cannot afford.

Figure 69. Public and private financing of educational institutions, % of GDP



Note: Public and private expenditure on education institutions as a percentage of GDP in 2013.

Source: OECD (2016a), *Education at a Glance 2016: OECD Indicators*, OECD Publishing, Paris, http://dx.doi.org/10.187/eag-2016-en.

Overall education spending has increased in Mexico relative to GDP, although spending is still below the OECD average

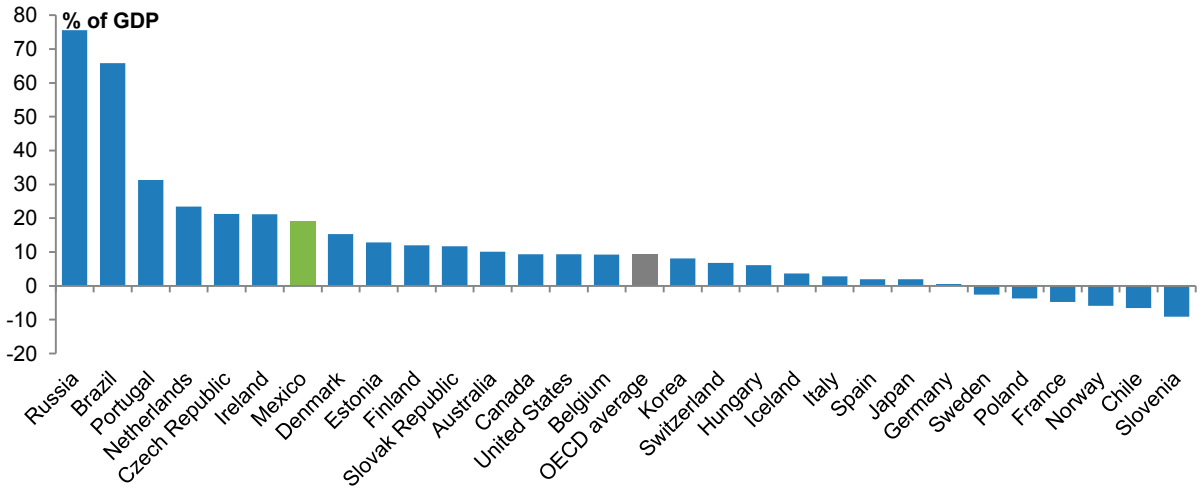
Education spending rose by 18.9% between 2000 and 2013in Mexico, from 5.1% to 5.6% of GDP. This was the fifth highest increase in the OECD over this period (Figure 70). Increases in education expenditure were lower in Mexico than in other Latin American and Caribbean (LAC) economies, such as Brazil, whose education expenditure increased by 65% over the same period. The increase in education expenditure in Mexico has been spread throughout the sector, with spending on primary to secondary education increasing from 3.4% of GDP in 2000 to 3.9% in 2013, and on tertiary education increasing from 0.9% to 1.3% of GDP (OECD, 2015a).[44]

The share of GDP devoted to developing skills (especially through educational institutions) is substantial in all OECD countries, having increased in many countries in recent years

Spending on education in OECD countries is above levels in Mexico. On average, OECD countries spend around two-thirds more per student at the tertiary level than at the primary, secondary and post-secondary non-tertiary levels. Spending on tertiary education has risen across the OECD from 1.3% of GDP in 2000 to 1.5% in 2012, and spending on primary to secondary education has increased from 3.5% to 3.7% over the same period.

For both governments and individuals, increased education spending can pay for itself in net present value terms. OECD analysis suggests that at current tax, spending, and wage levels, the returns to governments from educating an average tertiary student will be more than recouped in higher income tax revenue over that student's lifetime (see Box on the Australian system of income-contingent loans).

Figure 70. Changes in education expenditure % of GDP, 2000-2013



Note: Data are for education expenditures from primary to tertiary. Data for Belgium, Estonia, Germany and Slovenia refer to 2005-2013, while data for Canada refer to 2000-2012.

Source: OECD (2016a), *Education at a Glance 2016: OECD Indicators*, OECD Publishing, Paris, http://dx.doi.org/10.187/eag-2016-en.

Effective design of financial support for the development, activation and use of skills is important

Expanding public support for skills investments is important for raising participation in, and the quality of, education in Mexico. Education spending should be targeted to where it can increase educational outcomes, and should particularly focus on low income or credit constrained individuals. High levels of inequality in Mexico, as well as high levels of private spending on skills, run the risk of a two-tier system developing for skills financing. This is exacerbated by the fact that private schools are VAT-exempt in Mexico. Credit constraints in markets for skills financing are often substantial (Carneiro & Heckman, 2002). Expanded public spending on education can be both fiscally beneficial for governments in terms of increasing future tax revenue, and socially beneficial in terms of reducing inequality.

Because low-income students are less likely to attend tertiary education, they do not benefit from public support for these skills investments. In general, an individual from a lower income background is less likely to complete tertiary or even secondary education. Public spending on tertiary education can only benefit those who attend; thus those on higher incomes who do attend tertiary education or complete secondary education benefit more from public spending on education. Moreover, since the per-student cost of tertiary education is higher, the share of the total public budget, from which different segments of the distribution benefit, is skewed towards those from higher-income backgrounds. Raising these completion rates can offer a double dividend in terms of reducing inequality.

