2 Strengthening the skills of youth in Tlaxcala, Mexico

To ensure that countries are able to adapt and thrive in a rapidly changing world, all people need access to opportunities to develop and maintain strong proficiency in a broad set of skills. This process is lifelong, but the foundations are laid during childhood and youth. Providing young people with the necessary skills not only benefits their own prospects and self-esteem, but also builds strong foundations for economic growth, social cohesion and well-being. This chapter explains the importance of strengthening the skills of youth for the Mexican state of Tlaxcala and provides an overview of current practices and performance. Three opportunities to strengthen the skills of youth in Tlaxcala are explored: 1) increasing access and quality in pre-primary education; 2) building a strong teaching workforce; and 3) strengthening the responsiveness of secondary vocational education and training (VET) and tertiary education institutions to labour market needs.

Introduction: The importance of strengthening the skills of young people in Tlaxcala

Equipping Tlaxcalan youth with the right skills is important to achieve the state's social and economic goals. While the strengthening and sharpening of skills is a continuous process throughout life, literature has highlighted the importance of developing certain foundational skills during childhood and youth (Heckman, 2006[1]). A strong process of skills development during childhood supports better educational outcomes. Skills development during early childhood is linked to higher graduation and completion rates across all levels of compulsory education (García, Heckman and Ziff, 2018[2]). Individuals with strong skills are also more likely to enrol in higher education or vocational institutes, and complete tertiary education.

More highly skilled youth are better prepared for a smooth transition into the labour market. On average across OECD countries, those with higher levels of education have better employment outcomes: 84% of tertiary educated younger adults are employed, compared with only 78% of those with upper secondary or post-secondary non-tertiary education, and 60% of those without upper secondary education. In addition, the unemployment rate of those without upper secondary education is 14%, twice the unemployment rate of those with upper secondary or post-secondary non-tertiary education (7%) (OECD, 2019[3]).

The development of young people's cognitive and socio-emotional skills helps foster a culture of adult learning that can facilitate young people's adaptability to changes in the economy. A strong set of skills also permits youth to perform better in the work environment as they can demonstrate higher levels of productivity and problem-solving abilities. Furthermore, the development of cognitive and socio-emotional skills is important for the development of professional skills such as effective communication and collaboration in team settings. Beyond the traditional work environment, basic skills are important for promoting innovative entrepreneurship. Cognitive and socio-emotional skills are essential to identify entrepreneurial challenges and to organise resources to create efficient and sustainable solutions to challenges.

This chapter examines the importance of strengthening the skills of youth for the Mexican state of Tlaxcala and provides an overview of current practices and performance. It is structured as follows: the next section provides an overview of the education system at the federal and state levels. The following section describes how it is organised, identifies the key actors and their responsibilities, and assesses the main trends in student performance and challenges. The final section conducts a detailed assessment of the identified opportunities and provides tailor-made policy recommendations in these areas.

Overview of Mexico's and Tlaxcala's education system

As with all other Mexican states, Tlaxcala follows the national education system and is organised into five sequential levels. The first recognised level of education in Mexico, which is the only one not compulsory, is referred to as initial education, henceforth called early childhood education for children under 3 (ISCED 01) in this report. Pre-primary ages 3-5 (ISCED 02) is the first mandatory level of education. Together, these first two levels of education are considered early childhood education (ISCED 0). These are followed by primary school (grades 1-6) (ISCED 1) and lower secondary school (grades 7-9) (ISCED 2). Early childhood education to primary school comprise basic education. After completing these levels of education, students continue on to upper secondary school (ISCED 3), which comprises grades 10-12. Higher education (ISCED 4), which is not compulsory, follows upper secondary education.

Pre-primary and primary education are provided by public and private schools in three different modalities, each typically associated with a school type: general, communitarian and indigenous. Each modality adapts teaching to different circumstances, such as linguistic and cultural needs, remote locations, and migrant groups. In urban zones, general schools that provide conventional schooling are more common and receive the majority of students, while communitarian schools cater to more rural sectors of

the population. Indigenous schools are often found in smaller and rural communities and have a distinguished bilingual/bicultural approach. Pre-primary education for children aged 3-5 became compulsory in 2012.

Lower secondary education is also provided through three distinct modalities, each typically associated with a school type: general, technical and televised (*telesecundarias*). General schools account for approximately 52% of student enrolment, and 27% of students attend technical schools, which offer a range of technical subjects such as information and communication technology (ICT) and electronics. The remaining 21% of students attend secondary schools that use the televised education modality (SEP, 2019[4]). *Telesecundaria* is a teaching model that combines distance with face-to-face education. It consists of a 15-minute television programme followed by a 35-minute face-to-face lesson, which is led by a teacher who responds to questions from students and supervises a class activity.

After completing lower secondary education, students enrol in upper secondary school (*educación media superior*) (equivalent to ISCED 3), which is mainly oriented to young people aged 15-19 years. It includes high school (*bachillerato* or *preparatoria)* and professional technical education. Upper secondary education became mandatory in 2012 due to a constitutional reform presented by the federal government and approved by congress (Secretariat of Goverment, 2012[5]) (Monroy and Trines, 2019[6]). Based on this decree, all states have until the academic year 2021/2022 to expand the provision to grant universal access (Chamber of Deputies, 2012[7]). Upper secondary education is divided into three strands: general, vocational and combined. Only graduates from the general and combined strands of upper secondary education can enter either a two-year post-secondary vocational programme at ISCED level 5 (*técnico superior universitario* or *profesional asociado*) or a four- or five-year bachelor's programme at ISCED 6 level (*licenciatura*). Depending on the strands, students can take between two and three years to complete this level of education. The selection of a strand usually depends on student preference and the potential professional career they want to pursue.

The main objective of the general and combined strands is to prepare students to enrol in higher education programmes. Institutions in these modalities offer a formative and comprehensive education programme that provides general basic preparation to students covering scientific, technical and humanistic knowledge. In addition to this preparation, institutions in the combined strand offer students the option to simultaneously complete a two-year post-secondary vocational programme. At the end, schools grant a completion certificate to students who graduate successfully.

The vocational strand has two main purposes: it provides the practical skills and competences to solve problems in the workplace, and it gives the scientific, cultural and technical bases to prepare students to continue their studies in higher education. This educational approach facilitates the school-to-work transition of students into a productive activity of their choosing. There are several specialties that students can take in the vocational strand, ranging from agriculture activities to classes in manufacturing skills and services. Most institutions providing a vocational strand also offer a technical degree equivalent to a post-secondary diploma. The fields of speciality are defined based on the need of the labour market, which means that programmes have an immediate connection with the needs of firms' human resources.

Upon completion of upper secondary education, students can continue on to higher education, which includes post-secondary vocational education and undergraduate programmes. Professional technical education (equivalent to post-secondary VET programmes, ISCED 5) is a two-year programme that grants a technical professional degree. Education institutions at this level offer a wide range of specialisations that aim to respond to labour market needs. The programmes are mostly provided by upper secondary schools; however, depending on the subsystem, universities and independent providers are also able to grant a technical degree.

Undergraduate programmes are four-year or five-year programmes that grant a bachelor's degree (ISCED 6). A wide range of fields of study are offered, including teacher training. A bachelor's degree gives access to postgraduate programmes, either to a one-year specialisation (*especialización*) or a two-year

master's programme (*maestría*), which are both equivalent to ISCED 7). Completing these postgraduate programmes allows graduates to pursue further academic studies at the doctoral level (*doctorado,* ISCED 8).

Key actors of Mexico's and Tlaxcala's education system

Education at all levels in Tlaxcala, including higher education, is provided by both private and public institutions, although the private sector accounts for a smaller proportion of the enrolment rate, with 12% of the total student population, 18% of teachers and 33% of schools (SEP, 2019[4]). There are a number of federal, state and municipal actors that oversee and manage education design and delivery in Mexico and in Tlaxcala, their responsibilities are summarised in Table 2.1.

At the federal level, the national Secretariat of Public Education (Secretaría de Educación Pública, SEP), which is represented in the cabinet, is the highest authority that oversees national education policy and standards in Mexico. SEP has several responsibilities, such as ensuring that all requirements related to pre-primary, primary, secondary, technical and teacher training are carried out in strict observance of the Constitution of Mexico. It also manages the funding, evaluation and administration of education personnel at a national level (Santiago et al., 2012[8]). SEP establishes the national academic curricula for all levels of education, determines whether each is compulsory, regulates the licensing and qualifications for teachers, and manages VET and tertiary education institutions. It also determines and distributes public education funds to states.

Table 2.1. Main actors in Mexico's and Tlaxcala's education system, and their responsibilities

Level of management	Actor	Main responsibilities
National centralised	Secretariat of Public Education (Secretaria de Educación Pública, SEP)	• Oversees national education policy and standards in Mexico. • Regulates all requirements related to pre-primary, primary, secondary, technical and teacher formation to be carried out in strict observance of the Constitution of Mexico. • Manages the national funding, evaluation and administration of education personnel. • Establishes the national academic curricula for all levels of education. • Regulates the licensing and qualifications for teachers. • Manages the VET and tertiary education institutions. • Determines and distributes public education funds to states.
National decentralised (upper secondary education)	Co-ordination of each subsystem in upper secondary education (only those subsystems relevant for Tlaxcala are shown): • School of Scientific and Technological Studies of the State of Tlaxcala (Colegio de Estudios Científicos y Tecnológicos del estado de Tlaxcala, CECyTE); and Distance Upper Secondary Education (Centros de Educación Media Superior a Distancia, EMSAD) • System of Upper Secondary Schools and Community Tele-schools of Tlaxcala (Colegio de Bachilleres del Estado de Tlaxcala y Telebachillerato Comunitarios, COBAT-TBC)	• Co-ordinate education provision across all school subsystems. • Define and manage the supply of field and vocational specialties. • Co-ordinate placement strategies and external relations with firms. • Co-ordinate placement strategies and external relations with universities. • Maintenance of school infrastructure and equipment.

Level of management	Actor	Main responsibilities
	• National Upper Secondary School for Technical Professional Education (Colegio Nacional de Educación Profesional Técnica, CONALEP) • Industrial Technology and Service Unit of Upper Secondary Education (Unidad de Educación Media Superior Tecnológica Industrial y de Servicios, UEMSTIS) • Unit of Upper Secondary Education in Agricultural Technology and Marine Services (Educación Media Superior Tecnológica Agropecuaria y Ciencias del Mar, UEMSTAyCM) • Upper Secondary Centre of Studies "Lic. Benito Juarez"	
National decentralised (higher education)	Co-ordination of each subsystem in higher education (only those subsystems relevant for Tlaxcala are shown): • General Co-ordination of Technological and Polytechnic Universities (Coordinación General de Universidades Tecnológica y Politécnicas, CGUTyP) co-ordinates polytechnic and technological universities. • National Technological Institute of Mexico (Tecnológico Nacional de México, TecNM) co-ordinates centralised and decentralised institutes of technology) • General Directorate of Higher Education for Education Professionals (Dirección General de Educación Superior para pofresionales de la Educación, DGESPE) co-ordinates public teacher education colleges. • Higher education institutions and decentralised SEP agencies: • National Pedagogical University (Universidad Pedagógica Nacional) • National Polytechnic Institute (Instituto Politécnico Nacional) • Public research centres	• Define the supply of higher education programmes. • Define structure and content of curricula. • Oversee the operation of courses. • Manage funding received from federal (and state government when applies). • Co-ordinate placement strategies and external relations with firms.
State decentralised (higher education)	Autonomous University of Tlaxcala (Universidad Autónoma de Tlaxcala) Remaining subsystems are private and completely independent from national and state government.	• Define the supply of higher education programmes. • Define structure and content of curricula. • Oversee the operation of courses. • Co-ordinate placement strategies and external relations with firms.
State	Secretariat of Public Education Tlaxcala	• Manages education provision to the population. • Oversees the general implementation of education, including indigenous and special education, as well as teacher formation. • Manages federal funds based on state needs and strategies. • Enforces education regulations established at the federal level.

Level of management	Actor	Main responsibilities
Local	Municipalities	• Solicit the national SEP for updates and modifications to plans and programmes of study. • Operate local projects that support infrastructure or offer training courses for parents or teachers.
Local	School community (school committee composed of teachers, principals, parents, etc.)	• Manage the maintenance of school infrastructure and equipment. • Oversee local level implementation of education strategies and disbursed state level resources.

Note: National centralised refers to schools and higher education institutions co-ordinated, operated and funded directly by the federal government. National decentralised refers to schools and higher education institutions that are fully or partially funded and co-ordinated by the federal government but operated by states. State decentralised refers to schools and higher education institutions that are funded, co-ordinated and operated by the state government.

At the state level, each Mexican state has a Secretariat of Public Education that is tasked with the management and administration of education provision to its population. The national SEP oversees the general implementation of education, while the states are awarded the full responsibility of provision of basic education services, including indigenous and special education, and teacher training (OECD, 2014[9]). SEP Tlaxcala determines how to administrate the received federal funds based on state needs and strategies. Within SEP Tlaxcala, the Directorate of Basic Education regulates basic education by following and enforcing the regulations established at the federal level.

At the local level in Tlaxcala, municipalities currently have a limited role across all levels of education. The federal law allows municipalities to request modifications to curricular programming when context relevant adjustments are necessary at the local or regional level (Government of Mexico, 2019[10]). In Tlaxcala, the 60 municipalities were responsible for the maintenance of school infrastructure and equipment up to 2019. However, the transference of this responsibility to the school community has weakened the role of municipalities (INEGI, 2019[11]). Despite their formally constrained role, most municipalities in Tlaxcala have a Directorate of Education that carries out local educational projects, such as municipality funded childcare centres, as part of their own initiative.

Upper secondary and higher education institutions have different degrees of government dependence, and are divided into subsystems that group together a set of schools or institutions managed by a specific co-ordination body. The subsystem can be co-ordinated by a federal or state body and composed of one or multiple schools or institutions. Upper secondary institutions operate across the state through 11 subsystems, 7 co-ordinated at the state level and 4 at the federal level (see Table 2.2). Except for the subsystem of private upper secondary institutions, the subsystems are all financially supported by the state government, and four subsystems are mainly funded by the federal government. The Centre of Upper Secondary Studies, Lic. Benito Juárez, and the School of Upper Secondary Schools of Tlaxcala and Community Tele-schools are the only subsystems offering just the upper secondary general strand. Most subsystems offer upper secondary technical or combined strands, such as the School of Scientific and Technologic Studies of Tlaxcala, which is operated by the state.

Most higher education providers are public. As shown in Table 2.3, there are five public institutions that act as decentralised government agencies under the direction of SEP Tlaxcala. These universities are operated by the state, including the Autonomous University of Tlaxcala, which is fully funded by the state, but independently managed. The federal government operates the Technological Institute of Apizaco and the Technological Institute of the Altiplano de Tlaxcala, which are part of the National Technological Institute of Mexico. Private institutions are independent of the government, but co-ordinated by the state.

Table 2.2. Tlaxcala's upper secondary education subsystems

State subsystem	Federal subsystem
Upper secondary schools of Tlaxcala (Colegio de Bachilleres de Tlaxcala)	General Directorate of Technical, Industrial and Services Education (Dirección General de Educación Tecnológica, Industrial y de Servicios, DGETIS)
Tlaxcala Community High School (Telebachillerato Comunitario de Tlaxcala)	General Directorate of Agricultural Technology Education and Marine Sciences (Dirección General de Educación Tecnológica Agropecuaria y Ciencias del Mar, DGETAyCM)
School of Technical and Profesional Education of the State of Tlaxcala (Colegio de Educación Profesional Técnica del Estado de Tlaxcala, CONALEP)	General Directorate of the Upper Secondary Education (Dirección General del Bachillerato)
School of Scientific and Technological Studies of the State of Tlaxcala (Colegio de Estudios Científicos y Tecnológicos del Estado de Tlaxcala, CECyTE)	Training Center for Industrial Work in the State of Tlaxcala (Centro de Capacitación para el Trabajo Industrial en el Estado de Tlaxcala)
Distance Upper Secondary Education (Educación Media Superior a Distancia)	
Open Upper Secondary School (Preparatoria abierta)	
Private institutions	

Source: Information provided by SEP Tlaxcala for the purpose of this project.

Table 2.3. Tlaxcala's higher education subsystems

State subsystems	Federal subsystems
Higher Technological Institute of Tlaxco (Instituto Tecnológico Superior de Tlaxco)	Technological Institute of Apizaco (Instituto tecnológico de Apizaco)
Technological University of Tlaxcala (Universidad Tecnológica de Tlaxcala)	Technological Institute of the Altiplano de Tlaxcala (Instituto tecnológico del Altiplano de Tlaxcala)
Polytechnic University of Tlaxcala (Universidad Politécnica de Tlaxcala)	
Polytechnic University of Tlaxcala, Western Region (Universidad Politécnica de Tlaxcala, Región Poniente)	
Autonomous University of Tlaxcala (Universidad Autónoma de Tlaxcala)	
Private institutions	

Source: Information provided by SEP Tlaxcala for the purpose of this project.

Two public subsystems are responsible for the provision of higher education programmes in Tlaxcala: The National Technological Institute of Mexico (TecNM) and the General Co-ordination of Technological and Polytechnic Universities (DGESPE). The total enrolment in higher education in the academic year 2019-2020 was 37 521. The Autonomous University of Tlaxcala accounts for 44% of total enrolment whereas TecNM and DGESPE account for almost 40%. The DGESPE co-ordinates three technological institutions in three regions within the state. The remaining 16% of students are enrolled in pedagogic universities, private institutions and research centres that offered mostly graduate programmes.

Funding of Mexico's and Tlaxcala's education system

In 2020, per student annual direct expenditure within Mexican educational institutions (primary to tertiary) was approximately USD 3 300, one of the lowest in the OECD and roughly one-third of the OECD average (USD 11 200) (OECD, 2020[12]). For primary and lower secondary education, expenditure per student was USD 2 782 and 2 438, respectively, both less than one-third of the OECD averages. For upper secondary and VET, per student expenditure was USD 3 418, again roughly one-third of the OECD average (OECD, 2020[12]). According to government stakeholders, the main source of public funding for tertiary education

is the federal government, with the state government accounting for approximately 40% of the total. The average tertiary education expenditure per student in Mexico was USD 5 263 in 20217 less than half of the OECD average (OECD, 2020[12]).

While formally the national SEP is responsible for providing all Mexican states with public funding for basic education, in practice, states also partially fund education. In 2019, federal spending on education amounted to 57%, while state and municipal expenditure was 15.5% and 0.1%, respectively. Private education accounts for approximately 27.5% of total expenditure. State-level spending often addresses specific education challenges areas within the state. For instance, in Tlaxcala a new initiative called Child Welfare Support Programme (Programa de Apoyo para el Bienestar de las Niñas y los Niños) was launched in the 2019-2020 academic year to increase the participation of disadvantaged students in early childhood education for children under 3 and pre-primary education. The programme targets children of mothers who are working, seeking work or studying. The programme disburses MXN 1 600 (Mexican pesos) for each child aged 0 to 4, as well as MXN 3 600 for each child with a disability (Government of Mexico, 2019[13]).

Performance of Tlaxcala's education system

Enrolment in education

In Tlaxcala, gross enrolment rates (GER), calculated as the total number of children receiving education as a percentage of the total number of age-appropriate students, vary greatly across all education levels. For instance, the GER for early childhood education for children under 3 (ISCED 01) is low, at 6.9% of the full age-relevant population (Table 2.4), while for four-year-olds it is 99.6%. The GER rate for upper secondary education in Tlaxcala is 77.5%, similar to the national average of 78.9%. Enrolment is mostly concentrated in the general upper secondary strand (66%), followed by combined (22%) and vocational strands (12%). Tlaxcala, compared to other states, has one of the highest proportion of students enrolled in VET and combined upper secondary education in Mexico. These education strands are the most responsive to labour market needs.

