Reviews of National Policies for Education

The Future of Mexican Higher Education

PROMOTING QUALITY AND EQUITY

OECD

Reviews of National Policies for Education

The Future of Mexican Higher Education

PROMOTING QUALITY AND EQUITY

OECD
BETTER POLICIES FOR BETTER LIVES

Please cite this publication as:
OECD (2019), *The Future of Mexican Higher Education: Promoting Quality and Equity*, Reviews of National Policies for Education, OECD Publishing, Paris.
https://doi.org/10.1787/9789264309371-en

ISBN 978-92-64-30936-4 (print)
ISBN 978-92-64-30937-1 (pdf)

Series: Reviews of National Policies for Education
ISSN 1563-4914 (print)
ISSN 1990-0198 (online)

Photo credits: Cover © eabff/Shutterstock.com

Corrigenda to OECD publications may be found on line at: *www.oecd.org/publishing/corrigenda*.

Foreword

Higher education in Mexico has expanded rapidly in recent years. Between 2007 and 2017 tertiary attainment among young adults increased from 16% to 23%. Although this is still well below the OECD average of 44%, Mexico has made considerable efforts to expand and diversify provision of higher education through public institutions. Investments and financial aid programmes have helped increase the accessibility of higher education in regions and among population groups that were previously underserved. Nevertheless, the 13 public and private subsystems of Mexican higher education continue to face numerous challenges. These relate, in particular, to the quality and relevance of the learning opportunities they provide and their ability to reach students from all parts of Mexican society.

Against this backdrop, in 2018, the Mexican federal Secretariat of Public Education (SEP) invited the OECD to review the main policies governing higher education in Mexico. This new review revisits and updates the OECD Review of Higher Education in Mexico published in 2008, a decade ago. The review team – composed of international experts and OECD staff - has examined the strengths and weaknesses of different aspects of the Mexican higher education landscape. Specifically, they have analysed the governance arrangements and strategy in place to steer the higher education system, the mechanisms used to allocate public funding, systems for external quality assurance, and conditions and public policies for equity. In addition, the review has drilled down to examine the specific challenges facing technical higher education institutions and public Teacher Education Colleges.

This report presents the findings of the review team and their recommendations for the future orientation of public policy for higher education in Mexico. The diagnosis it offers and the policy options it identifies are based upon national data, official government documents, reports published by Mexico's higher education associations, scholarly research, international experience, and a fact-finding mission in which scores of meetings were conducted in Mexico City, as well as in the states of Puebla, Hidalgo and Yucatán.

I hope this report will support Mexico in its efforts to promote quality and equity in its higher education system. The OECD stands ready to help Mexico in these efforts.

Andreas Schleicher

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

Acknowledgements

This report was prepared as part of the OECD's series of Reviews of National Policies for Education, and undertaken by the Policy Advice and Implementation Division within the Directorate for Education and Skills. The review was coordinated by Thomas Weko (Senior Analyst, OECD), and preparation of the report was coordinated by Simon Roy (Analyst, OECD). The review team consisted of Javier Botero Álvarez, World Bank Lead Education Specialist for Latin America; Pablo Landoni-Couture, Dean, Instituto Universitario Asociación Cristiana de Jóvenes and Professor, Catholic University of Uruguay; Elizabeth Balbachevsky, Associate Professor, University of São Paulo; Thomas Weko, Senior Analyst, OECD; and Simon Roy, Analyst, OECD (see Annex A for profiles of the review team). Simon Roy, Thomas Weko, and Daniel Trujillo (OECD Consultant) authored the report, with input from Pablo Landoni and Elizabeth Balbachevsky.

We wish to especially thank the Secretariat of Public Education (SEP) for its support of the review. This support was guided by Salvador Malo, Director General for University Education, who served as the national co-ordinator for the review and oversaw the preparation of a country background report.

During a fact-finding mission to Mexico (conducted from 18 to 28 June 2018) by the OECD review team, the team met with a wide range of government officials and higher education stakeholders. This included SEP staff responsible for higher education planning, steering and student aid; quality assurance bodies; the National Council for Science and Technology (CONACyT); representatives of national social partners in higher education and management; and staff and students in higher education institutions. The review also undertook visits to higher education institutions in the states of Puebla and Hidalgo, as well as institutions and state authorities in the state of Yucatán. The team is grateful to all of the above for their time and valuable input. The mission concluded with a presentation of preliminary findings made to Otto Granados Roldán, Secretary for Public Education, Rodolfo Tuirán Gutiérrez, Undersecretary for Higher Education, and staff from the Secretariat of Public Education (see Annex B for a schedule of the review visit).

Key planning and operational support for the project was provided by Manuela Fitzpatrick (OECD, consultant), and administrative support was provided by Jonathan Wright (OECD, Project Assistant), who also prepared the report for publication. The review team is grateful for the feedback and support received from OECD analysts Jose-Luis Alvarez-Galvan (EDU), Victoria Galan Muros (EDU) and Sonia Araujo (ECO), as well as from Andreas Schleicher (Director, Directorate for Education and Skills (EDU), OECD) and Paulo Santiago (Division Head, Policy Advice and Implementation Division, EDU, OECD).

While the OECD review team benefited greatly from many discussions with a wide range of Mexican stakeholders, as well as documents, data, and the country background report provided by SEP, any errors or misinterpretations in this report are the responsibility of the review team.

Table of contents

Tables

Figures

Boxes

Abbreviations and acronyms

A3ES	Agency for the Assessment and Accreditation of Higher Education, Portugal
	Agência de Avaliação e Acreditação do Ensino Superior
ANUIES	National Association of Universities and Higher Education Institutions
	Asociación Nacional de Universidades e Instituciones de Educación Superior
BRICS	*Brazil, Russia, India, China and South Africa.*
CENEVAL	National Centre for Higher Education Assessment
	Centro Nacional de Evaluación para la Educación Superior
CGUTyP	General Coordination office for Technological and Polytechnic Universities
	Coordinación General de Universidades Tecnológica y Politécnicas
CIEES	Inter-institutional Committees for Higher Education Assessment
	Comités Interinstitucionales para la Evaluación de la Educación Superior
CNBES	National Coordination Office for Higher Education Scholarships
	Coordinación Nacional de Becas de Educación Superior
COCOEES	Commission for the Co-ordination of the Higher Education Evaluation Bodies
	Comisión Coordinadora de Organismos de Evaluación de la Educación Superior
COEPES	State Commission for Higher Education Planning
	Comisión Estatal para la Planeación de la Educación Superior
CONACyT	National Council for Science and Technology
	Consejo Nacional de Ciencia y Tecnología
CONEVAL	National Council for the Evaluation of Social Development Policy
	Consejo Nacional de Evaluación de la Política de Desarrollo Social
COPAES	Council for the Accreditation of Higher Education
	Consejo para la Acreditación de la Educación Superior
CURP	Unique Population Register Code
	Clave Única de Registro de Población
DGESPE	Directorate-General for Higher Education for Education Professionals
	Dirección General de Educación Superior para Profesionales de la Educación
DGESU	Directorate-General for University Education
	Dirección General de Educación Superior Universitaria
EGEL	General examinations for graduates of Bachelor programmes
	Exámenes Generales para el Egreso de la Licenciatura
ENOE	National Survey of Occupation and Employment
	Encuesta Nacional de Ocupación y Empleo
ESG	European Standards and Guidelines for Quality Assurance in Higher Education
FIMPES	Federation of Mexican Private Higher Education Institutions
	Federación de Instituciones Mexicanas Particulares de Educación Superior
GDP	Gross Domestic Product
GERD	*Gross Domestic Expenditure on Research and Experimental Development*
HEI	Higher Education Institution
INEE	National Institute for the Evaluation of Education
	Instituto Nacional para la Evaluación de la Educación
INEGI	National Institute of Statistics and Geography
	Instituto Nacional de Estadística y Geografía

IPN	National Polytechnic Institute
	Instituto Politécnico Nacional
ISCED	International Standard Classification of Education
NEET	Not in Education, Employment or Training
OECD	Organisation for Economic Co-operation and Development
PADES	Programme to Support Development of Higher Education
	Programa de Apoyo al Desarrollo de la Educación Superior
PFCE	Programme for strengthening educational quality
	Programa de Fortalecimiento de la Calidad Educativa
PIDES	Comprehensive Higher Education Planning
	Planeación Integral de la Educación Superior
PIFI	Comprehensive Programme for Institutional Strengthening
	Programa Integral de Fortalecimiento Institucional
PNPC	National Programme of Quality Postgraduate Studies
	Programa Nacional de Posgrados de Calidad
PISA	Programme for International Student Assessment
PLANEA	National Plan for the Evaluation of Learning
	Plan Nacional para la Evaluación de los Aprendizajes
PND	National Development Plan
	Plan Nacional de Desarrollo
PNPC	National Programme of Quality Postgraduate Studies
	Programa Nacional de Posgrados de Calidad
PPP	Purchasing Power Parity
PRODEP	Programme for the Professional Development of Academic Staff
	Programa para el Desarrollo Profesional Docente
PRONABES	National Programme for Higher Education Scholarships
	Programa Nacional de Becas para la Educación Superior
PSE	Sectoral Education Programme
	Programa Sectorial de Educación
R&D	Research and Development
RVOE	Recognition of Official Validity of Studies
	Reconocimiento de Validez Oficial de Estudios
SEP	Secretariat of Public Education
	Secretaria de Educación Pública
TecNM	National Technological Institute of Mexico
	Tecnológico Nacional de México
UAM	Metropolitan Autonomous University
	Universidad Autónoma Metropolitana
UnADM	Open and Distance University of Mexico
	Universidad Abierta y a Distancia de México
UNAM	National Autonomous University of Mexico
	Universidad Autónoma Nacional de México
UPN	National Pedagogical University
	Universidad Pedagógica Nacional

Executive Summary

Higher education in Mexico has expanded rapidly in recent years. In the academic year 2017-18, there were 4.5 million students enrolled in higher education in Mexico: 2.4 million more than in 2000. Between 2007 and 2017 tertiary attainment among 25-34 year-olds rose from 16% to 23%, although this is still well below the OECD average of 44%. Around 40% of total enrolment is in federal and state public universities, 20% in various types of technical institution, and 35% in private higher education institutions (HEIs). About 15% of enrolment is in distance education. Higher education institutions are characterised into 13 public and private subsystems, each with distinctive characteristics.

In 2018, the Mexican federal Secretariat of Public Education (SEP) invited the OECD to review the main policies governing higher education in Mexico, updating the 2008 OECD Review of Higher Education in Mexico. The review has examined the strengths and weaknesses of the governance arrangements and strategy in place to steer the higher education system as well as mechanisms to provide public funding to system. It has also focused on external mechanisms of quality assurance, conditions for equity and specific challenges facing technical public HEIs and public Teacher Education Colleges.

Governance of the higher education system

Higher education in Mexico has developed in an evolving system of federalism, where central government has taken a lead in education policy and the role of state governments has been more limited than in other federal systems. Moreover, a legal and doctrinal vision of university autonomy has sharply circumscribed the role of public authorities in relation to the oldest and largest universities in the country. Against this backdrop, the current Higher Education Coordination Act provides insufficient clarity about the division of responsibility for higher education among the federal government, the governments of the 32 federal entities, and individual higher education institutions. In cooperation with the higher education sector, Mexico should develop a more transparent legal framework to provide the clarity and certainty about the precise roles and responsibilities of the federal and state governments in individual autonomous HEIs.

To build an effective system of governance for higher education in Mexico, there is also scope to strengthen the capacity of state authorities to coordinate and help steer regional higher education systems, including through ensuring equitable redistribution of public funds. Autonomous universities need to assume their responsibilities, as publicly funded institutions, to work constructively with authorities and other HEIs to develop a coherent higher education system. This includes implementing the national qualifications framework; a credit transfer and accumulation system; a single student identifier, an effective system of educational statistics and, as discussed below, a national system of accreditation and quality assurance. Strengthened coordination bodies at state and federal

levels with clearly assigned objectives and tasks should support the development of these system-wide frameworks and procedures, and contribute to system steering.

Higher education strategy in Mexico

Mexico has a well-established tradition of strategic planning at the federal level, through the National Development Plans (PND) and Sectoral Education Programmes (PSE). However, the most recent Sectoral Education Programme partially duplicates the PND, rather than providing an easily understandable and actionable roadmap for future policy in higher education. In the next iteration of the Sectoral Education Programme, the federal government should include a dedicated section for higher education – one with fewer objectives, each linked to more precise action lines and indicative resource allocation. State development plans often overlap with, rather than clearly complement, national strategies, sometimes containing objectives that are unrealistic in light of the resources and capacity available to state authorities. In future, state development plans should focus only on actions where action at state level can generate a real impact.

Accurate information is important for strategy and policy-making. While key elements of a comprehensive data system for higher education are in place in Mexico, reliable data on funding per student and true cohort data on student progression and graduate outcomes are not available. Mexico should develop a comprehensive and integrated data collection system for higher education, either within SEP or through a small arms-length agency.

Funding higher education in Mexico

In 2015, annual spending per student in public higher education institutions in Mexico was around USD 9 000 adjusted for purchasing power parity, roughly one third the adjusted level in public institutions in the United States. Despite real terms increases, government spending per student on public higher education institutions in Mexico has failed to keep pace with the expansion of enrolment in recent years. If public higher educations are to remain dependent on public funds, additional government investment – combined with efforts to ensure efficiency - will be required to meet political goals regarding quality and equity.

Public resources are allocated to public HEIs based on historical costs and negotiations, without formulae. There is no direct relationship between enrolment, activities or outputs and the budget institutions receive. The system lacks transparency and leads to unjustified differences in funding per student between and within subsystems. The federal authorities should establish a rational system for allocating public funding to public HEIs and find a method to provide multi-annual budget commitments to institutions to facilitate planning. In parallel, SEP should ensure targeted federal “extraordinary” funding programmes have well-defined, complementary objectives explicitly linked to priorities established in the new Sectoral Education Programme.

Quality in higher education

Unlike many OECD countries, Mexico does not have a mandatory system of external accreditation and quality assurance for higher education providers. Not all private HEIs participate in the system of programme registration (RVOE), meaning that some students graduate with diplomas that are not officially recognised. Although sound processes for external programme accreditation and evaluation exist, they remain voluntary and are not

appropriate for all sectors of higher education. Furthermore, quality assurance policies and accreditation organisations have focused on programmes and not supported the development of institutional capabilities and responsibilities with respect to quality.

In close cooperation with existing accreditation bodies and the higher education sector, the Mexican authorities should establish a national quality assurance body, probably with non-profit, non-governmental status, to guide further development of external quality assurance. This should develop robust systems of institutional quality review that will allow HEIs with a high proportion of externally accredited programmes to receive institutional accreditation and self-accredit their own programmes. Programme-level review methods should be adapted to the requirements of programmes in technical sectors, and targeted federal funding for quality should be concentrated in subsystems with low levels of external accreditation. Formal registration should be made mandatory for all private HEIs, through a revised RVOE system coordinated at federal level, to ensure all providers meet acceptable minimum quality standards.

Equity in higher education

Social, gender and geographical inequalities in Mexico are considerable. The social background of students has a major influence on their chances of entering and succeeding in upper secondary education, which varies widely in quality. This then affects their opportunities to access higher education. Universities - many with their own secondary schools - can play a bigger role in supporting quality improvement in secondary education. The improvements to quality assurance recommended above are especially important to protect the many students from disadvantaged backgrounds studying in technical education. There is a particular need to ensure the quality and boost the labour market acceptance of short-cycle programmes. This should be accompanied by efforts to improve and streamline public financial support for students, coordinating this fully from the federal level, adjusting the value of maintenance grants and extending eligibility for federal grants to students on programmes with external accreditation at private institutions.

A specific focus on technical higher education and Teacher Education Colleges

Many technical higher education institutions are small, poorly networked with other HEIs, and work with widely varying levels of funding per student. This creates risks for quality. While affiliation to the Tecnológico Nacional de México has given Institutes of Technology access to valuable shared resources to support learning, these institutions lack flexibility to adapt their work to local circumstances. There is scope to increase cooperation among technical HEIs and between technical subsystems and universities, while devolving greater autonomy to individual Institutes of Technology. Technical higher education should be a key focus of government efforts to put public funding of higher education on a more rational basis, improve infrastructure, and enhance quality assurance and quality in educational programmes.

Public Teacher Education Colleges - the normal schools - are subject to strong top-down control and often lack sufficient resources and qualified staff. Enrolment in the subsystem has fallen significantly in recent years and quality concerns persist. The small size of many schools compounds these problems. Mexican authorities should take short-term measures to improve the financial conditions of public normal schools, while planning for their longer-term sustainability through cooperation and mergers. State and federal

governments can support networking among normal schools in each state, including better links to State Public Universities and the National Pedagogical University. The qualification requirements for teaching staff in normal schools should also be increased.

Chapter 1. Assessment and recommendations

This chapter summarises the main findings and key recommendations of the OECD review of higher education in Mexico. Following the structure of the report, it focuses first on the governance of the higher education system at federal and state levels; the relevance of existing government strategies for developing the higher education system; and the way public higher education institutions are funded. The chapter then summarises the main findings and recommendations in relation to external quality assurance practices, and policies to promote equity in the system, before examining key challenges affecting two specific parts of the higher education system: technical higher education and Teacher Education Colleges.

1.1. Focus of this chapter

This chapter summarises the main findings and key recommendations of the OECD review of higher education in Mexico. The review was undertaken by a review team composed of OECD Secretariat staff and three international experts in the field of higher education. The findings presented here take into account a country background report prepared by the Secretariat of Public Education (SEP); interviews conducted with public officials, institutional representatives and stakeholder organisations during a ten-day fact-finding mission to Mexico in late June 2018; and subsequent document review and analysis by the review team.

1.2. Governance of the higher education system

1.2.1. Main findings

A complex and evolving system of federalism, lacking a clear legal division of responsibilities for higher education

Higher education in Mexico has developed within a system of government that is marked by strong national authority and comparatively weak state governments that operate within an evolving system of federalism. It is also characterised by a legal and doctrinal vision of institutional autonomy that has sharply circumscribed the role of public authorities in relation to the oldest and largest higher education institutions in the country. These features of the governance context in Mexico have resulted in a comparatively weak role for public authorities in steering large parts of the higher education sector (notably the autonomous research universities). The 1978 Higher Education Coordination Act is drafted imprecisely and provides insufficient clarity about the real division of responsibility for higher education policy among the federal government, the governments of the 32 federal entities, and individual higher education institutions.

Despite clear political will in some cases, states lack the resources and capacity to play a strong role in higher education policy-making and funding

Despite increased decentralisation over the last three decades and the formally shared responsibility for higher education between the federation and states (federal entities), the states continue to possess modest fiscal and administrative capacities, which limit their ability to take on a stronger role in higher education, similar to that seen in many other federal countries. The 32 federal entities receive over 90% of their revenue from transfers from the federal government and less than 10% from regional or local taxes. The fact that large proportions of the federal transfers that states receive are earmarked for existing fixed costs (payment of staff salaries and operating costs, for example), or tied to agreements with specific institutions, means that state governments have comparatively few resources they can use for discretionary spending on higher education. Some Mexican states have made efforts to develop coherent state higher education policies and to direct resources towards these initiatives, while others have been less active.

An uneven pattern of intervention by public authorities between subsystems: from laissez-faire to micro-management

The authority of public officials in relation to higher education institutions is highly uneven, depending on the legal status of the institutions in question. The distinctive

understanding and practice of university autonomy in Mexican higher education means that while some parts of the higher education system function under comprehensive and detailed control from the centre of government, others - the autonomous universities - have functioned with virtually no guidance or steering from government. The scope of institutional steering by public authorities has widened since the 1990s, in particular, through use of targeted ("extraordinary") funding, which has been used to incentivise state universities to work towards national goals. Non-autonomous federal and state institutions operate under the direction of public authorities, which may be exercised in great detail. For some public institution types, the SEP exercises control over funding levels, curriculum, staffing levels, and infrastructure improvements. Private universities have a regulatory process they must undertake in order for their programmes to be recognised as part of the higher education system, but can subsequently function with a high level of autonomy.

A proliferation of higher education subsystems and administrative units hinders development of system-wide policy-making and processes

Mexican scholars suggest that the complexity of the higher education landscape in Mexico means it is inaccurate to speak of a higher education *system* in the country (Mendoza Rojas, 2018[1]). Successive waves of policy initiatives have led national authorities to develop new institutions and institutional types in the interstices where they have freedom of action, creating Polytechnic Universities, Technological Universities, Intercultural Universities, Institutes of Technology and a National Open and Distance University. The proliferation of "subsystems" of different institutional types has led to a fragmented institutional structure in the federal administrative apparatus (the Secretariat of Public Education) that oversees higher education in Mexico. At the same time, it has further complicated the already challenging development of system-wide norms and administrative procedures, such as a national qualifications framework, a system-wide credit accumulation and transfer system, a common student identifier, and a robust national system of higher education statistics.

A lack of effective coordination bodies, despite strong sector organisations

The absence of strong coordination bodies at both national and state levels further hinders the development of strong, system-wide procedures and norms, and coherent regional higher education systems. State Commissions for Higher Education Planning (COEPES) are theoretically responsible for coordinating the development of state higher education systems, but have been largely inactive in most states in recent years. Over the years, there have also been various attempts to establish a national coordination body for higher education in Mexico, including the National Coordination for Higher Education Planning (CONPES) and the National Council of Higher Education Authorities (CONAES), but these too play a limited role. Non-governmental organisations, including the National Association of Universities and Higher Education Institutions (ANUIES) and the Federation of Mexican Private Higher Education Institutions (FIMPES) play a particularly strong role in Mexican higher education, to some extent compensating for the lack of strong formal federal coordination bodies.

1.2.2. Key recommendations

In the medium term, reform the federal legislation governing the higher education system to define a clearer division of responsibilities

Although, in the short term, it may be possible to improve coordination and develop more effective policies for higher education within the existing legal framework, ultimately a more transparent legal framework is needed to provide the clarity and certainty needed for the long-term development of higher education in Mexico. The federal government, in consultation with state governments and autonomous universities, should develop new federal legislation that specifies the respective roles of the federal government (SEP) and the governments of the states, ensuring that these are distinct and complementary, and makes clear the rights and responsibilities of autonomous institutions. The guiding principle should be that government tasks should be undertaken at the lowest level possible that guarantees effectiveness and efficiency. Responsibility for tasks related to a) creating system-wide norms and procedures and b) distribution of financial resources between territories and social groups should rest with the federal authorities.

Strengthen the capacity of states to play a strong role in coordinating and steering regional higher education systems that respond to regional needs

State authorities should have freedom to shape policy to help develop their local and regional higher education systems, focusing on areas where they can achieve impact effectively and efficiently. This might include convening regional higher education institutions and supporting joint projects to foster cooperation and sharing of resources; identifying regional skills and innovation needs; promoting access to higher education among specific regional populations; and providing targeted funding that is clearly coordinated with national extraordinary funds. A differentiated system, whereby states that demonstrate greater capacity and meet established criteria gain additional responsibilities, could be considered. To strengthen administrative capacity, the federal government could consider a dedicated targeted funding programme, made conditional on high quality, rational proposals and some match-funding from state governments. More generally, the system of federal transfers to state authorities for education should to be reviewed to ensure it is effective and equitable.

Work towards a system of responsibly autonomous institutions

For publicly funded institutions, autonomy comes with the responsibility to act in the public interest and make good use of resources. It is incumbent on formally autonomous institutions to work constructively with federal and state authorities and institutions in other higher education subsystems to develop a more effective and coherent higher education system in Mexico. For some non-autonomous subsystems - notably Institutes of Technology and public Teacher Education Colleges - there is scope to grant individual schools of adequate size greater responsibility in budgetary and staffing matters, as well as more flexibility to tailor study programmes to local needs. For smaller institutes, responsibility could be devolved to regional alliances of institutions that would share management functions.

Complete work to create essential system-wide frameworks and procedures, while simplifying federal administrative structures steering higher education policy

The federal administration needs to take a stronger lead in the creation and implementation of system-wide frameworks and procedures, including a national qualifications framework; a credit transfer and accumulation system; a single student identifier; an effective educational statistics system; and, as discussed below, a national system of accreditation and quality assurance. Developing these frameworks and procedures will require an initial investment of federal resources. It may be appropriate to create a dedicated targeted funding programme to support development of procedures and administrative infrastructure in the SEP or associated non-governmental bodies, as well as the implementation of these procedures in higher education institutions. To support the process of creating a more coherent system of higher education in Mexico, it would also make sense to streamline some of the internal structures in the SEP and improve their coordination.

Clarify the mandates and strengthen the capacity of coordination bodies for higher education at federal level and in each federal entity.

It would be valuable to create coordination fora at the federal level and in each federal entity, bringing together higher education institutions, public authorities and other relevant stakeholders. A federal body should steer the development of system-wide frameworks and procedures and also provide a forum for identification of shared challenges, problems in policy implementation and possible solutions. State bodies, most probably building on the existing State Commissions for Higher Education Planning (COEPES), should focus on building coherent regional higher education systems.

1.3. Higher education strategy in Mexico

1.3.1. Main findings

A tradition of national planning and consultative strategy-setting, but a lack of clarity about implementation activities and limited transparency in monitoring

Mexico has a well-established tradition of strategic planning at the federal level, through the National Development Plans (PND) and Sectoral Education Programmes (PSE). However, the most recent Sectoral Education Programme partially duplicates the PND, rather than providing an easily understandable and actionable roadmap for future policy in higher education (and education more generally). The logical relationships between the challenges identified, the proposed actions, and the expected results and impacts are not adequately explained, while reporting on implementation and progress is not transparent. A programme with a distinct section on higher education and fewer action lines, each with better-formulated indicators of progress, would increase the likely effectiveness of the strategy and make it easier to monitor progress towards goals.