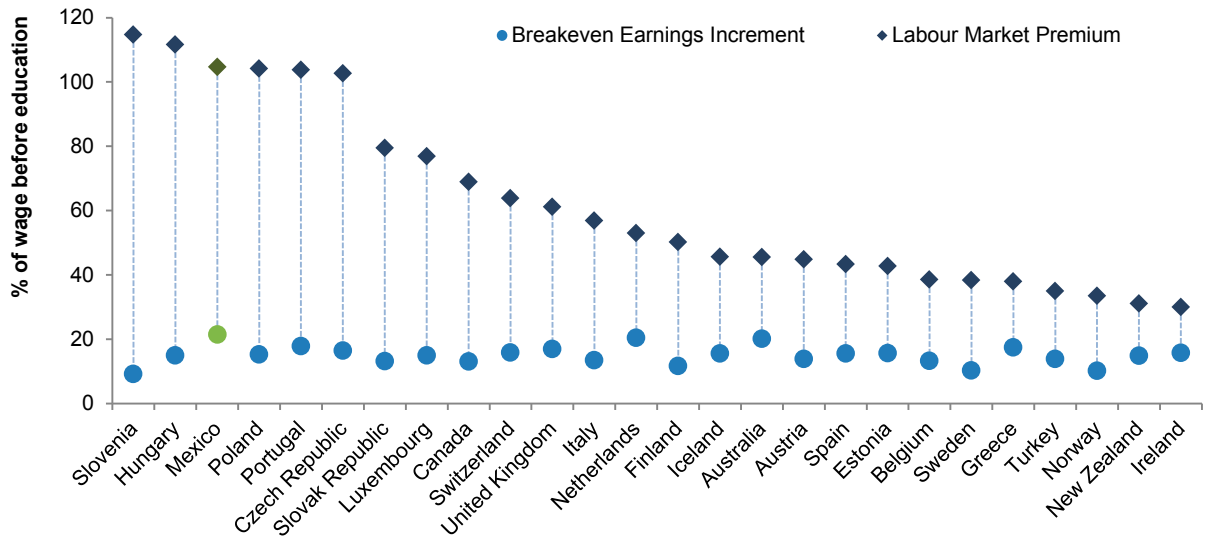
Financial incentives at tertiary level

The financial burden involved in tertiary education is significant

There remain significant barriers to enrolment and access at the tertiary level (see Challenge 2). It is particularly important to ensure that students have the financial capacity to enrol in and complete tertiary education or continuing studies of various forms. Examining the overall burden of tertiary skills investments requires consideration of how much earnings need to rise after education for a student to cover increased taxes, recover any tuition fees and recover foregone earnings (OECD, 2017a).

The private costs of tertiary education are high in Mexico, relative to wages. OECD analysis suggests that earnings in Mexico must rise by 22% for a typical university student to cover the costs of their education over the rest of their lives (see Figure 71, and Figure 69 above). This increment is the third highest in the OECD; only in Hungary and Slovenia are the returns higher. This means that the combined impacts of direct costs, foregone earnings, and extra taxes after education result in one of the highest cost burdens relative to earnings power on tertiary education in the OECD. Reducing these burdens would be profitable for governments and students (see Box on The Australian system of income-contingent loans).

Figure 71. Breakeven earnings increments for tertiary education (% of wage before education), and expected labour market premium for tertiary education (relative to a secondary educated student)



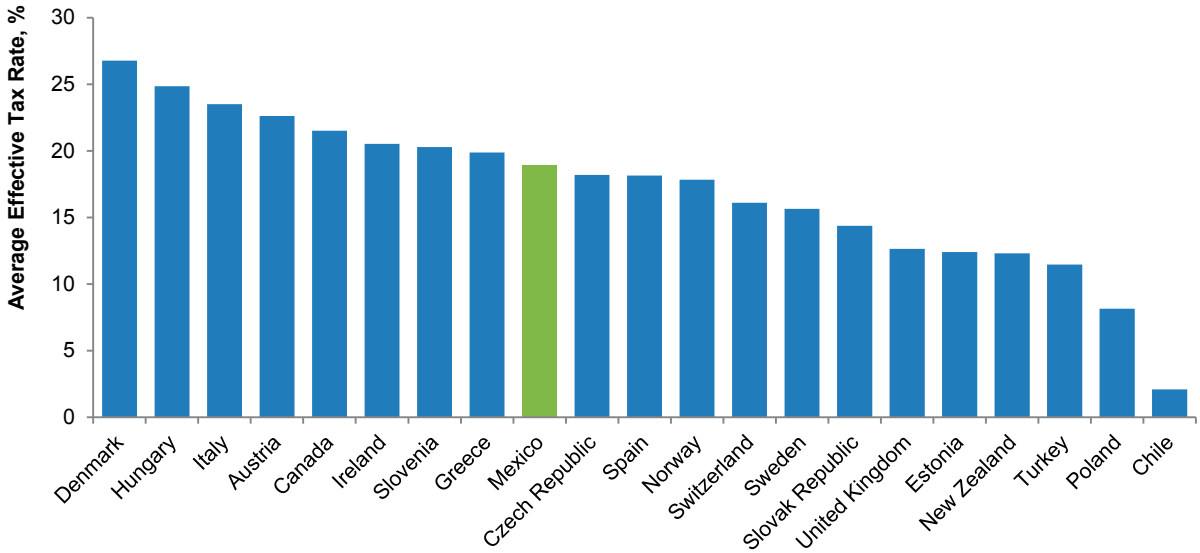
Notes: Data are for a 17-year-old single taxpayer with no children, who undertakes a four-year course of non-job-related education, earning 25% of the average wage during schooling. The Breakeven Earnings Increment is expressed as a percentage of the income before education. These results incorporate tax deductions for direct costs, tax exemptions for scholarship income, and reduced taxes on student wage income. Tax incentives in the personal income tax system are incorporated, but not those in the social security contribution system. They do not incorporate skills tax expenditures that subsidise parental spending on education or that subsidise firm spending on education. Labour market data are based on the tertiary education premium earned by 15-64 year-olds. Data are for 2011, except for Mexico where data are for 2014.

Source: OECD (2017a), *OECD Tax Policy Study No. 24 – Tax and Skills,* OECD Publishing, Paris.

The tax burden on tertiary education is modest

While the level of financial support for tertiary education is comparatively low in Mexico, the tax burden on skills is below the OECD average. Figure 72 considers the overall impact of the tax system on incentives to invest in skills for a university student. When accounting for lost earnings, tax expenditures, higher taxes and the higher wages that result from skills investments in Mexico, the tax system reduces the incentives to invest in skills by 18% for a typical tertiary student. This is not the lowest level in the OECD, but is below average. The tax system thus has a comparatively positive impact on skills investments in Mexico. When accounting for social contributions and income taxes, the tax system reduces returns by 25%, which is again well below the OECD average. However, the tax expenditures provided to support skills investment in Mexico are modest, as discussed below. These points to a nuanced picture regarding education costs in Mexico: although the tax burden is relatively low, the relatively high share of private financing means that the overall costs of tertiary education to the taxpayer are high.

Figure 72. Average effective tax rates on a tertiary skills investment



Notes: Data are for a 17-year-old single taxpayer with no children who undertakes a four-year course of non-job-related education, earning 25% of the average wage during schooling.

Source: OECD (2017a), *OECD Tax Policy Study No. 24 – Tax and Skills,* OECD Publishing, Paris.