Table 2.4 also shows the dropout rates at different education levels in Tlaxcala, compared to the national average. At the primary education level, the reported percentage of students who drop out from school in Tlaxcala is zero, which is lower than the national average of 0.5% (SEP, 2019[4]). For lower secondary education in Tlaxcala, the dropout rate is 3.8%, while for upper secondary education it rises to 8.1%. Although dropout rates across all education levels are lower than national averages, they increase with level of education.

Table 2.4. Tlaxcala's and Mexico's education enrolment rates, early childhood education to higher education

	Tlaxcala (%)	National (%)
Early childhood education for children under 3 and pre-primary education		
Gross enrolment rate: 0- to 2-year-olds	6.9	4.1
Gross enrolment rate: 3-year-olds	57.2	48.4
Gross enrolment rate: 4-year-olds	99.6	89.3
Gross enrolment rate: 5-year-olds	70.3	78.2
Primary education		
Gross enrolment rate	103.8	104.7
Dropout rate	0.0	0.5
Lower secondary education		
Gross enrolment rate	99.7	96.1
Dropout rate	3.8	4.3

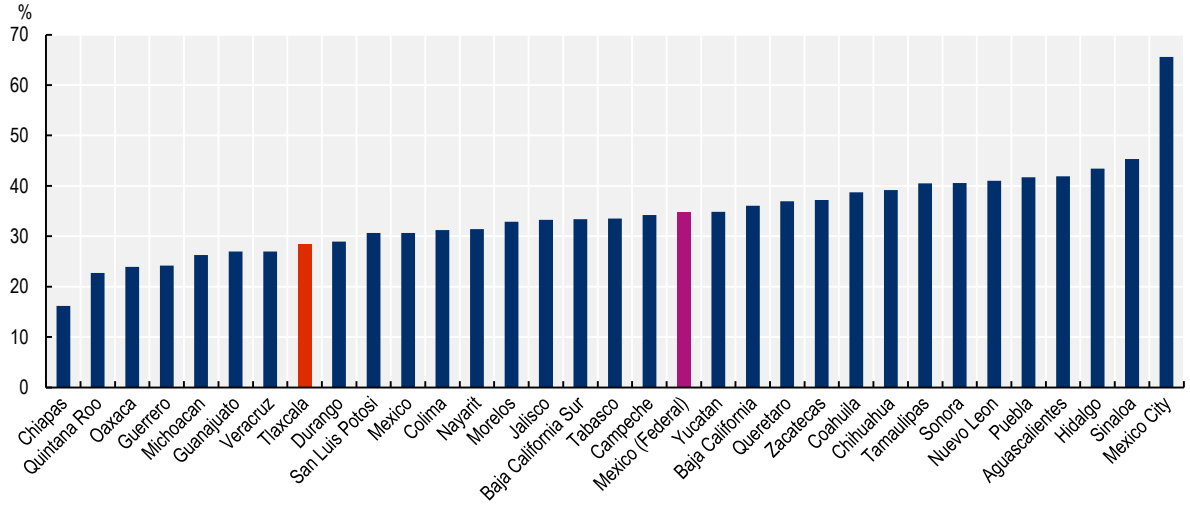
	Tlaxcala (%)	National (%)
Upper secondary education		
Gross enrolment rate	77.5	78.9
Dropout rate	10.3	13.0
Higher education		
Gross enrolment rate	28.4	34.8
Dropout rate	7.1	8.2

Note: The higher education GER rate is computed by dividing the number of students enrolled in technical, normal and bachelor's programme and the total population aged 18-22 years inclusive. The numerator is taken from SEP (2019[4]). The denominator is computed using the National Survey of Household Income and Expenses (Encuesta de Ingresos y Gastos de Los Hogares, ENIGH, INEGI (2018[14])).
Source: SEP (2019[4]), *Key data on the education system 2018-2019,* https://www.planeacion.sep.gob.mx/Doc/estadistica_e_indicadores/principales_cifras/principales_cifras_2018_2019_bolsillo.pdf.

Mexico increased the percentage of adults holding a tertiary education degree from 7% to 23% between 2008 and 2018 (OECD, 2019[15]). This proportion is 10 percentage points lower than the OECD average (33%). Most students in higher education are enrolled in bachelor programmes (88%), and almost 7% of students are enrolled in short-cycle tertiary programmes or VET education (SEP, 2019[4]), which are more responsive to labour market needs. Participation in VET programmes in Mexico is almost three times lower than the OECD average (17%) (OECD, 2019[15]).

Enrolment in tertiary education has expanded rapidly in Tlaxcala, as in the rest of the country. The enrolment rate in higher education is 28%, which is 7 percentage points below the national average (35%), excluding graduate programmes (Figure 2.1). Furthermore, this expansion has not reached the entire population, and there is still room to improve access among certain groups. For example, in Tlaxcala there is a large enrolment gap between high-income and low-income households. The enrolment rate among the richest households (the richest income quartile) is 37%, which is 5 percentage points higher than the enrolment rate among the poorest households (32%) (The lowest income quartile). Participation in tertiary education is even lower among middle-income households: around 31% and 26% of youth from low-middle- and upper-middle-income households, respectively, enrol in higher education programmes. Low-income households have been targeted by certain social programmes (e.g. Prospera), which has increased their disposable income for investing in higher education (Ferreyra et al., 2017[16]). The current Mexican government has increased the supply of scholarships and subsidies for higher education, targeting mostly disadvantaged young individuals across the country. Young people from rural areas are less likely to enrol in VET or university programmes (21%) than their peers from urban areas (30%). Higher education participation varies significantly across regions in Tlaxcala. Centrosur is the region with the highest enrolment rate (40%), while Oriente has the lowest (19%). In Tlaxcala de Xicohténcatl, the capital city, almost 49% of young people are enrolled in higher education programmes, 19 percentage points more than the rest of the state (32%).

Figure 2.1. Enrolment rate in higher education in Tlaxcala is lower than the national average



Note: Enrolment in graduate programmes is excluded.
Source: INEGI (2018[14]), *National Survey of Households Income and Expenses (ENIGH)*, https://www.inegi.org.mx/programas/enigh/nc/2018/.

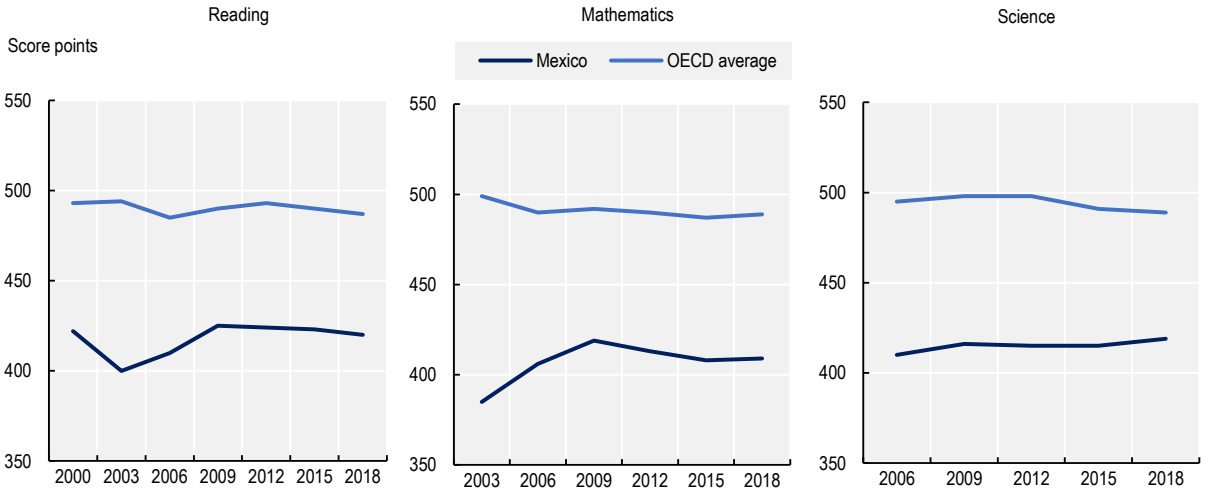
StatLink https://stat.link/x8r0qj

In Tlaxcala, 90% of tertiary enrolment is concentrated in five-year higher education programmes, similar to the national level. No more than 7% of students in Tlaxcala are enrolled in short-cycle programmes or VET. The remaining 3% of students are enrolled in graduate programmes (masters and PhDs). Disaggregation by field of study reveals that the three most popular study choices for Tlaxcalan students are business, administration and law (31%); engineering, manufacturing and construction (18%); and health and well-being (16%).

Educational achievement

Mexico's mean performance in reading, mathematics and science in the Programme for International Student Assessment (PISA) has remained stable since the country began participating (Figure 2.2). However, this overall stability hides positive trends in reducing achievement gaps. The score that 90% of Mexican students were able to attain has improved by about 5 score points per 3-year period, on average. This decreasing gap between the performance of the highest and lowest performing students over time reflects a meaningful and consistent decrease in the achievement gap (OECD, 2018[17]).

Figure 2.2. Mexico's trends in reading, mathematics and science performance in PISA (2003-2018)



Notes: The light blue line indicates the average mean performance across OECD countries with valid data in all PISA assessments. The dark blue line indicates mean performance in Mexico.
Source: OECD (2018[18]), PISA 2018 Database. https://www.oecd.org/pisa/data/2018database/.

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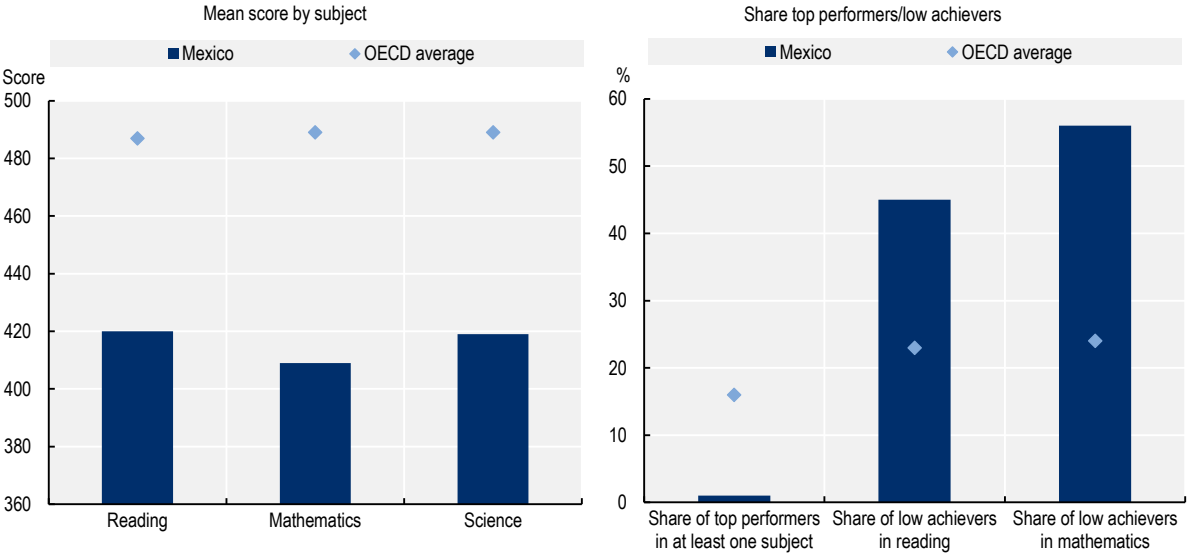
Figure 2.3. Mexico's performance in reading, mathematics and science, PISA 2018



Source: OECD (2018[18]), PISA 2018 Database. https://www.oecd.org/pisa/data/2018database/.

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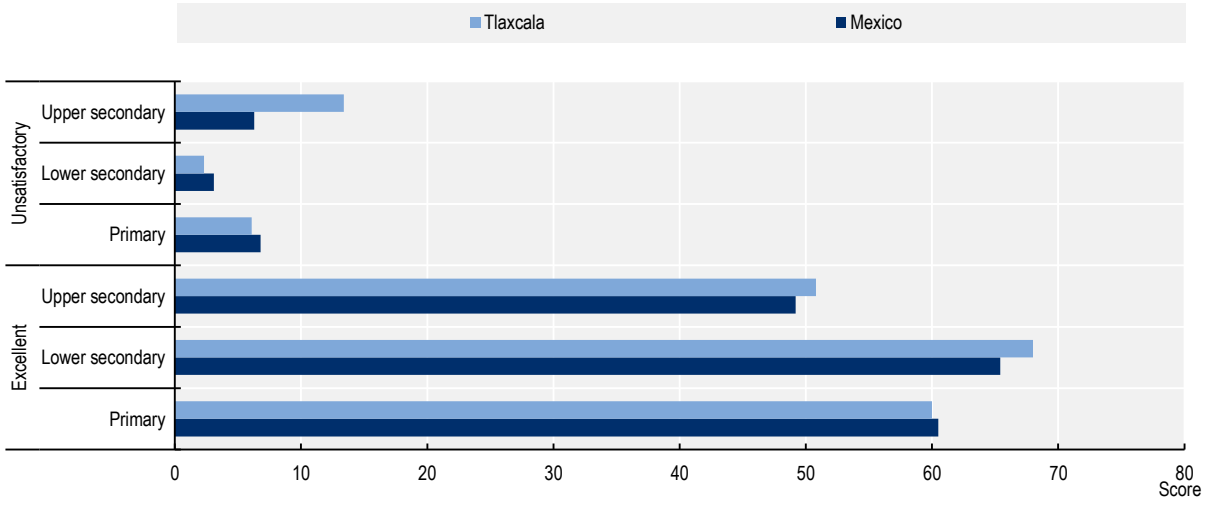
Despite this progress, Mexican students are still performing comparatively less well than peers in other OECD countries. Figure 2.3 shows that Mexican mean scores for reading, mathematics and science were lower than the OECD average in 2018. In addition, compared to the OECD average a smaller proportion of students in Mexico performed at the highest levels of proficiency (Level 5 or 6) in at least one subject, and a smaller proportion of students achieved the minimum level of proficiency (Level 2 or higher) in at least one subject. Only 1% of students in Mexico were top performers in reading, meaning that they attained Level 5 or 6 in the PISA reading test. Similarly, only 1% of students scored at Level 5 or higher in mathematics, compared to the OECD average of 11% (OECD, 2018[19]).

While Mexican students perform worse than their OECD peers on average, the academic achievement of students in Tlaxcala also lags behind the Mexican national average. In the 2015 National Plan for Evaluation for Learning (Plan Nacional de Evaluación de Aprendizaje, PLANEA), which is a national standardised achievement test that evaluates the academic achievement of students in the sixth grade of primary education and the third grade of secondary education, Tlaxcala ranked 29th (out of 32 Mexican states) for lower secondary reading comprehension, and 28th for mathematics. Figure 2.4 illustrates that the proportion of students with an unsatisfactory (lowest) score in Tlaxcala is higher than the national average for primary, lower and upper secondary educational levels. Considering that an unsatisfactory level for mathematics means that students are not able to perform operations with decimals, fractions or basic conversion of units, this is a significant achievement gap that should be addressed.

Figure 2.4. PLANEA mathematics scores for Tlaxcala and Mexico, 2015



Source: SEP (2019[4]), *Key data on the education system 2018-2019.*

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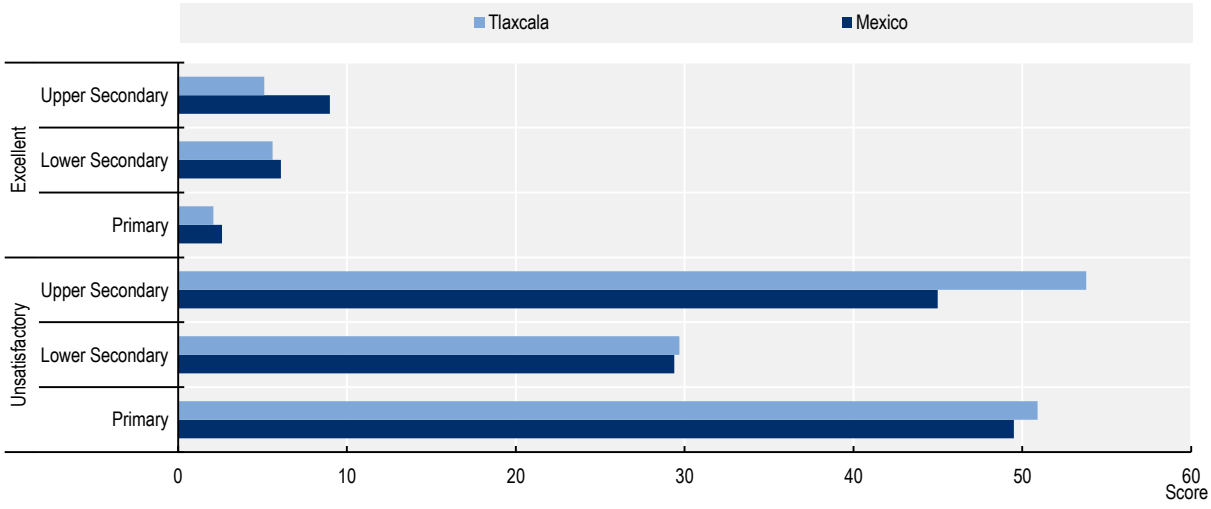
Figure 2.5 shows that the proportion of students scoring an excellent (highest) score in language and communication in Tlaxcala is lower than the national average for primary, lower and upper secondary educational levels. The gap between state and national proportions of highest-scoring students increases from primary to secondary levels of education. In 2018, Tlaxcala PLANEA results for mathematics and language for primary school were similar to those in 2015. The proportion of students with the highest score in Tlaxcala (2.0) was 0.8 percentage points lower than the national level in mathematics, while for reading (6.2), it was 2 percentage points lower than the national level (6.2) (INEE, 2018[20]).

Figure 2.5. PLANEA language and communication scores for Tlaxcala and Mexico, 2015



Source: SEP (2019[4]), *Key data on the education system 2018-2019.*

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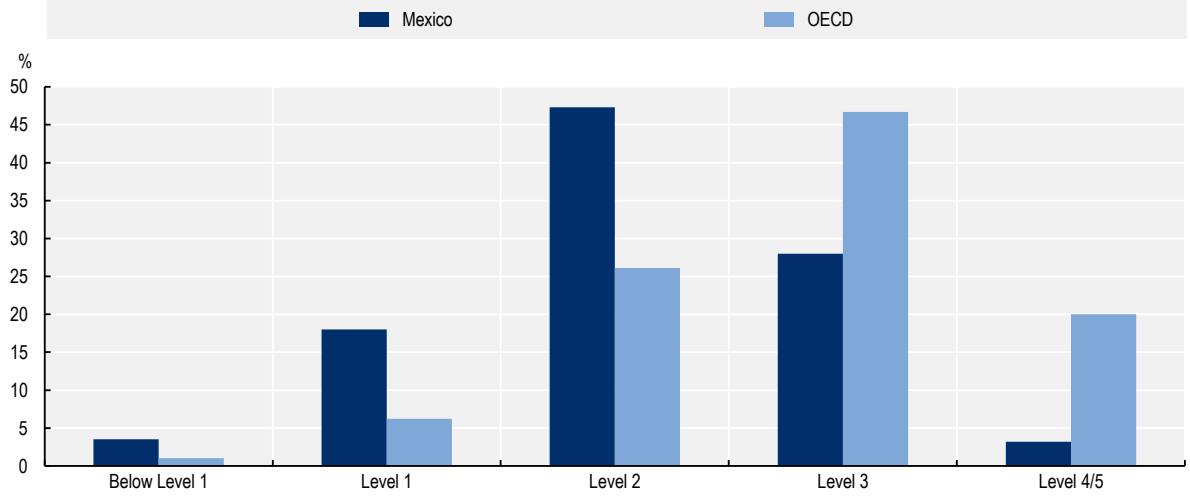
The skills outcomes of Mexican tertiary education graduates lags behind those of other OECD countries. Figure 2.6 reflects the percentage of adults at each proficiency level in literacy. As observed, the OECD average proportion of adults obtaining higher levels of proficiency is much higher than the Mexican average, with the OECD average proportion of tested adults with a proficiency of 4 or 5 more than 5 times greater than Mexico's average.