Despite recent improvements, incomplete data about the characteristics and performance of the higher education system still hinder policy-making

While key elements of a comprehensive data system for higher education are in place in Mexico, a number of variables that would be valuable for policy-making and evaluation are not currently available. The absence of transparent, consolidated, and comparable data on public and private spending on education per student makes it hard to compare

resourcing levels and assess efficiency. A lack of true cohort data on students' educational careers and subsequent education and employment status and outcomes hinders efforts to provide better information on the relevance, efficiency and effectiveness of higher education programmes for institutions, students and policy makers.

Considerable variation in planning capacity between states and a lack of clarity about implementation and follow-up

Each of the 32 federal entities in Mexico has planning legislation and a State Development Plan. It is clear that some states do have the capacity to undertake coherent, evidence-based analyses of the challenges facing their education systems. However, it is often hard to understand from State Development Plans which specific actions will be taken to support the development of higher education, who will take them, and how they will be financed. State plans appear to overlap with, rather than clearly complement, national strategies. Moreover, the broad and ambitious objectives established in some state plans, such as promoting equity and improving quality in higher education, sometimes appear to be disproportionate in light of the limited resources states have to achieve them.

1.3.2. Key recommendations

In the next iteration of the Sectoral Education Programme, include a dedicated section for higher education with fewer objectives, each linked to more precise action lines and indicative resource allocation

In the view of the OECD Review Team, the next iteration of the Sectoral Education Programme should aim to provide a clear and more precise programme of action in the field of higher education. To be useful, the new Education Programme should move away from being a wish list of general objectives to being a set of actionable projects. The Programme should clearly identify specific priorities for the higher education sector, recognising its distinct needs and challenges, and should specify a small number of well-defined thematic projects with realistic objectives and timeframes and an indicative allocation of resources.

Develop a comprehensive and integrated information system for higher education

Mexico needs to develop a stronger and more transparent national data system on higher education to support policy-making and ensure citizens and stakeholders are informed about the scope and performance of the sector. Priorities include: building capacity in the collection and management of data at the national level (improving the effectiveness of the current "Format 911" system and expanding its coverage), through increasing capacity within the SEP or by establishing a small arms-length agency; improving guidance to institutions on budgetary reporting; and developing and exploiting a single student identifier, based on the Unique Population Register Code (*Clave Única de Registro de Población*, CURP), to facilitate the transfer of student records and allow continuous, anonymised tracking of students throughout their educational career as well as their transition to the labour market.

Ensure state higher education programmes are complementary to the sectoral education programme, and focus on issues where states can make a real impact

States should focus on building strong and coherent regional higher education systems to meet the needs of their citizens and economies, while leaving certain system-wide regulatory and financial allocation tasks to the federal level. In this context, state-level strategies for higher education should focus exclusively on issues where legal competence and resources will allow states to have real impact.

1.4. Funding higher education in Mexico

1.4.1. Main findings

Public spending on higher education has grown, but more slowly than enrolments, resulting in falling spending per student

In 2015, annual spending per student in public institutions in Mexico was calculated to be under USD 9 000 adjusted for purchasing power parity (PPP). This is roughly one third of the PPP-adjusted level of per-student spending in public higher education institutions in the United States. Recent analyses suggest that, despite real terms increases, government spending per student on public higher education institutions in Mexico has failed to keep pace with the expansion of enrolment. Although data from the SEP show that the federal budget for higher education increased in nominal terms year-on-year in the years 2016-2018, analysis by ANUIES, the national university association, suggests that the federal budget for higher education, excluding research, fell in real terms by almost 8% over the two years from 2015 to 2017. According to the same ANUIES analysis, over the same period, enrolment in public institutions (excluding Teacher Education Colleges) rose by 8%.

A complex system of core funding to higher education institutions, lacking transparent allocation mechanisms

The complex network of subsystems of institutional types within Mexican higher education and the division of responsibility for higher education between the federal government and the states is mirrored in a complex system of funding for public higher education institutions. Allocations to federal public institutions are made in the annual federal budget, and state governments co-fund institutions under their responsibility through allocations in their annual budget processes. Allocations are based on historical costs and the outcomes of individual negotiations. No formulae exist to guide the allocation of resources for different budget lines, meaning there is no direct relationship between enrolment, activities or outputs and the budget institutions receive.

Unjustified differences in funding per student exist between and within subsystems, with some subsystems systematically underfunded

There is wide and often unexplained variation in public subsidy per student between higher education institutions in Mexico. This is largely related to the lack of a transparent allocation mechanism for public resources. Although some variation in per student funding between institutions is to be expected, wide variation in per student funding is visible in Mexico between public institutions in single subsystems and with theoretically similar missions and profiles. In particular, there is significant variation in the level of federal and state subsidies per student received by State Public Universities in different

parts of the country. Within individual states, there is evidence of institutions in the same subsystem receiving widely varying subsidy per student, with particularly low funding levels seen in some Polytechnic and Technological Universities and Institutes of Technology.

A well-established system of competitive and targeted funding, but programmes are fragmented, with partially overlapping objectives

Since the early 1990s, the Mexican federal government has operated a series of additional funding programmes to support higher education, in addition to the direct ("ordinary") subsidies it provides to institutions. These "extraordinary" funding programmes provide to public higher education institutions targeted funding for specific objectives under the remit of the states. There is a general sense among those policy makers and stakeholders in Mexico consulted by the OECD review team that the extraordinary funds have had positive impacts, such as increases in the qualification levels of staff and an increase in the number of programmes with external quality accreditation. Even though there have not been systematic impact evaluations, it seems that the extraordinary funds have focused attention within institutions on issues, such as quality, that are national priorities. However, in some instances, extraordinary funds are used for activities that are not "extraordinary" but rather part of the everyday operation of institutions. Moreover, the objectives of some of the funds overlap and there is no systematic programme of evaluation of the extraordinary programmes.

Unpredictability in funding levels and programmes has hindered medium to long-term planning within institutions

The absence of transparent mechanisms for awarding core "ordinary" funding to public higher education institutions and considerable instability in the design and funding levels attributed to the various extraordinary funding programmes together reduce the predictability of income streams for institutions and act as barriers to long-term institutional planning and projects. Many institutions are focused on finding resources to keep their institutions running, rather than engaging in activities to drive the longer-term improvement of their work.

1.4.2. Key recommendations

Ensure the federal budget allocated to higher education is proportionate to political goals

Expanding participation in higher education has been a key goal in the 2013-2018 National Development Plan and is likely to remain a priority for the new government. If the political choice of the Mexican government is to rely on public funding sources for public education institutions, then the public resources allocated to the sector overall must be adjusted to reflect increasing student numbers, if quality is to be maintained and increased. Furthermore, transitioning to a more rational allocation model for institutional funding will inevitably require some additional resources. To deal with these challenges while maintaining the principle of a fully publicly-funded system, Mexico will need to commit additional public money to higher education. In return, higher education institutions should cooperate in the transition to a transparent and rational funding system – which will create losers as well as winners in financial terms – and demonstrate more efficient use of resources.

Establish a rational system for allocating public funding to federal and state higher education institutions, taking into account institutional missions and real costs

Mexico should introduce a rational system for allocating core ("ordinary") public funding to federal and public state higher education institutions. The new system of funding should reflect the activities undertaken by higher education institutions, with funding for different types of activity (tertiary education, research, engagement) clearly distinguished in allocations. It should take into account real unit costs per student and/or graduate for delivering different types of educational programmes, while seeking to encourage maximum efficiency. An expert committee composed of financial experts from inside and outside the higher education system and a clear mandate may be the most appropriate way to proceed with the development of such a model. This committee should draw on the experience of other OECD countries in this area.

Use the new funding model as a basis for correcting unjustified differences in *institutional* funding across the system

In the short-term, the new funding mechanism should be used to ensure, in particular, that individual institutions in the technical and professionally oriented subsystems (Institutes of Technology, Technological Universities and Polytechnic Universities) and public Teacher Education Colleges are funded at a level that allows them to deliver high quality programmes. All state public higher education institutions, including autonomous State Public Universities, should be funded on an equitable basis, most probably with half of their core funding from the Federation and half from States. The transition to a more rational system of funding is likely to lead to budget reductions in some institutions, as well as increases in others, so the system must be designed to minimise financial shocks for individual institutions.

Reform extraordinary funding programmes to focus exclusively on quality and equity-related projects that complement the core activities of higher education institutions

The extraordinary funding programmes should be maintained, but focused exclusively on projects that go beyond the day-to-day operation of institutions. The funds should be explicitly linked to priorities established in the new Sectoral Education Programme. Priorities should include supporting quality and innovation in learning and teaching, promoting equity through targeted institutional measures, and supporting the establishment and implementation of system-wide norms and procedures.

Move to long-term budget planning

The SEP and the higher education sector should work together with the Secretariat for Finance and Public Credit to find a method to provide multi-annual budget commitments to institutions. In return for greater financial predictability, institutions should be required to present clear institutional development plans and report in an accurate and timely manner on their use of resources, activities and performance.

1.5. Quality in higher education

1.5.1. Main findings

The SEP has undertaken reforms aimed at simplifying and updating the programme registration process for private providers, but shortcomings remain

The participation of private institutions in programme registration (Recognition of the official validity of study programmes, RVOE) is likely to remain incomplete. Institutions with few resources and little reputation to safeguard are likely to remain weakly motivated to register, in part because labour market penalties for unrecognised degrees may be small. The recently revised RVOE process does not set requirements for the profile of instructional staff that are measurable and rigorous with respect to the number, contractual status, educational qualifications, and specialisation of instructors associated with a programme.

Well-developed ex-post monitoring and enforcement can mitigate the risk of poor quality that results from insufficient ex-ante requirements. However, the RVOE process lacks these capacities. Programmes holding a RVOE are not subject to planned compliance inspections. Authorities do not have information systems that permit them to monitor the performance of recognised programmes against a dashboard of indicators that might signal quality problems. Rather, authorities act in response to news reports or complaints, and de-registration of programmes is rare.

Sound processes for external programme accreditation and evaluation exist, but they remain voluntary and are not appropriate for all sectors of higher education

Mexico has stable and mature processes for quality assurance of undergraduate education managed and guided by independent, fee-based, non-profit organisations. They operate following established and well-documented procedures, draw upon a range of scholars to participate in their peer review processes, and produce results that are generally trusted within the higher education community. Partly as a result of federal government policy, slightly less than half of undergraduate students are now enrolled in programmes the quality of which has been assured by CIEES or by a COPAES-recognised accreditation organisation (DGESU, 2018[2]).

There remain important limitations to the external assurance of programme quality as currently configured. Its coverage remains incomplete; it can be poorly adapted to vocationally oriented education and the demands of working life and to the distinctive challenges of distance education. In the private sector, just under two in ten students study in programmes that have been externally accredited or evaluated. Some sectors of public higher education also have limited or very low rates of participation in external evaluation.

Quality assurance policies have focused on programmes and not supported the development of institutional capabilities and responsibilities with respect to quality.

Educational programmes within higher education institutions – rather than institutions themselves - have been the focus of public policies with respect to quality assurance, including external evaluation, accreditation, and registration. In the private sector, although some private institutions have strong and consistent records of achievement in

providing educational programmes of high quality, they have no option by which they may exit the RVOE process and take institutional responsibility for the quality of their programmes. In the public sector, institutions wishing to demonstrate the quality of their educational processes have the option to seek external evaluation and accreditation only on a programme-by-programme basis.

Programmatic autonomy, or self-accrediting status, requires that higher education institutions participate in a rigorous institutional evaluation process that permits them to demonstrate regularly that they have the capacity to take responsibility for the quality of their programmes. It also requires a process that is public and accessible to all institutions and fully independent of the membership process for a private association. This feature is missing from the policy landscape of higher education in Mexico.

1.5.2. Key recommendations

Promote further quality improvements in strong institutions by increasing institutional responsibility for programme quality

A process of *institutional* quality review leading to self-accrediting status should be established for Mexico's public and private higher education institutions, open to all institutions in which its programmes have successfully undergone external review (accreditation or evaluation) for more than one cycle. The process of external institutional review should be organised by a body that is independent of government and higher education institutions; employs differentiated criteria to take account of the varying missions of higher education institutions; awards approved institutions self-accrediting status for a fixed duration; and monitors their performance on a continuing basis.

Expand external quality assurance in other higher education institutions, including through processes better tailored to professional programmes

The federal government should expand participation in external programme-level review among higher education institutions where it is currently limited. Government should continue the support provided by Programme for Strengthening Educational Quality (PCFE), potentially at past levels. However, as leading public universities transition to institutional accreditation, government should target these funds at those parts of the public sector in which participation in quality assurance has been lagging.

Federal authorities should focus on supporting the development of suitable diversity in quality assurance, so accreditors and evaluators define and measure quality in ways that are consistent with the missions of all types of institution, and with various modes of provision. For technical and professionally oriented institutions, quality assurance needs to pay significantly greater attention to labour market outcomes than is presently the case, and to include a stronger focus on the mechanisms used by programmes to equip students with key skills needed in professional life.

Raising the bar – ensure better protection for students by enforcing minimum quality standards in the private sector more rigorously

Mexico should prioritise reform of RVOE, putting it on a new legal basis. Borrowing from the experience of other higher education systems in the region and across the OECD, Mexico should consider a compulsory registration process in which private

institutions must obtain permission from the federal government to operate and to enrol students.

The aim of the RVOE process should be modest and realistic: to ensure an acceptable minimum level of provision through a process of inspection that focuses on educational inputs and processes for new institutions and programmes. It should make staffing requirements more rigorous than at present; and it should extend its focus to past performance and outputs for programmes seeking re-accreditation.

The federal government should strengthen its monitoring and enforcement capabilities. Permission to operate should be linked to a requirement for institutions to provide federal authorities with a minimum data set each year. This would increase capacity of SEP and, potentially, state authorities to undertake ongoing monitoring and enforcement and diminish their exclusive reliance on complaints as the basis for intervention. Clear and effective sanctions for non-compliance with RVOE conditions should be introduced.

Refocus external quality assurance for postgraduate education

Higher education institutions are gaining experience in monitoring and improving quality, and external accreditation and evaluation bodies are developing further experience in supporting HEIs. As they do, they should be able to take responsibility for assuring the quality of professionally oriented postgraduate education (at the specialisation and master's degree levels), thereby permitting CONACyT to focus its attention on programmes that train doctoral students. This is a pattern of responsibilities often seen in other systems of quality assurance.

The link between CONACyT funding and quality assurance should continue, with the award of postgraduate study scholarships made dependent on students studying on a quality-assured programme. Doctoral students studying in quality-assured programmes in Mexico should be trained at an international level. This could be achieved, in part, by consistently engaging international researchers in the evaluation of doctoral programmes. This will have the added benefit of granting a higher degree of impartiality to evaluations in specialised fields that contain few national experts, and expand beneficial learning from other university systems.

Adapt institutional arrangements for external quality assurance to implement the preceding recommendations

Mexico should establish a national quality assurance body to guide the work of quality assurance for undergraduate and professional postgraduate education, while continuing to rely upon CONACyT to organise quality assurance in doctoral education. The body should be trusted, impartial and stable. This is best achieved if it is independent of both higher education institutions and government. Given the success that non-profit, non-governmental bodies – such as COPAES, CIEES, and CENEVAL – have had in taking forward the work of quality assurance, it is advisable that a quality assurance body take the form of a non-profit, non-governmental body. In the near-term, targeted public funding would be necessary to develop properly the capacities of the organisation, while in the longer term the organisation would best achieve independence by operating on a fee basis.

Responsibilities of the body should include, among others:

- Taking a strategic view of the relationship between quality in undergraduate and postgraduate education, and ensuring that quality is being properly cared for

across the entire system of higher education: by institutions that are self-accrediting; by institutions that are gaining increasing experience of external programme-level review; and by institutions that operate within a reformed system of institutional registration or licensing (RVOE).

- Setting the conditions that higher education institutions need to achieve to become self-accrediting organisations.
- Ensuring that programme-focused quality reviews are sufficiently diversified to accommodate the range of higher education providers.
- Ensuring that selection and training processes for peer reviewers, including foreign academics, are rigorous and appropriate.
- Advising the Secretary for Public Education which bodies should be recognised to perform the work of evaluation, assessment, and accreditation of higher education institutions and programmes.
- Giving advice to government on questions of policy related to quality, including on suitable policy targets for the Sectoral Education Programme, and the means best suited to achieve them.
- Advising the Secretary for Public Education on programmes or institutions that fail to meet quality standards, and should therefore be subject to de-recognition (in the private sector) or loss of eligibility for public funds (discretionary funds awarded through calls and competition).
- Advising the SEP on the data infrastructure that is needed to support the monitoring of quality in a reformed RVOE process, and to determine whether HEIs are eligible for self-accrediting status.

1.6. Equity in higher education

1.6.1. Main findings

There is a challenging economic and social context for achieving educational equity

Wider economic and social conditions in a nation establish opportunities and challenges with respect to equity in its higher education system. In Mexico, inequalities of wealth and income are especially large, disadvantaged indigenous populations are numerous, gender inequalities are persistent, and regional inequalities are wide.

Weaknesses in the quality and inclusiveness of upper secondary education constrain the further development of equity in higher education

The availability of high-quality upper secondary education and access to it by disadvantaged students place limits on the continued expansion of higher education, and hamper further progress in making entry into - and completion of - higher education more equitable. Public authorities have made concerted efforts to address disparities in opportunities for learning. These include making upper secondary education compulsory, the federal Programme for Inclusion and Educational Equity, and (in part) the PROSPERA programme. However, the social background of students has a major influence on their likelihood to enter and succeed in upper secondary education.

Moreover, upper secondary schools vary in quality, and students from economically and socially disadvantaged backgrounds are less likely to enrol in higher quality upper secondary schools.

Higher education study opportunities for disadvantaged students are more numerous and diversified, but their quality and relevance raise equity concerns

Mexican authorities have supported the very substantial expansion of higher education in Mexico, and this has helped to reduce socio-economic inequalities in higher education participation. Expanded enrolment capacity has been accompanied by the diversification of higher education provision with respect to the missions or educational profiles offered by higher education institutions, the locations in which institutions operate, and the expansion of distance education. However, there has been less success in ensuring the quality and relevance of this expanding and diversifying provision, putting at risk the equity-enhancing effects of higher education expansion. In some regions – though not the nation as a whole – demand for study places and supply are not well balanced.

Many students from families in lower income deciles study in public higher education institutions with a professional and technical focus and operating with modest physical, financial and human resources. Much of the nation's distance education is provided by private institutions, is offered in programmes that have not participated in external evaluation or accreditation, and is delivered in ways that do not lead to successful learning outcomes for students. Higher education institutions that serve disadvantaged student populations often appear to have high rates of non-completion, though comparable figures are not readily accessible due to gaps in data collection and reporting.

The responsibilities of institutions to offer academic and social support are insufficiently defined, and the support they provide is weakly targeted and variable

Mexican higher education institutions provide academic and social support to the students they enrol. However, there is no publicly accessible data source that makes it possible to know which institutions make such support available, the extent it is used, or its effectiveness. Federal authorities do not routinely collect information from higher education institutions about student services, or information from students about their use.

Public higher education institutions in Mexico also support students financially through a policy of minimal fees and charges. Seen from an economic vantage point, a decision to charge no fees (or, nominal fees) is an untargeted subsidy, the benefits of which often accrue to middle-income families that have the ability to pay fees. A far more equitable tuition policy would link tuition fees to the student's ability to pay by creating modest fees for all and then reducing fees to zero through a targeted, means-tested subsidy for those who cannot pay. Such a system would be complemented by an effective programme of maintenance grants.

Mexico supports higher education students though a system of federally funded and sometimes state co-funded student grants known as the National Scholarships Programme (*Programa Nacional de Becas*). Some state-level or state-funded grants support special populations or state residents, and some public institutions offer additional scholarships. Students in private higher education institutions pay tuition fees to study. Some have sufficiently low incomes that they would be eligible to obtain financial support, but cannot do so because they are enrolled at a private institution. Instead, private institutions

are obligated, as a condition of obtaining a RVOE, to award financial support to at least 5% of their students.

1.6.2. Key recommendations

Focus on improving upper secondary education to provide equitable access to higher education

More disadvantaged students need better opportunities to continue their studies towards completion of upper secondary education, and to obtain a high quality upper secondary education. While secondary education is outside the scope of this review, we note that some continuing challenges merit further attention on the part of Mexican education authorities. Efforts to expand coverage and increase the quality of higher education institutions need to take into account that many students are finishing upper secondary education with low skills, if they finish (or enter) at all. Given the long tradition and the large-scale of involvement of Mexico's universities in upper secondary education - and their broad geographic dispersion - they might play an important role in quality improvement. For example, performance-based funding premiums for strong CENEVAL entrance examination results among disadvantaged students might provide universities with helpful incentives to enrol and strongly support their studies.

Ensure adequate supply, diversity, and sufficient minimum quality in higher education programmes

To address the imbalance of enrolment demand and supply in some areas, federal authorities could consider going beyond programmes such as *Un lugar para tí*, which is an ex-post strategy for students who have already been rejected from the most competitive institutions. The balancing of demand and supply in upper secondary education in Mexico City through a common examination (COMIPEMS) and matching process - with students indicating more than one preferred institution, campus, and programme - could provide a model that can improve the matching of students to enrolment opportunities.

The largest challenge in providing higher education opportunities for disadvantaged students is that they appear often to be enrolled in study programmes that are poorly resourced, and of limited quality and relevance. These challenges are the focus of the analysis of quality assurance in higher education and the equitable resourcing of higher education institutions in this report.

If institutional funding and quality assurance are to support equity, federal authorities need much better data about students. For example, the SEP does not collect reliable and comparable data on the socio-economic background of students in each public higher education institution (and subsystem). This prevents the federal and state authorities from designing equity-oriented funding methodologies that allocate resources based on student characteristics, and limits transparency with respect to the equity performance of public institutions. The use of a unique student identifier – which could make use of the Unique Population Register Code (*Clave Única de Registro de Población,* CURP) – would allow for the collection of longitudinal data across the education pipeline, producing true cohort-based measures of completion of studies, and transitions into the labour market that could support equity policy.

Improve financial support for students

Maintenance scholarships and transport benefits should preferably be a federal programme. This would allow student need to be assessed according to a federal methodology, the student benefit to be calculated based upon a federally established payment schedule, and students to be eligible for assistance irrespective of the institution in which they enrol. Such a system would increase transparency, improve the targeting of support to those most in need, and support student mobility.

Maintenance scholarships are not a mandated benefit indexed to the cost of living, and they have lost purchasing power, since raising the benefit requires legislative authorisation, and therefore occurs infrequently. The federal government should consider restoring the lost purchasing power of Maintenance Scholarships – in combination with making them a fully federalised benefit - linking them to a consumer price index to maintain stable purchasing power. They should also extend eligibility for public scholarships to students attending private institutions, and make eligibility for such student financial assistance dependent on study in programmes that are externally quality assured.

1.7. Educational sectors: Specific challenges and opportunities

1.7.1. Technical higher education in Mexico

Many technical higher education institutions are small and poorly networked with other HEIs, while Institutes of Technology lack the flexibility to adapt their work to local circumstances

From a governance perspective, two main issues stand out in the relation to the technical subsystems of higher education in Mexico. First, there is scope to improve cooperation and coordination between the different systems on a regional (state) level. Institutions consulted during the review mission reported they have limited cooperation with other institutions in the same subsystem within their state and virtually no formal contact with other institutions, such as State Public Universities. As many technical institutions are relatively small (with fewer than 1 000 students), greater cooperation with other institutions in the same region could open up new opportunities for joint projects and sharing of facilities to increase effectiveness and efficiency.

Second, while the Technological and Polytechnic Universities appear generally able to develop coherent institutional development plans and adapt their education to regional skills needs, the Institutes of Technology suffer from an excess of centralised control. This, in combination with the entirely inadequate infrastructure and facilities witnessed in some campuses, limits the ability of individual Institutes to develop distinct institutional development plans and respond to changing regional skills requirements.

Technical higher education is comparatively poorly funded, with large discrepancies in funding levels between institutions within the same subsystem

In comparison to university-based education, technical higher education in Mexico receives significantly less funding per student; this difference between university and technical education is greater than that seen in some of the best-regarded higher education systems in the OECD. Differences in funding levels between institutions within the technical higher education sector in Mexico also raise questions. In Puebla State, for

example, the decentralised Institute of Technology with the lowest funding level receives less than 60% of the funding per student received by the best-funded institution in the same subsystem. There is also inadequate capital investment in infrastructure and equipment in some subsystems. In particular, staff in many Institutes of Technology appear to struggle to provide programmes that reflect the latest advances in their fields and equip students with relevant knowledge and skills for the modern Mexican economy.

Some institutions have very low proportions of full-time staff, while full-time staff in Institutes of Technology perform poorly in federal staff incentive programmes

The balance between full-time and hourly staff varies depending on the profile of the institutions and the historical patterns of employment. The federal Institutes of Technology have a higher proportion of full-time staff, largely as a legacy of their longstanding status as part of the federal civil service, while Polytechnic Universities operate with noticeably few full-time staff, even taking into account the important role of external lecturers with professional expertise in this subsystem. Although it is more challenging for staff in the technical higher education sector to meet the requirements for the "desirable profile" specified by the federal PRODEP programme, a particularly low proportion of full-time teaching staff in federal Institutes of Technology have acquired this status. This warrants further investigation.