Education provides significant private returns in Mexico

Although the high private costs of tertiary education form a significant financial burden to skills investments in Mexico, tertiary education still makes financial sense for students and the government. As previously mentioned, OECD research shows that earnings must rise by 22% in Mexico for a typical student to break even on an investment in tertiary skills; in fact, they rise by almost 100% relative to those without tertiary education (see Figure 71). The private returns to education are therefore substantial in Mexico, and skilled workers earn a premium that makes skills investments profitable for both the government and students. However, a lack of access to finance for low-income and even middle-income families can mean that for some, tertiary education is out of reach.

While the wage premium for skills is currently high in Mexico, expanding access to skills may see it fall in the future. Nonetheless, the combination of the increasing skills premium in a globalised economy, and the positive externalities to skills investments, still makes these investments economically profitable for Mexico. Increased skills levels that follow from increased investment in higher education increases should reduce the premium for skills. Reducing the skills premium will have the positive consequence of reducing market income inequality in Mexico. However, even in countries with broad access to skills, this premium still exists.

Financial support at the tertiary level must be carefully designed

Increasing education spending can occur either through a reduction in direct costs for students, or, at the tertiary level, through the introduction of income-contingent loans. Income-contingent loans can be an attractive policy option as their contingent nature allows for redistribution from those whose skills investments yield high returns (i.e. who repay their loans) to those whose skills investments do not yield high returns (i.e. who may repay only in part or not at all). In addition to providing direct financial support, income-contingent loans also provide insurance for risky skills investments.

Box 30. The Australian system of income-contingent loans

Income-contingent loans are available to Australian students enrolling in eligible university courses. Repayments are connected to a graduate's ability to pay, rather than to the amount of the loan or its age. If a graduate loses their job or takes time out from work, no repayments are required if their income is below the repayment threshold. The repayment schedule for 2016-2017 is provided in Table 5.

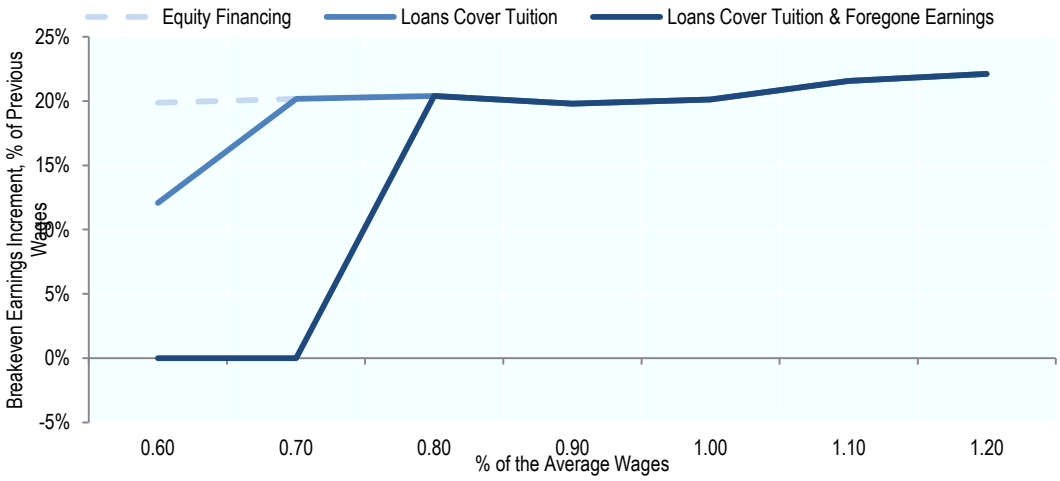
Table 5. Repayment schedules for HELP Loans, 2016-2017

Repayment income	% of Loan to be Repaid
Below AUD 47 196	0
AUD 47 196 – 52 572	4.0%
AUD 52 572– 57 947	4.5%
AUD 57 948 – 60 993	5.0%
AUD 60 994 – 65 563	5.5%
AUD 65 654 – 71 006	6.0%
AUD 71 007 – 74 743	6.5%
AUD 74 744 - 86 895	7.0%
AUD 87 649 - 101 899	7.5%
AUD 101 900 and above	8.0%

Figure 73 shows the impact of Australia's Income-Contingent Loan Scheme for students by mapping the breakeven earnings indicator (BEI) for various marginal students. These results presented are based on a university student borrowing at a 3% real interest rate. The results clearly show that the income-contingent loan scheme substantially reduces the necessary amount of earnings required for a low-income marginal student to break even, relative to the scenario where education is financed wholly from a student's savings.

Figure 73. Australian system of income-contingent loans

BEIs under various loan scenarios, as a percentage of the average wage



Note: Data are for a 17-year-old single taxpayer with no children who undertakes a four-year course of non-job-related education, earning 25% of the average wage during schooling. These results incorporate tax deductions and tax credits for direct costs, tax exemptions for scholarship income, and reduced taxes on student wage income. The results do not incorporate tax expenditures that subsidise parental spending on education or that subsidise firm spending on education.

Source: OECD (2017a), OECD Tax Policy Study No. 24 – Tax and Skills, OECD Publishing, Paris.

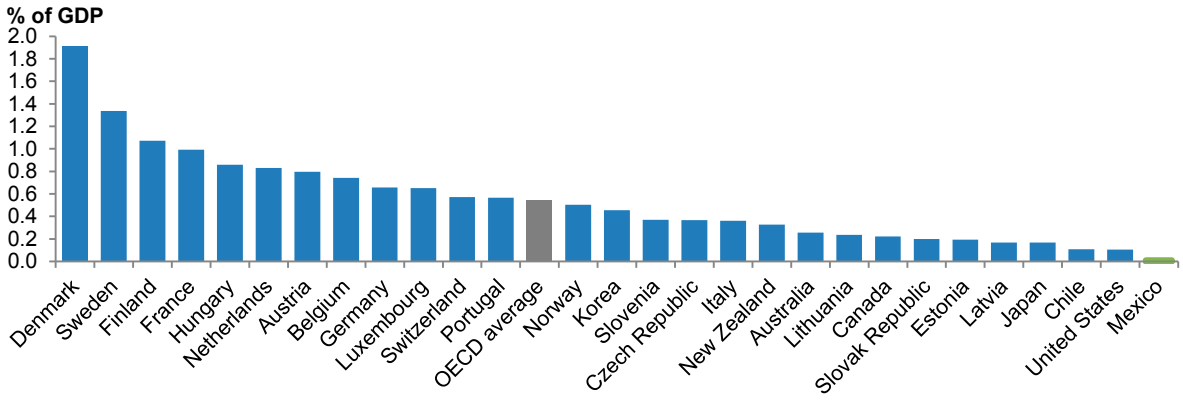
While Mexico's tax deductions for skills are modest in size, it is not clear whether or not expanding them would increase access to education for those most in need of increased skills investments, or if they would increase skills investments that are the most worthwhile financially. Tax deductions for skills offer the greatest benefits to those who already have significant tax liabilities. This means that they may not benefit those in the informal sector or those who have low incomes in the formal sector. Mexico's high levels of informality (discussed in Challenge 4) indicate that providing incentives to invest in skills through the income tax system will mainly impact those who have income tax liabilities in the first place. As many low-skilled individuals in Mexico are in the informal sector, they do not pay income taxes. Tax deductions for skills will thus not improve their incentives to make skills investments as much as other policy measures. Even in more developed countries, tax expenditures have a modest track record in terms of influencing education outcomes (OECD, 2017a).