Figure 2.6. Literacy skills outcomes of tertiary graduates, Mexico and the OECD average



Note: The literacy proficiency scale is divided into six levels: Levels 1 to 5 and below Level 1. Being "below level 1" the lowest and level 5 the highest category. The tasks at "below level 1" require the respondent to read brief texts on familiar topics to locate a single piece of specific information. At level 5, tasks may require the respondent to search for and integrate information across multiple, dense texts; construct syntheses of similar and contrasting ideas or points of view; or evaluate evidence-based arguments.
Source: OECD (2019[21]), *Skills Matter: Additional Results from the Survey of Adult Skills*, https://doi.org/10.1787/1f029d8f-en.

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Opportunities to strengthen the skills of youth in Tlaxcala

This chapter will provide advice for strengthening the skills of youth across all stages of education from early childhood education and care to tertiary education, and among both the general population and disadvantaged groups.

Based on the desk research of the OECD team, consultations with the Government of Tlaxcala and stakeholder interviews, the following opportunities to strengthen the skills of youth in Tlaxcala have been identified:

1. Boosting access and quality in pre-primary education.
2. Building a stronger teaching workforce.
3. Strengthening the responsiveness of secondary VET and tertiary education institutions to labour market needs.

Opportunity 1: Boosting access and quality in pre-primary education

Early childhood education (ISCED 0) is essential to the development of cognitive and socio-emotional skills that are important throughout life. International research supports this, finding that if a child falls behind in learning basic numeracy and reading skills prior to entering first grade, this learning gap continues to widen throughout primary and secondary school (McClelland, Acock and Morrison, 2006[22]). In addition, research indicates that early investment in the development of these skills facilitates the learning of other skills that are important for broader outcomes in adult life, such as health and decreasing intergenerational poverty (Johnson and Jackson, 2019[23]; Cunha and Heckman, 2007[24]).

Data from PISA 2018 lend support to these findings – on average across OECD countries, students who had attended pre-primary education for longer scored better in reading than students who had not attended. The mean reading score of students who had attended pre-primary education for one year (471 points), two years (491 points) or three years or more (493 points) was higher than the score of students who had not attended or had attended for less than one year (444 points).

In 2015, the proportion of Mexican 15-year-old students who were low performers was almost 20 percentage points higher for those with 0-1 years of pre-primary education than for those with 2-3 years of pre-primary education (OECD, 2018[25]). For this reason it is important to have a strong foundation of skills from the beginning of education to obtain the highest possible return on investment in education across all levels.

Access to quality early childhood education (ISCED 0) is equally essential to Tlaxcala's future prosperity and policy objectives. As previously discussed in the section above, enrolment rates for pre-primary education vary largely across different ages. It is also widely recognised that in Tlaxcala, children who can benefit most from early childhood education are those who face barriers to access. For these reasons, gaps in the gross enrolment rate reflect a significant opportunity for Tlaxcala to increase the access to and quality of early childhood education.

Tlaxcala could increase access to quality early childhood education by:

- Strengthening early childhood education programmes.
- Strengthening the initial training of pre-primary education teachers.

Strengthening early childhood education programmes

Ensuring that all children have access to early childhood education is important to enable them all to benefit from early skills development (Berlinski and Shady, 2015[26]). Early childhood education is considered a sensitive period of development that takes place from birth through to age 5. Constant stimulation and care

throughout this period is essential for skills development in several developmental areas, including motor skills, cognitive skills and socio-emotional abilities. For instance, socio-emotional and communication-related abilities are a focus during early infancy (age 0-2), and these skills can be built on during age 3-5 to introduce basic verbal and arithmetic reasoning (Eming, 2002[27]). Early childhood education can be provided through distinct policy approaches, such as increasing enrolment to pre-primary education, increased access to day care services and parental education programmes. In countries with relatively high levels of socio-economic inequality, like Mexico, access to pre-primary education services plays an especially important role in combatting social and economic inequalities among vulnerable populations. In Tlaxcala, stakeholders indicate that only around 20% of parents seeking pre-primary and early childhood education are able to secure it – illustrating the importance of expanding access to these education levels.

To provide children in Tlaxcala with better early childhood education opportunities, the Supérate programme – Tlaxcala's social policy flagship programme launched in 2019 – includes a component that targets children in both levels of early childhood education (pre-primary and early childhood education for children under 3). Based on stakeholder conversations, Supérate uses a holistic approach that targets families in poverty in Tlaxcala and seeks to improve their economic conditions by providing several services in tandem to address skills and productivity, financial inclusion, and early childhood development.

To reach families with children between the ages of 0 and 5 (covering children eligible for pre-primary and early childhood education), Supérate trains local "promotors" in basic nutrition and child care and stimulation. According to Supérate officials, these promotors then provide early childhood care services directly in the homes of beneficiaries through periodic visits during which they monitor infant growth and health, identify illnesses the child may have, and connect families to proper health care, while also educating children's care takers on how to provide better at-home care for their children. Supérate promotors receive in-depth training on early childhood development, which is organised into 10 weekly sessions by child age, level and skillset type; this same training is also offered to interested mothers (Supérate, 2020[28]). Supérate officials report that interest and attendance in this training is generally high among mothers. This guidance is important, as parents may not be well equipped to give proper basic early childhood care (nutrition, health) and often lack knowledge regarding the early stimulation of basic abilities such as fine and gross motor skills, which are essential for a smooth transition to primary education. According to Supérate stakeholders, these early childhood care services are meant to complement and not replace formal early childhood education.

During the COVID-19 pandemic, Supérate has continued to train promotors and provide early childhood care services for children aged 0 to 5, as this difficult time makes the need for childhood care support even greater. Supérate has begun working with 13 of the 60 municipalities in Tlaxcala, and stakeholders indicate that the remaining municipalities will be incorporated into the programme by 2022. Supérate's large-scale reach to families living in poverty gives the programme a strategic advantage in addressing barriers to accessing pre-primary and early childhood education for the underprivileged Tlaxcala population.

Although Supérate does not formally offer early childhood education for children under 3, childcare centres (*centros de atención infantil*, CAIs) and child development centres (*centros de desarrollo infantil,* CENDIs) offer this type of education. As mentioned by interviewed stakeholders, a substantial number of children who attend these programmes have parents who take advantage of these services in order to work. In 2019, the state of Tlaxcala also launched the Programme to Expand Initial Education (Programa para Expansión de la Educación Inicial, PEEI), which aims to increase the provision of services for early childhood education for children under 3 in Tlaxcala to meet demand. This initiative aims to improve several challenges currently faced at this education level, including limited financial resources for CAI equipment and infrastructure maintenance, training and preparation of CAI educational agents, and the insufficient number of education agents placed in CAIs. The PEEI will also increase the number of home visits offered by educational agents from SEP Tlaxcala to young children as part of non-school early childhood education for children under 3 (*educación no escolarizada)*. Currently, there are 14 such educational agents serving 212 families in Tlaxcala.

According to stakeholders, challenges to increasing enrolment for early childhood education are linked to limited federal funds. Compared to pre-primary schools, CAIs and CENDIs often require more resources, such as medically trained nurses, to provide safe care to infants, as well as other staff specialised in social work, infant health and child development. Stakeholders indicate that in Tlaxcala, many centres lack sufficiently trained staff to operate. Without these resources, existing institutions for early childhood education for children under 3 cannot operate at the necessary standards nor increase their enrolment rates. For pre-primary school enrolment, Tlaxcala has prioritised increased enrolment for ages 4 and 5 in recent years, potentially crowding out children age 3 from accessing pre-primary schools.

There are several infrastructural and resource related challenges for early childhood education for children under 3. A qualitative study by the National Pedagogic University in Tlaxcala found that existing CAIs and CENDIs are often oversubscribed, leading to reduced physical space for children (Ramos Montiel, 2019[29]). Staff or educational agents at CAIs also often lack educational resources and materials to facilitate stimulation and learning for all children. These limited resources can have direct impacts on the quality and safety of child development.

An overarching challenge that Tlaxcala faces is raising or maintaining the quality of early childhood education for children under 3 during this phase of expansion with the PEEI. Addressing infrastructural and resource constraints is an important first step; however, it does not guarantee improvement in development and learning outcomes. The Colombian experience in Box 2.1 shows that the expansion of pre-primary education did not produce the expected learning gains among students when physical investment was not accompanied with quality improvements in other dimensions. These measures are simple but can be effective, such as measures to ensure that increased investments maintain a minimum level of quality by setting teacher-to-student ratio limits and allocating funds to enrich the structural and pedagogical environment.

Box 2.1: Relevant international example of expanding education services: Pre-primary education in Colombia

In Colombia, enrolment rates in pre-primary education increased from 13% in 1990 to 84% in 2015, while in 2011 the government committed to triple expenditure on early childhood education. A recent study by Andrew et al. (2019[30]) analyses the "Hogares Infantiles" (children's homes) programme, which provides pre-primary education to children from disadvantaged backgrounds aged 5 and younger. Using an experimental design, the authors show that investment in what is often called "structural quality" (e.g. physical infrastructure, staff resources, pedagogical material) alone does not produce the expected learning gains in students. The authors found that when greater resources are given to schools, teachers tend to substitute their efforts and involvement with children and delegate some responsibilities to less experienced and less qualified teaching assistants. The study shows that these children saw no improvements in their cognitive and socio-emotional development on average, and that for some children the effect was even negative. In contrast, when structural quality was paired with pedagogical training for teachers, children's cognition, language and school readiness increased by around 0.15 of a standard deviation (SD).

Source: Andrew, A. et al. (2019[30]), *Preschool Quality and Child Development,* http://www.nber.org/papers/w26191.

From a demand perspective, although cultural and informational barriers hamper access to early childhood education, Supérate stakeholders and staff in close contact with parents indicate that some parents may not fully understand the benefits of pre-primary education, which leads to lower demand. Some families may have household constraints, such as working parents who require small children to stay at home instead of going to school so that they can take care of grandparents. For other households there may be asymmetries of power, where mothers may want to increase their own or their child's participation but may not be able to convince the other parent to do so.

Recommendations for strengthening existing early childhood education programmes

2.1. **Increase demand for early childhood education by targeting informational gaps on the educational benefits.** To address the principal demand-side limitation to participation in both pre-primary and early childhood education for children under 3, priority should be placed on raising awareness of the positive long-term educational benefits and addressing any potential sources of distrust in the education system. These efforts could include both targeted awareness campaigns for parents, as well as a "one-on-one" strategy that could entail specialised and trained experts tasked with contacting and establishing ongoing dialogue with individual parents.

2.2. **Establish minimum quality standards to safeguard the quality of education throughout and after the expansion of early childhood education for children under the age of 3.** The expansion of early childhood education for children under 3 through the PEEI will address shortcomings in the availability of spaces for under-served communities. To ensure that these investments are impactful, Tlaxcala should identify indicators of education quality. These could include the minimum level of preparation of teachers, the minimum level of additional in-service training they should receive, and the educational and didactic materials that centres will receive. Strict monitoring that ensures targets set for these indicators are met for all new and existing education centres could reduce the risk that expanding early childhood education will come at the cost of quality

Strengthening the initial training of pre-primary teachers

The degree of preparedness of pre-primary school teachers is important for children's learning and to ensure larger returns to the early development of cognitive and non-cognitive abilities. Studies show that children attain higher levels of mastery for numeracy and literacy skills when there are more positive child-staff interactions, which in turn are influenced by aspects of teacher quality such as pre-service qualifications and participation in in-service training (OECD, 2018[25]).

The current pandemic has magnified the importance of the initial training and preparedness of pre-primary teachers to deliver high-quality teaching (OECD, Forthcoming[31]). For example, teachers who received strong training in the use and effective application of ICT for educational purposes were better prepared for the change in teaching methods during the pandemic, and may also have had a stronger network of similarly prepared teachers to draw on for support. Schooling prior to entering primary education focuses on developing skills and abilities that prepare a child to acquire more applicable skills such as reading, writing, and verbal and mathematical reasoning. These abilities, which include the development of gross and fine motor skills, rely pedagogically on recreational, playful activities that engage a child's attention. These learning activities are more difficult to implement successfully through distance learning, and require additional effort to adapt effectively to a completely different learning modality.

The process of becoming certified as a pre-primary teacher in Tlaxcala follows regulations at the federal level by the national SEP. To become a pre-primary teacher, individuals must complete their studies at a teacher training institute, referred to in Mexico as a normal school, and pass exams to receive relevant certification (*título docente pre-escolar*). Because early childhood education for children under 3 was not formally recognised as an education level until 2019 under the New School Initiative (Nueva Escuela Mexicana), teachers at this level of education were not offered formal pedagogic training.

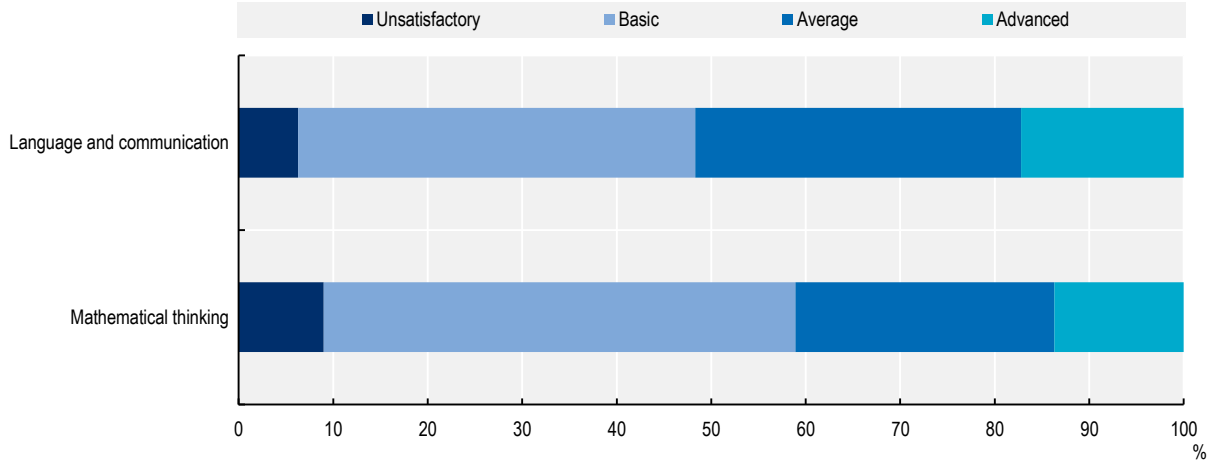
The initial training of pre-primary education teachers faces several challenges in Tlaxcala. The direct measurements of teacher preparedness and quality has been a politically sensitive issue in Mexico, leading to little or no systematic and reliable sources by which to monitor initial and ongoing pre-primary teacher preparedness. For instance, pre-primary teachers have a portfolio that they are required to update yearly with every diploma, additional education and training received throughout the year. However, stakeholders indicate that in practice teachers do not update these portfolios yearly as expected.

In terms of specific areas requiring strengthening, stakeholders indicate that on average, teachers have a positive disposition and attitude to support their students' learning, as well as solid theoretical and pedagogical backgrounds on which they can draw to support classroom learning. Stakeholders note that more preparation is needed in integrating digital technology with in-practice learning, supporting the development of socio-emotional abilities and communication with parents.

Although it is not possible to accurately assess teacher preparedness from student performance, it can highlight areas for potential improvement. Recent pre-primary student achievement tests indicate low student achievement. Prior to being replaced by PLANEA in 2016, the Exams for Quality of Educational Achievement (Exámenes para la Calidad y Logro Educativos, EXCALE) measured learning for children in grade 3 of pre-primary (age 5) at the national level – although PLANEA measures the same subjects with the same methodology as EXCALE. The most recent EXCALE assessment for pre-primary in 2011 revealed that for reading comprehension and mathematics, between 40% and 50% of Mexican students demonstrated a basic mastery of skills. Figure 2.7 shows the distribution of levels of achievement in language and communication, and mathematical thinking of the Mexican student population of children age 5, corresponding to grade 3 of pre-primary school.

Figure 2.7. EXCALE achievement levels in language and communication, and mathematical thinking in 2011

Children in grade 3 of pre-primary school, Mexico



Source: INEE (2011[32]) Quality of Educational Achievement Exams (Exámenes de la calidad de logro educativos, EXCALE) for 3rd grade preschool students (databases), https://historico.mejoredu.gob.mx/evaluaciones/planea/excale/tercero-preescolar-2010-2011/.

StatLink https://stat.link/bugitm

A survey by Together for Learning (Juntos por el Aprendizaje), a coalition of national education stakeholders, collected feedback from teachers of early childhood education for children under 3 across Mexico in 2020, and highlighted deficiencies in pre-primary teacher preparation. Only 4% of teachers surveyed had a post-graduate degree, and 35% had completed up to upper secondary education. In relation to the COVID-19 pandemic, 17.6% of surveyed teachers reported having difficulties training or

retraining as needed to continue providing distance learning. Teachers also highlighted that they did not feel prepared to adequately use technology for educational purposes: approximately 40% of surveyed teachers reported feeling slightly or not capable at all of searching for information on the Internet, and almost 50% reported feeling slightly or not capable at all of generating documents, writing and making simple calculations (Juntos por el aprendizaje, 2020[33]). Stakeholders confirm that the situation is similar in Tlaxcala. To address these issues in Tlaxcala, a teacher training programme was implemented through ICATLAX to support teachers with digital learning challenges. Approximately 8 000 teachers in Tlaxcala have received this training so far.

For pre-primary education, survey responses generally reflected that teachers were not adequately prepared to maintain effective education services and previous levels of quality early childhood education and stimulus when COVID-19 arrived (Juntos por el aprendizaje, 2020[33]). For instance, several pre-primary school teachers reported not knowing how to use digital tools with children, which led to difficulty finding playful or recreational activities for the learning process. Teachers also reported not feeling capable of using online platforms and information resources and technologies.

Although not directly related to curricular or pedagogic preparation, teachers in Tlaxcala also face challenges regarding the quantity and quality of interaction between teachers and parents, especially in the context of the COVID-19 crisis. In Tlaxcala, teachers have reported difficulties communicating and planning learning activities for children with parents, especially those who do not have access to social networks or the Internet. For pre-primary school students, distance learning implies less time spent directly in communication with students, as many learning activities require direct guidance by an adult. Beyond the guidance and co-ordination of activities, parents can also have an important effect on learning while using ICT (OECD, 2020[34]). According to PISA 2018 results, high levels of emotional support from parents is linked to higher levels of child self-efficacy, which encourages confidence in the child to increase their educational effort. It is also linked to better performance across all PISA subject matters, in particular for students who use ICT (OECD, 2020[35]). This evidence stresses the importance of collaboration between teachers and parents at the pre-primary education level.

Engagement with parents is a key part of process quality in pre-primary education centres, and has been shown to be strongly associated with children's later academic success and socio-emotional development. Good communication between parents and pre-primary education staff is critical to enhance the knowledge of staff about the children they work with and to ensure the continuity of learning for children at home (OECD, 2011[36]). Box 2.2 highlights two case studies of how Chile and Germany have developed strategies to improve teacher preparedness for communicating with parents in the context of distance learning for young children to ensure educational continuity.