Technical subsystems serve many students from disadvantaged backgrounds, but some of the qualifications offered lack recognition in the labour market

Stakeholders consulted by the OECD review team affirm that the technical higher education sector in Mexico, like its counterparts in many other OECD countries, caters to a student population that comes disproportionately from lower socio-economic backgrounds. Numerous Mexican commentators note that short-cycle programmes – provided primarily in Technological Universities - suffer from low prestige among families, students and employers. Employment data confirms that graduates from these programmes achieve modest earnings premiums compared to upper secondary graduates. Addressing these issues and providing more pathways for TSU graduates to gain bachelor qualifications are necessary to ensure students in these programmes gain real benefits.

Current external quality assurance systems are not well adapted to the needs of all types of technical programmes, while there are specific challenges in developing work-based learning opportunities

Data from August 2018 show that around 50 percent of students in Institutes of Technology (both federal and decentralised) study in programmes externally recognised by CIEES or COPAES for their quality (DGESU, 2018[2]). The equivalent figure for Polytechnic and Technological Universities was below 40%. Those working in the technical sector of higher education have made considerable efforts to implement study programmes focused strongly on equipping students with knowledge and skills relevant to the labour market. Curricula have been radically overhauled and there is a clear emphasis on acquiring generic competences alongside subject-specific knowledge. However, providers of technical higher education in Mexico face particular challenges in cooperating with employers - although levels of cooperation are higher in these subsystems than in others - and securing appropriate work placements and internships for their students. The high proportion of micro-businesses in the Mexican economy, high levels of informal employment and limited engagement from small and medium-sized

businesses makes it more difficult to develop effective work-based learning than in countries with many medium-sized and large employers and a strong tradition of participation in education and training.

Key recommendations

Increase cooperation among technical higher education institutions and between technical subsystems and universities

- As part of wider efforts to re-establish State Commissions for Higher Education Planning (COEPES), ensure efforts are made specifically to promote cooperation between institutions in the technical higher education sector.
- Consider the introduction of an extraordinary federal funding programme to support institutional cooperation projects bringing together several technical institutions from a specific region of Mexico and partner institutions in another country to act as a framework for staff and student exchanges for skills development and capacity building.
- At the national level in Mexico, develop cooperation with representative organisations for the professional and technical sectors of higher education in other OECD countries to support exchange of ideas about effective programme and curriculum design and models for cooperation with employers.

Devolve greater responsibility to Institutes of Technology

- Within the *Tecnológico Nacional de México*, initiate a process to devolve greater responsibility for institutional planning, design of study programmes and staffing matters to individual Institutes of Technology. Ensure rules allow sufficient flexibility for individual institutions to make necessary decisions about staffing.

Implement a concerted package of measures to increase the capacity of technical institutions to provide high quality, relevant programmes

- Within the framework of a wider reform of mechanisms for allocating public funding to higher education institution in Mexico, ensure that transparent funding criteria are established for the technical sector, reflecting the true costs of providing good quality technical education, and which ensure that institutions receive an equitable level of funding per student.
- Particularly focusing on Institutes of Technology, undertake a systematic analysis of requirements for new equipment and infrastructure in the technical higher education sector in each state. On this basis, where necessary, provide dedicated funds for investment in new infrastructure and equipment.
- Review the ratio of full-time to hourly contracted staff in all institutions, taking steps through the budget allocation to strengthen the full-time staff contingent in justified cases.
- Encourage institutions to implement internal performance review and incentive systems that encourage and support staff to acquire desirable profiles. If the PRODEP programme is continued, review the criteria for desirable profiles to ensure that they are appropriately adapted to the circumstances of the technical higher education sector.

- Support, as necessary through reconfigured federal extraordinary funding programmes, CIEES and COPAES to take steps to develop accreditation procedures relevant for all types of technically oriented higher education programme.
- Ensure broader measures are taken to track graduates' progress in the labour market and provide a breakdown of evidence on labour market outcomes for the technical subsystems of higher education.

Take specific steps to improve the profile of short-cycle programmes

- Draw on existing feedback from employers, convene additional discussions where necessary to identify the real barriers to better employability outcomes for graduates from short-cycle programmes. General campaigns and promotion are unlikely to be effective in increasing the prestige of these programmes. Rather, efforts should focus on demonstrating how graduates from such programmes can succeed in the labour market. Intensive, local cooperation projects, linking higher education providers and employers, supported by public incentive programmes could be one option to explore.

1.7.2. Teacher Education Colleges in Mexico – the normal schools

Normal schools are subject to strong top-down control

In contrast to other types of public institution under state responsibility, public normal schools have very limited autonomy in their day-to-day activities. Both the structure and content of programmes are specified centrally for the whole country by the SEP's Directorate-General for Higher Education for Educational Professionals (DGESPE), with individual schools then responsible for delivering these standardised programmes. Pay and conditions for staff are also established centrally. Normal schools are responsible for preparing teachers to deliver school-level education, which has been increasingly standardised for the whole country, meaning close articulation between the system of normal education and school education is needed. However, there is a risk that centralised regulations and curriculum guidelines are too prescriptive, leaving insufficient freedom to individual schools and academic staff to adapt their programmes to local needs or exploit the specific expertise of individual staff members.

There is evidence of structural underfunding in the subsystem

The allocation of funds to normal schools, via funding streams destined for school-level education, means it is difficult to identify the level of resourcing they receive and compare it with other public subsystems. However, stakeholders consulted by the review team argued that normal schools face structural underfunding problems and that many normal schools are small, operating in poor quality buildings and with limited access to modern teaching resources. Normal schools have been eligible for federal extraordinary funding schemes, but participation in project-based financial incentive programmes can be challenging for institutions with limited internal management and financial capacity.

Many teaching staff lack high-level qualification and exposure to the wider academic community working on educational issues

There are risks attached to the high degree of inbreeding (endogamy) among teaching staff working in public normal schools and their comparative isolation from other parts of the academic sector. Teaching staff who have themselves been trained primarily (if not exclusively) in normal schools may not have been exposed to alternative and valuable approaches to teaching and teacher training. Teaching staff responsible for programmes for aspiring secondary school teachers may not have studied the specific disciplines they are teaching (Spanish, maths, physics etc.) at university. It is also striking that almost 60% of those responsible for teaching the next generation of Mexican schoolteachers still lacks a postgraduate qualification. Many public normal schools are also operating with very few permanent, full-time staff, further complicating the process of building strong, cohesive teams and developing and implementing long-term strategies for quality and innovation.

Enrolment in normal schools has fallen sharply and students come disproportionately from low-income backgrounds

Total enrolment in public normal schools in Mexico has declined from over 101 000 in 2013-14 to around 84 000 in 2016-17. This has resulted from falling demand for schoolteachers, increased entry requirements and the decision, in 2013, to remove automatic entry to a teaching career for those successfully completing programmes in normal schools and to open the general entrance examination for the teaching profession to graduates from other institutions and programmes. Representatives of normal schools interviewed by the OECD team believed that their students continue to come disproportionately from lower income backgrounds.

Significant concerns exist about the quality of programmes in normal schools – problems compounded by the small size of many institutions

Challenges relating to infrastructure and staffing (and the availability of resources to pay for these), as well as the small size of institutions are all likely to affect adversely the quality of education in public normal schools. Normal schools have expertise in didactics, unrivalled experience of providing practical training to teachers working in different contexts and a close connection with the regional school systems and communities they serve. These factors probably contribute to graduates from normal schools achieving the highest average scores in the national entry examinations for the teaching profession, ahead of graduates from the National Pedagogical University. Nevertheless, the quality and relevance of the education provided in normal schools remains a concern for public authorities in Mexico. Although the successive federal funding programmes have sought to improve quality, only 16% of students in public normal schools study in programmes that have been externally accredited. Commentators in Mexico also argue that existing staff in some normal schools struggle to provide the kinds of academic supervision required by the study plans provided by the SEP.

Key recommendations

Take short-term measures to improve the financial conditions of public normal schools, while planning for the longer-term sustainability of the subsystem

- In the near term, create transparent national guidelines on funding of public normal schools. These should take into account assessments of the real costs of operating such institutions and assumed requirements for full-time staff to evaluate the level of investment required to operate existing normal schools effectively. On the basis of the conclusions, the budgets allocated to normal schools should be adjusted accordingly to ensure the schools can operate effectively in the short term.
- In the medium term, review the capacity of individual normal schools to provide quality educational experiences, taking into account improved data. On the basis of these results, consider options for improving effectiveness and efficiency through more intensive networking of normal schools in each state, including through shared administrative and financial services and shared programmes or modules provided online to different campus sites. Consider whether normal schools in a given region should be merged to form campuses of a single regional normal school.

Promote networking between normal schools in each state, communication between the SEP and normal schools and better links to State Public Universities and the National Pedagogical University

- Building on the Strategy on the Transformation of Normal Schools, provide incentives from the federal level to ensure all states incorporate their normal schools into a network to allow them to contribute more effectively to strategic planning and to communicate with SEP authorities in Mexico City. These networks should be part of the broader policies for enhanced cooperation and networking between institutions in each state recommended earlier in this report.
- Require all subject-specific bachelor programmes in normal schools for aspiring secondary school teachers to develop systematic cooperation with regional public universities, seeking where possible to ensure students can benefit from courses and learning resources (libraries, etc.) in these larger institutions. Support this requirement through additional funding, including resources for joint projects, potentially allocated from existing funds set aside for the transformation of normal schools.
- In support of this upgrading of staff capacity – and more generally – promote more systematic cooperation between the National Pedagogical University and normal schools (or the networks of normal schools). Cooperation could include provision of continuous professional training programmes and online materials, more systematic dissemination of UPN research results among normal schools and professional exchanges.
- Improve communication and cooperation between the DGESPE and normal schools, both on an individual basis and through the regional networks proposed above. In particular, normal schools should be involved more directly in the development of new study programmes that they must then implement.

Enhance requirements for teaching staff in normal schools

- Require new teaching staff in normal schools to have at least a master's degree in a relevant field and continue to support existing normal school teaching staff to upgrade their qualifications and skills.

Improve monitoring and support for students from disadvantaged backgrounds

- As part of wider efforts in the higher education system, improve monitoring of both the social origin of students, their completion rates and their subsequent career development post-graduation. This information should feed into the planning of the sector at regional level and institutional quality plans.

References

DGESU (2018), *Corte 31 de Agosto 2018 - matricula de calidad*, Dirección General Educación Superior Universitaria, http://www.dgesu.ses.sep.gob.mx/Calidad.aspx (accessed on 24 October 2018). [2]

Institucional, C. (ed.) (2018), *Subsistemas de Educación Superior. Estadística básica 2006-2017*, DGEI-UNAM, Ciudad de México, https://www.ses.unam.mx/integrantes/uploadfile/jmendoza/Mendoza2018_SubsistemasDeEducacionSuperior.pdf. [1]

Chapter 2. Key features of higher education in Mexico

This chapter presents an overview of the main features of the higher education system in Mexico and the wider context in which it operates. It starts by examining very briefly the economic, social and governance arrangements in Mexico that influence the development and performance of the higher education system. It then provides a concise overview of the recent trends in participation in higher education; the institutional landscape; funding arrangements; human resources and staffing in higher education; types of study programmes, data on enrolment and graduation, and evidence of the trajectories of higher education graduates in work and education.

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

2.1. The context for higher education in Mexico

2.1.1. Mexico's social and economic conditions: a challenging foundation for higher education

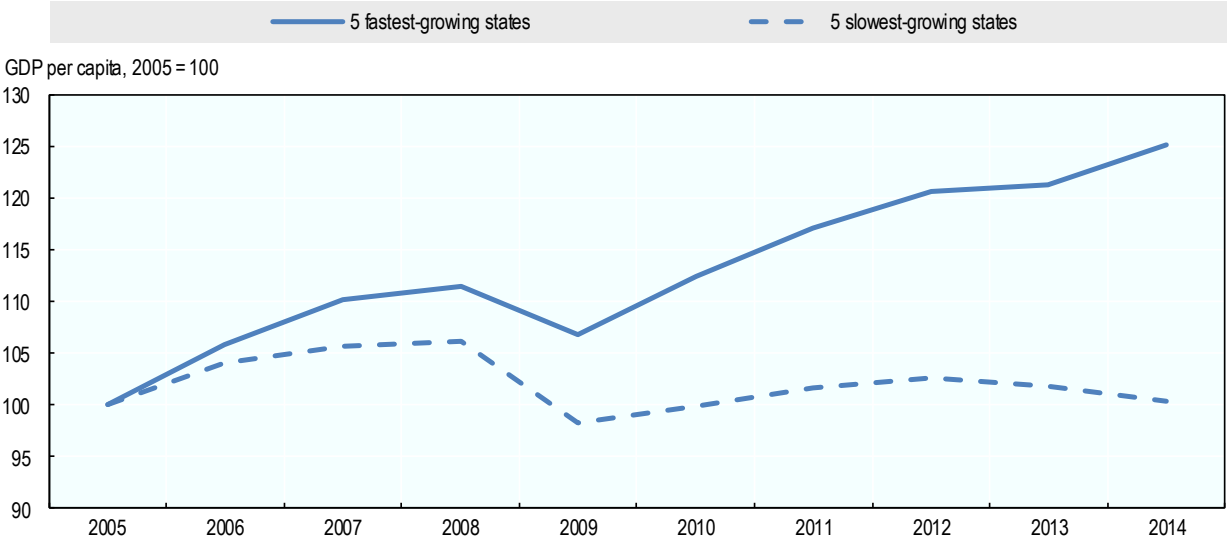
Mexico has an economy marked by comparatively low productivity, the growth of which has been particularly sluggish, and disparities in growth across regions

Mexico has the seventh largest gross domestic product (GDP) of OECD member countries, but the lowest GDP per capita (in purchasing power parity), at 44% of the OECD average (OECD, 2018[1]). Mexico's GDP per capita is higher than that in all the BRICS countries (Brazil, Russia, India, China and South Africa), with the exception of Russia.

Since 2000, GDP per capita has grown by 2.2% a year on average. Growth has been low compared to other OECD economies, due primarily to low productivity and low productivity growth (OECD, 2018[2]). Productivity, as measured by GDP per hour worked, is lower in Mexico than in any other OECD country. Mexican workers work more hours per head of population (labour utilisation) than on average in OECD countries.

The level of GDP varies widely between states, and growth disparities between Mexican states are increasing (Figure 2.1). Six states accounted for almost 50% of the national GDP in 2016: Mexico City (16.9%), the State of Mexico (8.9%), Nuevo León (7.3%), Jalisco (7.1%), Veracruz (4.7%), and Guanajuato (4.2%) (OECD, 2018[3]). The North and Centre of the country are characterised by a comparatively productive and modern economy, and economic disparities in southern states, with the lower-productivity traditional economic structures, have increased (OECD, 2017[4]). Many Mexicans have not experienced improvement in living conditions in the last decade.

Figure 2.1. GDP growth across Mexican states



Source: (OECD, 2017[4]), *OECD Economic Surveys: Mexico 2017*, http://dx.doi.org/10.1787/eco_surveys-mex-2017-en.

Employment in Mexico is concentrated in small firms that spend little on R&D, and many of the nation's jobs - 4 in 10 - are in the agricultural and industrial sectors.

The proportion of employment in the main fields of economic activity has remained stable over the last decade (OECD, 2018[5]). Services are the primary source of employment, accounting for 61.4% of employment in 2017. This is one percentage point lower than in 2009. Industry accounted for 25.6% of employment, compared to 23.9% in 2009. Agriculture accounted for 13.0% of employment in 2017, compared to 13.7% in 2009.

Mexico City, the State of Mexico, Nuevo Leon, Jalisco, Veracruz and Guanajuato are the largest contributors to GDP in the services sector (OECD, 2018[3]). The states with the highest contribution to GDP in the agriculture sector – all located along the Pacific Coast - are Jalisco (11.3%), Michoacán (9.4%) and Sinaloa (7.7%). The highest contributors to GDP in the industrial sector are Nuevo León (8.5%), along the border with the United States, and the State of Mexico (8.1%), where most of the textile, pharmaceutical, automotive and metalworking industries are located.

The vast majority of business entities (*unidades económicas*) in Mexico employ 10 or fewer employees: 95.4% of business entities in Mexico are classified as micro businesses (INEGI, 2015[6]). Large businesses (251 or more employees) account for only 0.2% of all business entities, followed by medium-sized businesses at 0.8% and small businesses at 3.6% of the total.

The indicator Gross Domestic Expenditure on Research and Experimental Development (GERD) captures all spending on R&D carried out within an economy in a year. Among OECD countries, Mexico had the third lowest level of GERD as a percentage of GDP (0.49%) in 2017, behind Chile (0.26%) and Romania (0.44%) (OECD, 2018[7]). Data from the Network for Science and Technology Indicators (RICYT) indicate that Mexico spends more on R&D as a percentage of GDP than most of its Latin American peers, behind only Argentina and Brazil (RICYT, 2018[8]). Over two-thirds of GERD financing comes from the public sector and about one-fifth from the private sector.

In 2016, the National Council for Science and Technology (CONACyT) and public education were the sectors which contributed the most to GERD spending, contributing 50% and 25% respectively (CONACyT, 2016[9]). CONACyT is a decentralised federal governmental body created in 1970 that works to promote and develop science and technology in Mexico, with official responsibility for developing national science and technology policy (CONACyT, 2014[10]). Among its many functions, CONACyT provides scholarships to graduate students, evaluates and accredits graduate programmes, acknowledges and supports researchers, financially supports companies on science and technology projects, and operates 27 public research centres.

Labour force participation is low, and many who are employed hold informal jobs

The labour force participation rate (63.4%) in Mexico is the second lowest across OECD, and the employment rate (61.1%) and unemployment rate (3.6%) are below the OECD averages (Table 2.1). Moreover, 27.2% of the employed population works in the informal sector and informal employment accounts for 56.8% of the employed population (INEGI, 2018[11]).[1] In addition, 31.5% of those employed were self-employed in 2017 (OECD, 2018[12]).

Table 2.1. Key labour market outcome indicators in Mexico and OECD countries, 2017

Indicator	Mexico	OECD	Trend (2006-2017) in Mexico
Labour force participation rate (15-64 year-olds)	63.4%	72.1%	Increase
Employment rate (15-64 year-olds)	61.1%	67.8%	Stable
Unemployment rate (15-64 year-olds)	3.6%	5.9%	Slight decrease
Youth Unemployment (15-24-year-olds)	6.7%	10.9%	Slight decrease
Youth not in education, employment or training (20-24-year-olds) (2016)	24.9%	16.2%	Slight decrease
Labour force participation rate of women (15-64 year-olds)	46.7%	64%	Increase
Gender wage gap (2016)	16.5%	13.9%	Stable
Employment of disadvantaged groups (below prime-age men)	40%	25%	Slight decrease

Source: (OECD, 2018[13]) OECD Employment and Labour Market Statistics.

Automation and new technologies will shape growth in employment

Predicting a country's mid-to-long term demand for skills can be difficult, due in part to the impact of automation and new technologies (Nedelkoska and Quintini, 2018[14]). OECD analyses for countries that participate in the Programme for the International Assessment of Adult Competencies, PIAAC, estimate that 14% of jobs are highly automatable, while another 32% of jobs may undergo a significant change of skill requirements to the automation of some tasks. Routine jobs with low skill requirements are at highest risk of automation. While data for Mexico is limited, one study suggests that in 2030, after accounting for automation, the largest growth in jobs will occur in those occupations that require customer interaction (McKinsey Global Institute, 2017[15]).[2]

Demographic change – lower fertility and increased life expectancy – will lead to an older population, and declining school-age cohorts

Mexico has the tenth highest population in the world, with over 129 million inhabitants in 2017 (United Nations, 2017[16]). The population has grown fivefold since 1950. Mexico's annual population growth rate has decreased from about 3% in between the 1960s and 1980s to 1.24% in 2017, and is expected to decrease further in the future. The population is expected to reach 164 million by 2050.

Mexico has a young population and is in the process of a demographic transition. About 26.7% of the Mexican population is younger than 15 years old and 6.9% is 65 or older. The median age in 2015 was 27.5 years, and is expected to increase to 40.8 years by 2050, due to a combination of a sharp decline in the number of live births per woman (from 2.29 in 2010-2015 to 1.72 in 2045-2050) and increasing life expectancy (76.5 years at birth in 2010-2015 and 82.6 years at birth in 2045-2050). The population aged 0-14 is forecast to decrease by about 20% between 2015 and 2050, leading to a decline in cohorts of schooling age.

Migration outflows exceed inflows

According to the latest Mexican census data, less than 1% of the population in Mexico was born abroad in 2015 (INEGI, 2016[17]). Although the stock of foreign-born population doubled between 2000 and 2016, Mexico remains primarily an emigration and transit country (OECD, 2018[18]). While about 73% of the foreign-born population in 2016 was born in the United States – many of them descendants of Mexican emigrants – growth has been due primarily to inflows from other Latin American and Caribbean

countries, as well as Spain, Canada and China. In 2017, it is estimated that about 11.8 million Mexicans, or almost 10% of the population of Mexico, lived abroad, 97% of them in the United States (Instituto de los Mexicanos en el Exterior, 2018[19]).

2.1.2. Government and politics

Republican foundations are strong, and strong multi-party competition has emerged

Mexico is a constitutional and presidential republic composed of an executive (president), a legislature (the Congress of the Union), and a judicial branch (the Supreme Court of Justice) at the federal level. The Congress of the Union is bicameral, consisting of the Chamber of Deputies and the Senate. Mexico is a federal state in which governing power is shared between the federal government and the 32 federal entities (henceforth referred to as states), as well as with municipal governments. The level of centralisation and devolution of power varies widely by policy area and issue.

During the last seven decades of the 20th century, a single party (including its prior incarnations), the Institutional Revolutionary Party (PRI), held power over the government of Mexico. In the 1980s and 1990s a variety of electoral reforms were implemented to open up the Mexican political landscape (World Bank, 2007[20]). In 2000, the National Action Party (PAN) won the presidential election, and electoral competition within a multi-party system was firmly established as the norm in Mexico (Edmonds-Poli and Shirk, 2011[21]). The 2018 election cycle ushered in a significant change in the political make-up of the Mexican Congress and government. Andrés Manuel López Obrador won the election, the first left of centre candidate to do so since Lázaro Cardénas in 1934 (INE, 2018[22]). López Obrador ran as a candidate for the electoral coalition, "Together We Will Make History", established between Morena, López Obrador's party, the Labour Party (PT), and the Social Encounter Party (PES). The alliance also won a majority in the Chamber of Deputies and the Senate.

Transparency, the rule of law, and violence are key challenges in public affairs

Mexico ranked 66th in the world on the Economist Intelligence Unit's Democracy Index in 2017 (The EIU, 2018[23]). It ranks 135 out of 180 countries on Transparency International's Corruption Perceptions Index and 103 out of 178 on Varieties of Democracy's Civil Society Participation Index (Transparency International, 2018[24]; Varieties of Democracy Institute, 2018[25]). Worldwide, 66 journalists were killed in 2017, nine of them in Mexico (CPJ, 2018[26]). As of 2017, 59 journalists were missing worldwide, 14 of them (24%) in Mexico.

In 2017, 25 316 intentional homicides were committed in Mexico, the highest on record, (compared to 10 253 in 2007), and, at the time of writing, a record number of intentional homicides (2 603) had been committed in 2018 (Secretaría de Gobernación, 2018[27]; Secretaría de Gobernación, 2018[28]). Among countries reporting homicide data in 2016, Mexico had the highest rate of intentional homicides in the OECD, and the 13th highest in the world. The social and economic implications of violence are widely felt, and extend to higher education. Students enrolled in higher education institutions have experienced violence, and for some students and families concerns about violence now influence decisions about where to study.

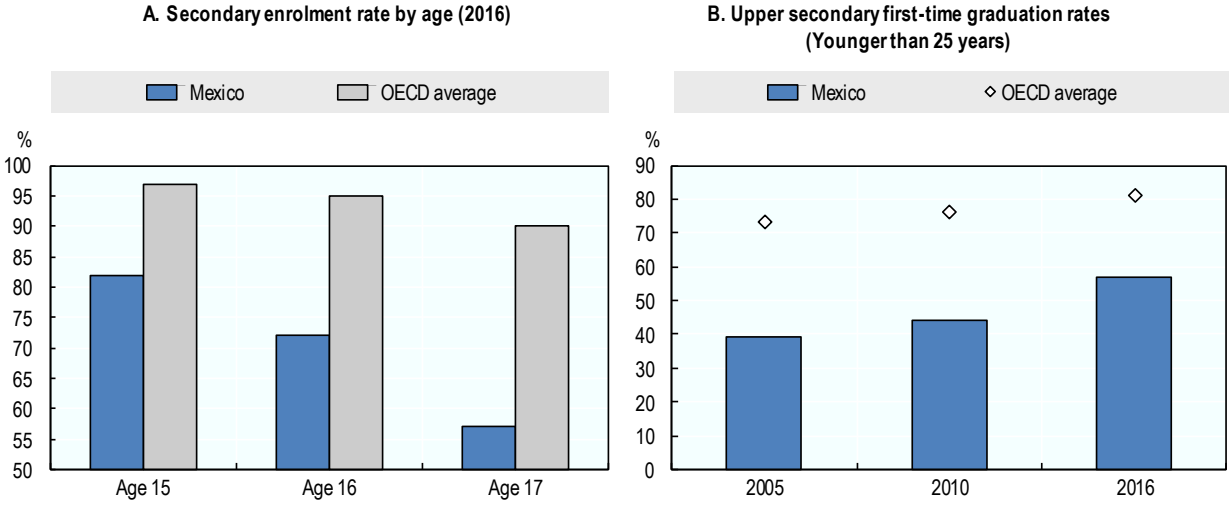
2.1.3. School education

Enrolment and attainment in schooling have increased, but the skills of secondary students are limited, many young people do not complete upper secondary education.