Supporting adult skills development

Expenditure on developing and using skills during adulthood is modest

Mexico provides modest levels of support for skills in later life through active labour market programmes and support for employer investment in skills. The level of expenditure on active labour market programmes in Mexico remains one of the lowest in the OECD (see Figure 74), at approximately 0.01% of GDP compared to an OECD average of 0.55%. This lack of financing means that second-chance opportunities for continuing education and training in Mexico may be limited (see Challenge 2).

Figure 74. Expenditure on active labour market programmes, % of GDP



Source: OECD (2016b), *OECD Employment Outlook 2016,* OECD Publishing, Paris, http://dx.doi.org/10.1787/empl_outlook-2016-en.

Expenditure on active labour market programmes has remained static over recent years in Mexico, even as other forms of skills spending have modestly increased

Government spending on active labour market programmes (ALMP), as share of GDP, is 0.01% of GDP in Mexico, one of the lowest levels in the OECD. The highest amount of ALMP spending in the OECD is Denmark (1.9%), where active labour market programmes are part of a policy mix that include high rates of income tax, which can act as a disincentive to labour market activation. However, Mexico's low spending on ALMPs is also below countries without particularly high progressive income tax rates, such as Hungary (0.86%), Estonia (0.19%) and Chile (0.11%).

Tax support for skills may be poorly designed

While there is some targeted tax support in Mexico for adult investment in skills, it could be better targeted to help individuals with low skills and low incomes. Table 6 compares the tax expenditures available in Mexico to the number of OECD countries employing similar measures. Since 2011, Mexico has allowed a limited tax deduction for educational expenses. The maximum allowed expanse varies by type of education, as is outlined in Table 7. However, as discussed above, these tax deductions are likely to be of little use to those in the informal sector, who make up an estimated 95% of those in the lowest income quintile.

Scholarship income is also exempt from taxation (up to a limit). How this exemption is calculated is complex and could be simplified. The sum of exempt scholarship income and other taxable work-related income (i.e. wages) should not be higher than seven times the minimum wage (MXN 148 344 per year). When this sum is higher, the exempt amount of scholarship income is limited to one annual minimum wage. However, when this limitation is applied, the sum of wage income and exempt scholarship income cannot be lower than seven times the minimum wages as a result of this limit. This limit and the complexity of the exemption may prevent scholarship income support from offsetting student income in Mexico. The lack of tax support for scholarship spending may also inhibit increased "crowd-in" spending on education by the private sector.

Tax expenditures offer a potentially significant means of supporting skills investments through the tax system, largely because reductions in labour income tax liabilities may encourage formalisation. However, supporting skills via tax deductions, instead of through tax credits or direct spending, may not benefit taxpayers on lower incomes, who benefit most from skills investments (OECD, 2017a).

Table 6. Tax incentives for adult skills investment in Mexico

	Tax allowance for direct skills costs	Tax credit for direct skills costs	Student debt relief	Student wage income tax relief	Scholarship income tax relief
Provision Exists in Mexico	Yes	No	No	No	Yes
Number of OECD countries with provisions	21	7	5	3	28

Source: OECD (2017a), *OECD Tax Policy Study No. 24 – Tax and Skills,* OECD Publishing, Paris.

Mexico has tax provisions that support investments in skills by employers. Corporations can deduct employee training costs that are considered necessary for business activities from the corporate income tax base in the year in which they were incurred. This also applies for unincorporated businesses under the personal income tax system. Mexico also requires that each firm creates a training commission, with employee and employer representatives, to develop a training programme that considers the characteristics of the employees and the company.

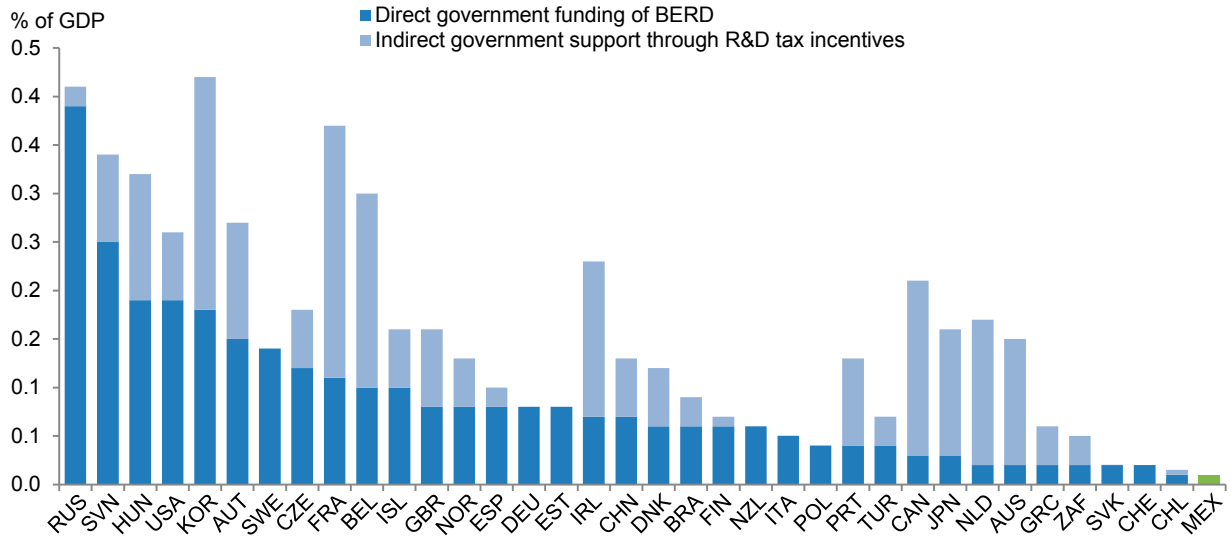
Table 7. Limits on tax deductions for skills expenditures by educational level