Box 2.2. Relevant international example: Ensuring educational continuity for children in early childhood education centres

Chile

Following the closure of early childhood education centres in Chile, the Undersecretary of Early Childhood Education worked with the Behavioural Unit from the Innovation Hub of the Chilean government to adapt and implement an educational programme that was first put into place at the beginning of 2020. The programme, based on the "Boston Basics" from Harvard University, seeks to support the early learning of children aged 0-2 through the participation of parents and caregivers as primary educators. To this end, the programme communicates and disseminates information (through website, videos, etc.) on simple and powerful actions that support children's development. In response to the closure of early childhood education centres, the programme has been sending text messages with information, facts and tips with subtle instructions and advice to parents of children staying at home. Messaging is based on behavioural insights and communicates five main concepts or ideas to interact with children: 1) give them all your love; 2) talk to them and sing with them; 3) count, group and share; 4) explore playing; and 5) read and comment on children's stories/books. The programme is currently being evaluated.

Further initiatives have been launched by the main providers of early childhood education in the country. The Integra Foundation (operating more than 1 200 early childhood education centres) provides families with activities and advice related to the Early Childhood Curriculum Framework through a phone application (IntegrApp) to improve parental engagement in the context of the pandemic. JUNJI, the country's main early childhood education provider, has also released an application (Mi Jardín JUNJI) that facilitates communication between parents and their children's teachers. For example, parents can share with teachers the activities they are doing with their children and receive feedback. JUNJI and the Undersecretary of Early Childhood Education have made available a range of digital resources on their websites. The materials target specific ages according to the curriculum framework and include videos and games to improve different areas of children's learning and development (e.g. motor skills, language skills, socio-emotional development, and grouping and counting skills).

Germany

In Germany, the early childhood education sector is regulated and managed at the level of the states (*länder*). The websites of the respective state ministries provide a range of information and materials that seek to support early childhood education staff in continuing to work with parents and provide educational continuity for children during centre closures. In addition to best practice examples for concrete implementation in day care practice, staff are also provided with background information on media use to be able to advise parents on this topic. The general approach has been to emphasise the importance of continuing to work with parents and children, especially with families whose children do not yet attend the day care centre. Many innovative practices have emerged in this context from early childhood education providers and centres themselves, such as the use of video-conferencing tools in pedagogical practice, online exchange with parents on a regular basis (i.e. to advise and help families in stressful situations at home) and providing online/offline materials for pedagogical activities at home.

Source: OECD (2020[37]), *Building a High-Quality Early Childhood Education and Care Workforce: Further Results from the Starting Strong Survey 2018*, https://doi.org/10.1787/b90bba3d-en.

To smooth the transition to distance learning for initial and pre-primary education levels, Tlaxcala has responded to education quality related issues stemming from the pandemic by organising informal regular conversations with teachers to identify the main challenges. These spaces have revealed how pre-primary

school teachers have been facing the challenges of distance learning. Teachers have generated their own teaching content, videos and instructions for learning activities for parents to follow at home with children. Many have used online social platforms such as WhatsApp to share and better co-ordinate with parents in the absence of regular in-person discussions. Moving forward with distance learning it will become important to equip teachers of pre-primary and early childhood education for children under 3 with the skills to communicate and co-ordinate learning activities effectively with parents.

Recommendations for strengthening the initial training of pre-primary teachers

2.3. **Gather and centralise recently acquired pedagogical knowledge and lessons learned from in-service teachers on how to effectively engage with students and parents during the pandemic.** Although 2020 was a difficult year, it also entailed a significant amount of learning and adaptation to online learning for pre-primary teachers. However, without the centralised and systematic documentation of the knowledge accumulated by individual teachers, this know-how could be lost, or shared with only a small group of individuals within a teacher's network. It would therefore be valuable to document and centralise the learning material and know-how generated and learned by teachers to capitalise on existing efforts and provide incoming and/or less experienced teachers with a bank of knowledge to draw on as they continue to address distance-learning related challenges in the future.

2.4. **Provide teachers with opportunities for specialised in-service teacher training on how to develop students' socio-emotional skills.** The development of students' socio-emotional skills can support them to better adapt to learning challenges and to changes in the labour market and society in the future. Tlaxcala can better prepare pre-primary education teachers to strengthen students' socio-emotional skills by expanding teachers' access to existing or modified in-service training courses. These efforts could be co-ordinated with Tlaxcalan institutions such as ICATLAX, which has already been actively providing teachers with training resources to address pandemic-related teaching challenges.

2.5. **Improve communication and co-ordination between teachers and parents by establishing standard practices, such as initial meetings to set expectations and social-norm-oriented practices for parents.** Better communication and co-ordination strategies with parents can improve parental engagement and the learning environment at home for students. To improve communication, teachers could conduct an initial meeting at the onset of the school year to highlight the importance and benefits of parental involvement and to establish a feasible plan of action for collaboration throughout the year. It may also be helpful for teachers to manage communication in small groups of parents (three or four) to leverage social normative expectations and the resulting collective peer oversight to motivate parental engagement.

Opportunity 2: Building a stronger teaching workforce

In the context of supply-side factors in education, teacher preparedness has demonstrated stronger impacts on school learning than, for example, infrastructural investments and the increased provision of school resources (Glewwe and Muralidharan, 2016[38]). Recent literature indicates that teacher preparedness in the classroom has important long-term impacts on student outcomes. For instance, Chetty, Friedman and Rockoff (2013[39]) found that a one standard deviation improvement in teacher value added in a single grade raises the probability of attending higher education at age 20 by 0.82 percentage points, relative to a sample mean of 37%.

In Mexico, approximately 36.6 million students and 2.1 million teachers lost access to education institutions during the COVID-19 pandemic (Juntos por el aprendizaje, 2020[33]). In many ways, the effort and competences required by teachers has increased greatly due to the pandemic. Teachers now are not only expected to manage traditional pedagogical practices and curricular content, but must also adapt quickly to apply this knowledge in a new distance learning setting. In Tlaxcala, both initial and in-service teacher training courses were severely disrupted. Institutes offering initial teaching training, such as normal schools, as well as all in-person in-service teacher training courses were forced to close. As many of these were not operationally prepared to continue offering educational services online, this led to delays and new challenges for the consistent provision of professional development services. It is likely that mixed learning models, where education is part in-person and part online, will remain in use in the short term.

In this context, the challenge of catering to students with different learning needs in the classroom has been compounded as the education process has shifted to distance learning (OECD, 2020[34]). For instance, modified distance learning has expanded the role of stakeholders in the learning process, including parents and teachers, and thus requires more careful collaboration among these stakeholders. This underscores the importance of preparedness and competencies for all stakeholders, especially teachers and school principals and leaders, as well as the improvement of processes through which these skills are acquired.

This opportunity develops and provides policy recommendations for two aspects of the teaching profession:

- Strengthening initial and in-service teacher education and training.
- Improving the management skills of school principals and leaders.

Strengthening initial and in-service teacher education and training

One of the main challenges for policy makers is how to sustain teacher quality and ensure that all teachers continue to engage in effective ongoing professional learning. To address this challenge it is important to view teachers as lifelong learners. This perspective considers that teachers should have the necessary tools to build upon their initial knowledge in a way that facilitates their growth. In the framework of a lifelong learning approach it is important to address challenges to improving teacher preparedness both from the outset of their career (initial training) and as part of continuous (in-service) skills strengthening.

Initial teacher training is an opportunity to endow teachers with knowledge and proven best practices from the outset. Initial training equips teachers with the knowledge and skills to teach effectively and to meet the needs of their institution and students, according to their education level. The duration of education, the networks that teachers develop, the programme content and the quality of the education provided overall determine the extent to which initial training prepares teachers to launch and grow on their career path. In-service teacher training is important to provide a continuous means to improve the quality of the teacher workforce and retain effective teachers over time. In addition, it can facilitate teachers' transition into the workplace and respond to the weaknesses that teachers may have when they complete initial preparation. In-service teacher training is essential as a mechanism to continuously adapt to unforeseen or gradual changes in the social and learning environment.

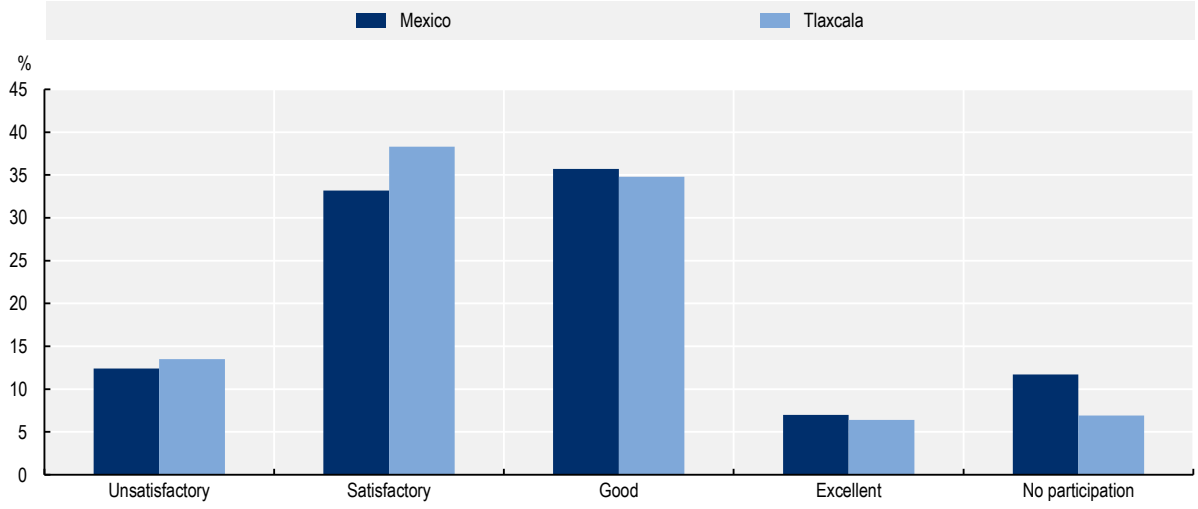
In Tlaxcala, the Department for Professional Teaching Service (SPT) within SEP Tlaxcala's Directorate of Educational Evaluation (Dirección de Evaluación Educativa, DEE) is responsible for regulating initial teacher training. SEP Tlaxcala also operates teacher colleges (normal schools). The state of Tlaxcala has six teacher training schools – four are normal schools, and there is the Teacher Update Center (Centro de Actualización de Magisterio, CAM), and the National Pedagogic University (Universidad Pedagógica Nacional, UPN). These schools largely provide initial teacher training (where individuals formally enter the teaching profession) (DGESPE, 2016[40]). They also provide professional development for basic education teachers, and give private providers of basic education authorisation to operate.

In-service teacher training in Tlaxcala can be pursued in two main ways. Teachers can access online training tools and sessions offered at the federal level by SEP Tlaxcala. In Tlaxcala, the SPT is in charge of in-teacher training within SEP Tlaxcala and the Teaching Professionalization (Profesionalización Docente, PRODEP), which offers a catalogue of teacher training courses for teachers to update their skills and professionalise. Teachers can also enrol in courses at local normal schools for teachers, or with ICATLAX.

The level of teacher preparedness in Tlaxcala varies significantly. According to the annual evaluation of teachers implemented by the SPT in 2016, fewer than 10% of teachers obtained an excellent level of performance, and only 14% obtained an unsatisfactory result (Figure 2.8).

Figure 2.8. A significant share of teachers demonstrates unsatisfactory performance

Teacher evaluation results by performance level in Mexico and Tlaxcala



Source: Government of Tlaxcala (2017[41]), *State Development Plan of Tlaxcala 2017-2021*.

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The evaluation of teachers is not mandatory by law, so statistics are based only on teachers who opted to take the exam (more than 90% in Tlaxcala). Teachers decide each year whether they take the exam. While there is no official data on the profile of teachers who opt out of the SPT annual evaluation, stakeholders indicate that often teachers who fear the consequences of low performance or with less motivation decide not to participate.

Closing gaps in teacher preparedness starts with improving the initial training of teachers. In Mexico, the initial teacher training exiting STP exam results have consistently reflected shortcomings in the preparedness of incoming teachers. In 2015, half of individuals who took the exam to be granted entry to the teaching career received a result of “non-suitability”, indicating that they were not sufficiently qualified to occupy a teaching position. These results could suggest that the quality of initial training is not adequate to prepare upcoming teachers, or that the exam is too rigorous and does not accurately assess teaching abilities. Stakeholders indicate that often in Tlaxcala, new teachers are equipped with sufficient pedagogical knowledge, but lack the in-practice expertise to apply this knowledge. Teachers report feeling unprepared due to initial teacher training that does not reflect up-to-date educational innovation in pedagogy and learning theory.

The evidence suggests that there is large variation in the level of preparedness of individuals who have completed their training as teachers and are beginning their profession. This could be because teachers receive their initial training at different types of institution. For example, teachers of lower secondary may receive their training at the CAM, UPN or a normal school, but may also pursue a teaching specialisation at a higher education institution that can be public or private. Teachers of upper secondary education levels are only required to receive their degree from a higher education institution specialising in the subject they will teach. In Tlaxcala, there are four normal schools, in 2019 these were staffed by 123 instructors that trained a total of 790 future teachers (SEP, 2019[4]). The diversity in the type and number of institutions matters because each is organised and prepares teachers to its own standards. This makes it difficult to standardise the quality and content of teaching instruction and training that all incoming future teachers receive, which can often lead to these institutions not preparing candidates properly. Interviewed stakeholders indicated that different types of institutions operated and managed differently leads to differences in how teachers are prepared to deal with challenges in the classroom learning environment.

In an effort to address teacher preparedness at the beginning of the teaching career, the 2017 federal educational reform required that all incoming teachers for all education levels are evaluated not only upon completion of their initial training in order to be certified, but also during the first three years of their teaching career. This move was intended to generate incentives to better prepare individuals to pursue a teaching career, and to strengthen a healthy culture of evaluation and feedback. Stakeholders in Tlaxcala indicate that the recent reform has increased demand for more training and retraining courses, particularly among teachers who completed studies after the reform was implemented. It is not yet clear how the reform has impacted teacher attitudes and perceptions regarding continuous evaluation. The reform presents an opportunity for Tlaxcala to make a long-lasting positive change in how teachers view assessments by taking advantage of the first three years of a teacher's career to reinforce the link between assessment and effective guidance and support.

The gaps in the preparedness of Tlaxcala's teachers also reflect several limitations in the in-service teacher training system. Stakeholders indicate that there are insufficient resources for teachers to maintain and improve their skills (e.g. insufficient course availability). This means that teachers often also take short-term courses (*diplomados*) offered online by several universities across Mexico. For instance, it is common for teachers to take distance learning courses from the Technological Institute of Monterrey (Instituto Tecnológico de Monterrey), which provides training on online and digital pedagogical tools and resources.

In addition to potential gaps in the supply of in-service training opportunities, challenges around teacher preparedness are likely also linked to a lack of demand for in-service training. Federal law does not require in-service teachers to receive additional in-service training, which leads to many teachers, often those who might need it the most, to avoid such training. However, as mentioned the recent reform has generated an increase in teacher demand for retraining courses, although it is largely from teachers who have been admitted to the public teaching career since 2017. Even in settings where in-service training is not compulsory, there are several avenues to compel teachers to engage in professional development, as demonstrated by the case of Norway in Box 2.3.

Box 2.3. Relevant international example: Promoting the participation of early childhood education staff in continuous professional development, Norway

Norway is implementing an ongoing national strategy (2014-22) to enhance the professional competence of all early childhood education staff. Similar to Mexico, there is no legal requirement for staff to participate in professional development activities. Although the Norwegian strategy establishes financial incentives, these are indirect in nature and targeted mainly at early childhood education providers and centres to compensate for teacher absences while they are in training. Early childhood education teachers can also apply to participate in state-subsidised vocational training and in further education. The Directorate for Education and Training pays for participation in the programme, while the early childhood education provider/owner pays for their employees' travel and expenses. These multi-actor funded strategies both generate and promote the alignment of incentives across stakeholders in local educational communities, which itself may act as an incentive for teachers to participate in professional development.

The strategy also includes a mentoring scheme for targeted groups of teachers, such as newly employed graduate teachers in early childhood education working with children under the age of 3. The objective of the scheme is to ensure a good transition between initial preparation studies and the profession. The strategy also aims to help recruit, develop and retain talented kindergarten teachers and leaders by strengthening their skills from the outset. An evaluation study showed that the newly employed graduates mostly agree that the mentoring arrangement had helped them develop relevant skills for their work with children, given them confidence and self-awareness of their own competence, and reduced the "practice shock" in the workplace.

Source: OECD (2020[37]), *Building a High-Quality Early Childhood Education and Care Workforce: Further Results from the Starting Strong Survey 2018*, https://doi.org/10.1787/b90bba3d-en.

The provision of high-quality in-service training for teachers in Tlaxcala is hampered by the absence of a structured and systematic process to understand teachers' level of competences. Political sensitivity regarding the use of standardised testing as a proxy for teacher quality further complicates the ongoing assessment of teacher training. While the SPT entrance exams reflect the competency levels of teachers at the start of their initial teacher training, there are no systematic centralised monitoring systems for teacher quality. In Tlaxcala, this makes the monitoring of improvement, and of areas in need of improvement, a difficult task. Stakeholders in Tlaxcala indicate that training courses are often recommended or required without any knowledge of teachers' profile or courses they have previously taken. This results in an inefficient use of teachers' time if they end up receiving repeated training, or in reduced teacher motivation to receive training overall. Box 2.4 illustrates a measurement framework based on data from the Teaching and Learning International Survey (TALIS) to monitor and measure the participation and trajectory of in-service and initial teacher training.

Box 2.4. Monitoring and measuring the participation and trajectory of in-service and initial teacher training: A measurement framework based on TALIS data

In 2020, the OECD developed a basic structure for systematically assessing the breadth and trajectory of teacher training based on data from TALIS. The structure measures indicators of breadth, which relate to the variety of topics covered in training activities, and indicators of training trajectories, which relate to the amount of training recorded for each teacher in a specific thematic area. Both types of indicator are summarised below:

Breadth of training

Breadth indicators relate to thematic breadth, which is the variety of topics included or covered in training activities. Thematic breadth is measured as the number of areas that staff report having covered at different points in time, ranging from zero to nine thematic areas (child development, child health, classroom management, families, monitoring, transitions, playful learning to facilitate play with problem solving, diversity and pedagogy). Breadth of format relates to the variety of types of in-service training activities (e.g. in-person, peer observation), ranging from zero to ten activities. The indicators for breadth of training are:

- Number of thematic areas covered by teachers in their pre-service training programmes.
- Number of thematic areas covered by teachers in their recent in-service training programmes.
- Number of thematic areas covered by teachers both in their pre-service and in-service training.
- Number of thematic areas in which teachers report a high level of need for professional development.
- Number of in-service training activities in which staff participated during the last 12 months.

Training trajectories

Trajectory indicators refer to a teacher's training history within a specific thematic area. Trajectories aim to capture teachers' exposure to specific training topics (i.e. whether teachers covered a given area in their training, and how many times). Within each area, four possible and mutually exclusive trajectories are distinguished.

- Teachers that have never covered a given thematic area (in neither pre-service nor recent in-service training).
- Teachers that covered a given thematic area in pre-service but not in recent in-service training.
- Teachers that covered a given thematic area in recent in-service but not in recent pre-service training.
- Teachers that covered a given thematic area both in pre-service and in recent in-service training.

Using a structure such as this can be useful in terms of individualised guidance for the professional development of teachers and guiding state-level educational teacher training policies.

Source: OECD (2018[42]), PISA 2021 ICT Framework, https://www.oecd.org/pisa/sitedocument/PISA-2021-ICT-framework.pdf.