Enrolment in early childhood education and primary education among children aged three to five years old increased by 19 percentage points between 2005 and 2016 (OECD, 2018[29]). The enrolment rate for four-year-olds, at 91%, was higher in 2016 than the OECD average (88%).

In Mexico, 82% of 15-year-olds, 72% of 16-year-olds and 57% of 17-year-olds are enrolled in secondary, compared to 97%, 95% and 90% respectively on average among OECD member countries (Figure 2.2). Upper secondary graduation rates - the estimated percentage of an age group that will complete upper secondary education, based on current patterns of graduation - for those younger than 25 years increased from 39% in 2005 to 57% in 2016 in Mexico, though this remains lower than the OECD average of 81%.

Figure 2.2. Secondary enrolment rates by age and upper secondary first-time graduation rates in Mexico



Note: Panel A: Students enrolled in full-time and part-time programmes in both public and private institutions. Panel B: Sum of age-specific first-time graduation rates for population younger than 25 years of age.
Source: (OECD, 2018[29]), *Education at a Glance 2018*, http://dx.doi.org/10.1787/eag-2018-en.

Between 2007 and 2017, the share of 25-34 year-olds who had not completed an upper secondary education fell by 13 percentage points (OECD, 2018[29]). However, the share of those in this age range in 2017 without a completed upper secondary education stood at 52%, as compared to 15% on average in the OECD.

Performance on PISA in Mexico is low. Results from PISA 2015 indicate that Mexico performs well below the OECD average in each domain: science (416 score points versus 496), reading (423 score points versus 493) and mathematics (408 score points versus

490) (OECD, 2016[30]). Less than one percent of Mexican students are top performers in each of the three domains.

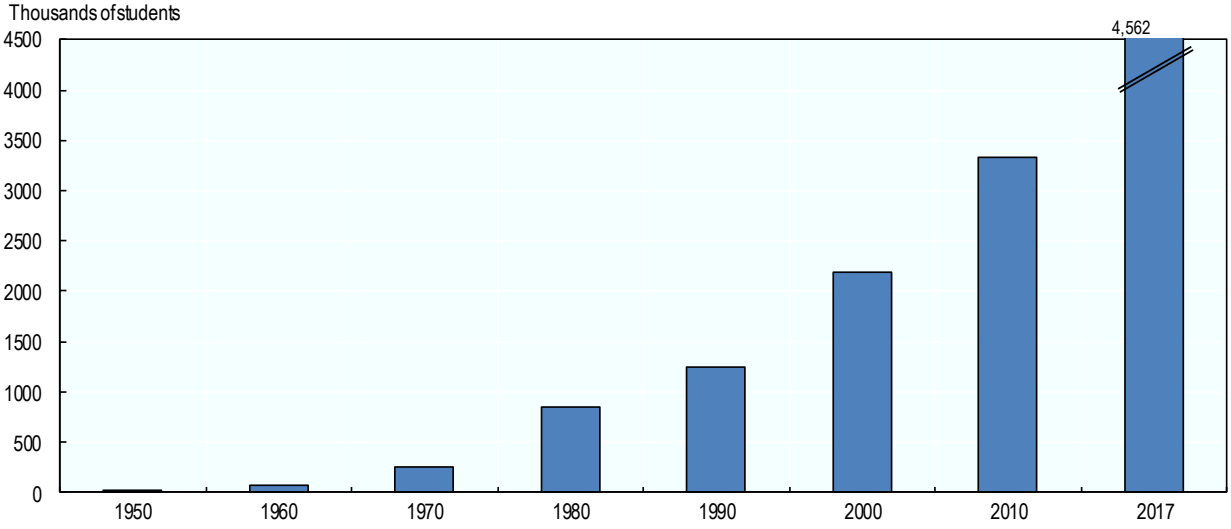
2.2. Higher education in Mexico

2.2.1. Expanding participation in Mexican higher education

Higher education enrolment and attainment have greatly expanded

Enrolment in higher education has grown from roughly thirty thousand students enrolled in 1950 to over 4.5 million students enrolled during the 2017-2018 academic year (Figure 2.3).

Figure 2.3. Enrolment in tertiary education in Mexico



Note: Years 1950-1999 do not include normal education.
Source: Years 1950-1999: Adapated from (Martínes Rizo, 2000[31]), *La ANUIES y la Educación Superior Mexicana 1950-2000,* http://publicaciones.anuies.mx/pdfs/revista/Revista116_S3A1ES.pdf. / Years 2000-2017: Adapted from (ANUIES, 2018[32]), *Visión y acción 2030.*

Tertiary and upper secondary attainment rates are higher among younger populations than older populations in Mexico (Figure 2.4) and between 2007 and 2017 tertiary attainment among 25-34 year-olds rose from 16% to 23% (OECD, 2018[29]). However, tertiary attainment remains below the OECD average of 44%.

Figure 2.4. Mexican educational attainment by age cohort, 2017

Source: (OECD, 2018[29]), *Education at a Glance 2018*, http://dx.doi.org/10.1787/eag-2018-en.

2.2.2. The Landscape of higher education institutions

Public authorities have created higher education institutions organised into many subsystems, the missions and profiles of which overlap

According to official statistics from Mexico's Secretariat of Public Education (SEP), the National Higher Education System in Mexico served 4 430 248 students during the 2016-2017 academic year (SEP, 2018[33]). Mexico has a complex system of higher education, organised into subsystems, which in 2017 included 3 762 public and private higher education institutions providing recognised programmes, offering 37 953 programmes across 6 121 campuses (Table 2.2). Private institutions of higher education may offer programmes that are recognised by SEP, and are therefore part of the National System of Higher Education. Some programmes in private institutions are not recognised by the federal government, and therefore remain outside the National System of Higher Education. The Subsecretariat of Higher Education (*Subsecretaría de Educación Superior)* categorises Mexican public higher education system into 13 subsystems, (Table 2.2) each with a distinctive context, history and governance arrangement.

Table 2.2 The Higher Education System in Mexico

Higher education Subsystem	Enrolment					Institutions		Campuses		Programmes	
	Number of students	% total	Under-graduate	Post-graduate	Annual growth[1]	Total	% total	Total	% total	Total	% total
State Public Universities	1 152 317	26.0%	95.3%	4.7%	3.4%	34	0.9%	929	15.2%	5 480	14.4%
Federal public universities	584 692	13.2%	91.4%	8.6%	3.9%	9	2.5%	229	3.7%	1 491	3.9%
Federal Institutes of Technology	340 800	7.7%	98.8%	1.2%	3.1%	128	3.4%	135	2.2%	1 658	4.4%
Decentralised Institutes of Technology	241 035	5.4%	99.6%	0.4%	12.5%	134	3.6%	141	2.3%	1 263	3.3%
Technological Universities	241 688	5.5%	100.0%	0.0%	12.6%	113	3.0%	131	2.1%	1 685	4.4%
Polytechnic Universities	92 785	2.1%	98.8%	1.2%	42.5%	61	1.6%	61	1.0%	378	1.0%
Teacher education institutions (public)	83 573	1.9%	96.3%	3.7%	-2.5%	276	7.3%	306	5.0%	864	2.3%
State public Universities with Solidarity Support	68 089	1.5%	98.2%	1.8%	8.3%	22	0.6%	100	1.6%	514	1.4%
Intercultural Universities	14 784	0.3%	99.5%	0.5%	14%	11	0.3%	31	0.5%	129	0.3%
Public research centres	6 996	0.2%	2.2%	97.8%	4%	37	1.0%	65	1.1%	217	0.6%
Other public higher education institutions	116 813	2.6%	85.3%	14.7%	2.3%	160	4.3%	305	5.0%	1 325	3.5%
Private universities	1 472 197	33.2%	86.8%	13.2%	4.5%	2 517	66.9%	3 496	57.0%	22 537	59.4%
Teacher education institutions (private)	14 479	0.3%	95.1%	4.9%	-	176	4.7%	200	3.3%	412	1.1%

Note: [1]Average annual growth since 2000 (2001 for Intercultural Universities and 2002 for Polytechnic Universities)
Source: OECD compilation based on (SEP, 2018[33]) Education system of the United States of Mexico. Key Figures 2016-2017.

The federal university subsystem consists of nine institutions, which includes the four autonomous federal universities, the oldest of which is the National Autonomous University of Mexico (SEP, 2018[34]). Four of the nine universities are located in Mexico City, though they reach a majority of Mexican states through their networks of campuses, schools and other education units (Mendoza Rojas, 2018[35]). Three of these four universities are the most competitive in all of Mexico in terms of admissions (Ordorika, Rodríguez Gómez and Lloyd, 2018[36]). The federal universities, along with CONACYT, conduct most of the scientific research in Mexico (Mendoza Rojas, 2018[35]).

The history of federal higher education institutions in Mexico began with the founding of the National University of Mexico (UNM) in 1910, forty-three years after its predecessor, the Royal and Pontifical University of Mexico was closed due to its affiliation to the Catholic Church (Ordorika, Rodríguez Gómez and Lloyd, 2018[36]). In 1929, UNM achieved autonomy through the Organic Law of 1929 and became what is known today as the National Autonomous University of Mexico (UNAM) (Ordorika, 2003[37]).

In 1936, the National Polytechnic Institute, a technical education institution, was founded to support the industrialization of Mexico and to offer alternative higher education options within the country, particularly to those of disadvantaged backgrounds (IPN, 2017[38]).

By 1950, in addition to the two federal higher education institutions (HEIs), Mexico's system of higher education included 3 institutes of technology, 12 state universities, and 6 private universities (Ordorika, Rodríguez Gómez and Lloyd, 2018[36]). The 1950s and 1960s saw a large expansion of the system, during which time 17 state universities opened in state capitals. At the same time, regional institutes of technology were created, "often in areas with growing demand for industrial and agricultural production" (Ordorika, Rodríguez Gómez and Lloyd, 2018[36]).

In the 1970s, demand for higher education in the Mexico City region increased, and the Autonomous Metropolitan University was created in 1978 (Mendoza Rojas, 2018[35]). Overall enrolment in higher education had increased 16-fold by the end of the decade, as compared to enrolment in 1950, and most students were enrolled in institutions outside of Mexico City (Ordorika, Rodríguez Gómez and Lloyd, 2018[36]).

The first institutes of technology, founded to support industrialization, date back to the 1940s (Ordorika, Rodríguez Gómez and Lloyd, 2018[36]). Institutions in this subsystem remained under federal control until the 1990s, when new decentralised institutes of technology were created, and this subsystem has experienced much growth in the last two decades. As of 2017, there were 134 decentralised Institutes of Technology and 128 federal Institutes of Technology (see Table 2.2), the coordination of which was the responsibility of the Tecnológico Nacional de México.

The first Polytechnic University, the Polytechnic University of San Luis Potosí, opened in 2001, and this system initially offered engineering degree programmes that aligned with local technological needs and that included internships (Ordorika, Rodríguez Gómez and Lloyd, 2018[36]). Between 2006-2007 and 2016-2017, the Polytechnic Universities subsystem experienced the largest percent growth of any subsystem, from roughly 12 000 to 80 000 students in a decade (Mendoza Rojas, 2018[35]).

The first Technological Universities were opened in 1991, with a focus on the competencies required by the productive sector (Mendoza Rojas, 2018[35]). Initially, Technological Universities offered only short-cycle ISCED 5 degrees (known as *Técnico Superior Universitario, TSU*) focused on technical skills and practical experience; in 2009 they began offering bachelor's degrees to permit their students to continue their studies to that level. In 2016-2017, about one third of enrolled students were in bachelor's programmes, while the other two-thirds of students were enrolled in short-cycle programmes. In total, nine out of ten students enrolled in short-cycle programmes were enrolled in a Technological University. In 2016-2017 the subsystem was comprised of 54 institutions in 23 states.

Most State Public Universities began as religious or civil colleges in the 19th century, and the first institution to be reorganised into a State Public University - by state government decree - was the *Universidad Michoacana de San Nicolás de Hidalgo* in 1917 (Mendoza Rojas, 2018[35]). Of the 34 State Public Universities that exist today, 33 are autonomous, and every state has at least one State Public University. All offer bachelor's and postgraduate degrees, 23 offer upper secondary degrees (*bachillerato,* which is awarded upon successful completion of a *preparatoria* programme) and some offer short-cycle degrees. State Public Universities have traditionally been the main providers of higher education in their respective states, enrolling 26% of all higher education students in 2016-217, the largest share of any subsystem in the public higher education system and almost twice the share of the next largest subsystem (federal public universities) (see Table 2.2). They have expanded and diversified greatly, increasing enrolment at the bachelor's level by 47% and at the postgraduate level by 34% between 2007 and 2017,

and they consist of 929 campuses and account for 5.2% of all distance education enrolment (see Table 2.5).

The first State Public University with Solidarity Support, today an autonomous university known as the *Universidad de Ciencias y Artes de Chiapas*, was created in 1944 (Mendoza Rojas, 2018[35]). Most State Public Universities with Solidarity Support were created over the last two decades, initially to absorb unmet demand at State Public Universities (Ordorika, Rodríguez Gómez and Lloyd, 2018[36]). A key difference between State Public Universities and State Public Universities with Solidarity Support is budgetary: federal "ordinary" subsidies for State Public Universities pay for both personnel and operational expenses, while for State Public Universities with Solidarity Support only the latter is covered (Mendoza Rojas, 2018[35]). While state governments finance personnel costs, this funding arrangement also gives State Public Universities with Solidarity Support greater control over salaries and incentive programmes. There are 22 State Public Universities with Solidarity Support across ten states, and six of them offer only undergraduate studies while two offer only graduate studies. Between 2007 and 2017, enrolment in bachelor's level programmes grew by 119% and enrolment in postgraduate programmes grew by only 12%. In 2016-2017, these universities accounted for 1.5% of all higher education enrolment.

Intercultural Universities were first established as such in 2004 in an effort to promote inclusion and to meet the higher education needs of indigenous persons (Mendoza Rojas, 2018[35]; SEP, 2001[39]). This subsystem grew from five to 11 institutions and from over 3 000 to almost 15 000 students between 2006-2007 and 2016-2017, though they contributed only 1% to the growth in total public enrolment during the same period (Mendoza Rojas, 2018[35]). In 2016-2017, Intercultural Universities enrolled only 0.3% of all higher education students. Intercultural Universities are discussed in further detail in Chapter 5.

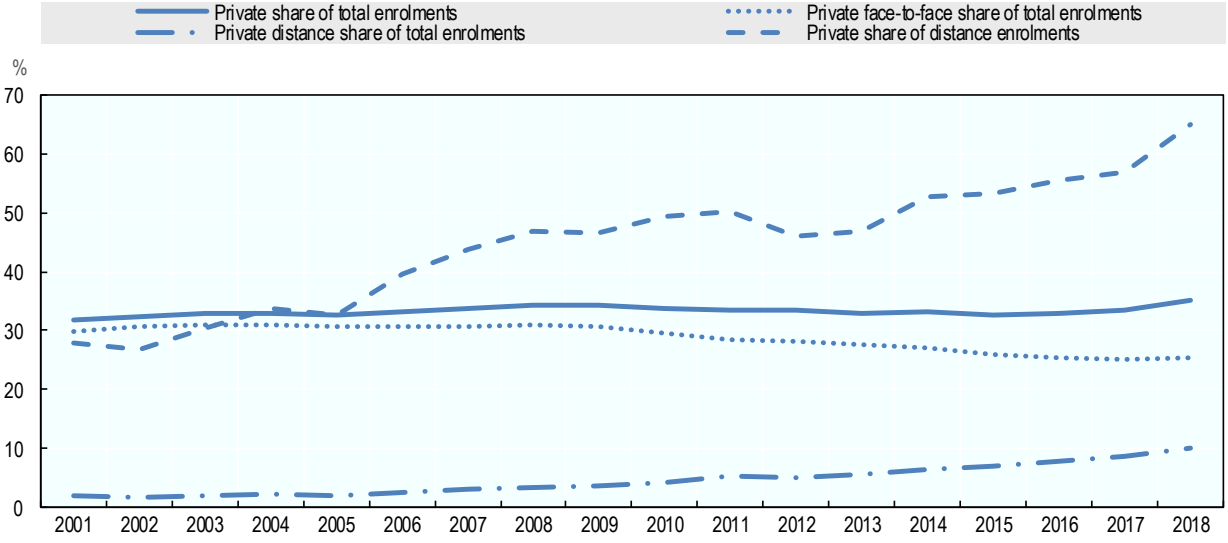
Public normal schools (*escuelas normales públicas*) date to the 19th century, and have a history as socially and politically engaged institutions, a characteristic that, in important ways, remains to this day (Ordorika, Rodríguez Gómez and Lloyd, 2018[36]; Mendoza Rojas, 2018[35]). The history of the normal schools is tightly bound up with social and political movements committed to the expansion of universal education in Mexico, with the establishment of normal schools in the late 19th and 20th centuries playing an essential role in bringing formal education to all regions of the country. Until 1988 with the creation of the National Pedagogical University, normal schools were solely responsible for the initial training of basic education school teachers in Mexico; normal schools today offer programmes in pre-primary, primary and lower secondary education, as well as in specialised educational areas such as arts, intercultural bilingual primary and special education (Mendoza Rojas, 2018[35]). In 1984, upper secondary completion became a requirement for entry into normal schools, and normal school initial training programmes were elevated to the bachelor's level (OECD, 2004[40]). In 2005, normal schools were incorporated into the secretariat of higher education (Mendoza Rojas, 2018[35]). Between 2006-2007 and 2016-2017, enrolment in normal public schools dropped - the only subsystem to do so - by 14%, down 14% in bachelor's programmes and down 11% in postgraduate programmes. Normal schools account for 1.9% of total tertiary enrolment (see Table 2.2), and, along with Intercultural Universities, tend to serve some of the lowest-income students among those attending universities (Ordorika, Rodríguez Gómez and Lloyd, 2018[36]). Public normal schools are discussed in further detail in Chapter 6.

Other public institutions of higher education, a highly heterogeneous "subsystem", include those instructions that do not fit into other subsystems. These include those that focus on particular areas, such library and archival studies, military, fine arts, justice and security and health, as well the Autonomous University of the City of Mexico (SEP, 2018[41]). This subsystem enrols 2.6% of all higher education students and accounts for 8.8% of all distance education enrolment, the second highest share among public institutions after federal universities (see Table 2.2 and Table 2.5).

Private higher education institutions are diverse, some offering selective and prestigious programmes, and others low cost, low status programmes

A majority (72%) of Mexican higher education institutions are private (see Table 2.2). Many are quite small, and, in total, private institutions accounted for about 34% of total enrolment in 2017-2018 (Figure 2.5). In recent years, the percentage of higher education students enrolled in private higher education institutions has increased modestly, and the private sector has absorbed an increasingly larger share of distance enrolments, with about 65% of students in distance education enrolled in private HEIs in 2017-2018. Private HEIs vary widely in prestige and cost, ranging from high-status institutions such as the *Tecnológico de Monterrey* to the low-status "duckling" (*patito*) institutions. Elsewhere we take up an analysis of equity in higher education (Chapter 6).

Figure 2.5. Private sector enrolment in Mexican higher education, 2001-2018



Note: 2001 refers to school year 2000-2001, 2002 refers to school year 2001-2002, 2003 refers to school year 2002-2003 and so forth.
Source: OECD calculations based on data from (ANUIES, 2018[32]), Visión y acción 2030.

Mexico's higher education system focuses principally on bachelor-level education, and educates few students at either the doctoral and sub-bachelor degree levels.

The vast majority of enrolment in Mexican higher education, 88.1% in 2016, was in bachelor's level programmes, with very few degrees awarded at either the sub-bachelor or doctoral levels or the (Table 2.3). Compared to its Latin American peers, Mexico has a higher share of enrolment in bachelor's programmes than does Chile (63.3%), Colombia

(63.2%) and Costa Rica (83.2%), while the share of enrolment in short-cycle tertiary education is lower in Mexico (4.1%) than in Chile (29.0%), Colombia (30.1%) and Costa Rica (10.8%).

Table 2.3. Enrolment by qualification level, 2016

	Short-cycle tertiary education (%)	Bachelor's or equivalent level (%)	Master's or equivalent level (%)	Doctoral or equivalent level (%)
Chile	29.0	63.3	7.3	0.4
Mexico	4.1	88.1	6.8	0.9
United States	37.3	47.5	13.2	2.1
Brazil	0.0*	96.7	1.9	1.3
Colombia	30.1	63.2	6.4	0.2
Costa Rica	10.8	83.2	5.7	0.2

Note: *Enrolment in short-cycle tertiary education accounts for less than 0.05% of total tertiary enrolment.
Source: (OECD, 2018[29]). Education at a Glance 2018. http://dx.doi.org/10.1787/eag-2018-en.

Short-cycle programmes typically last two years and award associate technical degrees (*técnico superior universitario*) or associate professional degrees (*professional asociado*) (Table 2.4). Bachelor's degrees are awarded by universities (*licenciatura universitaria*) or Institutes of Technology (*licenciatura*), whereas an education bachelor's degree (*licenciatura educación*) is awarded by Teacher Education Colleges. Bachelor's programmes typically last four to five years. At the master's level, a specialisation degree (*especialización*) or a master's degree (*maestría*) are available, with a length of up to a year or 2 years respectively. Doctoral degrees (*doctorado*) take three to five years to complete.

Table 2.4. Tertiary education qualification types

Name of the qualification	Length of programme	ISCED level
Associate technical degree (técnico superior universitario) or Associate professional (profesional asociado)	2 years	ISCED 5: Short-cycle programme
University bachelor's degree (licenciatura universitaria) or Institute of technology bachelor's degree (licenciatura tecnológica)	4 to 5 years	ISCED 6: Bachelor's programme
Teachers' education bachelor's degree (licenciatura educación normal)	4 to 5 years	ISCED 6: Bachelor's programme
Master's specialisation degree (especialización)	0.5 to 1 years	ISCED 7: Master's programme
Master's degree (maestría)	2 years	ISCED 7: Master's programme
Doctoral degree (doctorado)	3 to 5 years	ISCED 8: Doctoral programme

Source: (SEP, 2018[33]) Education system of the United States of Mexico. Key Figures 2016-2017.

Most higher education programmes are delivered face-to-face, but higher education institutions have recently begun to offer more distance learning and blended learning programmes. This has been supported by government initiatives such as the creation of the Open and Distance Learning University in 2012 by the federal Under-secretariat Higher Education (*Subsecretaría de Educación Superior*) to help widen access to higher education. In 2016-2017, about a quarter of students in private HEIs and 10% of students in public HEIs undertook distance programmes. Moreover, most students who enrolled in distance learning programmes attended a private institution (56.9%), while most students who enrolled in face-to-face learning programmes attended a public institution (70.6%) (Table 2.5).

Table 2.5. Enrolment by detailed subsystem and modality, 2016-2017

	Face-to-face				Distance			
	Bachelor's	Postgraduate	Total	Percentage of all face-to-face enrolment (%)	Bachelor's	Postgraduate	Total	Percentage of all distance enrolment (%)
State Public Universities	1 065 363	52 572	1 117 935	29.7	32 231	2 151	34 382	5.2
State Public Universities with Solidarity Support	65 495	1 116	66 611	1.8	1 346	132	1 478	0.2
Intercultural Universities	11 678	73	11 751	0.3	3 033	-	3 033	0.5
Polytechnic Universities	91 277	1 052	92 329	2.5	357	99	456	0.1
Technological Universities	240 561	20	240 581	6.4	1 107	-	1 107	0.2
Decentralised Institutes of Technology	234 026	897	234 923	6.2	6 112	-	6 112	0.9
Federal Institutes of Technology	327 635	4 027	331 662	8.8	9 097	41	9 138	1.4
Federal public universities	368 168	45 211	413 379	11.0	166 239	5 074	171 313	25.7
Subtotal	*2 404 203*	*104 968*	*2 509 171*	66.7	*219 522*	*7 497*	*227 019*	34.0
Public Teacher Education Colleges (undergraduate)	80 478	-	80 478	2.1	-	-	-	-
Public Teacher Education Colleges (postgraduate)	-	1 356	1 356	0.0	-	1 739	1 739	0.3
Subtotal	*80 478*	*1 356*	*81 834*	2.2	-	*1 739*	*1 739*	0.3
Public research centres	152	6 679	6 831	0.2	-	165	165	0.0
Other public institutions	51 191	6 684	57 875	1.5	48 422	10 516	58 938	8.8
Subtotal	*51 343*	*13 363*	*64 706*	1.7	*48 422*	*10 681*	*59 103*	8.9
Total Public	***2 536 024***	***119 687***	***2 655 711***	70.6	***267 944***	***19 917***	***287 861***	43.1
Private Teacher Education Colleges (undergraduate)	13 763	-	13 763	0.4	-	-	-	-
Private Teacher Education Colleges (postgraduate)	-	485	485	0.0	-	231	231	0.0
Private universities	974 020	118 700	1 092 720	29.0	304 388	75 089	379 477	56.8
Total private	***987 783***	***119 185***	***1 106 968***	29.4	***304 388***	***75 320***	***379 708***	56.9
Total	**3 523 807**	**238 872**	**3 762 679**	100.0	**572 332**	**95 237**	**667 569**	100.0

Source: Adapted from (SEP, 2018[33]) Education system of the United States of Mexico. Key Figures 2016-2017.