Educational level	Maximum annual deduction (MXN)
Kindergarten	14 200
Primary education	12 900
Secondary education	19 900
Technical professional	17 100
High school	24 500

Supporting skills demand through research and development support

Investment in research and development (R&D) is a key factor driving innovation and inclusive growth. Raising R&D levels is an important part of increasing employment for those with medium and high skills (see Challenge 6). Public support for business R&D is usually justified as a means of overcoming market failures. These can include the fact that firms may not fully be able to capture the returns to their R&D investments, which may lead to underinvestment. In addition, much R&D activity could be undertaken by small and young firms if financing for risky R&D activity were accessible.

Figure 75. Direct government funding of business R&D and tax incentives for business R&D, % of GDP



Note: BERD = Business Enterprise R&D Spending.

Source: Appelt, S., C. Criscuolo, F. Galindo-Rueda & M. Bajgar (2016), "R & D Tax Incentives : Evidence on design, incidence and impacts", *OECD Science, Technology and Industry Policy Papers*, (32), OECD Publishing, Paris, http://dx.doi.org/10.1787/5jlr8fldqk7j-en.

Mexico's spending on R&D is modest. Figure 75 shows that public expenditure on R&D in Mexico is approximately 0.01% of GDP, compared to an OECD average of 0.08% (Appelt et al., 2016). Support for R&D through tax credits was abolished in Mexico in 2010. On average, OECD countries spend 0.07% of GDP on support for R&D activity through tax incentives. These tax credits can be a more market-based approach to encouraging R&D investment than direct grants, although they can also be open to abuse in the form of tax planning (the analysis of a financial situation or plan to ensure tax efficiency).

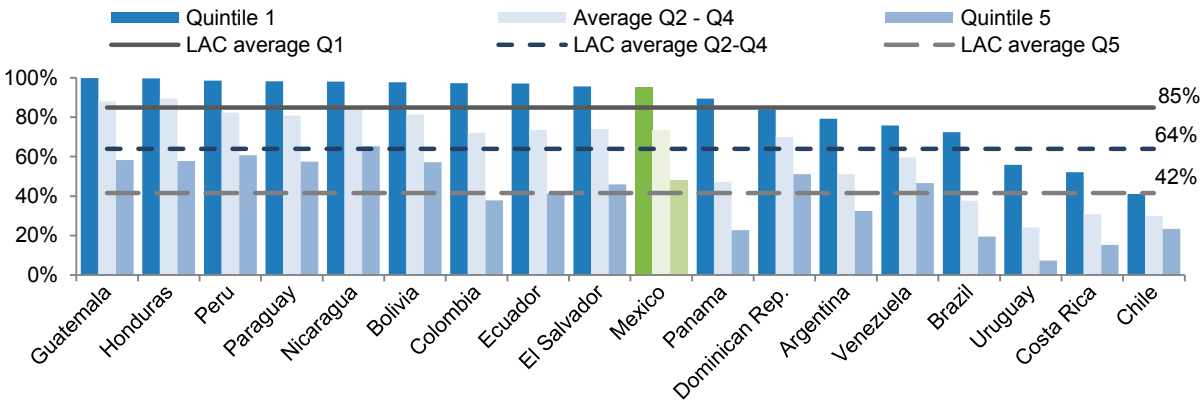
In 2010, Mexico abolished its R&D tax incentive scheme and allocated some of the funds to R&D grant programmes to provide direct cash subsidies for qualified R&D projects. OECD research suggests that tax incentives and direct grants can complement each other to encourage different kinds of R&D for different firms. Most OECD countries use a combination of direct grants and tax expenditures to encourage R&D activity (Appelt et al., 2016). R&D tax incentives often include carry-forward provisions, cash refunds, or reductions in social security and payroll taxes, so they also fully benefit small and young firms and projects involving basic research.

Formalisation and skills activation

Formalisation is important for ensuring that returns to skills are realised

A key part of ensuring that education pays for governments and students is the transition of students into the formal labour market, where skills are likely to continue to be developed over time and job quality is higher. Figure 76 shows that even among those in the middle of the income distribution, informality rates in Mexico are the same level or above the Latin American average (see Challenge 4). Formalisation raises returns to skills for students and governments. A key means by which the government recoups the costs of skills spending is through higher taxes and society contributions of its better-educated workforce. These higher returns can fund future expenditures on skills development, activation and use. The returns to education for government are unrealised when a significant portion of the workforce remains informal. Increasing formality can pay a double dividend regarding skills. In addition to the benefits of formalisation for the broader economy, formalisation can also raise the government's incentives to further finance skills spending.

Figure 76. Informality rates in Latin American countries, by quintile of per capita family income, 2013 (percentage of workers aged 15-64 years not contributing to social security programmes)

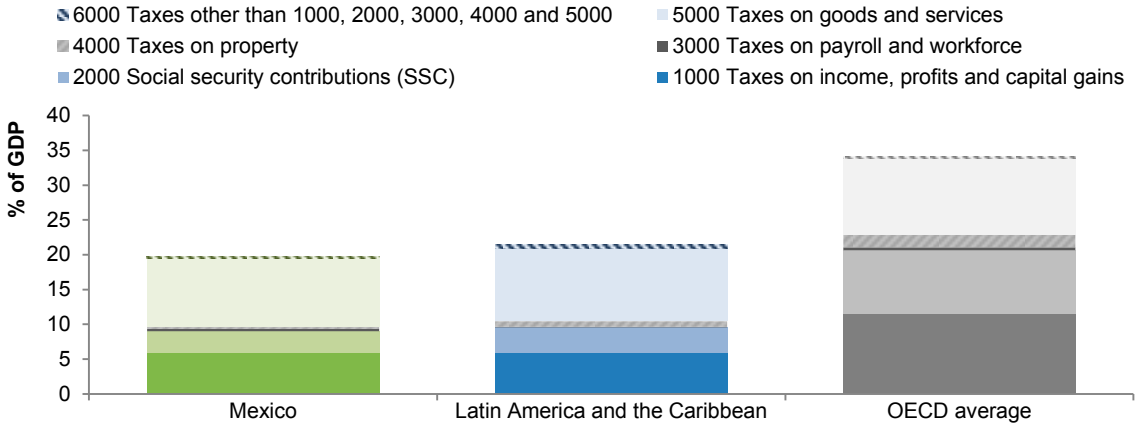


Source: Based on data from Alaimo et al. (2015) and IDB (2015). Sistema de Indicadores de Mercado Laboral y Seguridad Social (SIMS).