The insufficient monitoring of teachers' need for in-service training in Tlaxcala has becomes even more important in the context of distance learning requirements as a result of COVID-19. Federal law requires teachers to pass SPT exams that focus on knowledge and skills for teaching practice, intellectual skills, and ethical-professional responsibilities to gain a teacher certification (Hincapie, Cruz-Aguayo and

Rodriguez, 2020[43]). However, these examinations were not designed to exhaustively assess teachers' ICT abilities, which means that while some teachers may be motivated once certified to strengthen their ICT skills, there may be many with poor ICT skills. This raises the importance of being able to assess such skills once teachers are in-service, as teachers' appropriate use of digital technology is essential to improving student learning, as detailed in Box 2.5.

Box 2.5. Teachers' use of ICT for teaching: Evidence from PISA

Teachers' pedagogical practices and teaching strategies regarding ICT largely determine the extent to which ICT use in the classroom will result in improved cognitive achievement. Research underscores the potential of computer-assisted learning to strengthen student achievement (Roschelle et al., 2016[44]) (Pane et al., 2016[45]) The PISA 2021 ICT Framework report summarised key teacher ICT practices:

- Take advantage of ICT to prepare lessons and discover new material. For example, teachers can use the Internet and other online applications to find suitable learning resources, or rely on specific software to present certain activities.
- Identify, assess and select the ICT resources that best fit their learning objectives, context and pedagogical approach. Sometimes, they may even have to adapt or create new digital resources.
- Discuss innovative teaching practices with their colleagues, share and co-create digital resources, monitor students' achievement across subjects or assess their own digital practices, and engage in professional development activities.
- Leverage ICT to inform parents of their child's progress and difficulties, encourage parents to help monitor their child's homework, and share homework assignments

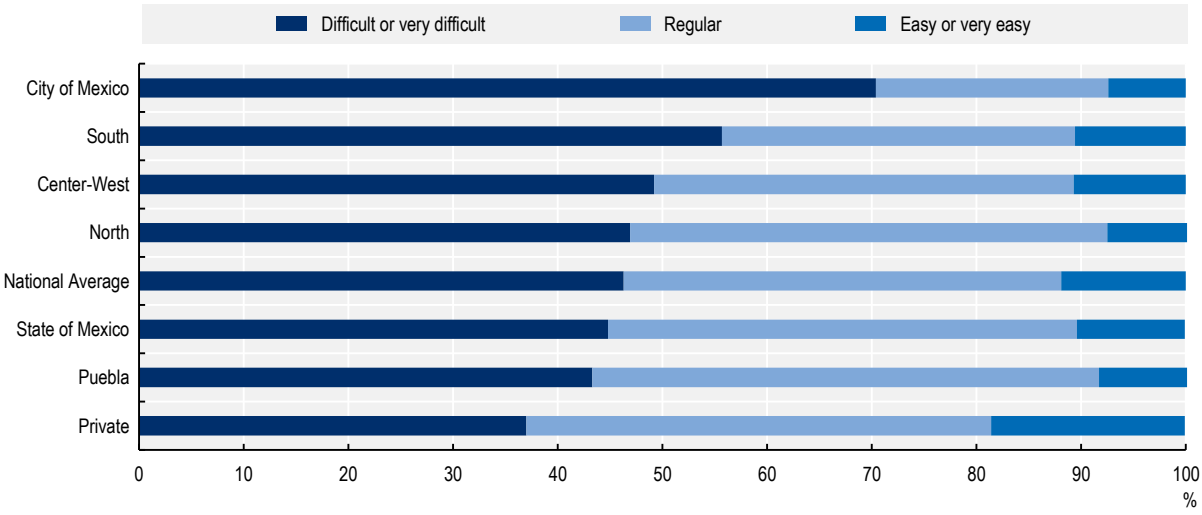
Source: OECD (2018[42]), PISA 2021 ICT Framework, https://www.oecd.org/pisa/sitedocument/PISA-2021-ICT-framework.pdf.

The importance and absence of these systems has generated a plethora of independent organisations launching ad hoc assessment surveys that have yielded helpful insights regarding teacher preparedness challenges. According to a national survey carried out by Together for Learning, teachers surveyed from all Mexican states reported accessing videos and webinars as tools to improve effectiveness, while 22.5% reported difficulties accessing materials and resources. In addition, 39.7% reported difficulties following the original curricular plan, and 23.8% reported difficulties self-training or self-updating. These findings point to potential ICT skills gaps and ICT-related educational challenges in Tlaxcala. While the need for ICT skills assessment can often be addressed by independent surveys, a state-organised survey in Tlaxcala could provide results that support a better policy response.

The insights gathered from independent surveys in 2020 further underscore the importance of improving teachers' preparedness to deliver distance learning through high-quality in-service training. According to a survey focused on the use of ICT in Mexico, which surveyed teachers in basic and secondary schools in all 32 Mexican states, teachers reported that they feel insufficiently prepared for undertaking the task of education at a distance. The survey shows that in the southern region of Mexico, which includes Tlaxcala as well as nine other states (Chiapas, Guerrero, Campeche, Morelos, Oaxaca, Quintana Roo, Tabasco, Veracruz, Yucatan), on average 64% of surveyed teachers reported spending two hours or less on distance learning, and no teachers in public schools reported spending seven hours or more on distance learning. Figure 2.9 reveals that teachers in the southern region also report the highest level (56%) of perceived difficulty in conducting distance learning compared to all other regions.

Figure 2.9. Teacher perceived difficulty to carry out distance learning

National average and average for selected Mexican states



Source: Consulta Valora (2020[46]) Docencia en tiempos de Pandemia. April 2020. https://valora.com.mx/wp-content/uploads/2020/05/200424-sondeo-educaci%C3%B3n-en-pandemia.pdf.

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Recommendations for strengthening initial and in-service teacher education and training

2.6. **Increase teacher participation in periodic needs-based training by creating positive incentives.** While there are no legal requirements for teachers to participate in in-service training, Tlaxcala could establish several incentives to encourage teachers' participation. Non-pecuniary incentives such as campaigns that generate social recognition or symbolic merit from local authorities highlighting successful teacher case studies have been proven effective in educational settings. These initiatives should also aim to create a culture of positive linkages and feedback between teachers' evaluation and training. The scheme of incentives could rely on a monitoring system to diagnose levels of ICT and other relevant competencies for teachers so that training undertaken and offered to teachers are on topics that are relevant for them and for which they have not yet received sufficient training.

2.7. **Promote the informal exchange of knowledge and know-how between teachers through organised mentoring and learning group initiatives.** To better prepare teachers for success in the classroom, complement formal in-service training with mechanisms for teachers to exchange their specialised and accumulated knowledge and experience. Initiatives that foster exchange between experienced and younger incoming teachers, such as mentoring and role model schemes, and small, facilitated learning groups, have been shown to be effective in improving teacher preparedness.

2.8. **Foster stronger links between in-service and initial teacher training in the first years of a teacher's career by providing individualised assessment-based guidance and support.** Although the state's ability to change legislation and official procedures regarding initial teacher training is limited (e.g. states cannot modify the official certification exam process), Tlaxcala can build upon federal level initiatives to strengthen the quality of initial teacher training in the state. For instance, the first three years of evaluation for new teachers could be more strongly linked to receiving feedback for continuous improvement, and triangulated with additional support from higher levels of educational leadership. This could entail individualised in-service feedback and guidance for teachers based on their individual examination results.

2.9. **Identify the key aspects of high-quality initial teacher training, and standardise these aspects across all initial teacher training institutes.** For each education level, initial teacher training requires learning similar skill sets and key level-specific knowledge and content. To ensure that all teachers have an opportunity to complete their training with the skills and knowledge they need, all initial training institutions must provide high-quality training as defined by key components that can be assessed and determined by teachers themselves. These key components could include more exposure to the in-practice use of digital technology to generate learning opportunities, more in-practice learning experiences that complement theoretical coursework, and instructors at initial teacher training institutes who are well equipped to carry out this training

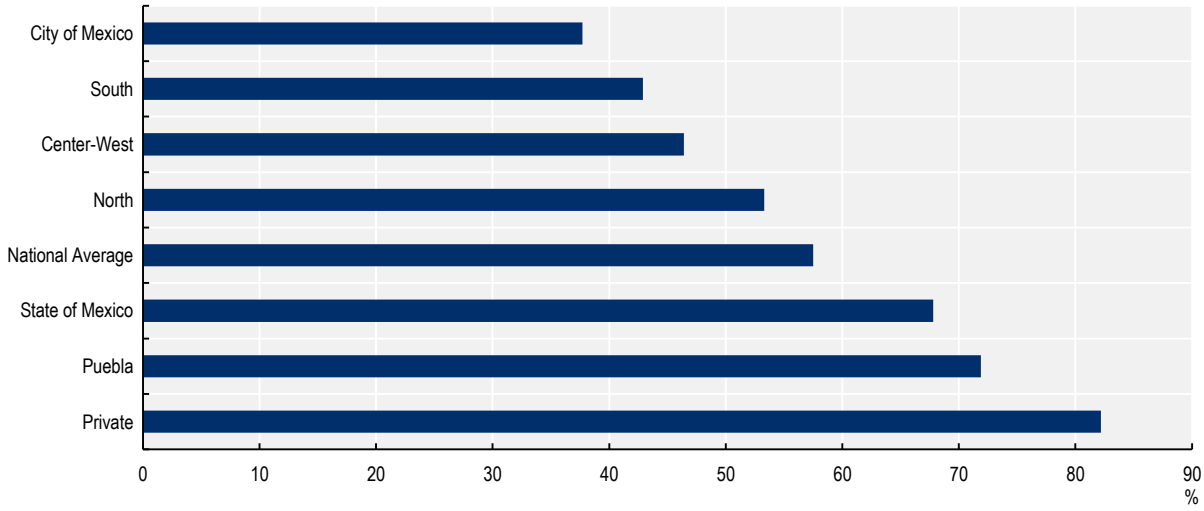
Improving the management skills of school principals and leaders

School management and education authorities play an important role in improving teacher preparedness. School principals can provide teachers with resources and feedback on curricular and pedagogical practices. They also have control over the school and learning environment, the capacity to identify and address context-related challenges that teachers face, such as external health or safety threats or negative shocks to the school community, and can positively motivate teachers (Botcher Jacobsen, Hvitved and Bogh Andersen, 2013[47]). At the same time, school principals can empower teachers to have a voice in developing the school mission, and can promote teacher involvement and leadership. They can also foster collaboration between teachers, which is essential for innovative and effective practices.

The COVID-19 pandemic has further underlined the importance of the effective management and leadership skills of school principals and leaders. With the abrupt transition to distance learning, teachers across all levels of education have faced drastic changes in curriculum, pedagogical practices and course planning. During such a time, the leadership of principals and other educational authorities is important to guide and support teachers. However, the perceived support that teachers receive from educational leadership officials varies greatly. As can be seen in Figure 2.10, in the southern region, where Tlaxcala is located, teachers are least likely to report receiving support from educational authorities (42.9%).

Figure 2.10. Teacher perceived support from the school director or other educational authority during the COVID-19 pandemic.

Selected Mexican states



Source: Mancera Corcuera et al. (2020[48]), *Pandemia: maestros, tecnología y desigualdad*, https://educacion.nexos.com.mx/?p=2286.

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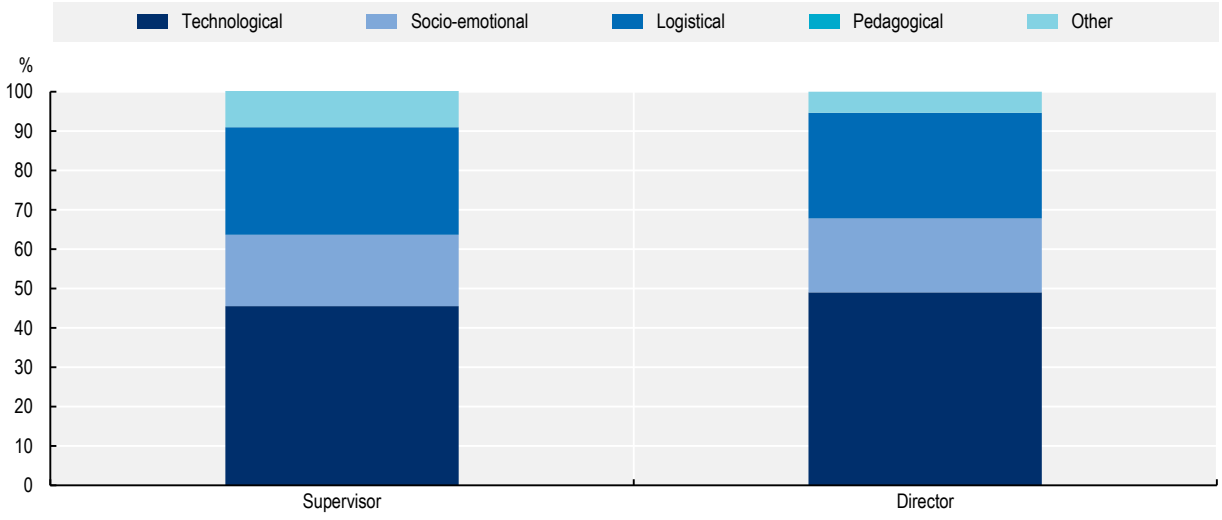
In Mexico's national education system, educational leadership authorities across all states are organised in terms of hierarchy. Teachers are directly supervised and managed by school principals. Both teachers and school principals report to and are supervised by zone supervisors (*supervisores de zona*). Zone supervisors usually oversee 11 schools each on average, and are in turn supervised by one sector co-ordinator (*jefe de sector*). Sector co-ordinators supervise between 5 and 14 zone supervisors and directly report to the department co-ordinator (there is one for each education level). The department co-ordinators directly report to the relevant directorate in SEP Tlaxcala, depending on education level. The sector co-ordinators are responsible for the proper planning and execution of educational planning for the entire geographic sector, working closely with zone supervisors to guide school principals and teachers. The sector co-ordinator is also responsible for identifying needs and improvement areas for zone supervisors. The zone supervisors' responsibilities include providing lesson planning and pedagogic support to teachers within the stipulated zone. They also monitor and report on teacher performance in class, and are in charge of managing the distribution of educational resources and services within their zone. More recently, pedagogical technical advisors have been incorporated in a leadership position to supports principals and teachers in their technological preparation. They fall under the zone supervisors.

In Mexico, school principals and leaders indicate several areas where they could strengthen their skills. Figure 2.11 indicates that, similar to teachers (see section above), school directors and zone supervisors need additional technological and socio-emotional support to perform their duties.

Figure 2.11. Schools directors and zone supervisors need additional technological as well as socio-emotional support to perform their duties

Percentage of school directors and zone supervisors, by type of support needed



Source: Juntos por el aprendizaje (2020[33]), *Pre-school survey*, https://juntosxelaprendizaje.mx/.

StatLink https://stat.link/msudat

In Tlaxcala, in addition to the areas for improvement highlighted above, stakeholders indicate that zone supervisors and school principals face limited resources, which hampers their ability to fulfil their management duties. In particular, school principals indicate that they often lack sufficient administrative personnel, while sector and zone supervisors indicate that they would benefit from support from trained pedagogical technical advisors, a position which has only recently been formalised. To address the resource and training limitations of educational leadership, schools principals can be provided with time to improve their leadership skills as in Germany in Box 2.6.

Box 2.6: Relevant international example: Supporting educational leadership in Germany

Within the framework of the Good Childcare Act (*Gute-Kita-Gesetz*), the federal government enables the states to further develop day care for children, and provides financial resources for this purpose. The funding period is set until 2022, with a total investment of EUR 5.5 billion. The framework of the Good Childcare Act describes various fields of application and intervention, but the 16 states can decide which and how many fields are chosen, and how much funding to allocate to each field.

The state of Baden-Württemberg, for example, has allocated 90% of its budget to strengthen the role and tasks of education centre leaders, and defines the following objective: “ensure management time and quality leaders”. In addition, centres in Baden-Württemberg, regardless of size, give centre leaders at least six hours per week for leadership tasks. Centres with larger groups of students should receive an additional two hours of leadership time. The state of Baden-Württemberg plans to offer further training for centre leaders with a basic qualification and optional modules on topics such as communication and the management of conversations.

Source: OECD (2020[37]), *Building a High-Quality Early Childhood Education and Care Workforce: Further Results from the Starting Strong Survey 2018*, https://doi.org/10.1787/b90bba3d-en.

Schools principals and supervisors with low management abilities and leadership skills in Tlaxcala partly reflect Mexico's legislation governing the professional development of pedagogical and managerial staff in schools. Prior to the 2013 national education reform, promotion to positions with management functions or supervisory responsibility could only be obtained by the vertical progression of leadership positions. For example, for a teacher to become a zone supervisor, they first had to become a school principal. Furthermore, the procedure and requisites to be promoted to the next leadership position were not transparent, nor directly based on formal examinations of knowledge. The modification of Article 3 of General Law of Education in 2013 replaced this vertical progression with a promotion system that consisted of opposition contests. These opposition contests sought to guarantee the suitability of the knowledge and abilities that correspond to a given leadership position by awarding promotion based on the ranking of scores for an examination specific to each level of leadership. However, in practice this system allows an applicant to obtain a given leadership position without having been in the position immediately below, which means they may lack practical experience.

The legislative change to discontinue the vertical career progression system has led to a significant challenge regarding education leadership in Tlaxcala. While the system places more weight on applicants' basic understanding of pedagogical and curricular knowledge, an unintended negative consequence is that individuals who obtain a position after high examination scores may have little or insufficient experience. Stakeholders indicate that this is important for positions of leadership working directly with teachers, as some officials do not have the resources and experience to provide teachers with proper support and guidance. Although vertical career progression was reinstated in January 2021, there are still many teaching professionals who have been placed in positions under the previous regime who still lack support and training. There is currently no formal and standardised training for any education leadership position beyond the study guide for the exams to access each position.

An independent yet linked challenge in Tlaxcala is the interaction between teachers, school principals and higher education leadership officials. Stakeholders indicate that most interactions between teachers and school principals and zone supervisors often relate to monitoring activities for teachers, which risks being interpreted as actions of policing rather than support. For instance, stakeholders indicate that zone supervisors may spend a proportionately larger amount of their time on monitoring duties such as verifying the presence of teachers in classroom or corroborating if teachers stay on schedule in terms of curricular planning, as opposed to providing teachers with guidance and support. Although monitoring teachers to ensure that they are fulfilling their responsibilities dutifully is an important part of leadership responsibilities, the relationship between teachers and higher education leadership should be balanced between the verification of the fulfilment of basic responsibilities and offering guidance and support. Stakeholders in Tlaxcala indicate that teachers do not feel that they receive sufficient support for the pedagogy, administrative, practice and procedural aspects of their role.

Recommendations for improving the management skills of school principals and leaders

2.10. **Provide ongoing assessment and training to officials across all levels of educational leadership to increase effective support for teachers.** To address shortcomings in expertise regarding how to provide effective support and guidance to teachers, it is important to map needs and opportunities, as well as the skills sets of those in leadership position, from initial and in-service training. These assessments can be used to provide training and support to leadership officials to improve their leadership skills. A simple framework for assessment, parallel to that proposed for teachers in Box 2.4, can be developed for skill areas relevant for leadership.

2.11. **Provide regular training opportunities to new educational leaders to strengthen their preparedness.** This can be achieved in several ways, such as through mentorship or the exchange of knowledge among more experienced individuals within a given level of leadership. As Box 2.6 identifies, regular assessment-based leadership training is also important as it can encourage individuals in leadership positions to provide more guidance and support to teachers in lieu of employing supervision as a form of monitoring with punitive consequences.