2.2.3. Financing Higher Education: How are Higher Education Institutions Resourced?

Mexico invests a share of GDP in higher education near to the OECD average, and public spending has risen, though more slowly than enrolment growth

In 2015, Mexico spent 1.4% of its GDP on higher education institutions, as compared to 1.5% on average for all OECD member countries (OECD, 2018[29]). Mexico's expenditure on tertiary educational institutions by government, as a percentage of GDP after transfers between government and private sectors, is equal to the OECD average (1.0%), while expenditure by the private sector (0.4%), as a percentage of GDP after transfers between government and private sectors, is slightly less than the OECD average (0.5%), and lower than that of Colombia (1.4%) and Chile (1.7%).[3] Between 2005 and 2015, total expenditure on tertiary education in Mexico as a percentage of GDP increased from an indexed score of 85.0 to 104.8, where 2010 spending levels are set to 100. In the OECD, on average, this score increased from 90.5 in 2005 to 101.3 in 2015.

In 2015, expenditure per full-time equivalent student in tertiary educational institutions stood at USD 8 170 (at PPP), the second lowest among OECD countries and equivalent to 52% of the OECD average (OECD, 2018[29]).

Federal funding is not directly linked to enrolment. While federal spending on education and enrolment have generally increased between 2000 and 2017, growth in public enrolment (109%) has outpaced growth in spending (71%), leading to an 18% reduction in per student funding (ANUIES, 2018[32]).

The allocation of public funds to public higher education institutions is opaque, and does not follow a publicly stated methodology

In Mexico, each public university receives federal funding through a combination of core funding, so-call "federal contributions" and "agreements" (*convenios)*. There is no single funding formula used for all public universities. As a result, expenditure per student varies widely across states and across regions. In the case of State Public Universities, in 2017 the university with the highest base funding subsidy per student had a subsidy over 3.5 times larger per student than the university with the lowest base funding subsidy per student, and the percent contribution to the federal/state split of the subsidy ranged from 44% to 90% (ANUIES, 2018[32]).

2.2.4. Human Resource in Higher Education

Many higher education institutions have wide responsibility for setting human resource policies.

Higher education institutions in Mexico have varying control over the terms and conditions of employment (OECD, 2008[42]). While non-autonomous higher education institutions in Mexico typically have limited control over human resources, private universities set human resource policies independent of government, and autonomous public universities have wide discretion with respect to the recruitment and appointment of staff, career structures and advancement, performance evaluation, and compensation. However, public institutions make hiring, promotion and performance pay decisions using public funds following approval of public authorities, indicating that corresponding funding is available.

In public higher education institutions, both full and part-time academic staff are eligible to be tenured, and the most important criterion in its award is often seniority, rather than research performance or ability and improvement in teaching (Maldonado-Maldonado, 2012[43]). Most private universities do not have a tenure system.

Due in part to institutionally-based career progression structures, there is low level of academic staff mobility among higher education institutions (OECD, 2008[42]). Institutional responsibility for human resource policies also leads to wide variation in compensation. One study found that the highest base salaries in the public sector can be almost 6.5 times larger than the lowest salaries, ranging from USD 356 to USD 2313 monthly, and this difference is even larger in private universities (Maldonado-Maldonado, 2012[43]).

Base salaries in public institutions are supplemented through merit-based and peer-review programmes such as the National System of Researchers (*Sistema Nacional de Investigadores*), as well as institutional and state level programmes, which can add between 15% and 75% to the base salary (Maldonado-Maldonado, 2012[43]). Other programmes such as PRODEP (*Programa para el Desarrollo Profesional Docente, para el Tipo Superior*) seek to improve the capabilities of full-time academic staff through scholarships and recognition (SEP, 2018[44]). Few institutions in the private sector offer these supplements (Maldonado-Maldonado, 2012[43]).

The educational attainment of academic staff has modestly risen in recent years, but few work on a full-time basis.

The educational attainment of academic staff has grown (Table 2.6). Approximately half of academic staff have a bachelor's degree or specialisation as their highest level of educational attainment. However, the share of the academic staff with master's degrees increased from 27.9% in 2010-2011 to 32.3% in 2016-2017, while the share of academics with doctorates increased from 9.0% to 12.0%.

Table 2.6. Share of academic staff by highest level of educational attainment, 2010-2011 to 2016-2017

%	Short-cycle (L)	Short-cycle (NL)	Bachelor's (L)	Bachelor's (NL)	Specialisation (L)	Specialisation (NL)	Master's (L)	Master's- (NL)	Doctorate (L)	Doctorate (NL)
2010-11	0.9	0.4	48.7	1.8	4.8	0.2	27.9	5.4	9.0	1.0
2011-12	1.1	0.4	50.0	1.2	4.8	0.2	28.0	3.7	9.8	0.8
2012-13	1.2	0.4	49.4	1.3	4.7	0.1	29.2	3.2	9.6	0.8
2013-14	1.1	0.3	48.2	1.2	4.4	0.1	30.2	3.3	10.5	0.7
2014-15	0.9	0.3	47.8	1.1	4.6	0.1	30.4	3.0	11.0	0.8
2015-16	1.1	0.3	47.0	1.3	4.4	0.1	31.5	2.7	11.1	0.6
2016-17	0.9	0.2	46.8	0.9	3.8	0.1	32.3	2.4	12.0	0.7

Note: In Mexico, a student can complete a higher education programme without fulfilling the additional requirements needed to be granted a professional license. L: License. NL: No License.
Source: OECD calculations based on Mexico Country Background Report.

In 2016-2017, over two-thirds of the nation's academic staff (70.8%) worked on an hourly basis (i.e. casual staff), while full-time academic staff, those that are tenured, accounted for 23.0% of all positions (Table 2.7). While the size of the workforce has grown by about 26% between 2010-2011 and 2016-2017, the share of full-time staff has modestly decreased and the share of hourly staff has generally increased over this period.

Table 2.7. Share of higher education academic staff by level of time commitment, 2010-2011 to 2016-2017

	Full-time (%)	3/4-time (%)	Half-time (%)	Hourly (%)	Total workforce (count)
2010-11	24.4	1.4	5.0	69.2	342 617
2011-12	24.1	1.6	5.6	68.6	368 755
2012-13	24.0	1.6	4.9	69.5	382 335
2013-14	23.6	1.7	4.8	70.0	379 267
2014-15	24.4	1.7	5.8	68.1	395 878
2015-16	22.4	1.3	5.0	71.3	423 941
2016-17	23.0	1.4	4.8	70.8	431 863

Source: OECD calculations based on Mexico Country Background Report.

2.2.5. Degrees and Study Programmes

Enrolments in Mexico led by business administration, social science and law, with engineering, manufacturing, and construction a second area focus, with comparatively few enrolments in arts and humanities

There are close to 38 000 tertiary programmes offered in Mexico (see Table 2.2). In 2016, business, administration, and law programmes had the highest enrolment (33.0%), while 25.3% of students were enrolled in engineering, manufacturing and construction programmes. The share of enrolment in business, administration, and law is substantially higher in Mexico than in OECD countries in total, broadly similar to higher education systems in the region, with an enrolment share lower than that of Colombia, but higher than that of Brazil. Programmes in arts and humanities (3.9%) have an especially modest enrolment in Mexico, broadly similar in magnitude to Latin American comparator systems, though far lower than is found in total across the OECD (13.5%).

Table 2.8. Tertiary education enrolment by field, 2016

%	Generic programmes and qualifications	Education	Arts and humanities	Social sciences, journalism and information	Business, administration and law	Natural sciences, mathematics and statistics	Information and Communication Technologies	Engineering, manufacturing and construction	Agriculture, forestry, fisheries and veterinary	Health and welfare	Services	Field unknown
Chile	0.1	11.2	4.2	4.5	21.5	2.0	3.7	20.1	2.2	22.0	8.6	0.0
Mexico	0.0	8.6	3.9	9.3	33.0	3.4	2.0	25.3	2.2	10.8	1.5	0.0
OECD total	**0.1**	**7.6**	**13.5**	**9.7**	**23.2**	**6.1**	**3.2**	**13.5**	**1.4**	**14.6**	**4.7**	**2.4**
Brazil	0.4	18.6	2.5	5.1	31.4	2.7	3.3	15.5	3.0	15.2	2.3	0.0
Colombia	0.0	7.9	4.4	8.5	38.7	1.8	5.8	20.8	2.1	7.4	2.7	0.0
Costa Rica	0.0	13.2	4.2	4.4	30.1	3.3	7.4	11.6	1.5	11.7	0.9	11.7

Source: (OECD, 2018[29]) Education at a Glace 2018. http://dx.doi.org/10.1787/eag-2018-en.

2.2.6. Enrolment and Attainment

There is rising participation in higher education, with a student population that is young, and a level of tertiary attainment among young adults typical of the region

In Mexico higher education access is monitored using a gross enrolment ratio (*cobertura*), measured as total enrolment in bachelor's and short-cycle *Técnico Superior Universitario* (TSU) programmes divided by the total population of 18-22 year-olds, the typical age for this level of education. Higher education coverage has increased steadily in the last 10 years (25.9% in 2007-2008), reaching 38.4% in 2017-2018 (ANUIES, 2018[32]).

The population enrolled in tertiary education is comparatively young, with students aged 25 and older accounting for only 23.2% of enrolment, a much lower share than in Chile, Brazil and Colombia (Table 2.9). Conversely, younger adults ages 18 and 19 make up about one-quarter of higher education students in Mexico, a larger share than in Chile, Brazil, or Colombia.

Table 2.9. Enrolment by age in tertiary education, 2016

%	17 years	18 years	19 years	20-24 years	25 and over
Chile	0.0	6.4	10.5	47.4	35.6
Mexico	1.6	10.7	13.9	50.6	23.2
Brazil	2.0	5.9	7.9	37.5	46.7
Colombia	4.9	8.3	9.7	38.9	36.5

Note: Includes students in full-time and part-time programmes.
Source: (OECD, 2018[29]) Education at a Glance 2018.

In 2017, 22.6% of 25-34 year-olds in Mexico had completed some kind of tertiary education (Table 2.10). This is approximately half the OECD average (44.1%), and is lower than in Chile (29.9%), Colombia (28.1%) and Costa Rica (28.0%), but higher than in Brazil (16.6%) and Argentina (18.4%). Attainment of short-cycle tertiary qualifications is lower in Mexico (0.6%) than on average across the OECD (7.3%) and lower than in Latin American countries reporting these data. The share of the population with master's or equivalent or higher in Mexico is also much lower than the OECD average.

Table 2.10. Share of population by educational attainment, 25-34 year-olds, 2017

	Tertiary education	Short-cycle tertiary education	Bachelor's or equivalent education	Master's or equivalent education	Doctoral or equivalent education
Chile*	29.9	8.7	20.0	(w) 1.2	x
Mexico	22.6	0.6	20.7	1.2	0.0
OECD average	**44.1**	**7.3**	**23.2**	**14.5**	**0.8**
Argentina	18.4	x	(w) 18.4	x	x
Brazil*	16.6	x	(w) 16.6	x	x
Colombia	28.1	x	(w) 28.1	x	x
Costa Rica	28.0	8.7	17.8	(w) 1.5	x

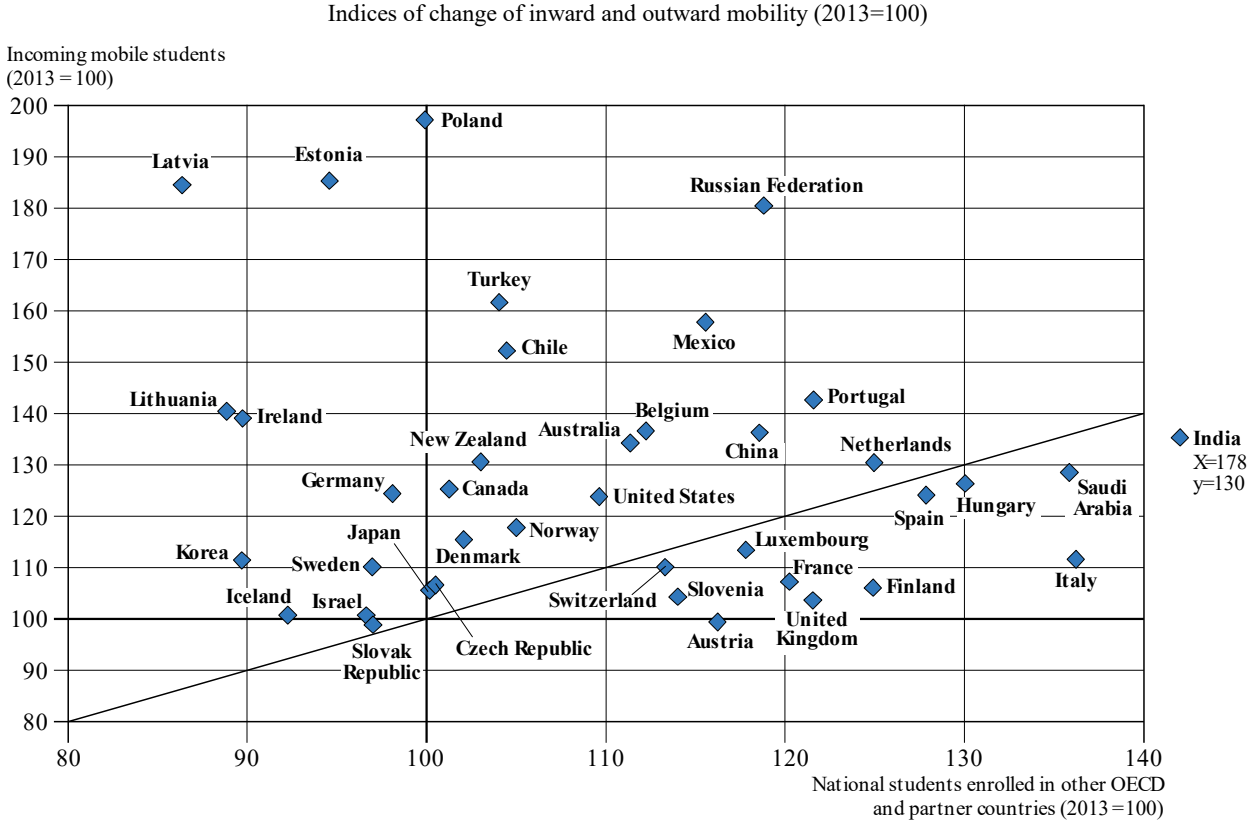
Note: *Year of reference is 2015.
x: Data included in another category.
w: Includes data from another category.
Source: (OECD, 2018[29]) Education at a Glance 2018. http://dx.doi.org/10.1787/eag-2018-en.

International mobility among students is low, but increasing

The percentage of Mexican nationals who are tertiary students enrolled abroad is about 1%, lower than most OECD countries and below the OECD average of 2% (OECD, 2018[29]). In 2016, approximately 32 000 Mexican nationals were tertiary students in OECD member countries, about one-half of whom study in the United States. The number of foreign nationals studying for higher education degrees in Mexico is small, as a percentage of total enrolments rounding to zero.

Internationally mobile students are those who left their country of origin and moved to another country for the purpose of study. Between 2013 and 2016, the Mexican higher education system experienced growth in the number of incoming mobile students that was higher than the growth in the number of national students enrolled in other OECD and partner countries (Figure 2.6).

Figure 2.6. Change in the outflow compared to the inflow of mobile students (2013 to 2016)



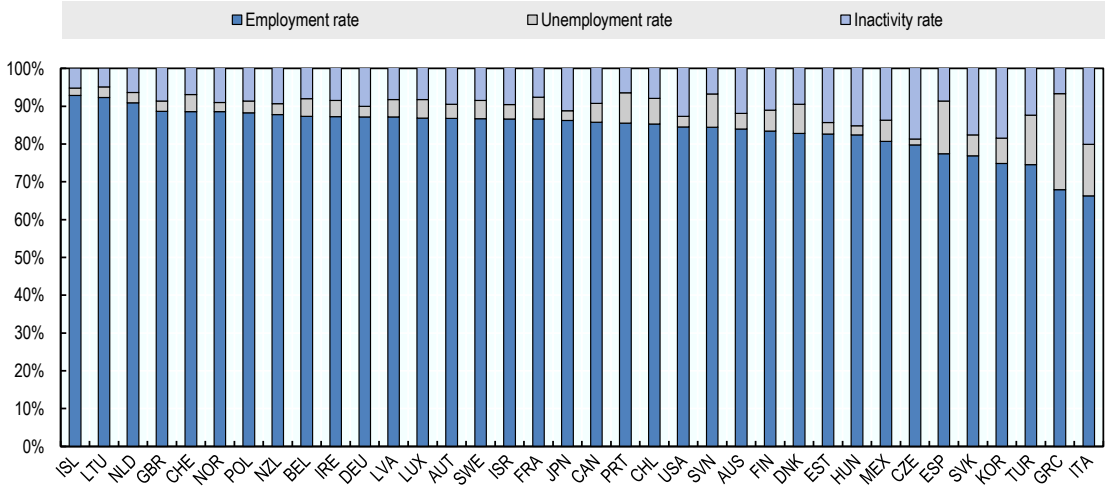
Note: Excludes incoming mobile students in short-cycle tertiary education for Italy and Spain. The black diagonal line represents where the inward mobility change equals the outward mobility change.
Source: (OECD, 2018[29]), *Education at a Glance 2018*, http://dx.doi.org/10.1787/eag-2018-36-en.

2.2.7. Post-education outcomes

Labour market outcomes for young higher education graduates (ages 25-34) are below the OECD average, and graduates often work in occupations categorised by national authorities as not requiring a higher education degree

Labour market outcomes for 25-34 year-old higher education graduates in Mexico are below than the OECD average (Figure 2.7). The employment rate of young higher education graduates in 2017 was 80.7%, below the OECD average of 84.1%. The inactivity rate of young higher education graduates was 14.5%, above the OECD average of 10.7% (OECD, 2018[29]). Unemployment was 5.7%, which is similar to the OECD average of 5.8%. As Mexico has no unemployment benefits and few active labour market policies in place, registered unemployment is not common.

Figure 2.7. Labour market outcomes for young higher education graduates (25-34 year-olds), 2017

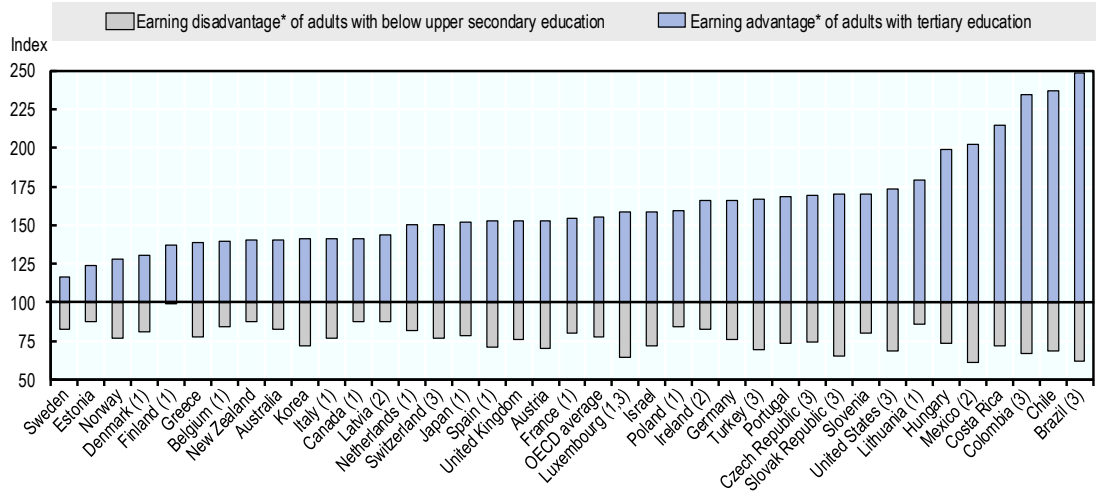


Note: Countries are ranked in descending order for the employment rates of young higher education graduates.
Source: (OECD, 2018[29]), Education at a Glance 2018, http://dx.doi.org/10.1787/eag-2018-en.

As in other OECD countries, tertiary graduates have an earning advantage compared to those completing upper or lower secondary education (Figure 2.8). The earning advantage of tertiary education graduates vis-à-vis upper secondary graduates in Mexico is substantially larger than the OECD average, though lower than in other economies in Latin America, including Costa Rica, Colombia, Chile, and Brazil.

Figure 2.8. Relative earnings of adults, by educational attainment (2015)

25-64 year-olds with income from employment; upper secondary education = 100



Note: Tertiary education includes short-cycle tertiary, bachelor's, master's, doctoral or equivalent degrees.
*For adults with upper secondary education, relative earnings are 100 and earnings (dis)advantage is 0.
1. Year of reference differs from 2015. Refer to the source table for details.
2. Earnings net of income tax.
3. Index 100 refers to the combined ISCED levels 3 and 4 of the educational attainment levels in the ISCED 2011 classification.
Countries are ranked in ascending order of the relative earnings of 25-64 year-olds with tertiary education.
Source: (OECD, 2017[45]), *Education at a Glance 2017,* https://doi.org/10.1787/eag-2017-en.

Higher education graduates entering the labour market are often employed informally (i.e. without social security or pension coverage), or enter occupations that labour market officials in Mexico classify as not requiring a higher education. In 2017, just over one-quarter (27%) of young higher education graduates were informally employed, and 46% were employed in occupations classified as not requiring a higher education degree (INEGI, 2017[46]). The OECD Report *Higher Education in Mexico: Labour Market Relevance and Outcomes* presents a detailed analysis of labour market outcomes for higher education graduates in Mexico - and how government policies and institutional practices can improve these outcomes (OECD, 2019[47]).

Notes

[1] INEGI defines employment in the informal sector (*ocupación en el sector informal*) as the percentage of those employed who work in economic units that are not registered. INEGI defines informal employment (*informalidad laboral*) as the percentage of those employed who lack basic social security protection through their job or who work in unregistered economic units.

[2] For a more detailed discussion on labour market relevance and outcomes of higher education, see the OECD Report (2019) *Higher Education in Mexico: Labour Market Relevance and Outcomes* (OECD, 2019[47])

[3] The year of reference for Chile and Colombia is 2016.