The relatively high tax and social contribution burden in Mexico is a barrier to formalisation

Mexico relies significantly on taxes on labour income and on social security contributions. These taxes can be a particular burden on formalisation and labour participation. Mexico raises 9% of GDP in income taxes and social contributions, slightly below the LAC average and well below the OECD average (see Figure 77). While these levels are not the only barrier to increasing formalisation in Mexico, they can add to other barriers, particularly where minimum wages are higher than the typical incomes earned in the formal sector. These levels have increased in recent years, which could signal a particular burden on formalisation as Mexico tries to reduce informality through other means.

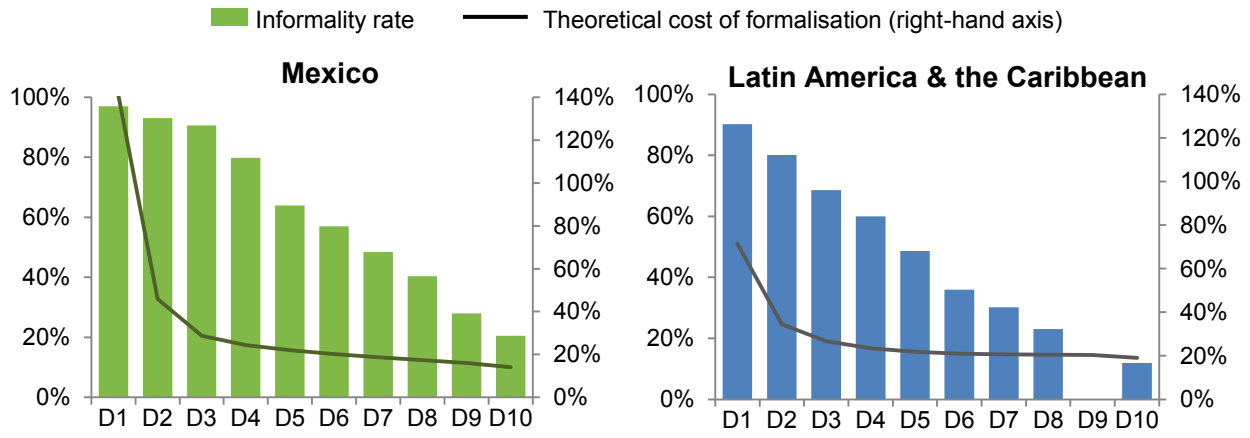
Figure 77. Tax mix in Mexico compared to Latin America countries and OECD countries, % of GDP



Source: OECD (2015b), "Revenue Statistics: Mexico (Edition 2015)", *OECD Tax Statistics* (database), http://dx.doi.org/10.1787/c619fdcf-en (Accessed on 09 December 2016).

Estimates of the theoretical costs of formalisation, expressed as the proportion of wages that workers should pay in social security contributions to become or remain formal, are proportionally very high (Figure 78). For workers in the income lowest decile, the costs of formalisation are 153% of their income in this decile, one of the highest rates for any decile in the LAC region. With formalisation costs this high, workers in this decile can be expected to work in the informal economy. The informal sector is characterised by low job quality, low productivity, and low continuing investment in skills. Employers of informal workers see little reason to invest in the skills of workers whose connection to their current occupation is minimal, and where the likelihood of workers leaving their job (and losing the employers' skills investment) is high. As employers are a significant provider of financial support for skills, workers in the informal sector are likely to under-develop their skills due to lack of employer financing. This perpetuates the cycle of low productivity leading to informality, and vice versa.

Figure 78. Theoretical formality costs and informality rates for dependent workers in Mexico and Latin American countries



Source: OECD/CIAT/IDB (2016), *Taxing Wages in Latin America and the Caribbean*, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264262607-en.

Formalisation is a key factor for the activation and development of skills

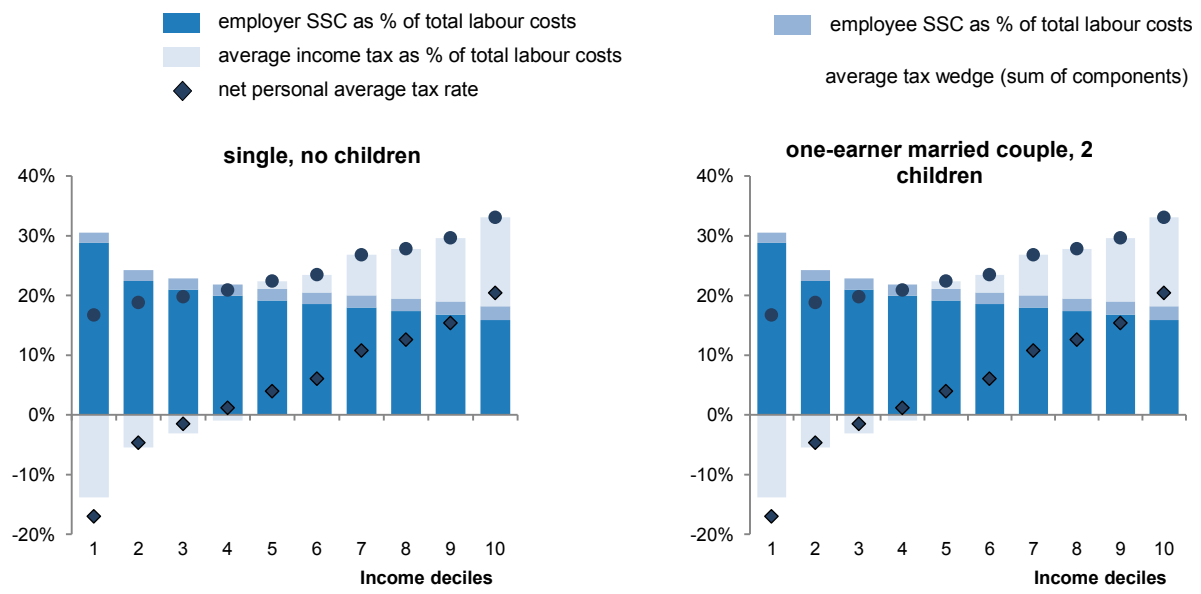
Formalisation and skills investments have the potential to result in both vicious and virtuous cycles. In the majority of OECD countries, employers invest more in the education of an employee with a high level of education than in an employee with a low level of education. This is particularly the case for informal workers, who may be at an added disadvantage even if they have a relatively high level of skills. Raising Mexico's low formalisation rates may provide increased incentives for employers to invest in training their workers.