Opportunity 3: Strengthening the responsiveness of secondary VET and tertiary education institutions to labour market needs

Better adapting education systems to labour market needs allows students to develop a set of skills that are well connected to job requirements (OECD, 2015[49]). A responsive education system prepares students for evolving labour market needs by strengthening their resilience to future changes in job creation patterns. Being able to adapt to the shifting requirements of the labour market becomes more important as megatrends such as globalisation, digitalisation and population ageing are transforming the types of skills in greatest demand. Furthermore, the COVID-19 pandemic has been uniquely disruptive in increasing the impact of these megatrends. For example, digitalisation has accelerated as individuals have been forced to learn and work remotely (Espinoza and Reznikova, 2020[50]).

A weak connection between the education system and the needs of the labour market can create a misalignment between skills demand and supply, leading to skills imbalances (i.e. skills mismatches, skills shortages and skills surpluses) (Box 2.7). In Mexico, upper secondary VET and tertiary education are key inputs to the supply of skills to the labour market as both grant terminal diplomas (two-year post-secondary vocational programme, four- or five-year bachelor's programme, one-year specialisation programme, two-years master's programme and doctoral level). Therefore, it is important that the skills produced in upper secondary VET and tertiary education provide a wide range of skills and competences that are well aligned with labour market needs.

Box 2.7. Types of skills imbalances

There are three types of skills imbalance:

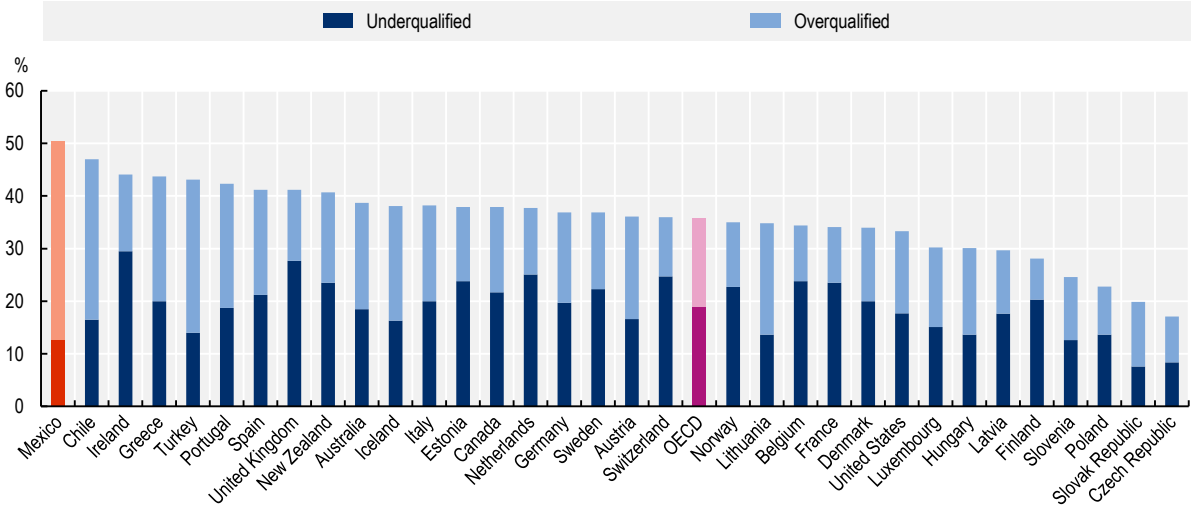
- **Skills shortages**: This is a disequilibrium condition in which the demand for a specific type of skill exceeds its supply in the labour market at the prevailing market wage rate.
- **Skills surpluses**: These arise when the supply of a specific type of skill exceeds its demand in the labour market.
- **Skills mismatches**: This describes a situation when a workers' skills exceed or fall short of those required for the job under current market conditions (Shah and Burke, 2005[51]). Skills mismatches can be measured along different dimensions:
  - **Skills mismatch**: When workers have higher or lower skills proficiency than required by their job. If their skills proficiency is higher workers are classified as over-skilled, if lower they are classified as under-skilled.
  - **Qualifications mismatch**: When workers have an educational attainment that is higher or lower than required by their job. If their job qualification is higher workers are classified as over-qualified, if lower they are classified as under qualified.
  - **Field-of-study mismatch**: When workers are employed in a different field to their specialisation when in education.

Source: OECD (2016[52]), *Skills Matter: Further Results from the Survey of Adults Skills*, https://doi.org/10.1787/9789264258051-en; Shah & Burke (2005[51]), "Skills Shortages: Concepts, Measurement, and Policy Response", Australian Bulletin of Labour, http://hdl.handle.net/2328/27700. Junankar, (2009[53]). "Was there a Skills Shortage in Australia?", http://repec.iza.org/dp4651.pdf.

Skill imbalances are costly for individuals because they affect job satisfaction and earnings (OECD, 2016[54]). In Mexico, over-qualified workers earn on average 14% less than workers who are well matched (Arias-Ortiz and Bornacelly, Forthcoming[55]). Similarly, firms and the economy as a whole bear the burden of skills imbalances through their effects on increased labour costs, lower labour productivity growth, slower adoption of new technologies and lost production associated with vacancies remaining unfilled (OECD, 2016[54]).

In Mexico, the share of workers mismatched in their job is the highest among OECD countries, and more workers are over-qualified than under-qualified. Data from the Survey of Adults Skills, a product of the Programme for the International Assessment of Adult Competencies (PIAAC), show that Mexico has the highest proportion of workers with qualification mismatch (51%) among countries participating in the survey. In other words, one in two workers in Mexico considers that their level of education differs from that required to perform their job. Mexico's over-qualification rate of 38% in 2017 ranks Mexico in the upper half of PIAAC participating countries. Under-qualification is substantially lower at 13% (Figure 2.12). In Tlaxcala, 53% of workers are mismatched by their qualifications, which is higher than the national average (Figure 2.13). In particular, the proportion of workers with qualification mismatch is higher among recent graduates (58%) (Workers aged 25-34) than older workers (workers aged 35+).

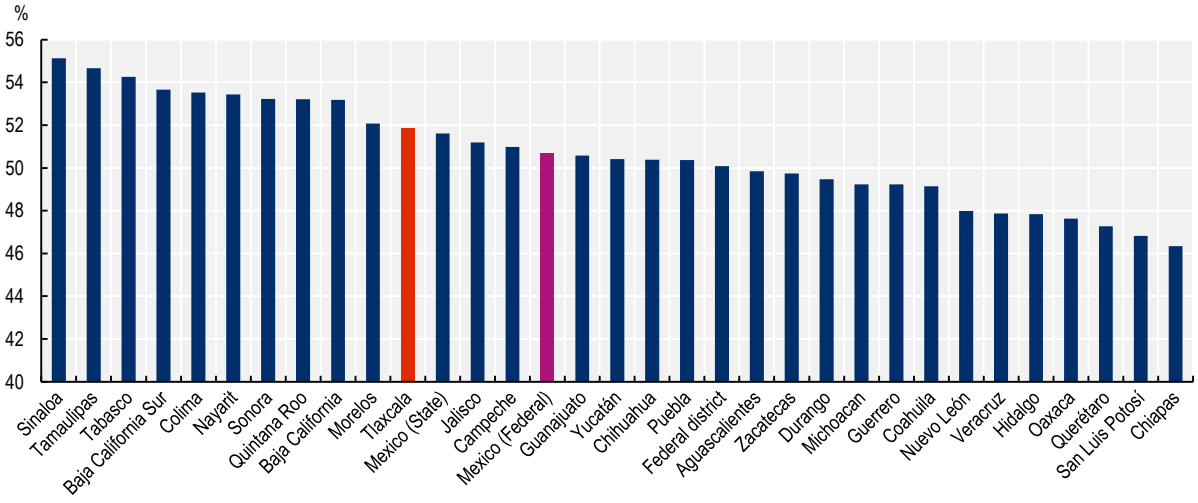
Figure 2.12. Under- and over-qualification in Mexico and OECD countries



Source: OECD calculations based on OECD (2021[56]), *Skills for Jobs (database)*, www.oecdskillsforjobsdatabase.org.

StatLink https://stat.link/jgb4r2

Figure 2.13. Qualifications mismatch in Mexico, by state



Note: The percentage of qualification mismatch is computed by dividing the number of workers with an educational attainment level different from the one required for the job by the total number of workers. The required level of education can be defined by observing realised matches in the labour market, derived from the level of educational attainment for workers in the same job. In this method, the required level of education for a worker is inferred from the median level of education among workers holding the same occupation. A worker is then over-qualified (under) if their educational attainment is higher (lower) than the median level for their occupation.
Source: OECD calculations based on INEGI (2019[57]), *National Survey of Employment (ENOE)*, https://www.inegi.org.mx/programas/enoe/15ymas/#Documentacion.

StatLink https://stat.link/qrkb09

In recent years, improving the responsiveness of the upper secondary and higher education systems has been a key challenge for Tlaxcala, as for Mexico. According to the most recent State Development Plan, strengthening the quality and relevance of upper secondary and higher education has been recognised as one of the priorities for the current government (Government of Tlaxcala, 2017[41]). At the national level there are several initiatives to enhance the labour market relevance of higher education undertaken by SEP Tlaxcala, the Secretariat of Economy (e.g. industrial clusters) and the National Council of Science and Technology (Consejo Nacional de Ciencia y Tecnologia, CONACyT). During 2013-015, the federal parliament established the Special Commission on Strengthening Higher Education and Training to Promote Development and Competitiveness (Comisión Especial de Fortalecimiento a la Educación Superior y la Capacitación para Impusar el Desarollo y la Competitividad). This federal commission has provided the legal framework to foster and harmonise the state's strategies on improving the alignment between the higher education system and labour market needs. Under this framework, the State Commission for Planning and Coordination of the Upper Secondary and Higher Education System of the State of Tlaxcala (Comisión Estatal de Planeación y Coordinación del Sistema de Educación Media Superior y Superior del Estado de Tlaxcala) has led implementation of the State Education Act in 2018 and the Higher Education General Act (2019) to promote co-ordination among subsystems and their initiatives to ensure better alignment between the supply and demand of skills (Government of Tlaxcala, 2020[58])

Tlaxcala should take advantage of the benefits of strengthening the responsiveness of upper secondary VET and higher education systems by:

- Improving the alignment between education offer and labour market demand.
- Encouraging greater employer provision of work-based learning.
- Improving students' career choices by strengthening career guidance.
- Designing financial incentives to increase participation in higher education and to help align career study choices with labour market demand.

Improving the alignment between education offer and labour market demand

Improving the responsiveness of education systems entails ensuring a good alignment between the skills developed and the skills needed in the labour market and society, and ensuring that these adjustments are made quickly. The responsiveness of education requires the co-ordination effort of several actors in the skills system. For instance, firms and employers are key sources of insight about the specific skills needed in the labour market. VET and higher education institutions use insights from employers about the specific skills and competencies in high demand, and the knowledge gaps that firms may face. This information can be used to determine which academic programmes should continue and which should be created to fulfil current and future labour market needs.

However, the process by which the supply of programmes in Tlaxcala is adjusted is cumbersome, time consuming and without clear guidelines. The information, indicators and quality of the research used to support these adjustment decisions depend on the education subsystem, and not all education providers co-operate to synchronise response strategies for a better alignment of their offer with local labour needs. The process for opening or closing academic programmes or specialties in Tlaxcala relies primarily on contextual studies, also known as background reports. In these reports, institutions assess labour market needs and analyse enrolment and graduation dynamics. However, the structure of these background reports and the depth of the analysis varies. For instance, in upper secondary VET education, the National Upper Secondary School for Technical Professional Education (Colegio Nacional de Educación Profesional Técnica, CONALEP), under the leadership of the Judging Committee of the Educational Supply (Comité Dictaminador de la Oferta Educativa, CDOE), prepares a report on employability and monitors the graduates from each speciality (CONALEP, 2019[59]). This report includes an analysis of educational relevance from information provided by employers and surveys of graduates. Based on this

report, CONALEP identifies the technical programmes and potential specialties that should be opened, closed or adjusted. Also in upper secondary VET education, the School of Scientific and Technological Studies of the State of Tlaxcala (CECyTE) establishes the academic offer of programmes, specialities and courses based mainly on a feasibility study. This study includes a sectoral analysis of labour market needs in the state, a report on the evolution of the local and regional economy, a report on labour market opportunities and needs, an enrolment forecast, and a study evaluating the relevance of the courses' content (CECyTE, 2010[60]). This report is co-ordinated by the Directorate of Academic and Planning (Dirección Académica y Planeación) and not necessarily based on information collected from graduates or employers (SEP, 2008[61]).

The board of directors for subsystems of upper secondary education and higher education are in charge of analysing and discussing these reports and approving the supply of programmes and adjustments to curricula. In some cases, the board can include employers, sectoral chambers of commerce or business associations. For instance, the academic planning department of the Technological Institute of Tlaxcala, a state higher education institution that belongs to TecNM, must bring a proposal to the Directorate of Decentralised Technological Institutes (Dirección de Institutos Tecnológicos Descentralizados, TecNM-DGEST) in order to open, close or adjust an academic programme. This proposal is revised at the state level in regional meetings in which teachers, researchers and private sector representatives participate and discuss how the potential academic programme fulfils local labour market needs. The State Commission for the Planning of Higher Education (Comisión Estatal para la Planeación de la Educación Superior, COEPES) also participates in the process, mainly to verify that the new programme does not overlap with the programmes already offered by other institutions. However, the TecNM-DGEST at the national level is the entity in charge of approving the changes to the list of programmes offered. The stakeholders involved in the process include employers and firms, and the stages in which the process is divided depends on the type of institution (federal, state, autonomous or private) and the subsystem to which the institution belongs.

Adjusting the institutional offer of academic programmes can be a cumbersome and highly bureaucratic process, which prevents education institutions from flexibly altering their education offer according to labour market needs. In Tlaxcala, this problem is especially prevalent in higher education. Stakeholders and representatives from tertiary subsystems in Tlaxcala note that the process for creating new higher education programmes can last between one to three years, depending on the subsystem. The process is initiated with the background report, which is the main input to analyse the feasibility of opening a new programme, and requires a research process that can take around one year. The presentation and discussion with the boards at the state, and in some cases the federal level for institutions such as the Technological Institute of Apizaco and the Technological Institute of the Altiplano de Tlaxcala, take between 6 to 12 months. Curricular structure adjustments of existing programmes (e.g. offering a new specialisation within the same degree) can take at least six months. It takes a similar amount of time to open new specialties in upper secondary VET schools. On the basis of endorsement, upper secondary VET schools and higher education institutions must initiate a programme creation process before SEP Tlaxcala, which can take six more months depending on the fulfilment of all requirements. Therefore, Tlaxcala could benefit from developing a fast-track process for adjusting the offer of VET and higher education programmes in areas of strategic importance to the state, an approach already encouraged under New Zealand's Tertiary Education Strategy (see Box 2.8).

Box 2.8. Relevant international example: Improving the alignment between education provision and labour market demand

New Zealand's Tertiary Education Strategy

In New Zealand, the government sets national goals and priorities for the tertiary education sector every five years in the Tertiary Education Strategy (TES). Institutions use the TES and information derived from consultations with their stakeholders to determine what is required at a more detailed level. The TES recognises sectors of strategic importance for New Zealand's economy and identifies the skills needs and priority fields of education and training needed to support these sectors. Institutions base their investment and development plan on TES priorities, including the needs of strategic sectors.

All institutions produce a development and investment plan responding to TES priorities. This plan is how tertiary education organisations seeking funding demonstrate their alignment with the TES. The development and investment plan outlines the institution's strategic direction, activities, policies and performance targets, and explains how it expects to contribute to the achievement of TES priorities. This could include opening a new programme oriented to meet the skills requirements of a strategic sector. For instance, in the TES 2014-2019, programmes in specific areas such ICT were prioritised in most of the development plans of post-secondary and higher education institutions. This resulted in an increase in the number of programmes offered by post-secondary and higher education institutions in ICT and related fields (12% between 2013 and 2019).

The TES also steers institutions towards its priorities. Institutions' development plans can lead the allocation of government funding to tertiary institutions and programmes. Depending on how institutional priorities respond to national priorities, institutions can attract more funding to implement their development plan.

Source: New Zealand Qualification Authority (2021[62]), *New Zealand Qualification Authority website*, https://www.nzqa.govt.nz/; Government of New Zealand (2014[63]), *Tertiary Education Strategy 2014-2019*, https://www.education.govt.nz/assets/Documents/Ministry/Strategies-and-policies/Tertiary-Education-Strategy.pdf; Ministry of Business, Innovation and Employment (2017[64]), *New Zealand Sector Reports: Informations and Communications Technology*, https://www.mbie.govt.nz/dmsdocument/3879-information-and-communications-technology-report-2017+&cd=1&hl=nl&ct=clnk&gl=nl.

Recommendations for improving the alignment between education provision and labour market demand

2.12. Harmonise and simplify the process for opening, closing or adjusting VET and higher education programmes and specialisations. SEP Tlaxcala, with the support of CONEVAL, CECyTE, TecNM-DGEST and COEPES, should assess the strengths and weaknesses of the various processes to open, close and adjust VET and higher education programmes in the state. The main objective should be to identify the bottlenecks and duplication of efforts in the preparation of background reports and feasibility studies, and develop a harmonised and simplified process. The process should establish clear steps and deadlines, reducing the current average duration. A fast-track process could be developed to allow faster adjustments (e.g. creation of higher education and VET programmes) in areas identified to be of strategic importance to Tlaxcala (see Box 2.8 for an approach employed in New Zealand).

2.13. Develop clear guidelines to support the process of opening, closing and adjusting VET and higher education programmes and specialisations. Tlaxcala should support schools in adopting the simplified processes for adjusting the supply of VET and higher education programmes and specialisations. SEP Tlaxcala and COEPES should develop clear guidelines with step-by-step instructions to facilitate the implementation of the new processes. They should also work on a communications strategy to inform VET schools, higher education institutions and relevant stakeholders about the new process, while establishing designated points of contact to respond to related questions or clarification requests.

Encouraging greater employer provision of work-based learning

Schools and employers can partner together to provide work-based learning (WBL) in the context of dual education programmes (at the upper secondary VET and higher education levels). Work-based learning enables students to develop work-relevant technical and soft skills that are valuable in the workplace, helping them to transition into the labour market quickly and achieve better outcomes. At the same time, employers obtain access to the skilled labour force they need, while being granted the opportunity to test students' skills as prospective future employees, which helps lower recruiting costs (OECD, 2015[49]; 2019[65]).

Employers have an essential role to play in ensuring the provision of work-based learning; however, their participation in these programmes comes at a cost. As employers share the responsibility for students' learning experience, they need to allocate resources to select, train and supervise students, among other tasks. Employers with limited resources and capacity for implementing dual education training, especially small and medium-sized enterprises (SMEs), can be particularly discouraged from participating. Given that SMEs dominate Tlaxcala's economy (see Chapter 4), the challenges related to the effective provision of work-based learning are of particular importance.

Mexico introduced a dual education programme, the Mexican Model of Dual TVET (Modelo Mexicano de Formación Dual, MMFD), in 2013. The programme was first piloted in 11 states (including Tlaxcala), and in 2015, 11 more states joined. Since its introduction, around 3 500 young individuals and more than 600 enterprises have participated every year (Government of Mexico, 2020[66]). Research shows that the programme reduces the risk of dropping out of school among participants, and helps them transition into the labour market (Fazio, Fernandez-Coto and Ripani, 2016[67]). However, the number of participants in Tlaxcala remains very low compared to other states. Tlaxcala registered only 148 trainees participating in

the MMFD programme in 2018-2019 (around 2% of VET students in Tlaxcala), most of whom were in upper secondary VET schools (81%) (Box 2.5).