References

ANUIES (2018), *Visión y acción 2030: Propuesta de la ANUIES para renovar la educación superior en México*, Asociación Nacional de Universidades e Instituciones de Educación Superior (ANUIES), México, D. F., http://www.anuies.mx/media/docs/avisos/pdf/VISION_Y_ACCION_2030.pdf (accessed on 9 October 2018). [32]

CONACyT (2016), *Informe General del Estado de la Ciencia, la Technología y la Innovación*, Consejo Nacional de Ciencia y Tecnología (CONACyT), Ciudad de México, http://www.conacyt.mx (accessed on 27 October 2018). [9]

CONACyT (2014), *El Conacyt*, Consejo Nacional de Ciencia y Tecnología (CONACyT), Ciudad de México, https://www.conacyt.gob.mx/index.php/el-conacyt (accessed on 27 October 2018). [10]

CPJ (2018), *CPJ database of attacks on the press*, Committee to Protect Journalists, New York, https://cpj.org/data/ (accessed on 27 October 2018). [26]

Edmonds-Poli, E. and D. Shirk (2011), *Political Parties and Elections in Mexico*, Rowman & Littlefield Publishers,. [21]

INE (2018), *Cómputos Distritales 2018 - Elecciones Federales*, Instituto Nacional Electoral (INE), https://computos2018.ine.mx/#/presidencia/nacional/1/1/1/1 (accessed on 27 October 2018). [22]

INEGI (2018), *Datos, 1T*, Instituto Nacional de Estadística y Geografía (INEGI), http://www.beta.inegi.org.mx/temas/empleo. [11]

INEGI (2017), *Encuesta Nacional de Ocupación y Empleo (ENOE)*, Instituto Nacional de Estadística y Geografía (INEGI), http://www.beta.inegi.org.mx/proyectos/enchogares/regulares/enoe/. [46]

INEGI (2016), *Encuesta Intercensal 2015*, Instituto Nacional de Estadística y Geografía (INEGI), http://www.beta.inegi.org.mx/proyectos/enchogares/especiales/intercensal/ (accessed on 27 October 2018). [17]

INEGI (2015), *Censos Económicos 2014*, Instituto Nacional de Estadística y Geografía (INEGI), http://www.beta.inegi.org.mx/proyectos/ce/2014/ (accessed on 26 October 2018). [6]

Instituto de los Mexicanos en el Exterior (2018), *Población mexicana en el mundo*, Secretaría de Relaciones Exteriores, México D.F., http://www.ime.gob.mx/estadisticas/mundo/estadistica_poblacion_pruebas.html (accessed on 27 October 2018). [19]

IPN (2017), *Historia*, Instituto Politécnico Nacional (IPN), Ciudad de México, http://www.ipn.mx/Acerca-del-IPN/Paginas/Historia.aspx (accessed on 02 October 2018). [38]

Maldonado-Maldonado, A. (2012), "Mexican Faculty Salaries Today: Once a Bagger, Always a Beggar?", in Altbach, P. et al. (eds.), *Paying the Professoriate : A Global Comparison of Compensation and Contracts*, Routledge, https://www.routledge.com/Paying-the-Professoriate-A-Global-Comparison-of-Compensation-and-Contracts/Altbach-Reisberg-Yudkevich-Androushchak-Pacheco/p/book/9780415898072 (accessed on 29 October 2018). [43]

Martínes Rizo, F. (2000), "La ANUIES y al educación superior mexicana, 1950-2000", *Publicaciones ANUIES: Revista de la Educación Superior*, Vol. 29/116, http://publicaciones.anuies.mx/pdfs/revista/Revista116_S3A1ES.pdf (accessed on 27 October 2018). [31]

McKinsey Global Institute (2017), *Jobs Lost, Jobs Gained: Workforce Transitions In A Time Of Automisation*, McKinsey & Company, https://www.mckinsey.com/~/media/mckinsey/featured%20insights/future%20of%20organizations/what%20the%20future%20of%20work%20will%20mean%20for%20jobs%20skills%20and%20wages/mgi-jobs-lost-jobs-gained-report-december-6-2017.ashx. [15]

Institucional, C. (ed.) (2018), *Subsistemas de Educación Superior. Estadística básica 2006-2017*, DGEI-UNAM, Ciudad de México, https://www.ses.unam.mx/integrantes/uploadfile/jmendoza/Mendoza2018_SubsistemasDeEducacionSuperior.pdf. [35]

Nedelkoska, L. and G. Quintini (2018), "Automation, skills use and training", *OECD Social, Employment and Migration Working Papers*, No. 202, OECD Publishing, Paris, http://dx.doi.org/10.1787/2e2f4eea-en. [14]

OECD (2019), *Higher Education in Mexico: Labour Market Relevance and Outcomes*, OECD Publishing, Paris, https://doi.org/10.1787/9789264309432-en.. [47]

OECD (2018), *Education at a Glance 2018: OECD Indicators*, OECD Publishing, Paris, http://dx.doi.org/10.1787/eag-2018-en. [29]

OECD (2018), *Gross domestic product (GDP)* (indicator), http://dx.doi.org/10.1787/dc2f7aec-en. (accessed on 25 October 2018) [1]

OECD (2018), *International Migration Outlook 2018*, OECD Publishing, Paris, http://dx.doi.org/10.1787/migr_outlook-2018-en. [18]

OECD (2018), "Labour: Labour market statistics", *Main Economic Indicators* (database), http://dx.doi.org/10.1787/data-00046-en. [5]

OECD (2018), *Main Science and Technology Indicators*, https://stats.oecd.org/Index.aspx?DataSetCode=MSTI_PUB (accessed on 26 October 2018). [7]

OECD (2018), *OECD Employment and Labour Market Statistics*, https://doi.org/10.1787/lfs-data-en. [13]

OECD (2018), *OECD Productivity Statistics*, https://doi.org/10.1787/pdtvy-data-en. [2]

OECD (2018), *OECD Regional Statistics*, https://doi.org/10.1787/region-data-en. [3]

OECD (2018), *Self-employment rate* (indicator), http://dx.doi.org/10.1787/fb58715e-en. [12]

OECD (2017), *Education at a Glance 2017: OECD Indicators*, OECD Publishing, Paris, https://doi.org/10.1787/eag-2017-en. [45]

OECD (2017), *OECD Economic Surveys: Mexico 2017*, OECD Publishing, Paris, http://dx.doi.org/10.1787/eco_surveys-mex-2017-en. [4]

OECD (2016), *Results for PISA 2015 - Country Note: Mexico*, https://www.oecd.org/pisa/PISA-2015-Mexico.pdf (accessed on 2018 October 4). [30]

OECD (2008), *OECD Reviews of Tertiary Education: Mexico 2008*, OECD Reviews of Tertiary Education, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264039247-en. [42]

OECD (2004), *Atraer, Formar y Retener Profesorado de Calidad: Actividad de la OECD, Reporte Sobre La Situación de México*, OECD, https://www.oecd.org/mexico/32023694.pdf (accessed on 29 October 2018). [40]

Ordorika, I. (2003), "The limits of university autonomy: Power and politics at the Universidad Nacional Autónoma de México", *Higher Education*, http://dx.doi.org/10.1023/A:1025382504110. [37]

Ordorika, I., R. Rodríguez Gómez and M. Lloyd (2018), "Mexico: the dilemmas of federalism in a highly politicized and semi-decentralized system", in Martin Carnoy et al. (eds.), *Higher Education in Federal Countries: A Comparative Study*, SAGE Publications Pvt. Ltd, New Delhi, https://uk.sagepub.com/en-gb/eur/higher-education-in-federal-countries/book263092. [36]

RICYT (2018), *Indicators*, Red de Indicadores de Ciencia y Tecnología - Iberoamericana e Interamericana - (RICYT), http://www.ricyt.org/indicators (accessed on 26 October 2018). [8]

Secretaría de Gobernación (2018), *Cifras de homicidio doloso, secuestro, extorsión y robo de vehículos: 1997-2017*, Secretariado Ejecutivo del Sistema Nacional de Seguridad Pública, Ciudad de México, http://secretariadoejecutivo.gob.mx/docs/pdfs/cifras%20de%20homicidio%20doloso%20secuestro%20etc/HDSECEXTRV_122017.pdf (accessed on 27 October 2018). [28]

Secretaría de Gobernación (2018), *Incidencia Delictiva del Fuero Común 2018*, Secretariado Ejecutivo del Sistema Nacional de Seguridad Pública, Ciudad de México, http://secretariadoejecutivo.gob.mx/docs/pdfs/nueva-metodologia/CNSP-Delitos-2018.pdf (accessed on 27 October 2018). [27]

SEP (2018), *Evaluación de los Programas Sociales Apoyados con Subsidios y Transferencias (S247)*, Secretaría de Educación Pública (SEP), Ciudad de México, http://www.dgesu.ses.sep.gob.mx/documentos/DSA%20gobmx/3er_Informe_S247_2018.pdf (accessed on 22 October 2018). [44]

SEP (2018), *Instituciones de Educación Superior*, Secretaría de Educación Pública (SEP), Ciudad de México, https://www.ses.sep.gob.mx/instituciones.html (accessed on 19 September 2018). [34]

SEP (2018), *Otras instituciones públicas*, Secretaría de Educación Pública (SEP), Ciudad de México, https://www.ses.sep.gob.mx/otras_ies.html (accessed on 29 October 2018). [41]

SEP (2018), *Sistema Educativo de los Estados Unidos Mexicanos: Principales Cifras 2016-2017*, Secretaría de Educación Pública (SEP), Ciudad de México, https://planeacion.sep.gob.mx/estadisticaeindicadores.aspx. [33]

SEP (2001), *Programa Nacional de Educación 2001-2006*, Secretaría de Educación Pública (SEP), México, D.F., https://www.oei.es/historico/quipu/mexico/Plan_educ_2001_2006.pdf. [39]

The EIU (2018), *Democracy Index 2017: Free speech under attack*, The Economist Intelligence Unit, https://pages.eiu.com/rs/753-RIQ-438/images/Democracy_Index_2017.pdf (accessed on 27 October 2018). [23]

Transparency International (2018), *Corruption Perceptions Index 2017*, https://www.transparency.org/news/feature/corruption_perceptions_index_2017 (accessed on 27 October 2018). [24]

United Nations (2017), *2017 Revision of World Population Prospects*, https://population.un.org/wpp/ (accessed on 27 October 2018). [16]

Varieties of Democracy Institute (2018), *Democracy for All? V-Dem Annual Democracy Report 2018*, Department of Political Science, University of Gothenburg, https://www.v-dem.net/media/filer_public/3f/19/3f19efc9-e25f-4356-b159-b5c0ec894115/v-dem_democracy_report_2018.pdf (accessed on 27 October 2018). [25]

World Bank (2007), *Democratic Governance in Mexico: Beyond State Capture and Social Polarization*, World Bank, Washington, D.C., https://openknowledge.worldbank.org/handle/10986/7689 (accessed on 27 October 2018). [20]

Chapter 3. Governance, planning and resources

This chapter examines the broad framework conditions that affect the operation of higher education in Mexico, focusing on governance arrangements, strategic planning and funding. The chapter first focuses on the broad governance of the higher education system and, in particular, the respective roles of the federal government, state authorities and individual higher education institutions. It goes on to examine recent national strategy for higher education, as articulated in the National Development Plan and Sectoral Education Programme, as well as the role and capacity of states in higher education planning. Finally, the chapter examines the level of public funding for public higher education institutions and the mechanisms used to allocate resources. For each of these three areas, the chapter provides a specific set of recommendations for improvement.

3.1. Focus of this chapter

In this chapter, we examine key elements of the public policy environment in which higher education providers in Mexico operate, looking in particular at the legal and governance framework, strategic planning, and public funding of higher education. These are areas where public authorities play an important role in all higher education systems, although with considerable variation in terms of regulation and intervention across jurisdictions.

In many countries, including Mexico, the oldest universities are older than the state in which they are located and have often developed with a strong degree of institutional autonomy. This is the case in Latin America, but also in the English-speaking world and most of continental Europe. Although universities are frequently public institutions, they have greater independence than most other parts of the public sector. Over time, particularly as higher education has expanded, governments have tended to increase their level of intervention in the regulation of higher education systems and have often sought to steer higher education institutions in line with goals established at a political level. Key examples of government intervention include:

- Expansion of higher education enrolment and provision through provision of grants programmes for students, the creation of new institutions, or expansion of existing ones;
- Introducing new types of institutions to meet national needs in professional or technological sectors (for example, through the creation of polytechnics in many countries in the 1960s to 1990s);
- Establishment of national qualification frameworks that regulate the types of qualifications that exist, often in partnership with or under the leadership of academic communities, but sometimes with a strong political dimension (as in the case of the Bologna reforms in Europe that instituted a standard bachelor's, master's, doctorate degree structure, a single credit system and recommendations for external and internal quality assurance);
- Facilitating coordination between parts of the education system and pathways between different levels of education and training: this may include determining general entrance requirements for higher education (deciding between open access and selective systems) or support for common application systems[1];
- Regulating employment conditions for staff, sometimes even through specific, jurisdiction-wide rules governing the employment conditions of academic staff;
- Establishing common standards for external quality assurance in teaching, research, and funding external quality assurance bodies, and
- Funding higher education: while governments have long been providers of funding, in the past this was often unconditional. Increasingly, governments ask for greater accountability from higher education institutions and greater proof of the quality and impact of the activities higher education institutions conduct. There has been an increase in competitive funding and performance-related funding that seeks to incentivise institutions to act in specific ways and achieve specific goals.

As the role of public authorities in higher education has expanded, so has the volume of legislation and regulation that affects the sector and the need for effective forms of coordination between policies and communication between authorities and higher education institutions.

This chapter focuses on three dimensions of the broader public policy framework for higher education in Mexico:

1. The *legal, administrative and procedural framework* for the higher education system that establishes operating rules, the roles and responsibilities of different actors in the system and shared process and systems, as well as *governance bodies* that regulate, coordinate, support and guide the institutions that make up the national system of higher education;
2. The political and policy strategies that identify challenges, establish goals for the future development of higher education in Mexico and provide a framework for more specific government policies and a reference point for institutional strategies; and
3. The resourcing of the higher education system, with a particular focus on the mechanisms that are used to distribute public funding to higher education institutions and ensure it is spent effectively.

3.2. Governance frameworks for higher education in Mexico

3.2.1. Frameworks and governance bodies in higher education systems

Higher education institutions operate within a particular legal, administrative and procedural environment, which affects their legal status, their rights and obligations and how they undertake their work. Within this environment, it is conceptually possible to distinguish: a) the legal framework (laws) that establish basic rules and principles; b) the administrative and procedural framework, composed of "system-level" administrative bodies and procedures and processes in which higher education institutions participate; and c) coordination and governance bodies that help to coordinate and promote communication within the higher education system.

Within complex systems of higher education, the *legal framework* might be expected to establish the ground rules of the operation of the sector and provide legal certainty to higher education institutions, public authorities and citizens. Primary legislation governing higher education varies between countries in its scope as a result of differing legal and political traditions, but public authorities typically use it to define:

- The legal status of public higher education institutions, their primary objectives (teaching, research, engagement) and their basic rights and obligations;
- Where applicable, basic rules for the establishment and operation of private higher education providers;
- The division of responsibility for public policy relating to higher education (regulation, strategy, funding etc.) between levels of government in a state;
- The rights and obligations of coordinating public authorities (such as ministries of education) in relation to funding, sharing of information and reporting; and

- The status and roles of any other public bodies involved in regulating or coordinating higher education, including coordinating councils, quality assurance agencies, statistics agencies or arms-length funding or coordination agencies.

In federal systems, the constitution and broader legislative frameworks often make higher education the primary responsibility of state governments. This is the case in the United States, Canada, Germany, Switzerland, Belgium or Australia, for example. In such systems, it is common to establish coordination mechanisms at the level of the federation, so that state education systems remain compatible and can work together. It is also common to assign certain functions to the federal level. In the United States and Germany, for example, responsibility for student financial support lies with the federal governments.

The *administrative and procedural framework* comprises both administrative entities of public authorities who oversee, regulate and fund higher education (generally government departments) and system-wide procedures managed by public authorities or independent agencies, which may include:

- A national qualification framework, a common credit system, and rules for transfer and articulation of studies;
- A common, unique, and persistent student identifier, that allows students' records to be maintained and transferred and their progress through the education system and subsequently to be tracked anonymously;
- A unified system of institutional data collection and an agreed methodology for reporting data to government and calculating key indicators;
- An agreed and published methodology(ies) for the funding of public higher education institutions;
- A coordinated assessment, application and prioritisation process allocating seats in public higher education institutions;
- A detailed student aid methodology for the determination of eligibility and award of grant or loan benefits; and
- A comprehensive and compulsory system of quality assurance.

In both unitary and federal higher education systems, *organisations* often exist to promote communication and coordination between (often autonomous) higher education institutions and government. This may simply be through sector umbrella bodies, such as Rectors' Conferences or University Associations, which are independent of government, or it may be through formal coordinating councils or similar bodies established by public authorities. The existence of such coordination bodies and communication channels should facilitate effective policy-making and the work of individual higher education institutions.

The remainder of this section analyses the extent to which the current legal frameworks for Mexican higher education provide clarity and legal certainty about the roles, rights and responsibilities of different actors in the system; whether the administrative and procedural frameworks create effective system-wide procedures; and whether effective coordination bodies are in place to support good governance and policy-making.

3.2.2. Strengths and challenges

A complex and evolving system of federalism, lacking a clear legal division of responsibilities for higher education

Higher education in Mexico has developed within a system of government that is marked by strong national authority and comparatively weak state governments that operate within an evolving system of federalism. It is also characterised by a legal and doctrinal vision of autonomy that has sharply circumscribed the role of public authorities in relation to the oldest and largest higher education institutions in the country. These features of the governance context in Mexico have resulted in a comparatively weak role for public authorities in steering large parts of the higher education sector (the autonomous research universities) and a lack of clarity about the real division of responsibility for higher education policy among the federal government, the governments of the states and individual higher education institutions.

For most of the 20th century Mexico's system of government "*...operated on the principles of theoretical federalism and de facto centralism,*" in which the bulk of key governmental decisions were taken at the federal level, and most public spending was done by the federal government (Ordorika, Rodríguez Gómez and Lloyd, 2018[1]). Mexico's largest and most prominent higher education institutions, its federal universities, were established and funded by national authorities. Non-university higher education institutions, such as the National Polytechnic Institute (founded in 1936) were also created and directed by national authorities. Government recognition of private institutions was also the responsibility of national authorities, who established a centralised licensing process for these institutions. Owing to the fiscal and political pre-eminence of the national government, and the limited capabilities of most states, by 1950 only 12 of Mexico's 32 federal entities had established state universities, and until the 1970s, 80% of the nation's higher education students were enrolled in the capital city (OECD, 2008, p. 43[2]).

As part of wider changes to the federal system in the late 1970s, responsibility for provision and regulation of higher education - and the fiscal resources to meet these responsibilities - were provided to states through new federal legislation, most importantly through the Fiscal Coordination Law (Congreso de los Estados Unidos Mexicanos, 1978[3]). States were also encouraged by federal authorities to create State Commissions for Higher Education Planning (COEPES), and given shared responsibility for licensing private higher education programmes with the power to issue their own certificates of Recognition of Official Validity of Study Programmes (RVOE). Additionally, efforts were made to create new higher education institutions across the country, including autonomous state universities where these did not exist, and other types of institutions established as decentralised entities of state governments. The latter group included the decentralised Institutes of Technology, Technological Universities and Polytechnic Universities (OECD, 2008[2]).

The distribution of responsibilities among governments remains complex and uncertain. Mexico does not have a Higher Education Act that comprehensively establishes the relationship between public authorities and higher education institutions, in contrast to the legislation in place in many Ibero-American countries, including Colombia (1992), Argentina (1995), Spain (2001), Portugal (2007), Peru (2014), and Chile (2018). These laws characteristically define, among other things, what institutions must do to achieve university status, what forms for autonomy are available to university institutions, how

institutions are to govern themselves and take account of their social obligations, and how the quality of provision is to be assured.

Mexico has a Higher Education Coordination Act (*Ley para la Coordinacion de la Educación Superior*), dating from 1978 (Congreso de los Estados Unidos Mexicanos, 1978[4]). The statute stipulates that federal, state, and municipal authorities are to act "in a coordinated manner" (Article 8) in relation to higher education. However, their respective responsibilities to higher education institutions and procedures for coordination of their activities are not outlined with precision. The legislation specifies activities using vague terms such as "coordination", without defining what this means in practice, and fails to make clear the respective roles of the federal and state governments, referring simply to "the State" (public authorities in general). For example, Article 11 provides that:

> *In order to develop higher education in response to national, regional and state needs and the institutional requirements of teaching, research and dissemination of culture, the State [el Estado] will coordinate this type of education throughout the Republic, through the promotion of harmonious and solidary interaction between higher education institutions and through the allocation of public resources available for this [public] service, in accordance with the priorities, objectives and guidelines provided by this law. (Congreso de los Estados Unidos Mexicanos, 1978[4])*

During the course of meetings with higher education stakeholder groups, the Review Team was told that the 1978 Higher Education Coordination Act was badly outdated, having been adopted when the nation's higher education system had not yet taken its modern form, and that the Act failed to specify sufficiently the responsibilities for public authorities in relation to higher education institutions, and the converse. In 2017 and 2018, deliberations took place to modernise the 1978 legislation, and resulted in the National Association of Universities and Higher Education Institutions (ANUIES), with the support of a number of members of Congress putting forward a proposal for a new draft Act (*Anteproyecto de Ley General de Educación Superior*). The stated intention of this exercise was to clarify the roles and responsibilities of different actors in the higher education system. However, the draft Act has not to date been debated in Congress and has thus not progressed towards becoming legislation.

Despite the imprecise legal framework governing higher education governance, national authorities in Mexico, through the federal Secretariat of Public Education (SEP), are de facto responsible for:

- Setting plans for the development of the higher education system that are contained in the six-year Sectoral Education Programme;
- Proposing a budget framework within which federal budgets for public higher education institutions and programmes are developed;
- Establishing and managing federal higher programmes (extraordinary funding);
- Establishing governance rules and providing strategic direction to non-autonomous federal higher education institutions;
- Agreeing with state authorities on the governance rules and funding levels for non-autonomous state higher education institutions; and
- Coordinating and implementing, in part, the regulation of private higher education institutions.

State education authorities, in contrast, continue to have a more limited role than is typically the case in other federal systems. They exercise responsibility for the establishment and shared funding of state higher education institutions, for the (shared with federal authorities) regulation of private higher education providers , and the development of state higher education plans that complement the federal government's sectoral education programme.

Despite clear political will in some cases, states lack the resources and capacity to play a strong role in higher education policy-making and funding

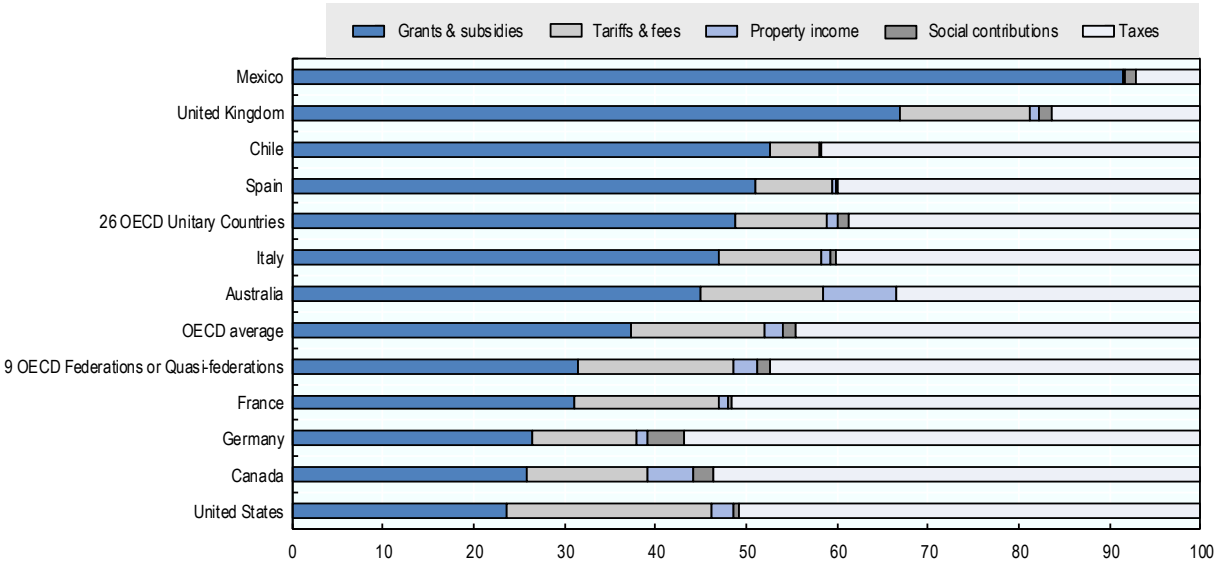
Despite increased decentralisation over the last three decades and the formally shared responsibility for higher education between the federation and states, the states continue to possess modest fiscal and administrative capacities, which limit their ability to take on a stronger role in higher education, one similar to that seen in many other federal countries. As a recent OECD *Better Policy Review* (OECD, 2017[5]) noted:

> *Mexico remains a centralised country. Large spending areas are controlled by the federal government. Local government expenditure and investment shares in GDP and public spending are among the lowest in the OECD. At the same time, the distribution of functional responsibilities across levels of government is complex, undermining the effectiveness of policy delivery and public investment. Federal powers are extensive and sometimes overlap with responsibilities of states and municipalities.*

States in Mexico have limited tax-raising capacity and rely on financial transfers from the federal government (see Figure 3.1). They receive over 90% of their revenue from transfers from the federal government and less than 10% from taxes. This pattern contrasts sharply with other OECD federal states such as Canada, Germany, Switzerland, and the United States, in which, on average, transfers account for less than a third of sub-national revenue, and state and local taxation account for almost one-half of state and local government revenues.

Figure 3.1. Funding of sub-national government

Sub-national government revenue by source, percentage of total sub-national government revenue 2016



Source: OECD (2016) Sub-national Government Structure and Finance https://stats.oecd.org/Index.aspx?DataSetCode=SNGF.

The federal transfers received by states in Mexico take three main forms. First is core funding allocated under Section (*Ramo*) 28 of the federal budget, referred to as "participations"[2], which states have discretion in allocating. Second are so-called "federal contributions"[3] which are earmarked for specific purposes – including aspects of education - under Section 33 of the federal budget and allocated to states on the basis of economic need. Third are specific "agreements" (*convenios*), through which the federal government provides a grant to a specific public institution.

The amount of Section 28 transfers each state receives depends on their contribution to national economic output, while the amount of Section 33 transfers is calculated to compensate states with high levels of economic disadvantage. This means the level of federal transfers and the proportions available for earmarked or discretionary spending vary between states. As highlighted in the more detailed discussion of funding later in this chapter, the level of funding allocated in *convenios* for specific institutions, which include the State Public Universities, depends on the outcomes of negotiations between the state and federal governments.

The fact that large proportions of the federal transfers that states receive are earmarked for existing fixed costs (payment of staff salaries and running costs, for example), or tied to agreements with specific institutions means that that state governments have comparatively few resources they can use for discretionary spending on higher education. Economically stronger states, which receive higher levels of non-earmarked funds and have higher revenues from state taxes, theoretically have more resources available that they could chose to allocate to higher education. However, the challenging fiscal and economic environment of recent years mean that all state governments have had limited room to increase public investment.

Within the limits imposed by the legal framework and available funds, it appears that some Mexican states have made greater efforts than others to develop coherent state

higher education policies and direct resources to these initiatives. Stakeholders interviewed by the OECD team during the review visit argued that the administrative capacity of state administrations and the political will of individual governors and state governments varied considerably between states in Mexico. As a result, the efforts invested in developing state higher education systems vary correspondingly.

An uneven pattern of intervention by public authorities between subsystems: from laissez-faire to micro-management

Although governmental authority and resources in Mexico rest principally with national authorities, the authority of public officials in relation to higher education institutions is highly uneven. Three very different patterns of public authority and institutional autonomy co-exist within Mexico: for autonomous universities (federal universities and State Public Universities[4]); for non-autonomous public higher education institutions; and for private higher education institutions. The distinctive understanding and practice of university autonomy in Mexican higher education means that while some parts of the higher education system function under comprehensive and detailed control from the centre of government, others - the autonomous universities - have functioned with virtually no guidance or steering from government.