Employers may not make profitable skills investments in their workers due to poaching concerns. Employers fear that their workers may leave after training and that they will see no return on their skills investment. This problem is particularly acute for informal workers whose work is insecure. Other countries have tried different approaches to addressing poaching concerns, including payback clauses to firms when a trained workers leaves. A further option is to organise training at the sector level, which is financed by modest contributions from employers in proportion to their payroll. If employers contribute to the skills of the entire workforce in their sector, poaching concerns may be reduced.

High tax and administrative barriers to formalisation stem from a combination of high minimum wages, high employer and employee social contributions levied at very low-income levels, and the income tax burden. Employers' social contributions in Mexico are levied at nearly 18% for all levels of labour income, with a ceiling of 25 times the legal minimum wage (see Figure 79). Employees social contributions are 2% of wages (OECD, 2017b), also with a ceiling of 25 times the minimum wage. Given the current tax and social contribution schedule in Mexico, it is clear that tax and social contribution systems create significant barriers to formalisation. A refundable tax credit (i.e. the employment subsidy credit) only partly offsets this burden.

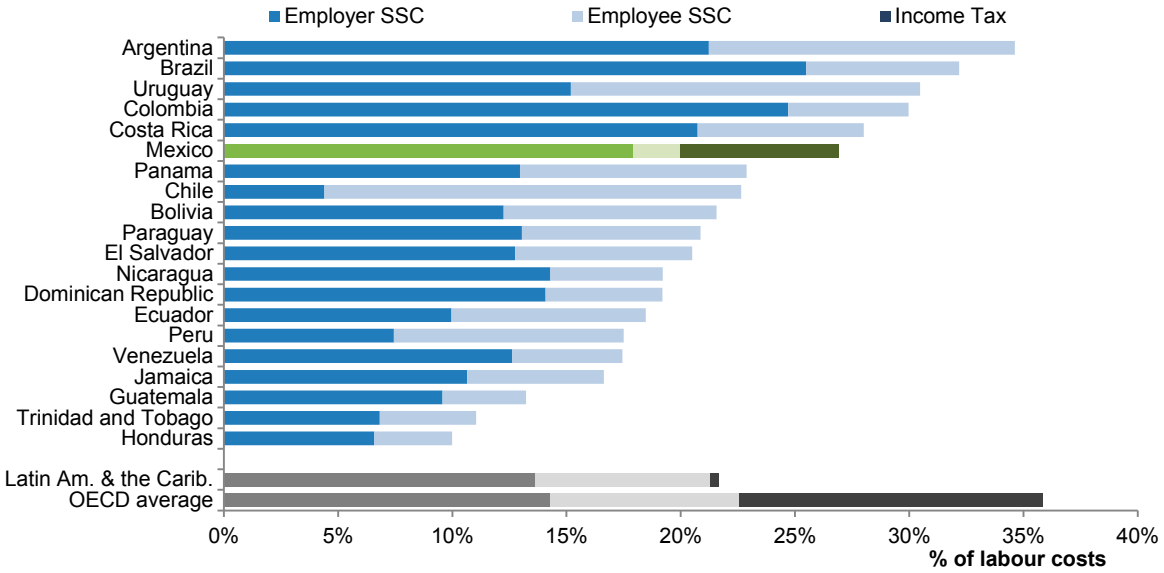
Figure 79. Average tax wedge decomposition, by income decile

By level of gross earnings expressed in income deciles



Source: OECD/CIAT/IDB (2016), *Taxing Wages in Latin America and the Caribbean*, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264262607-en.

Figure 80. Income tax plus employee and employer social security contributions, 2013



Notes: The results are for a single individual without children at the income level of the average worker. Payroll taxes are included with employer SSCs where applicable. The OECD averages are based on results published in OECD (2014) Taxing Wages, Table 0.3. The OECD figures shown for social security contributions are not directly comparable with the LAC country figures as they exclude social security contributions paid to privately managed funds.

Source: OECD/CIAT/IDB (2016), *Taxing Wages in Latin America and the Caribbean*, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264262607-en.

The income tax burden in Mexico is one of the lowest in the OECD (OECD/CIAT/IDB, 2016). Modest levels of income tax and social contributions indicate that the burden on labour income tax is low in Mexico relative to OECD countries. However, given Mexico's low levels of formalisation, the negative response of labour supply to the tax burden is higher. At low income levels, the burden presented by employers' social contributions is a key part of the burden on formalisation (see Figure 80). Shifting the tax mix away from these tax categories should be a policy priority, in particular at low income levels. Formalised, good quality jobs in Mexico can (and should) bear the burden of social contributions.

Tax reform is challenging for Mexico given its fiscal deficit, and recent tax reforms that shift the tax burden away from labour income are welcome. This is particularly the case for the expansion of the VAT base and the introduction of new health taxes. Previous OECD research has highlighted the importance of shifting the tax mix away from taxes on income and towards consumption and property taxes (OECD, 2010). OECD research has also shown that reduced VAT rates are poor policy tools for addressing poverty (OECD, 2014); Mexico's expansion of the VAT base is an important step in this regard. Further expansions in the VAT base could target varieties of VAT expenditure that benefit the highest income individuals the most (OECD, 2014), while using revenues to expand transfers and reduce the tax and social contribution burden for low income individuals.

OECD research also suggests that taxes on immovable property can be a positive policy option for Mexico. Property taxes can raise growth rates relative to taxes and labour, while at the same time taxing those with greater wealth (Brys, Perret, Thomas, & O'Reilly, 2016). Property taxes are currently a small part of the tax mix in Mexico, and further work to expand property taxes could expand the tax base away from taxes on labour and skills.