Interviewed stakeholders in Tlaxcala underlined that the low level of participation in the MMFD is mainly explained by the limited number of places offered by Tlaxcalan enterprises to train MMFD students, rather than a lack of student interest. Based on information provided by CONALEP, only 19% of students found a place in an enterprise to start their training in an MMFD programme.

Table 2.5. Number of upper secondary and higher education students enrolled in MMFD, 2018-2019

Education subsystem	Number of students with internships	Number of students in MMFD
Upper secondary schools		
School of Scientific and Technological Studies of the State of Tlaxcala	3 647	11
Directorate of Technological, Industrial and Services Education	349	5
National Upper Secondary School for Technical Professional Education (CONALEP)	927	104
Subtotal	4 923	120
Higher education institutions		
Higher Technological Institute of Tlaxcala	171	5
Polytechnic University of Tlaxcala	2 981	0
Polytechnic University of Tlaxcala, Western Region	459	2
Technological University of Tlaxcala	2 219	11
Technological Institute of Apizaco	541	6
Technological Institute of the Altiplano de Tlaxcala	n/a	n/a
Subtotal	6 371	24
Total	11 294	144

Note: Only institutions that operate MMFD programmes are included.
Source: Information provided by the Directorate of Upper Secondary and Higher Education, SEP Tlaxcala, for the purpose of this project.

The MMFD programmes in Tlaxcala are run under partnership agreements between schools and enterprises. Upper secondary schools rely on the central offices of the subsystem (state or federal level) to co-ordinate MMFD partnerships. In order to establish a partnership, schools and enterprises must agree on the definition of the number of students that companies can train, the areas of training, the job-related requirements with which companies need to comply (e.g. trainer expertise, provision of work rotation), and the financial compensation and/or support provided to students (salaries or transportation subsidy). Higher education institutions mostly rely on framework agreements that outline the conditions (e.g. number of students who can be trained, compensation and/or support provided to students) that companies have to agree to in order to provide apprenticeships under the MMFD, among other things. In some cases, schools and universities receive support for establishing the partnership and framework agreements from Tlaxcala's Secretariat of Economic Development (Secretaria de Desarrollo Económico, SEDECO) through the creation of formal spaces for dialogue and negotiation (e.g. seminars, fairs) with business groups and chambers of commerce, such as the Mexican-German Chamber of Commerce (Cámara Mexicano-Alemana de Comercio e Industria, CAMEXA) and the Confederation of Workers of Mexico in Tlaxcala (Confederación de Trabajadores de México en Tlaxcala).

Most MMFD partnership agreements have been signed with large or well-structured medium-sized multinational enterprises – i.e. those with multiple departments and units of operation allowing for work rotation – rather than with local SMEs. This is due to the fact that the larger firms have the organisational structure and personnel required to ensure the proper implementation of training, and understand the benefits of training for the students' learning process and for the organisation (i.e. facilitate the recruitment

process). Additionally, they are more likely to be able to bear the direct and indirect costs of the provision of training (e.g. trainers' salary and students' subsidy for transportation or other expenses). International evidence has found that SMEs are less likely to have the well-developed human resource and support functions required to find, train, support and protect apprentices (OECD/ILO, 2017[68]). Micro-enterprises in particular are challenged to provide the full range of general training often required by WBL regulations (Schweri and Mueller, 2007[69])

The information that SMEs receive regarding the MMFD programme is very limited and unclear. Awareness-raising campaigns, which are mostly administered by outreach departments of individual schools and universities, have limited reach due to the lack of human resources and underdeveloped networks of contacts in the private sector. SEDECO, through the Directorate of Industries (Dirección de Industria, DI) and the Directorate of Commercial Development and Services (Dirección de Comercio y Servicio, DCS), also disseminates information about the MMFD programme during sectorial meetings (SEDECO, 2017[70]). However, stakeholders mentioned that the information provided by SEDECO lacks clarity on how SMEs can meet the requirements or get support to offer training places under the MMFD.

Tlaxcala should encourage greater employer provision of work-based learning to support MMFD programmes, especially among SMEs. First, Tlaxcala could strengthen awareness-raising campaigns to address the lack of information that SMEs receive about MMFD programmes. Given that they often face a lack of resources, SMEs would particularly benefit from a better understanding of how the MMFD can be implemented and the nature of requirements for offering training places. Similarly, SMEs could be made aware of the support mechanisms provided by the government for offering MMFD training places. International evidence shows that increasing employer and employee awareness of dual education programme measures helps increase training provision (Smith, 2015[71]) (OECD/ILO, 2017[68])

Second, Tlaxcala should facilitate the development of a support network involving social partners that can help employers navigate the MMFD model. Creating links between relevant institutions (e.g. industry organisations, employer groups, chambers of commerce) can help foster a greater degree of peer learning on how to effectively provide adequate placements for trainees, and how to negotiate training agreements with the government. The State of Mexico has launched multiple initiatives to increase employer participation in MMFD programmes, especially among SMEs. For instance, the SME Fund (Fondo PYME) programme provides financial support for project development that is conditional on partnering with universities and business chambers to promote dual education (Box 2.9). Spain has implemented similar initiatives to provide information regarding dual VET programme to SMEs and facilitate co-operation (Box 2.9).

Third, implementing an MMFD programme requires a multi-level and multi-department organisational structure that can ensure students' exposure to different relevant processes for their learning. In Tlaxcala, most SMEs do not have the organisational structure to ensure the work and task rotation of students necessary to carry out the MMFD training. In this context, intermediaries and social partners can play an important role in building capacity and collectively supporting SMEs to provide MMFD training places (OECD/ILO, 2017[68]).

Box 2.9. Relevant national and international example: Supporting employers' provision of work-based learning

State of Mexico's: Encouraging participation in the Mexican Model of Dual TVET (MMFD)

The State of Mexico has one of the highest number of students enrolled in an MMFD programme in Mexico, and more than 1 000 students have graduated from an MMFD programme. Evidence suggests that MMFD programmes have contributed substantially to reducing unemployment among young individuals in the state (aged 20-29) (Zamora-Torres and Thalheim, 2020[72]). Several initiatives and policy programmes have been put in place since 2011 to increase MMFD participation. First, the SME Fund provides financial resources for the development of projects aimed at improving productivity and competitiveness. The project requires that SMEs partner with intermediate organisations, including higher education institutions. Universities create partnerships with SMEs under the support programme to promote the development of technological and innovation projects of participant companies. This partnership demands SME collaboration for research and provision of MMFD places. SMEs can get support for implementing MMFD programmes through other intermediate organisations such as business chambers and other previous SME beneficiaries of the fund. Second, since 2018 the State of Mexico, through the National Council of Science and Technology (CONACyT), has offered The EDOMÉX Dual Education Scholarship programme, which aims to grant complementary monetary support to higher education students participating in MMFD programmes to cover additional student expenses.

The government of the State of Mexico has actively promoted the MMFD model through awareness-raising campaigns. Since 2019, In co-ordination with the German Cooperation Agency for Sustainable Development in Mexico, The State of Mexico's Department of Education carries out the Dual Education Forum, where all upper secondary VET schools and higher education institutions, as well as enterprises, are invited to participate and share MMFD best practices.

Source: Zamora-Torres & Thalheim (2020[72])- El Modelo Mexicano de Formación Dual como modelo educativo en pro de la inserción laboral de los jóvenes en México Periódico oficial, 2020, Reglas de operación del programa de desarrollo social beca de educación DUAL EDOMÉX, https://www.redalyc.org/jatsRepo/2991/299166156003/299166156003.pdf; Diario Oficial de la Federación (2013[73]) *Reglas de Operación Fondo PYME*, https://www.dof.gob.mx/nota_detalle_popup.php?codigo=5289919.

Spain: SME support programme for the development of work-based learning

The Spanish Ministry of Education established a work-based learning programme in 2012 as an alternative to formal education. The implementation of this type of training quickly spread to different regions throughout Spain, mainly involving large companies with the resources and organisational structure to implement WBL. SME participation in WBL did not have the same initial success, which was concerning as 82% of businesses in Spain are SMEs. Spain also faced one of the highest youth unemployment rates in Europe, which made the expansion of WBL among SMEs a good alternative for promoting youth employment. To address this issue, the Alliance for Dual Vocational Training (which includes the Spanish Chamber of Commerce, the Spanish Confederation of Business Organisations, the Bertlsmann Foundation for Youth Employment and the Princess of Girona Foundation as members), in partnership with the JP Morgan Chase Foundation, established the Support Programme for SMEs for the Development of Work-based Learning in Spain (SPWBL).

The SPWBL programme provided advice and support to companies and business organisations with fewer than 500 employees to help them implement WBL projects. During the 18 months that the support programme ran, SMEs received detailed information about WBL (benefits, costs, etc.), specific counselling on the requirements for its implementation and support for its start-up. The programme was initially offered in Madrid, Catalonia and Andalusia, regions with the highest percentage of unemployed

youth. The project targeted enterprises in sectors relevant to the economic development of selected regions, such as chemical, commerce, agri-food, consulting and logistics, although specific companies from other sectors key to the regions were also included.

Technical advisers were mainly in charge of informing, advising and accompanying the companies throughout the process of creating learning places and facilitating their relationship with universities. A key aspect of the success of the SPWBL was the network of support generated between SMEs and business associations that had successfully implemented WBL. In 2016, around 125 business associations and 300 SMEs joined the Alliance for WBL programme, and 70% of associated SMEs started implementing WBL.

Source: Fundación Bertlsmann (2017[74]), *Support Programme for SMEs for the Development of Vocational Training*, https://www.fundacionbertelsmann.org/es/home/publicaciones/publicacion/did/programa-de-apoyo-a-las-pymes-para-el-desarrollo-de-la-fp-dual-en-espana.

Recommendations for supporting employers' provision of work-based learning

2.14. **Strengthen awareness-raising campaigns about the benefits of, and requirements for, implementing dual education training among SMEs.** The Directorate of Upper Secondary and Higher Education (Dirección de Educación Media Superior y Superior, DEMSS) within SEP Tlaxcala should support the sectoral directorates of SEDECO to raise awareness about the benefits of, and requirements for, providing WBL opportunities, especially in SMEs, as part of Tlaxcala's MMFD programme. First, DEMSS should co-ordinate with the different subsystems to develop guidelines and dissemination materials regarding MMFD. Second, the directorates of services and commerce within SEDECO should take advantage of meetings with SME associations to disseminate these materials. During these meetings, the Directorate of Industries and Directorate of Commercial Development and Services could showcase examples of SMEs that have successfully implemented MMFD programmes. These presentations should also clearly outline both the short- and long-term benefits of MMFD for SMEs. Tlaxcala could follow the case of the State of Mexico and the annual MMFD forum to which main MMFD stakeholders, including SMEs, are invited (Box 2.9).

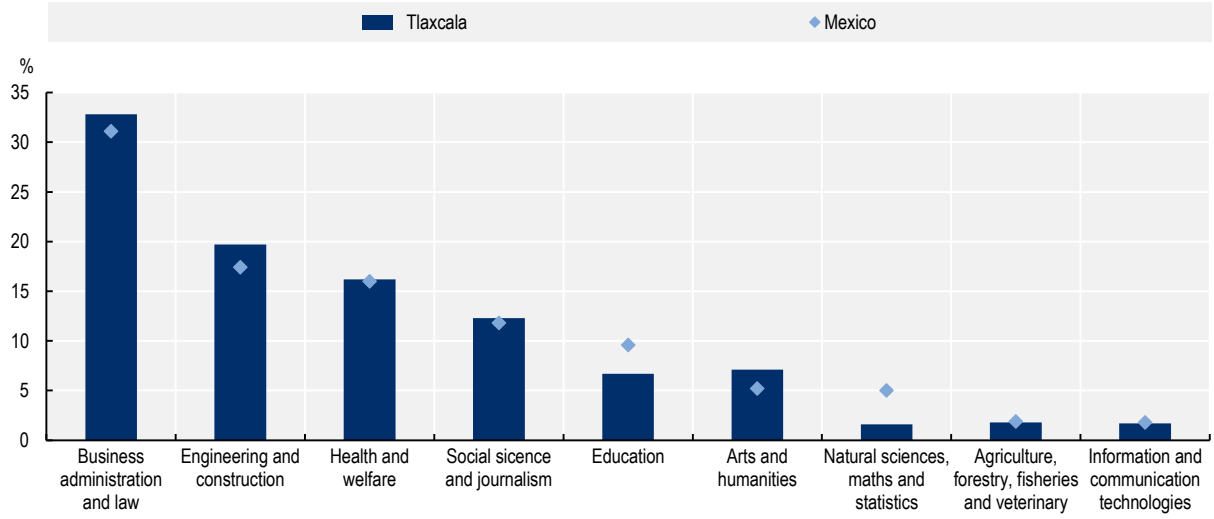
2.15. **Provide technical assistance to firms, especially SMEs, to increase the provision of work-based learning opportunities, as well as financial support to SMEs to foster participation in the MMFD programme.** Technical experts on the MMFD programme from SEP Tlaxcala should be assigned to assist, advise and accompany firms, especially SMEs, in the provision of WBL opportunities as part of the MMFD programme, following an approach similar to Spain (Box 2.9). SEP Tlaxcala's advisers could support firms throughout the process of creating adequate training placements that qualify for the requirements of the MMFD programme. Advisers or technical experts could also come from SMEs that have successfully implemented MMFD programmes. To incentivise SMEs to take part in the MMFD programme, Tlaxcala's government should provide financial support (e.g. grants) to help at least partially cover students' salaries and transportation expenses. Tlaxcala could look for inspiration from similar dual education scholarships provided by CONACyT in the State of Mexico (Box 2.9).

Improving students' career choices by strengthening career guidance

Providing career guidance services can help students transition to the labour market or select relevant further education study options (Hofer, Zhivkovikj and Smyth, 2020[75]). Career guidance is most effective when it provides advice tailored to each student's individual needs (e.g. through one-to-one career guidance sessions), and when it fosters students' exposure to workplaces and employers (e.g. by connecting students with work-based learning programmes or job shadowing opportunities) (OECD, 2010[76]) (Musset and Kurekova, 2018[77]). Well-informed students can then make career choices that are better aligned with labour market needs, thereby reducing mismatches and enhancing individual employment prospects (Cornwell, Lee and Mustard, 2006[78]; Yang, 2011[79]). Research shows that good quality career counselling can also help minimise course switching and dropout rates (Bowes, Smith and Morgan, 2005[80]).

In Mexico, there is evidence that students tend to make study choices that do not respond well to labour market needs. The top three fields of study with the highest proportion of students enrolled are business administration and law (32%), engineering and construction (18%), and health and welfare (16%). Together, these fields account for more than half of the total number (66%) of students enrolled in higher education in Mexico. The OECD Skills for Jobs Database shows that 48% of students in Mexico are enrolled in fields of study for which there is evidence of surplus (OECD, 2018[81]). In Tlaxcala, the distribution of enrolment by field of study follows a very similar pattern: around 31% of higher education students are enrolled in business administration and law, and 16% in health and welfare (Figure 2.14). Assuming that Tlaxcala faces the same surpluses of skills in these fields as found nationally, the state education system is likely to be promoting enrolment in fields already in surplus in the labour market.

Figure 2.14. Enrolment in higher education (aged 25-34) in Tlaxcala, by field of study



Source: OECD calculations based on INEGI (2019[57]), *National Survey of Occupations and Employment (ENOE)*, https://www.inegi.org.mx/programas/enoe/15ymas/#Documentacion.

StatLink https://stat.link/i4o927

The provision of effective career guidance is essential to better align students' learning with labour market needs. At the upper secondary level in Tlaxcala, the career guidance provided to students is limited and focuses mainly on providing information about higher education supply, including a list of higher education institutions, their catalogue of programmes and details regarding admission processes. This information is

collected by the university outreach department of upper secondary schools across all subsystems in the state. The content of the information provided is very heterogeneous and the quality, relevance and level of detail vary substantially between schools. Generally, a teacher is in charge of running information sessions for the students, on top of their regular workload. According to interviewed stakeholders in Tlaxcala, most teachers that assume the career counsellor role do not have the experience, skills and knowledge to provide comprehensive career guidance.

In Tlaxcala there are supplementary activities co-ordinated by schools that aim to provide information to guide students' career choices. In some schools, psychologists offer career aptitude tests that help students identify potential professions and occupations that fit their aptitudes and career orientation. Additionally, upper secondary schools in Tlaxcala hold university fairs. Each school organises these fairs independently and invites local universities and public and private institutions to promote their programmes. University fairs are also an opportunity for students to meet delegations from universities and receive information regarding admissions, course content, career choices and professional profiles. Despite these activities, stakeholders report that students about to graduate from upper secondary education often lack access to relevant labour market information. In this context, developing skills assessment and anticipation (SAA) tools to generate and disseminate labour market information would be helpful (see Chapter 5). Current career guidance programmes also do not provide sufficient information about the scholarships and financial aid available to pursue higher education.

Upper secondary schools in Tlaxcala are aware of the importance of providing career guidance to help steer students' career choices. The institutional development plans of most schools have established the need to develop career offices, expand career guidance services, and strengthen the knowledge and skills of career advisors (Colegio de Bachilleres del Estado de Tlaxcala, 2016[82]). Most schools run tutoring programmes mainly designed to support students at risk of dropout due to low academic performance or family related problems (pregnancy, domestic violence, etc.). Although this programme has a component on motivational guidance that includes talks on career development to discourage students from dropping out (CECyTE, 2020[83]), tutoring programmes provide limited information and guidance to steer students' career choices.

Existing career guidance services for upper secondary students in Tlaxcala generally do not promote exposure to employers, which could help to promote field of study and career choices that are responsive to labour market needs. Schools offering upper secondary technical streams, in particular those promoting dual vocational education, are currently the only institutions promoting workplace exposure to students. Work-based learning opportunities that take place early in life help to shape career goals and provide relevant experience that can support decisions about further education or training (Musset and Kurekova, 2018[77]). Nevertheless, dual VET may not always provide effective career counselling to students. Career guidance services in the context of dual VET would require career advisors with the skills and knowledge to guide students' career decisions, and which may be limited in most enterprises. Employment offices usually also provide career guidance to young individuals, including students from secondary education, in addition to jobseekers and workers seeking upskilling and reskilling opportunities (see Chapter 3). The career guidance services provided by employment agencies in German secondary schools are a good example of the role that employment offices can play in providing career counselling that steers students' career choices (Box 2.10). However, the National Employment Service of Tlaxcala (Servicio Nacional de Empleo Tlaxcala, SNET) does not provide career guidance to upper secondary students, through neither career guidance programmes in school nor activities to foster employer-student interactions.

Box 2.10. Relevant international example: Improving individuals' career choices by strengthening career guidance

Germany: Career guidance provided by employment agencies in secondary schools

Employment agencies (EA) in Germany are in charge of the provision of vocational guidance to youth. This vocational guidance focuses on career choice and career development, and the relevant educational paths providing occupational counselling and career orientation inside and outside of schools.

Career education services provided in secondary schools are generally supported by career counsellors from EA. The local EA offers a service combining guidance, individual counselling and placement in apprenticeship training places. EA career counsellors offer individual career counselling to pupils and school leavers both in the employment office and regularly on the school premises. They offer classes on different vocational paths, workshops and seminars, and organise class visits to the Career Information Centre (BIZ). BIZ also arranges career fairs and career-related lectures and seminars. In addition, counsellors support teachers responsible for school guidance in all matters related to career education and orientation. These services are provided both in lower and upper secondary schools. The cooperation of schools and guidance services of the EA is regulated through a formal agreement between the Federal Employment Agency and the Standing Conference of the Minister of Education and Cultural Affairs of the Länder (state), complemented by agreements at the state level. This benefits not only young people, but also employers hiring apprentices by facilitating the recruitment process.