University autonomy in Mexico is based in principles first outlined in the Cordoba Declaration of 1918, and it evolved in a context of a strongly centralised and authoritarian regime, where the nation's largest autonomous university became a centre of mobilisation and confrontation between student movements and government (Ordorika, 2003[6]). The principle of university autonomy, first articulated in the Constitution of 1917, is recognised in Article 3, Subsection VII of the current constitution, which guarantees the autonomy of universities, and provides that:

> *Universities and other institutions of higher education to which the law grants autonomy, will have the power and responsibility to govern themselves; to fulfil their educational goals, pursue research and disseminate culture in accordance with the principles of this article, respecting the freedom of teaching and research and free debate of ideas; determine their plans and programmes; they will set the terms of entry, promotion and retention of their academic staff; and they will manage their assets. Labour relations, for both academic and administrative staff, will be regulated by section A of article 123 of this Constitution, in the terms and with the modalities established by the Federal Labour Law in a manner consistent with [institutional] autonomy, the freedom of teaching and research and the objectives of the institutions to which this subsection refers (Gobierno de la República, 2017[7])*

As higher education in Mexico underwent expansion in the 1960s and 1970s, it did so with wider autonomy than elsewhere in Latin America (Levy, 1980[8]), with federal and state universities awarded autonomous status by legislatures. Today, by contemporary international standards, such as those outlined by the European University Association (EUA, 2018[9]), autonomous universities in Mexico continue to exercise wide control over key decisions about internal organisation and governance; the allocation and management of their budgets; human resources (recruitment, salaries, dismissals, and promotions); and especially academic autonomy (including decisions about student admissions, academic content, and the introduction of degree programmes).

While public authorities do not have a highly developed legal basis for steering autonomous higher education institutions, since the 1990s the scope of institutional

steering by public authorities has nonetheless widened with respect to state autonomous universities. Extraordinary targeted funding for state universities (in addition to basic funding) was adopted in 1991, and, as discussed later in this chapter, has been used to incentivise state universities to work towards national goals. The rules governing use of extraordinary funds significantly reduce institutional autonomy with respect to the allocation and management of budgets in question.

State Public Universities with Solidarity Support, Intercultural Universities, Technological and Polytechnic Universities, decentralised and federal Institutes of Technology, normal schools and other forms of public institution such as music academies, do not operate as autonomous institutions. Rather, federal non-autonomous institutions operate under the direction of federal authorities (SEP), while non-autonomous state institutions operate under the direction of both federal (SEP) and state education authorities (state education or higher education secretariats). This direction may be exercised in great detail, with the SEP exercising control over funding levels, curriculum, staffing levels, and infrastructure improvements. For example, by some accounts, the selection of rectors and top officials in Intercultural Universities, while notionally the responsibility of the universities, is subject to intervention by state or federal authorities (Ordorika, Rodríguez Gómez and Lloyd, 2018, p. 291[1]).

Private organisations are permitted to provide higher education under the Mexican constitution (Article 3, VI). However, the constitution requires that the State "grant and withdraw the recognition of official validity to studies that are carried out in private schools." Private universities that wish to award validated credentials have a regulatory process they must undertake for market *entry* (see Chapter 4). However, they subsequently function with a high level of autonomy, with the capacity to take their own decisions about internal organisation and governance, staffing, resource allocation, and academic decisions.

As a consequence of a strongly centralised federal system in which governing authority is circumscribed university autonomy, there is in Mexico a sharply uneven legal and political scope for the exercise of central government authority, with virtual "no-go zones" (of autonomous university institutions) and areas within which public authorities exercise detailed control.

A proliferation of higher education subsystems and administrative units hinders system-wide policy-making and processes

Mexican scholars suggest that the complexity of the higher education landscape in Mexico means it is inaccurate to speak of a higher education *system* in the country:

> *Higher education is not a system in the strict sense, defined in the Diccionario de la Real Academia Española as "a set of rules and principles relating to a subject rationally linked to each other" or "a set of things that are related to each other in an orderly manner and contribute to a determined goal"…One of the characteristics of the "subsystems of higher education" is their disarticulation and fragmentation, which limits their ability to achieve synergies and contribute to achieving the goals of higher education. (Mendoza Rojas, 2018, p. 8[10])*

Successive waves of policy initiatives have led national authorities to develop new institutions and institutional types in the interstices where they have freedom of action, creating Polytechnic Universities, Technological Universities, Intercultural Universities, and a national distance university. The proliferation of "subsystems" of different

institutional types has a) led to a fragmented institutional structure in the administrative apparatus that oversees higher education in Mexico and b) further complicated the already challenging development of system-wide norms and administrative procedures.

As new subsystems have been created, they have generated new administrative entities in the Secretariat for Public Education, Directorates-General or Coordination offices responsible for funding or steering institutions within its purview. The cumulative result of this pattern is that the higher education landscape and the SEP is highly compartmentalised and fragmented. This has been repeatedly noted by international observers (OECD, 2008[2]), national researchers (Mendoza Rojas, 2018[10]), and higher education stakeholder organisations (ANUIES, 2018[11]). SEP has an Under-secretariat for Higher Education (SES) that provides a notional integration to much of national higher education policy. However, some aspects of higher education, such as the regulation of private institutions and Intercultural Universities[5], are located outside the under-secretariat. Within the under-secretariat there are three nominally "decentralised" institutions (the *Universidad Pedagógica Nacional*, the *Universidad Abiertia y a Distancia de Mexico*, and the *Tecnológico Nacional de México*) and five administrative units (see Table 3.1) that work semi-autonomously.

Table 3.1. Administrative units in the Under-secretariat for Higher Education (SES)

	Abbreviation	Main tasks
Directorate-general for university education *Dirección General de Educación Superior Universitaria*	DGESU	Oversight and steering of public universities
General coordination [office] for Technological and Polytechnic Universities *Coordinación General de Universidades Tecnológicas y Politécnicas*	CGUTyP	Oversight and steering of Technological and Polytechnic Universities
Directorate-general for higher education for educational professionals *Dirección General de Educación Superior de Profesionales de la Educación*	DGESPE	Teacher education – oversight and steering of the normal schools
Directorate-general for professions *Dirección General de Profesiones*	DGP	Professional certification – issuing professional certificates
National coordination [office] for higher education scholarships *Coordinación Nacional de Becas de Educación Superior*	CNBES	Coordination and award of student scholarships

Source: Organigrama de la Secretaría de Educación Pública (SEP, 2018[12])

This compartmentalisation of higher education system and its governance into separate subsystems has combined with the traditionally weak regulatory role of the Mexican state in higher education and the influence of university autonomy to make it harder to develop some of the common norms and procedural standardisation that are typically seen in high-performing higher education systems. Striking examples are:

- The absence of a widely recognised and used national qualifications framework that situates higher education qualifications in the wider landscape of educational credentials.
- The absence of system-wide credit accumulation and transfer system that underpins the qualifications systems, ensures the comparability of qualifications.
- The absence of a single, common student identifier to ensure educational records can be shared between institutions and systems.

- The comparative weakness of the educational statistical system (despite some recent improvements).
- The absence of a comprehensive system of external quality assurance for higher education
- The absence of commonly agreed principles and cost guidelines to guide the allocation of public funds to public higher education institutions

We address the implications of the current funding system later in this chapter and examine external quality assurance mechanism in the next chapter. The lack of the other main elements of system-level infrastructure listed above further weakens the existence of a coherent higher education *system* in Mexico. In many higher education systems in the OECD, national qualifications frameworks, credit accumulation and transfer systems (such as the European Credit Transfer and Accumulation System, ECTS) and unique student identifiers have been introduced to increase the coherence and integration of national higher education systems. In particular, these mechanisms facilitate the mobility of students between institutions and study programmes at different levels of education (from undergraduate to postgraduate, for example) and cooperation between different institutions in the same level (allowing joint programmes or mobility periods at other institutions). As seen with the introduction of the ECTS in European countries, the implementation of credit systems is complex, as it is tightly intertwined with a range of other factors, such as the definition of expected learning outcomes, assessment methods and marking practices, and requires strong leadership and close cooperation between higher education institutions (European Commission, 2018[13]).

In Mexico, steps have been taken to develop a national credit accumulation and transfer system, in the form of the *Sistema de Asignación y Transferencia de Créditos Académicos* (SATCA), principles for which were adopted by the National Association of Universities and Higher Education Institutions (ANUIES) in 2007. However, despite widespread acceptance among the academic community, implementation of system stalled in the early years of implementation as a result of limited funds and resistance among university administrators (Sánchez Escobedo and Martínez Lobatos, 2011[14]) Recent updates to the General Education Act (LGE) (Congreso de los Estados Unidos Mexicanos, 1993[15]) explicitly call on the federal government to put in place national qualifications framework and national academic credit system (LGE, Article 12, paragraph IX). However, progress in translating this into practice has been slow (ANUIES, 2018[11]).

A lack of effective coordination bodies, despite strong sector organisations

In addition to the imprecise legal basis and fragmented structure of the institutional landscape in Mexican higher education, the absence of strong coordination bodies at national and state level further hinders the development of strong, system-wide procedures and norms and coherent regional higher education systems.

At state level, many of the states do have a State Commission for Higher Education Planning (*Comisión Estatal para la Planeación de la Educación Superior*, COEPES), notionally responsible for coordinating different higher education providers at state level and aligning supply of higher education with regional demand. Nevertheless, it appears that the COEPES have long struggled to fulfil this role effectively. In 2011, the SEP reported that only 22 of the 32 federal entities had an operational COEPES (ANUIES, 2018, p. 53[11]). Moreover, stakeholders consulted by the OECD Review Team argued

that the COEPES that do exist lack the capacity and resources to have a significant impact on the coordination of state higher education systems and are in most cases *de facto* inoperative. The most recent policy position paper from ANUIES calls for the COEPES to be "reinstated", implying they are all but non-existent at present (ANUIES, 2018[11]).

While state coordination bodies might be expected to support the development of state and regional systems of higher education, as discussed above, a series of common standards and processes are needed for an effective *national* higher education system. In other federal systems, national coordination bodies exist to agree on common standards for higher education systems to ensure state higher education systems remain compatible and interact with federal governments in the fields where the national government has responsibilities (such as student support or research)[6]. Over the years, there have been various attempts to establish such a coordination body in Mexico, including the National Coordination for Higher Education Planning (*Coordinación Nacional para la Planeación de la Educación Superior*, CONPES) and the National Council of Higher Education Authorities (*Consejo Nacional de Autoridades de Educación Superior*, CONAES), relaunched in 2016. However, as with the COEPES, these instances appear to lack the clear mandate and sustainable resources to operate effectively.

In comparison to other OECD countries, non-government sector organisations play a particularly strong role in Mexican higher education, to some extent compensating for the lack of strong formal coordination bodies. ANUIES not only formulates position papers, but plays an important role in collecting and analysing data about the higher education system. As a representative body for a large part of the higher education sector, the association will remain a key stakeholder in Mexican higher education. While the Federation of Private Mexican Higher Education Institutions (FIMPES) is primarily a representative organisation for the private sector, it too has engaged in tasks that go beyond those fulfilled by its counterparts in many other OECD countries, notably through the establishment of its own institution accreditation system.

3.2.3. Key recommendations

In the medium term, reform the federal legislation governing the higher education system to define a clearer division of responsibilities

The 1978 Higher Education Coordination Act provides little clarity on the respective roles, rights and responsibilities of the main actors in the higher education system and their relationships which each other. Although, in the short term, it may be possible to improve coordination and develop effective policies for higher education within the existing legal framework, ultimately, a more transparent legal framework is needed to provide the clarity and certainty needed for the long-term development of higher education in Mexico. The federal government, in consultation with the states and autonomous universities, should therefore develop new federal legislation that specifies the respective roles of the federal government (SEP) and the governments of the states, ensuring that these are distinct and complementary, and makes clear the rights of autonomous institutions and their responsibilities to citizens and government.

Taking into account the financial and administrative capacity of state governments, the guiding principle should be that government tasks should be undertaken at the lowest level possible that guarantees effectiveness and efficiency. Tasks related to a) creating system-wide norms and procedures and b) distribution of financial resources between territories and social groups should rest with the federal authorities. Federal authorities

should also assume primary responsibility for establishing the rules regarding licensing higher education (RVOE), external quality assurance, the form and validity of qualifications, credit transfer and accumulation, certification of studies and data reporting, as well as for student aid and most targeted institutional funding. State authorities should focus primarily on shaping and adapting their regional higher education systems to fit regional circumstances and needs, *within* the common rules and frameworks established at federal level. To ensure shared engagement in the state higher education systems, it makes sense for states to maintain a role in providing funding to public institutions, alongside federal authorities. This could potentially be on the 50:50 basis currently used for many subsystems, but with transparent and unified allocation rules and procedures (see section on funding below).

While respecting the principle of academic freedom enshrined in the Mexican Constitution, the new legislative framework should also make more explicit the responsibilities of autonomous public universities. Universities in many OECD member countries have a strong tradition of autonomy, but are equally expected to respect the rules of agreed national frameworks (on qualifications, access rules, quality assurance etc.) and be accountable to the public for their use of taxpayers' money. The principle of accountability, as well as autonomy, should guide the formulation of the new federal legislation.

Strengthen the capacity of states to play a strong role in coordinating and steering regional higher education systems that respond to regional needs

In the framework of an adjusted allocation of responsibilities between the federal and state authorities, state authorities should focus on aspects of higher education policy where they can make a real difference at regional level. In some areas, state authorities could remain responsible for the *implementation* of common rules or programmes agreed at federal level – in areas such as licensing private higher education providers or payment of student scholarships. In other areas, states should have freedom to shape policy to help develop their local and regional higher education systems. This might include convening regional higher education institutions and supporting joint projects to foster cooperation and sharing of resources (see below); identifying regional skills and innovation requirements to which higher education must respond; promoting access to higher education among specific regional populations (complementing a national system of student grants) and providing targeted funding to support quality, relevance and equity through state-level programmes, as long as clearly coordinated with national extraordinary funds (see below).

States currently have varying levels of administrative capacity to implement regional higher education policies and invest varying amounts of resources in higher education, including their respective autonomous State Public Universities. To be able to fulfil the role sketched out above in full, most states need to develop their administrative capacity and have access to adequate financial resources. Devolution of responsibility to individual state governments should therefore take into account the administrative and financial capacity of the states in question. A differentiated system, whereby states that demonstrate greater capacity and meet established criteria gain additional responsibilities could be considered.

To strengthen administrative capacity, the federal government could consider a dedicated targeted funding programme, made conditional on high quality, rational proposals and some level of match funding from state governments. Moreover, to ensure the

sustainability of state funding for higher education (state shares of funding for institutions, administrative tasks and regional targeted funds), the federal government (SEP and the Secretariat for Finance and Public Credit) should review current allocation mechanisms to states. In particular, they should examine whether the current balance of earmarked federal transfers (*Ramo 33*), block transfers (*Ramo 28*), institutional agreements (*convenios*) and state resources from local taxes provides the right level and mix of resourcing.

Within a more favourable legal and funding environment, states should be held publicly accountable for the performance their higher education policies, through effective monitoring and publication of results.

Work towards a system of responsibly autonomous institutions

Autonomous higher education institutions are likely to be best placed to design and implement effective educational programmes and develop relevant research, innovation and engagement activities that respond to their specific mission and the environment around them (EUA, 2018[9]). Particularly for publicly funded institutions, with autonomy comes responsibility to act in the general public interest and make good use of resources. Serving the general public interest includes abiding by commonly agreed and transparent rules about things like qualifications, quality assurance, study credits and certification, which influence the effectiveness of the whole higher education system. It also implies cooperating with public authorities and other higher education subsystems. Making good use of resources implies transparency about the use of public funds, effective management of resources, and responsiveness when problems are identified.

Autonomous universities in Mexico have historically tended to equate autonomy with freedom from government intervention. Mexico's distinctive vision of autonomy emerged and developed in response, in important part, to an authoritarian political regime. However, in an age of multi-party democracy it is incumbent on these institutions to work constructively with federal and state authorities and institutions in other sectors to develop a more effective and coherent higher education system in Mexico. The OECD review team was generally impressed by the constructive attitude of representatives of autonomous institutions that they met, which are also reflected in the most recent policy position paper from university association ANUIES (ANUIES, 2018[11]).

In contrast to the autonomous universities, many other public higher education institutions have very limited institutional autonomy, with most of their activities governed by decisions taken in Mexico City. This is particularly the case of the Institutes of Technology - which from part of the *Tecnológico Nacional de México* - and the normal schools. For Institutes of Technology, there is scope to grant individual schools that have are of an adequate size greater responsibility in budgetary and staffing matters, as well as more flexibility to tailor study programmes to local needs. For smaller institutes, responsibility could be devolved to regional alliances of institutions that would share some management functions. This latter approach could also work for public normal schools, which currently suffer from micro-management from central government, but are also characterised their small scale and weak management and administrative capacity. As such, regional alliances could also provide a solution for these institutions.

Complete work to create essential system-wide frameworks and procedures, while simplifying federal administrative structures steering higher education policy

The federal administration needs to take a stronger lead in the creation and implementation of system-wide frameworks and procedures, including a national qualifications framework; a credit transfer and accumulation system; a single student identifier and an effective system of educational statistics. As discussed in the next chapter, federal authorities also have a key role to play in enforcing universal licensing of private institutions and facilitating – with the higher education sector - comprehensive external quality assurance.

Developing these system-wide frameworks and procedures will require some initial investment of federal resources to cover start-up and initial implementation. It may be appropriate to create a dedicated extraordinary funding programme to support development of procedures and administrative infrastructure at federal level (within SEP, or in associated non-governmental bodies) and support implementation in institutions. Some system-wide frameworks – as an improved statistical system - will require additional ongoing investment. Others, such as a qualifications framework and credit system cost little to maintain once they are in place and active.

To support the process of creating a more coherent system of higher education in Mexico, it would also make sense to streamline some of the internal structures in the SEP, to ensure:

a that responsibility for all higher education subsectors is included under the Under-secretariat for Higher Education or, at least, within a single department in a restructured SEP;

b that there are sufficient resources at the level of the Under-secretariat (or equivalent, future department) to maintain strategic overview of the whole higher education system and push forward the system-wide projects noted above (this might be a unit reporting directly to the Undersecretary) and;

c that cooperation with the National Council for Science and Technology (CONACyT) – the federal government's research and innovation agency – is strengthened.

Clarify the mandates and strengthen the capacity of coordination bodies for higher education at federal level and in each state.

In a large and fragmented higher education system like that in Mexico, cooperation bodies at state and federal level can support the development of stronger regional higher education systems and a more coherent national system. Nevertheless, attempts to date to create such bodies in Mexico have been largely unsuccessful. To increase the chances that newly established or reinvigorated bodies are effective, it is crucial that they have clearly defined and realistic mandates and tasks and adequate resources to perform their roles. It is important to avoid creating bureaucratic entities that serve no valuable purpose: the effectiveness of any new coordination bodies must therefore be carefully monitored and their missions periodically reviewed.

Taking these conditions into account, it would be valuable to create coordination forums at federal level and in each state. A federal body would bring together representatives of state higher education systems, representatives of the federal government (the SEP and potentially the Secretariat of Finance) and representatives of national agencies and sector

associations (representatives of quality assurance bodies, ANUIES, FIMPES, etc.). Its role could include:

a Helping to steer and monitor the development of national system-wide frameworks and procedures (see above);

b Ensuring effective communication between federal government and regional higher education systems and;

c Providing input into federal development plans and education and science plans and providing a forum for identification of shared challenges, problems in policy implementation and possible solutions.

The state bodies, most probably building on the existing COEPES, where these exist, could focus on:

a Acting as a liaison point between higher education institutions and state governments, and between institutions from the different subsystems (a forum for discussion and launch of cooperation projects);

b Providing input to state development plans and state education and science agendas;

c Being a forum for decision making about certain strategic issues, such as expansion or development of study programmes and extra study places and;

d Sharing practice in the implementation of national frameworks and procedures, pinpointing challenges and helping to develop solutions if these fall within the scope of state responsibilities for higher education (issues related to the national frameworks would need to be discussed and resolved in the national forum).

3.3. Higher education strategy in Mexico

3.3.1. The role of strategy in higher education

Governments use strategy documents to establish goals in specific fields of public policy and to identify actions that will be taken to achieve the goals established. Although their precise legal forms may vary between jurisdictions and policy fields, such strategies often seek to provide a guiding framework for other policy activities affecting the subjects they address. Such policy activities may include new primary and secondary legislation, regulatory activities and public funding programmes and projects. Policy strategies may be drafted to reflect an established political vision – perhaps based on an election manifesto or coalition agreement - or be the product of open consultation exercises that seek to take into account a broad spectrum of stakeholder interests. In many cases, they result from a combination of these two approaches.

Governments in many OECD countries have formulated, or encouraged the formulation of, policy strategies to articulate goals for the development of their higher education systems. In some OECD countries, such as France (Ministère de l'Éducation nationale, 2017[16]) or Ireland (Department of Education and Skills, 2011[17]), the development of recent higher education strategies has been entrusted to expert groups, with the emerging recommendations subsequently endorsed in full or in part by government. In other cases, such as the most recent higher education strategies in the Netherlands (Ministry of Education, Culture and Science, 2015[18]) or England (BIS, 2014[19]), higher education strategies have been developed within government departments under the authority of the

relevant minister and the cabinet. In common with the United States (Department of Education, 2018[20]), Mexico has adopted strategic goals for its higher education system as part of a broader, government-led education strategy (SEP, 2013[21]).

Across these countries, strategies for higher education tend to identify similar challenges and establish broadly similar objectives, in areas such as expansion of enrolment, equity, quality, relevance or innovation. In contrast, differences in the composition and autonomy of the higher education system, and in the organisation of government between countries, have a major impact on the kinds of action included in strategy documents. Central government in jurisdictions with a strong tradition of government intervention may propose changes and initiatives where government takes a strong lead, including through new legislation and regulations that impact directly on the operation of higher education institutions. In federal systems and systems where higher education institutions have stronger autonomy, central governments necessarily rely more on indirect stimulus and support measures, and place more emphasis on negotiation and cooperation between different actors in the higher education system.

Irrespective of differences in government forms and traditions, good policy strategies – in higher education as in other sectors - might be expected to:

1. Be coherent with, and complementary to, related strategies in the same or other policy areas formulated at other levels or in other parts of government.
2. Use reliable evidence to assess the current situation in the higher education sector and identify (internal) strengths and weaknesses and (external) opportunities and threats;
3. Take into account – but not necessarily adopt - the views and perspectives of higher education providers, funders of higher education, students, employers and other sections of society;
4. Provide a clear vision of how the higher education should develop and goals that should be achieved within a defined timeframe;
5. Establish objectives which are specific, measurable, attainable, realistic and time-bound (SMART);
6. Specify actions that will be taken to achieve the objectives, who will take these and what resources will be used and;
7. Indicate mechanisms for monitoring progress and addressing problems encountered in achieving objectives over the lifetime of the strategy.

The sections that follow assess the national strategies currently in place to guide the development of higher education in Mexico, identifying strengths and challenges, before formulating recommendations for the next generation of strategies being prepared by the new government.

3.3.2. Strengths and challenges

A tradition of national planning and consultative strategy-setting, but a lack of clarity about implementation activities and limited transparency in monitoring

Mexico has a well-established tradition of strategic planning at federal level. Article 26 of the Mexican constitution and the national Planning Law (Congreso de los Estados Unidos Mexicanos, 2018[22]) require the establishment of a National Development Plan (PND) for

each six-year presidential term. This plan, which by law should take into account the results of a wide-ranging consultation of citizens, sets out broad priorities for the development of Mexico. As such, it provides a framework of reference for sectoral policy programmes, including a Sectoral Programme for Education (discussed below); for Development Plans drawn up by state governments and; for annual budgeting processes at federal and state level.

The National Development Plan for the period 2013-2018 (Gobierno de la República, 2013[23]), covering the presidency of Enrique Peña Nieto, establishes "Mexico with quality education" as one of its five strategic priorities. Under the education priority, the Plan includes specific objectives, "strategies" and "action lines" that explicitly address higher education. These are summarised in Table 3.2. Alongside the action lines, which vary from general objectives to specific activities, the PND establishes a set of indicators that are intended to overall monitor progress in the areas covered by the Plan.

The National Development Plan does not, however, establish fixed targets or benchmarks to be reached. The only indicator focusing explicitly on higher education in the PND is the completion rate (literally, "terminal efficiency")[7] in higher education. In addition, the PND includes Mexico's position in two international composite indicators, which are published annually and also consider higher education. The first of these is the World Economic Forum's Global Competitiveness Index, which scores countries on a scale of one to seven in a range of dimensions including in the category "higher education and training" (Schwab, 2017[24]). Secondly, under the strategic goal "Mexico with global responsibility", the PND includes the Elcano Index of Global Presence (Real Instituto Elcano, 2018[25]), which incorporates the "number of foreign students in tertiary education on the national territory" as one of its variables.

Table 3.2. Higher education in the National Development Plan 2013-2018

Objectives within the strategic priority *"Mexico with quality education"*

Objective	"Strategy"	"Action lines" relevant to Higher Education
3.1 Develop the human potential of Mexicans through quality education.	3.1.3 Ensure that study programmes and plans are relevant and contribute to students' progressing successfully and acquiring skills they will need in life.	Creating an entrepreneurial culture through study programmes at HE level. Reform the evaluation and certification system for higher education. Promote development of joint postgraduate programmes with foreign higher education institutions (HEIs). Create a programme to allow students and staff to spend periods at HEIs abroad.
3.2 Ensure inclusion and equality in the education system.	3.2.1 Increase opportunities to access education in all regions and for all sectors of the population.	Establish alliances with HEIs and social organisations to reduce illiteracy and poor educational results.
	3.2.2 Increase support to disadvantaged and vulnerable children and young people to reduce illiteracy and poor educational results.	Use a grants programme to increase the proportion disadvantaged young people that transition from secondary education to upper secondary and from this level to higher education.
	3.2.3 Create new educational services, expand existing ones and exploit the capacity of existing facilities.	Increase in a sustained way the coverage of (enrolment in) upper secondary and higher education to achieve at least 80% in upper secondary and 40% in higher education. Promote diversification of the educational offer in line with the requirements of local and regional development.
3.5 Make scientific and technological development and innovation a pillar of social and economic progress.	3.5.1 Contribute to raising investment in RTD annually to reach a level of 1% of GDP.	Promote investment in RTD in public HEIs.
	3.5.4 Contribute to the transfer and use of knowledge, linking HEIs and research centres with the public, social and private sectors.	Promote links (vinculación) between HEIs and research centres with public, social and private sectors. Promote entrepreneurial development of HEIs and research centres to foster technological innovation and self-employment among young people. Promote and simplify the registration of intellectual property between HEIs, research centres and the scientific community.
Horizontal Strategy I: Democratise productivity.		Increase and improve the cooperation and coordination between all government agencies to bring technical and higher education to places which lack an adequate educational offer and marginalised areas. Strengthen institutional capacity and links between upper secondary schools and HEIs with the productive sector and encourage the continual review of the educational offer. Establish a system for tracking graduates from upper secondary and HE and conduct studies of employer needs.
Horizontal Strategy II: Responsive and modern government.		Strengthen mechanisms, instruments and practices for evaluation and accreditation of quality in upper secondary and higher education for campus, mixed and distance courses.
Horizontal Strategy III: Gender perspective.		Promote access, staying on and timely completion of studies by women at all levels and particularly in upper secondary and higher education.