The increase in revenue from those on higher incomes, as implemented by the increase in the top tax rate from 30% to 35%, is a positive step for Mexico. Increased funds from these measures could be used to expand the employment subsidy credit. Reductions in rates for new employees, low-skilled employees, or other at-risk demographics could be financed by increasing or abolishing the ceiling on social contributions for higher income individuals.

Reducing income taxes and social contributions for those most likely to work informally or not work at all is a policy priority. Many OECD countries have negative average tax rates at low income levels, which aim to improve labour market activation among at-risk groups (OECD, 2011). In countries such as Ireland, Sweden, the United Kingdom and the United States, this has been implemented through expansions of refundable tax credits, often targeted at groups such as single parents. Other countries, including France and Spain, have reduced or removed social contributions for groups such as low-skilled youth or the long-term unemployed. Although these measures may be costly, they can yield significant dividends in terms of increasing the formal labour supply. These measures have been financed through the removal of the ceiling for social contributions (e.g., Ireland) or by expanding the base of social contributions away from labour income taxes (e.g., France).

For women, who tend to be second earners, the tax and benefit systems need to encourage entry into the labour market

Addressing informality and activation issues are often particularly problematic for women, who tend to be second earners. Second earners are more likely to work informally or not at all due to the tax burden on labour (Bargain, Orsini, & Peichl, 2011). It is thus important that the tax system ensures that no particular disincentives impact the labour supply of these groups. As second earners are more likely to be negatively affected by high social contribution levels, decreasing the high levels of social contributions should help women to move into the formal sector.

A lack of state-sponsored childcare in Mexico may further depress the labour supply of second earners, who instead care for children. Mexico taxes couples on an individualised basis, which is helpful for the labour supply of women. Family-based income support for families with children should be designed to avoid the negative impacts on the labour supply of second earners.

Summary and policy implications

- **How skills systems are financed may affect the effectiveness of skills policies.** Total expenditure on education as a share of GDP is close to the OECD average, but on a per student basis it is comparatively low. For both governments and individuals, education spending pays for itself in net present value terms, although improving the quality, targeting and value for money of education spending in Mexico is crucial. Once both direct spending and foregone earnings are accounted for, private investment (individuals, businesses, and other entities) bears an above-average share of the cost of skills investments (20% of the direct total costs of education are privately borne).

- **Expanding public support for skills investments is important for raising participation in education and the quality of education in Mexico.** Increasing the resources for education can occur either through a reduction in direct costs for students, or, at the tertiary level, through the introduction of income-contingent loans. Mexico should improve the modest levels of support for skills development later in life, for skills activation through active labour market programmes (currently at 0.01% of GDP, one of the lowest across the OECD), and for better use of skills through supporting employer investment in skills. Tax expenditures offer a potentially significant means of supporting skills investments, not least because reductions in labour income tax liabilities may encourage formalisation. Government financial support for business R&D activity is particularly low and should be improved.

- **Lack of public support, as well as tax provisions, such as deductions for private costs and a VAT exemption for the private educational sector, may encourage private spending on education.** While private spending is important, it may result in the emergence of a two-tier education system in Mexico. In the face of scarce private investment for education, government policies, such as public low-interest student loans and sector-level funds that resolve market failures for financing, are preferred to tax expenditures for skills investments.

- **Returns to education in the Mexican labour market are high.** Returns from skills investments more than cover their costs to the government over their lifetime. The returns to education are also high for individuals. Such profitable educational investments should not be foregone due to a lack of access to financing for students.

- **The current tax and social contribution mix constitutes a significant barrier to formalisation in the labour market.** Employers' social contributions are a particular barrier to the activation of those with low earnings potential. While income tax credits go some way to offsetting this effect, they could go further. It is particularly important that labour taxes are reduced for those with low skills and low earnings potential, who are particularly at risk of informality.

NOTES

41 This data is based on Indicator B2 in Education at a Glance 2016 (OECD, 2016a), Table B2.1.

42 This data is based on Indicator B1 in Education at a Glance 2016 (OECD, 2016a). This spending includes core education services, ancillary education services, and R&D spending.

43 This data is based on Indicator B2 in Education at a Glance 2016 (OECD, 2016a). The data is taken from Figure B2.1.

44 This data is based on Indicator B4 in Education at a Glance 2015 (OECD, 2015a),Table B2.2.

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NEXT STEPS

From diagnosis to action

The main goal for this joint project between the OECD and the Mexican government on "Building an effective Skills Strategy for Mexico" was to provide a strategic assessment of the national skills system in Mexico, and the way skills are developed, activated and used. This analysis is needed when designing effective skills policies and strategies to meet Mexico's future skill needs, and to improve the match between supply and demand for skills.

Now is the time to focus on improving skills outcomes to boost productivity and innovation, while strengthening the bedrock for Mexico's future economic growth. This diagnostic report represents one input to future action on improving skills outcomes in Mexico. Of equal importance to future success are the "intangible" assets generated by the project through sustained inter-ministerial dialogue and stakeholder engagement over the course of 2015-16. In particular, this report will be used as input for the NPC to develop binding recommendations to pursue a lifelong development skills strategy for Mexico.

This diagnostic report can also be used in many other ways, including: as a basis for raising public awareness, fostering broader public debate about the skills challenges currently facing Mexico, and encouraging social partners and national and regional governments to work together to tackle these challenges in the future. It will serve as the foundation for the upcoming Action Phase to be conducted in 2017, which will move the focus from diagnosis to action. The OECD stands ready to support Mexico in its ongoing efforts in designing and implementing better skills policies for better jobs and better lives.

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OECD Skills Strategy
Diagnostic Report

Mexico

Better skills policies help build economic resilience, boost employment and reinforce social cohesion. The OECD Skills Strategy provides countries with a framework to analyse their skills strengths and challenges. Each OECD Skills Strategy diagnostic report reflects a set of skills challenges identified by broad stakeholder engagement and OECD comparative evidence while offering concrete examples of how other countries have tackled similar skills challenges.

These reports tackle questions such as: How can countries maximise their skills potential? How can they improve their performance in developing relevant skills, activating skills supply and using skills effectively? What is the benefit of a whole-of-government approach to skills? How can governments build stronger partnerships with employers, trade unions, teachers and students to deliver better skills outcomes? OECD Skills Strategy diagnostic reports provide new insights into these questions and help identify the core components of successful skills strategies.

This report is part of the OECD's ongoing work on building effective national skills strategies.

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Further reading

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