The service is complemented by special support measures for youth and financial support schemes for apprentices, as well as support for target groups with special needs (e.g. rehabilitation, work experience, internships, and courses of vocational preparation).

Source: DVB (2021[84]), German Association for Education and Career Advice website, https://dvb-fachverband.de/bbb-beratung/beschreibung/.

Recommendations for improving individual career choices by strengthening career guidance

2.16. **Provide high-quality career guidance services in upper secondary education.** SEP Tlaxcala, through the DEMSS, should identify or establish a co-ordinating body to develop standards for career guidance (e.g. minimum levels of career counselling classes/seminars, student-to-counsellor ratios). Schools should then develop their career guidance services in accordance with these standards. SEP Tlaxcala should monitor the development of these standards and their impact on improving career guidance services. In addition, school governing authorities should ensure that counsellors or teachers in charge of career guidance have sufficient time and compensation to fulfil their functions. Counsellors should offer activities besides career guidance classes, including one-to-one counselling sessions, meetings with parents and employer-guided visits to workplaces. The state government should provide financial support to any school governing authorities that lack of the funds or capacity to implement this recommendation.

2.17. **Involve employers and SNET in the provision of career counselling services in upper secondary education.** Upper secondary schools should offer students career guidance services that involve the participation of local employers, such as guided visits to workplaces and taster programmes to expose students to the practical aspects of different occupations. These activities should be carried out primarily in sectors of strategic importance to Tlaxcala. As in the case of career guidance programmes led by employment agencies in Germany (Box 2.10) SNET should actively provide career counselling to students through workshops and seminars on priority sectors, as well as information about related fields of study. In addition, SNET should train teachers and school counsellors on career guidance techniques to steer students' educational choice to fields of study that are relevant for the local labour market.

Designing financial incentives to increase participation in higher education and to help align study choices with labour market demand

The need to invest in formal education is increasing in order to help young people meet the skills requirements of future jobs opportunities. Structural changes and megatrends have altered the nature of work and the skills required in the labour market, and have increased the pace of skills obsolescence. Therefore, it is not enough simply to invest in more skills, countries must also invest in the right types of skills. In this context, financial incentives can play an important role in helping governments to promote more informed investments in skills and achieve a better match between skills supply and demand. Whether they target institutions or individuals, well-targeted financial incentives can be used to steer education decisions (OECD, 2017[85]).

Increasing higher education enrolment by providing financial support has been a priority for Tlaxcala. One of the objectives established in the current State Development Plan is to increase scholarships and financial aid to promote human capital development and reward high-performing students (Government of Tlaxcala, 2017[41]). The State Development Plan outlines two strategies to achieve these objectives: 1) create a state scholarship system; and 2) provide financial support to top-performing students (Table 2.6).

Table 2.6. Strategies established by Tlaxcala's State Development Plan 2017-2021 to promote the development of human capital and reward talent

Objective	Strategy	Strategy details
Promote the development of human capital in the state and reward talent	2.6.1. Create a state scholarship system to co-ordinate efforts aimed at expanding financial support for youth in Tlaxcala.	2.6.1.1 Supporting scholarship programmes aimed at boosting the school-to-work transition of high school graduates with technological or technical professional training, including technical and vocational careers and job apprenticeship programmes.
		2.6.1.2 Recognising upper secondary and higher education students with extraordinary achievement in academic, scientific, innovative, artistic and other areas.
		2.6.1.3 Rewarding the talent and extraordinary achievement of young people from Tlaxcala in extracurricular areas.
	2.6.2 Support talented students to continue their studies.	2.6.2.1 Increasing the number of undergraduate and graduate scholarships, especially for careers related to the economic priorities.
		2.6.2.2. Promoting the integration of women in technical careers.

Source: Government of Tlaxcala (2017[41]), *State Development Plan of Tlaxcala 2017-2021*.

Tlaxcala has recently taken important steps to improve the financial incentives offered through the state scholarship system by supplementing federal scholarships with merit-based scholarships, including 1) Los Mejores Mil (the best thousand); 2) *Tu Prepa Terminada;* and 3) *Beca Gobernador*. Table 2.7 shows the number of beneficiaries of these state scholarships in the period 2018-2020.

Table 2.7. Number of students benefiting from scholarships provided by the state, 2018-2020

State scholarship	2018	2019	2020
Tu Prepa Terminada	3 972	4 304	3 681
Los Mejores Mil	1 014	1 007	n/a
Beca Gobernador	30	46	55
Total	5 016	5 357	3 736

Note: This table only includes scholarship programmes aiming to foster higher education enrolment.
Source: Information provided by SEP Tlaxcala for the purpose of this project.

The Los Mejores Mil scholarship is awarded to students with outstanding performance in the EXANI-II or EXANI-III exams administered by the National Centre of Evaluation for Higher Education (Centro Nacional de Evaluación para la Educación Superior, CENEVAL). To be eligible, students must be enrolled in an undergraduate programme offered by either public or private higher education institutions in Tlaxcala (SEP Tlaxcala, 2019[86])

The Tu Prepa Terminada scholarship incentivises students to complete upper secondary education and gives a one-time lump-sum bonus to students who graduate from upper secondary school with average school grades above eight in a ten-point scale.

The Beca Gobernador scholarship is granted to individuals studying in four- to five-year undergraduate programmes, master's or PhD in a university abroad. The beneficiaries receive USD 1 000 to cover student expenses. In addition to these state scholarships, the federal government, through the National Co-ordination of Para el Bienestar Benito Juarez Scholarships (Coordinación Nacional de Becas para el Bienestar Benito Juarez, CNBES), offers scholarships mainly for students from low socio-economic backgrounds, indigenous and afro-descendant, and students with disabilities.

The scholarships offered to students in Tlaxcala do not always meet the objectives set in the State Development Plan or in the scholarships' operational rules. For example, the State Development Plan establishes that scholarships should target students pursuing degrees in key areas for the economy.

However, none of the scholarships highlighted above target specific fields of study (e.g. in areas in high demand in the labour market) or areas considered to be of strategic importance to the state. One consequence of this is that, as previously discussed, higher education enrolment is highly concentrated in fields of study in which supply may already be exceeding demand in the labour market. Box 2.11 describes a financial support programme in British Columbia (Canada) called StudentAidBC that targets support at students pursuing degrees in fields of study deemed of high priority by the province.

Box 2.11. Relevant international example: Designing financial incentives to help align study choices with labour market needs

StudentAidBC – Access grant for labour market priorities in British Columbia (Canada)

The province of British Columbia (Canada) launched StudentAidBC in 2017 to help eligible students with the cost of their post-secondary education through loans, grants, bursaries, scholarships and other programmes. Student financial assistance is completely needs-based, and it is not intended to fully fund students' post-secondary education and living costs. StudentAidBC co-ordinates all full scholarship programmes funded by the province. It also centralises the information on different sources of financial aid available to students through the Government of Canada, as well as the scholarship programmes of universities within the province.

Among the financial aid programmes managed by StudentAidBC is the BC Access Grant for Labour Market Priorities. This programme provides grant funding to encourage eligible students to attend targeted high-priority programmes at eligible British Columbia public post-secondary institutions. The list of high-priority programmes includes college and university level degrees and trades training courses. In 2019, fields of study eligible for funding included power engineering, heavy mechanical trades, industrial mechanics, mechanical engineering, mining industry certificates, oil and gas field operations, and electrical and electronic engineering.

The BC Access Grant for Labour Market Priorities is structured in four components of student eligibility (students can be eligible for more than one component): tools, relocation, loans and unmet needs. For the tools component, students in eligible programmes can receive a CAD 500 (Canadian dollar) grant to purchase tools. The relocation component aims to assist with the cost of relocating by offering a grant of up to CAD 4 000. Students receiving a loan can receive a grant to replace a portion of the loan. Finally, the unmet need component is intended to reduce or eliminate the difference between the maximum StudentAidBC funding that students are eligible for and education and living expenses. Students are offered a grant of up to CAD 6 500 on or after the mid-point of their programme.

Source: StudentAidBC (2021[87]), *StudentAidBC website*, https://studentaidbc.ca/; B.C. Access Grant for Labour Market Priorities - https://studentaidbc.ca/explore/grants-scholarships/bc-access-grant-labour-market-priorities; Government of Canada (2020[88]), *Canada–British Columbia Workforce Development Agreement*, https://www.canada.ca/en/employment-social-development/programs/training-agreements/workforce-development-agreements/bc.html.

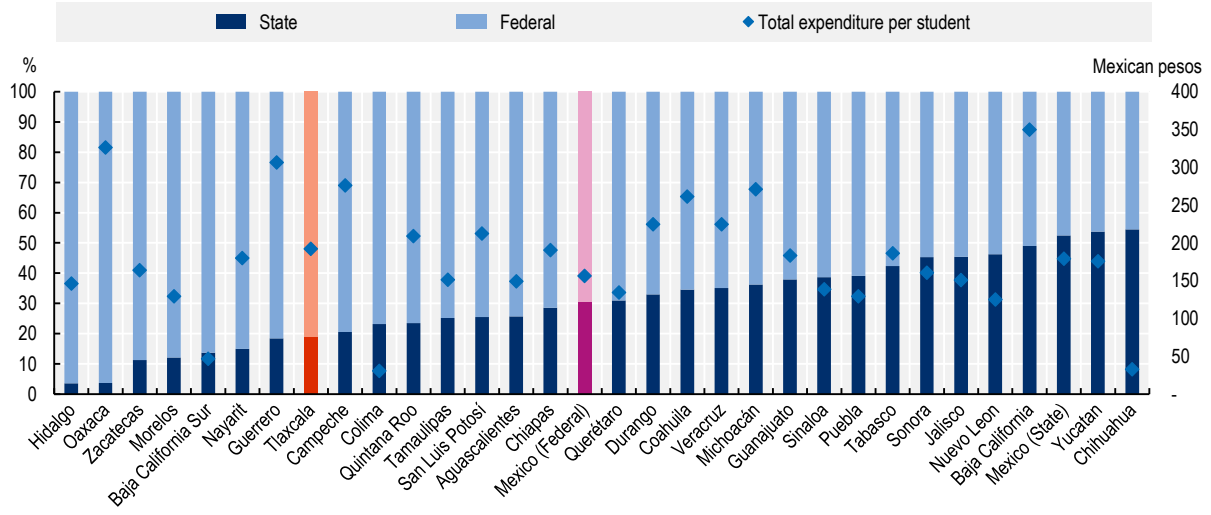
There is scope to improve the impact of certain scholarships. For example, the aforementioned scholarship, Tu Prepa terminada, was designed to incentivise students to complete upper secondary education and enrol in higher education. However, students who graduate from upper secondary education receive a one-time lump-sum payment unconditional on enrolment in higher education. Therefore, even if the scholarship may incentivise students to complete upper secondary school, it does not guarantee that the second objective of the scholarship (enrolment in a higher education institution) will be achieved.

Despite the provision of the state scholarships mentioned in Table 2.7, and Tlaxcala's efforts to increase the amount of financial support to students, public expenditure on higher education is still lower in Tlaxcala than in most Mexican states (Figure 2.15), and only 14% of higher education students in Tlaxcala benefit from a scholarship – 4 percentage points below the national average. The majority of financial aid is disproportionally awarded to low- and high-income groups (i.e. first and fourth quartile), leaving middle-income groups with fewer benefits than in other states (Panel B in Figure 2.16). Low-income groups benefit from means-tested federal grants and from state grants aimed at supplementing federal aid (e.g. Becas para el Bienestar Benito Juarez). High-income students, who tend to do better in university admissions exams, receive a higher share of merit-based scholarships (i.e. Los Mejores Mil). This pattern helps explain the fact that the enrolment rate among low-income students is almost 10 percentage points higher than the national average (Panel B in Figure 2.16), but lower for students from the third quartile.

Tlaxcala should therefore expand the financial incentives available to students and reassess the current targeting strategies of scholarship programmes to increase enrolment, especially among middle-income young individuals and in fields of study in high demand in the labour market.

Figure 2.15. Distribution of public expenditure on higher education across Mexican states, by source of funding

Percentage and actual (Mexican pesos) shares by state

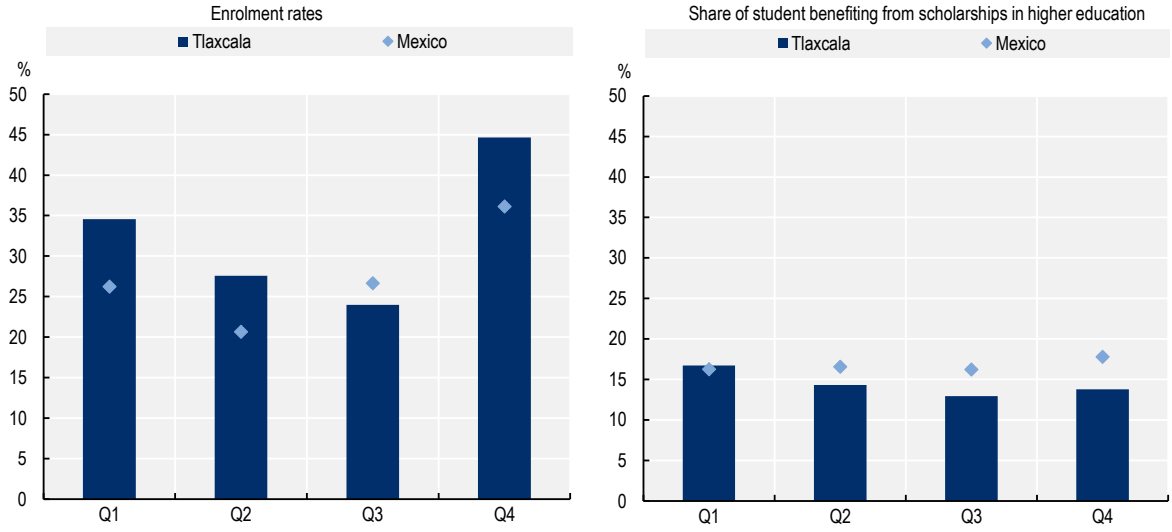


Note: For all states the year of reference is 2016, except for Tamaulipas which is 2017 (latest information available).
Source: OECD calculations based on the statistical report of the State Education Financing questionnaire collected by the Secretariat of Public Education's Sub-secretary of Planning, Evaluation and Co-ordination: SEP (2017[89]), *State Education Financing questionnaire*, https://www.planeacion.sep.gob.mx/cfee/.

StatLink https://stat.link/35fqzd

Figure 2.16. Gaps in enrolment and financial aid to attend higher education are large.

Enrolment rate and share of students receiving higher education scholarships in Tlaxcala and Mexico by household income quartiles



Source: OECD calculations based on INEGI (2018[14]), *National Survey of Household Income and Expenditure (Encuesta Nacional de Ingresos y Gastos de los Hogares - ENIGH)*, https://www.inegi.org.mx/programas/enigh/nc/2018/.

StatLink https://stat.link/tligs9

Recommendations for designing financial incentives to increase participation in higher education and to help align study choices with labour market demand

2.18. **Provide targeted financial incentives to encourage young individuals to undertake studies in higher education programmes that are in high demand.** In addition to the scholarships currently offered as part the State Scholarship System in Tlaxcala, SEP Tlaxcala should provide financial incentive programmes that are conditional on selecting a field of study considered relevant for the labour market. Inspiration could be drawn from the example of British Columbia's (Canada) Access Grant for Labour Market Priorities (Box 2.11), while the identification of in-demand fields of study could be supported by information from Tlaxcala's SAA tools (see Chapter 5). SEP Tlaxcala could offer a multiple component grant funding covering one or several specific student needs, such as tuition, living expenses, study materials and transportation. The grant funding should be approved based on students' financial needs (see Recommendation 2.19).

2.19. **Expand financial aid to reach middle-income students.** Tlaxcala should take steps to address the fact that under current arrangements, financial support to students in higher education is disproportionally awarded to low- and high-income groups. SEP Tlaxcala should consider expanding support to groups (especially middle-income students) currently receiving disproportionally less aid and participating less in higher education. In order to contain the fiscal cost to the state, aid could take the form of income-contingent loans, which, as opposed to grants and scholarships, are reimbursed to the state when students join the labour market. To effectively target middle-income students, SEP Tlaxcala should gather information about students' socio-economic characteristics, which should foster an accurate assessment of their financial needs and determine their eligibility for support.

Overview of recommendations

Policy directions	Recommendations	Responsible parties
Opportunity 1: Boosting access and quality in pre-primary education		
Strengthening early childhood education programmes	2.1 Increase demand for early childhood education by targeting informational gaps on the educational benefits.	SEP Tlaxcala
	2.2 Establish minimum quality standards to safeguard the quality of education throughout and after the expansion of early childhood education for children under the age of 3.	SEP Tlaxcala
Strengthening initial training of pre-primary teachers.	2.3 Gather and centralise the recently acquired pedagogical knowledge and lessons learned from in-service teachers on how to effectively engage with students and parents during the pandemic.	SEP Tlaxcala
	2.4 Provide teachers with opportunities for specialised in-service teacher training on how to develop students' socio-emotional skills.	SEP Tlaxcala ICATLAX
	2.5 Improve communication and co-ordination between teachers and parents by establishing standard practices, such as initial meetings to set expectations and social-norm-oriented practices for parents.	SEP Tlaxcala
Opportunity 2: Building a stronger teaching workforce		
Strengthening initial and in-service teacher education and training	2.6 Increase teacher participation in periodic needs-based training by creating positive incentives.	SEP Tlaxcala
	2.7 Promote the informal exchange of knowledge and know-how between teachers through organised mentoring and learning group initiatives.	SEP Tlaxcala
	2.8 Foster stronger links between in-service and initial teacher training in the first years of a teacher's career by providing individualised assessment-based guidance and support.	SEP Tlaxcala
	2.9 Identify the key aspects of high-quality initial teacher training, and standardise these aspects across all initial teacher training institutes.	SEP Tlaxcala National Pedagogical University Normal schools
Improving the management skills of school principals and leaders	2.10 Provide ongoing assessment and training to officials across all levels of educational leadership to increase effective support for teachers.	SEP Tlaxcala
	2.11 Provide regular training opportunities to new educational leaders to strengthen their preparedness.	SEP Tlaxcala
Opportunity 3: Strengthening the responsiveness of secondary VET and tertiary education institutions to labour market needs		
Improving the alignment between education offer and labour market demand	2.12 Harmonise and simplify the process for opening, closing or adjusting VET and higher education programmes and specialisations.	SEP Tlaxcala CONEVAL CECyTE COEPES
	2.13 Develop clear guidelines to support the process of opening, closing and adjusting VET and higher education programmes and specialisations.	SEP Tlaxcala COEPES
Encouraging greater employer provision of work-based learning	2.14 Strengthening awareness-raising campaigns about the benefits of, and requirements for, implementing dual education training among SMEs.	SEP Tlaxcala SEDECO
	2.15 Provide technical assistance to firms, especially SMEs, to increase the provision of work-based learning opportunities, as well as financial support to SMEs to foster participation in the MMFD programme.	SEP Tlaxcala SEDECO
Improving students' career choices by strengthening career guidance	2.16 Provide high-quality career guidance services in upper secondary education.	SEP Tlaxcala
	2.17 Involve employers and SNET in the provision of career counselling services in upper secondary education.	SNET
Designing financial incentives to increase participation in higher education and to help align study choices with labour market demand	2.18 Provide targeted financial incentives to encourage young individuals to undertake studies in higher education programmes that are in high demand.	SEP Tlaxcala
	2.19 Expand financial aid to reach middle-income students	SEP Tlaxcala

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