Source: (Gobierno de la República, 2013[23]) – translation by the OECD Secretariat.

On the basis of the PND, the federal Secretariat of Public Education (SEP) is required to develop a separate strategy for the activities under its responsibility: the Sectoral Education Programme (PSE). The most recent PSE (SEP, 2013[21]) has six strategic objectives for the education sector as a whole. For each strategic objective, the PSE

establishes intermediate objectives, each with a set of actions. The most relevant objectives of the PSE for higher education are:

- **Strategic Objective Two**[8] focuses on the quality and relevance of upper secondary education, professional training and higher education. Specific objectives include improving quality assurance mechanisms; developing the capacity of HEIs in research and innovation; improving the relevance of higher education programmes to national needs; exploiting information and communication technologies in higher education (including for distance education) and supporting improvements in higher education infrastructure and facilities.
- **Strategic Objective Three**[9] focuses on social equity, including access and completion in higher education. Specific objectives include improving student financial support; ensuring further expansion of the system is aligned to regional needs and; "support" for institutions to help them reduce drop-out rates.
- **Strategic Objective Six** deals with strengthening research and innovation capacity. Specific objectives include a commitment to increase investment in R&D (notably though funding for CONACyT programmes); expanding and improving the quality of postgraduate education (including through increase coverage of quality assurance mechanism) and promoting better links between HEIs and the productive sector. Objective six has a specific focus on expanding the capacity and quality of postgraduate education in science and technology fields.

The Sectoral Education Programme establishes five progress indicators related specifically to higher education and, unlike the PND, fixes specific targets for the end of the programming period in 2018, as show in Box 3.1.

Box 3.1. Higher education indicators in the Sectoral Education Programme 2013-18

1. Indicator 2.2 (Quality and relevance objective): Increase the proportion of students enrolled in programmes recognised for their quality (accredited by CIEES or COPAES) from 61.7% in 2012 to 72% in 2018;
2. Indicator 3.1 (Inclusion objective): Increase the gross enrolment rate in higher education (for higher education, calculated as the number of enrolled students as a proportion of the total population aged 18-22) from 32.1% in 2012 to 40% in 2018;
3. Indicator 3.2 (Inclusion objective): Increase the gross enrolment rate in higher education for individuals from households in the bottom four income deciles, with the target of raising the rate from 14.7% in 2012 to 17% in 2018.
4. Indicator 6.1 (R&D objective): Increase expenditure on research and development undertaken in higher education institutions [HERD] as a proportion of GDP from 0.12% in 2012 to 0.25% by 2018.
5. Indicator 6.2 (R&D objective): Increase the proportion of doctoral programmes in the fields of science and technology in the [CONACyT] National Programme for Quality Postgraduate education (PNPC) from 63.5% in 2012 to 71.6% in 2018.

Although the Sectoral Education Programme fixes targets for drop-out rates (*tasas de abandono escolar*) for primary, secondary and upper secondary education, it does not establish equivalent targets for higher education. This is curious, as the National Development Plan includes completion rates (*eficiencia terminal*) in all levels of education, including tertiary, as indicators of progress.

Progress in relation to the goals of the both the National Development Plan and the Sectoral Education Programme and policy activities related to these strategies are outlined in the annual "Government Reports" (Gobierno de los Estados Unidos Mexicanos, 2018[26]), which enumerate actions taken by government in each policy field each year. Data relating to the Sectoral Education Programme indicators on enrolment in accredited programmes and gross enrolment rates are published and regularly updated on the higher education section of the SEP website (Dirección General Educación Superior Universitaria (DGESU), 2018[27]).

If considered in light of the characteristics of good strategies outlined above, the most recent National Development Plan and Sectoral Education Programme demonstrate both strengths and weaknesses.

It is positive that both documents seek to take an evidence-based approach to strategy-setting, including extensive analyses of the challenges facing higher education, even if this analysis is in some cases constrained by a lack of reliable data (see discussion below). Those drafting the documents received well-formulated inputs from stakeholders in the higher education sector - a notable example being the proposals prepared by the National Association of Universities and Higher Education Institutions (ANUIES) in advance of the 2012 presidential elections (ANUIES, 2012[28])[10]. Both strategic documents also take into account the results of broader consultations with citizens, reflecting Mexico's strong tradition in this respect. Furthermore, the priorities and action lines identified are in general both aligned with the diagnoses in the documents

themselves and relevant to the broader challenges facing higher education in Mexico and discussed in this report.

While the OECD review team was generally impressed by the level of debate about key issues in higher education policy and the awareness of government officials and stakeholders about the challenges the Mexican system faces, it considers that the current strategic policy framework for higher education in Mexico fails to fulfil its potential in guiding effective policy for a number of reasons:

1. First, the complementarity between the National Development Plan (PND) and the Sectoral Education Programme (PSE) – and in particular the specific added value of the PSE – is not sufficiently clear. As part of its whole-of-government strategy, the PND already establishes comparatively detailed objectives and lines of action to guide higher education policy. Although it provides a more fine-grained breakdown of objectives and lines of action, the PSE does not provide a greater level of detail on the specific actions that will be taken to implement the strategy and achieve its objectives. The indicators specified in the PND and the PSE do not appear to be fully consistent and the relationship between the two indicator sets is not clear. As a result, the Sectoral Education Programme to some extent merely duplicates the PND, rather than providing an easily understandable and actionable roadmap for future policy.
2. Second, the logical relationships between the challenges identified, the actions that are proposed and the expected results and impacts are not adequately explained in the Sectoral Education Programme. Diagnoses, objectives and actions lines and indicators are presented in separate chapters without clear links between them. The PSE includes a very large number of action lines with limited or no explanation of each and only very few indicators with no clear explanation of how the planned actions will affect the indicators chosen. As a result the PSE reads rather like a list of good intentions. A programme with fewer action lines, each with clearly identified indicators of progress (at an appropriate level of ambition and meeting SMART criteria) would make it possible for policy makers to understand where their activities fit into the wider picture and for everyone to monitor progress towards goals more effectively.
3. Third, the choice, in the PND and PSE, to formulate general objectives that apply to all sectors of education and training makes it harder to understand and monitor the strategy for *individual* educational sectors, including higher education. As educational institutions and the public bodies responsible for their supervision and steering are largely organised by educational sector, a sector-by-sector structure in strategy documents would seem more appropriate to aid readability and facilitate implementation and monitoring.
4. Finally, leaving aside the inherent difficulty of reporting clearly on implementation of a strategy as wide-ranging and unspecific as the PSE, current systems for reporting progress appear inadequate. The Government Reports are long and lack a clear analytical framework and structure for reporting, while monitoring data is presented in a raw form without explanatory analysis that would allow stakeholders and citizens to gain a clear understanding of progress.

Despite recent improvements, incomplete data about the characteristics and performance of the higher education system still hinder policy-making

As already highlighted, reliable information about the characteristics and performance of the higher education system is crucial to developing an accurate diagnosis of the challenges the sector faces and – on this basis – designing appropriate policy measures to improve the situation. Mexico has put in place a compulsory data reporting system coordinated by SEP's Directorate-General for Planning, Programming and Educational Statistics (DGPPyEE). All educational establishments are required to report key information on institutional structures, income, enrolment and graduation at the beginning of every academic year using standardised reporting tools, referred to as Format 911, submitted through an online reporting portal (SEP, 2018[29]).

SEP's Directorate-General for University Higher Education (DGESU) publishes basic data on the higher education system, derived primarily from the Format 911 reporting system, on its website (Dirección General Educación Superior Universitaria (DGESU), 2018[27]). This database provides accessible data on enrolment, completion of studies (*egreso*) and formal graduation (*titulación*), broken down by federal state and higher education subsystem. Data on enrolment rates in accredited programmes (a key indicator in the Sectoral Education Programme) from COPAES and CIEES are provided on the same site, while data on teaching staff and basic funding data are available on the website of SEP's planning division (DGPPyEE, 2018[30]). The National Association of Universities and Higher Education Institutions (ANUIES) contributes directly to the development of the data collection tools and conducts its own analysis of the information collected (Mendoza Rojas, 2018[10]; ANUIES, 2018[11]).

While key elements of a comprehensive data system for higher education are in place, a number of variables that would be valuable for policy-making and evaluation are not currently available in Mexico. Some of these information gaps are common to all or nearly all higher education systems and are inherently difficult to address. As representatives of SEP note in a recent presentation to universities (Malo, 2018[31]), policy makers in Mexico – in common with the counterparts in most other countries - lack good information about educational processes: the content of programmes, pedagogical approaches, support given to students etc. To address this to some extent, in 2016-17, SEP undertook a wide-ranging survey of institutional leaders, teaching staff and students in higher education (SEP, 2018[32]), focusing on the educational approaches used within institutions. While such surveys can only ever provide a partial picture of reality and face many methodological difficulties, the results of the TRESMEX exercise do appear to provide some useful insights for policy-making. In contrast to many OECD countries, Mexico does have some reliable data on student learning outcomes, from the standardised student assessments undertaken by the National Centre of Evaluation for Higher. Education CENEVAL. However, these data are not comprehensive, nor representative, as they are the results of a subset of programmes that choose to evaluate their learners.

Other current information gaps in Mexico have been tackled in other countries and could be addressed in Mexico to improve understanding of the higher education system. Two issues stand out in particular:

1. First, as far as the OECD review team can determine, consolidated data on *educational spending per student* in the different subsystems is not available. As discussed below, the absence of transparent, consolidated data on public and private spending on education per student makes it hard to compare resourcing levels and assess efficiency. It seems likely that many higher education

institutions do not have internal accounting and cost allocation systems in place to allow them to report spending on educational activities with complete accuracy. Particular complications include the difficulty of distinguishing staff costs associated with education and research (a challenge common to all higher education systems) and the inclusion of upper secondary and higher education services in the same budget in many public universities (a challenge specific to Mexico).

2. Second, accurate, *true cohort data on students' educational careers and subsequent education and employment status and outcomes* is not available in Mexico. At present, completion (*egreso*) and formal graduation (*titulación*) rates are often reported in relation to current enrolment levels rather than on the basis of individual's actual progression within the educational system. Given the legitimate focus on completion and graduation rates (*eficiencia terminal*) in Mexico, the shortcomings of current data should be addressed. At the same time, despite commitments made in both the current National Development Plan and the Sectoral Education Programme, Mexico lacks a comprehensive system of graduate tracking. This hampers good student choices in selection of programmes, undermines transparency and accountability and makes internal and external monitoring of institutional performance more challenging. While high rates of informal employment in the Mexican economy create specific challenges, better information on employment outcomes can be very useful for informing policy and practice in a changing economy. Mexico does have a universal Unique Population Registry Code (*Clave Única de Registro de Población*, CURP) which could be used as a basis for better follow-up of individuals within and after education, following developments in practice in several of other education systems.

Ongoing efforts to engage with the higher education sector across the country, but with uncertain results

As noted in the discussion of the National Development Plan and Sectoral Education Programme above, it is hard to obtain a clear picture of progress in relation to the many action lines for higher education contained in these national strategies. This in part reflects the fact that activities and follow-up of the strategies is dispersed across the different Directorates-General of the SEP. One of the most substantial follow-up activities related to the Sectoral Education Programme has been the so-called "Comprehensive higher education planning initiative" (PIDES), started in 2015 and still underway at the time of writing (SEP, 2018[33]).

Described as a "collective reflection and working exercise", PIDES has been conceived as a way for the SEP to engage with the higher education community in Mexico, to further refine priorities identified in existing strategies and develop specific projects involving groups of HEIs working towards the priorities and objectives identified. The exercise has involved the organisation of eight two-day sessions each year since 2016 in different regions of Mexico, each bringing together representatives of around 120 higher education institutions to discuss challenges and develop projects. A total of 83 inter-institutional projects in seven thematic areas and involving 721 HEIs have been started (Malo, 2018[31]).

The efforts by SEP to engage with the higher education sector and state higher education bodies through the PIDES initiative are admirable for a stakeholder engagement perspective. It is likely that the results of the discussions and consultations can feed into

policy-making processes for the next National Development Plan and Sectoral Education Programme. The idea of supporting inter-institutional projects is, in principle promising, provided the issues addressed in the projects are best tackled at institutional level. Inter-institutional cooperation may, for example, be particularly helpful in areas like curriculum design, effective use of digital technologies or institutional strategies for supporting students from disadvantaged backgrounds. However, the ultimate objective of the PIDES project is unclear. Moreover, it is hard to imagine how institutional projects could address more structural issues such as improving the functioning of coordination bodies (COEPES – see above) in the federal states, or issues that would be more efficiently tackled through national initiatives, such as graduate tracking. At the time of writing no information is available on the design and real effectiveness of the projects supported in PIDES.

Considerable variation in the planning capacity between states and a lack of clarity about implementation and follow-up

Each state in Mexico has planning legislation and a State Development Plan (PDE), broadly mirroring the legislative framework in place at federal level. Some states also have their own State Education Programmes, reflecting the strong role of states in school education and their shared responsibilities in higher education. In most states, including Mexico City, higher education falls under the responsibility of state Public Education Secretariats, although in four states[11], separate state government departments have responsibility for higher education alongside science, technology and innovation (and in some cases upper secondary education).

It has not been possible within the scope of this review to examine state education policies in any detail. It is clear that some states do have the capacity to undertake coherent, evidence-based analyses of the challenges facing their education systems. The State Education Plan for the State of Guanajuato (Gobierno del Estado de Guanajuato, 2013[34]), for example, contains a well-structured diagnosis and set of objectives. However, as with the Sectoral Education Programme, it is far harder to understand from the State plans seen by the Review Team which specific actions will be taken, who will take them and how they will be financed. To some extent, the State plans appear to overlap with, rather than clearly complement, the national Sectoral Educational Programme and National Development Plan. Moreover, the broad and ambitious objectives, such as promoting equity and improving quality in higher education, established in State plans appear to be disproportionate in light of the limited resources states have to achieve them.

3.3.3. Key recommendations

In the next iteration of the Sectoral Education Programme, include a dedicated section for higher education with fewer objectives, each linked to more precise action lines and indicative resource allocation.

The new government will have become developing the new National Development Plan and the SEP, following a planned restructuring by the new administration, will be responsible for producing a new Sectoral Education Programme. In the view of the OECD Review Team, the next of iteration of the Sectoral Education Programme should aim to provide a clear and more precise programme of action in the field of higher education. To be useful, the new Education Programme should move away from being a

wish list of general objectives to being a set of actionable projects. In particular, the new Sectoral Education Programme should:

- Clearly identify specific priorities for the higher education sector, recognising the distinct needs and challenges of this sector. This could be aided through a distinct chapter on higher education or clearer delimitation of higher education objectives under thematic headings.
- Specify a small(er) number of well-defined thematic projects (for example on quality, equity, innovation in education), setting realistic objectives and timeframes and explaining the actions that will be taken to achieve these objectives on the basis of a rational intervention logic.
- Specify indicators that will be directly influenced by the proposed activities and establish targets to be met.
- Make explicit the funding sources that will be used to support the projects defined and in particular the way a reformed set of extraordinary targeted funding programmes will be deployed.
- Establish a far more robust programme of monitoring and evaluation to make progress towards the goals of the Sectoral Education Programme transparent for citizens and stakeholders.

Develop a comprehensive and integrated information system for higher education

Mexico needs a stronger national data system on higher education to support policy-making and ensure citizens and stakeholders are informed about the scope and performance of the sector. Despite efforts to improve the availability of basic statistics, quantitative information on higher education in Mexico is clearly inadequate. Priorities should include:

- Building capacity in the collection and management of data at national level, whether through increasing capacity within the SEP or establishing a small arms-length agency. Whichever option is chosen, the statistical and analytical capacity in ANUIES should be exploited.
- Ensuring higher education institutions use standard classifications of budgetary information and accounting and receive clear guidance on all forms of statistical reporting (to improve accuracy of Format 911 collections).
- Develop and exploit a single student identifier, based on the *Clave Única de Registro de Población* (CURP), to facilitate the transfer of student records and allow continuous, anonymised tracking of students throughout their educational career and transition to the labour market.

Ensure state higher education programmes are complementary to the sectoral education programme and focus on issues where states can make a real impact

The wider efforts to streamline governance of the higher education system in Mexico, proposed above, should create a more rational distribution of responsibilities between the federal government and state education authorities. As suggested, states should focus on building strong and coherent regional higher education systems to meet the needs of their citizens and economies, while leaving certain system-wide regulatory and financial allocation tasks to the federal level. In this context, State-level strategies for higher

education should focus exclusively on issues where legal competence and resources will allow states to have real impact. State higher education strategies should:

- Focus on state responsibilities, and issues where state governments have real agency, while ensuring clearer complementarity with the Sectoral Education Programme.
- Prioritise alignment of higher education to specific regional strengths and requirements.
- Include actions to improve cooperation and coordination between higher education institutions in their states, ensuring a clear role for the reinvigorated state coordination bodies (COEPES) in programming and implementation.
- As for the Sectoral Education Programme, specify a small number of clearly defined, realistic thematic projects with a clear intervention logic, realistic objectives and indicative budgetary allocation.

3.4. Funding higher education in Mexico

3.4.1. Key issues for funding higher education

The funding of higher education has been high on the agenda – in educational policy circles and, to varying extents, in the wider political debate - in many OECD countries in the last decade. Against the backdrop of growing enrolment rates, governments across the world have grappled with the question of how best to provide adequate funding to public higher education providers, in particular to allow them to maintain and improve the quality and relevance of the education they provide.

In some OECD countries with predominantly or exclusively public systems of higher education, a key issue has been the share of funding from that should come from the public purse and the role of tuition fees charged to students and their families. In countries such as Australia and England, over time, reforms have led to a considerable shift in the burden of funding higher education away from government and to students, with policy makers often pointing to the individual returns for students obtained from completing higher education and the need to focus finite public resources on earlier stages of the education system (Browne, 2010[35]). In many other OECD countries, commitment to the public funding of higher education has been stronger. Indeed, in some states there has been a decrease in the role of private funding: in Germany, for example, tuition fees were abolished by all federal states by 2014 (Gilch, 2014[36]).

Another policy question, this time common to all OECD countries, is how to ensure public investment in higher education is spent effectively and efficiently to ensure students acquire the knowledge and skills they need and staff and institutions are able to fulfil their other missions related to research, innovation and engagement with the wider community. Many countries have adjusted the way funding is allocated to public higher education institutions, including through moving from historical budgeting to various types of formula-based funding that take into account the numbers of students or graduates. In addition, governments have experimented with different forms of performance-related funding, as part of core funding formulae, through targeted funding for specific objectives or, as in the Netherlands or Ireland, by linking resources to institutional performance agreements.

Despite an expansion of enrolment in private institutions in the 1990s, recent Mexican governments have increased public investment in higher education in real terms and promoted the expansion of public provision of higher education (Mendoza Rojas, Javier, 2017[37]). As a result, the share of students in private higher education has stabilised at around one third of total enrolment – a level considerably lower in Mexico than in many other Latin American countries, most notably Brazil, where more than 70% of students study in private institutions (INEP, 2017[38]). Public higher education institutions charge symbolic or very low fees to study and a system of public grants for students – albeit with low coverage – has been maintained and expanded over time. As we go on to discuss in the chapter on equity, there is certainly a need to reflect on the equity of the current system of fees and student support across the whole of Mexican higher education and consider changes. However, it is clear that the public higher education systems in Mexico will continue to depend primarily on public funds for the foreseeable future.

Taking this into account, this section of the report examines the effectiveness of the systems in place in Mexico to deliver public funding to higher education institutions, focusing on the following key questions:

- Adequacy of overall levels of funding: is the level of investment in the public higher education system as a whole adequate to allow them to provide high quality, relevant education and fulfil their other missions?
- Funding allocation mechanisms: are the procedures and mechanisms used to allocate funding transparent and proportional to the activities the institutions are expected to perform?
- Equity in funding: in a diverse system like that in Mexico, is the amount of funding for different types of public higher education institution appropriate and equitable?
- Results orientation: to what extent do current funding allocation mechanisms encourage higher education institutions to work towards national goals and incentivise good performance?
- Stability and predictability: to what extent does the current funding system allow public higher education institutions to plan effectively for the medium to long term and implement long-term development strategies?

3.4.2. Strengths and challenges

Public spending on higher education has grown, but more slowly than enrolments, resulting in falling spending per student

Among the most meaningful ways to compare levels of investment in higher education is to examine institutional spending per enrolled student, where necessary adjusting for differences in purchasing power between jurisdictions. Providing good quality higher education requires labour-intensive interaction between highly qualified teaching staff and students, and staff costs (salaries, pension contributions etc.) account for a high proportion of institutional expenses in all higher education systems (OECD, 2018, p. 316[39]). Although staff-student ratios and other costs (facilities, equipment etc.) for educating each student vary considerably between disciplines and there are no hard-and-fast rules about how much investment is "enough", it is reasonable to assume there is a

positive correlation between levels of investment per student and the ability of institutions to deliver quality education.

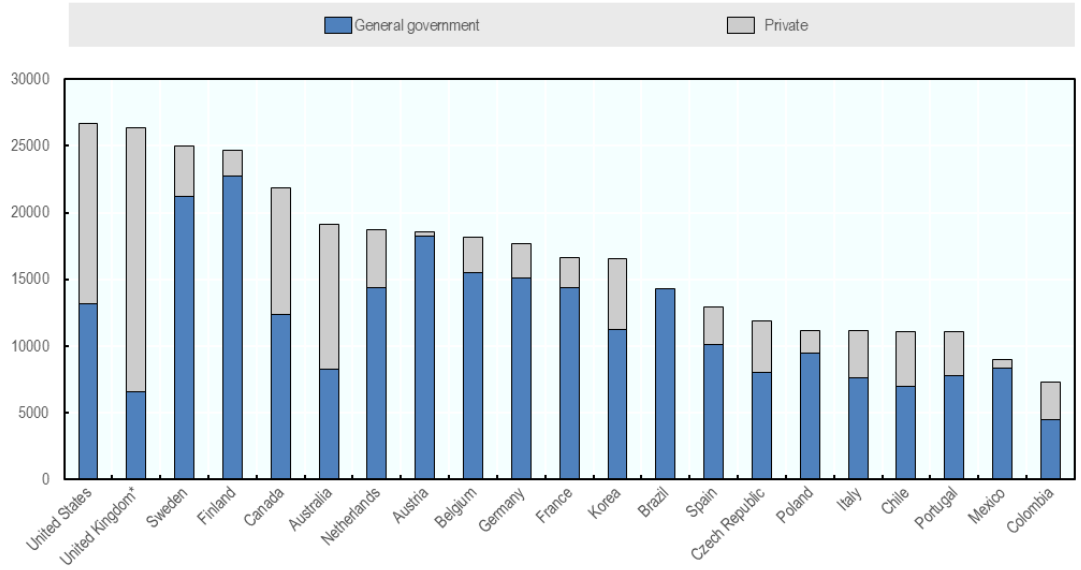
Calculating and comparing levels of expenditure per student is fraught with difficulties, most notably because it is hard to disentangle resources spent directly on the education of students from those spent on other institutional functions such as management, research or community engagement. This problem is most pronounced in research universities and institutes, where academics are engaged in significant amounts of research activity alongside teaching, which both diverts their attention for teaching and has the potential to enrich it. In Mexico, the problem is exacerbated by a lack of easily accessible data on spending per institution. Notwithstanding these difficulties, various analyses allow us to obtain a picture of patterns of spending per student in Mexican higher education from a comparative perspective and over time.

The OECD's most recent Education at a Glance (OECD, 2018[39]), shows that total spending per student (including on research) in public higher education institutions is among the lowest in the OECD. In 2015, annual spending per student in public institutions in Mexico was calculated to be just under USD 9 000 adjusted for purchasing power parity. This is roughly one third of the level in *public* HEIs in the United States (USD 26 650), the OECD member with second highest expenditure per student, after outlier Luxembourg. Of OECD countries for which data is available, only Israel, Greece, Latvia, Turkey and Hungary had lower levels of total spending per student in their public higher education institutions, after differences in purchasing power have been accounted for.

However, as shown in Figure 3.2, the headline spending level masks the fact that government spending (subsidies from federal and state governments) accounts for a particularly high proportion of total expenditure on public institutions. Purchasing power-adjusted public spending per student in public institutions in Mexico is around 64% of US public spending per student in public institutions and is higher than in Australia, the Czech Republic, Portugal, Italy, Chile, the United Kingdom and Colombia. The comparatively low level of total spending per student in public institutions in Mexico is thus at least as much a reflection of low private spending (notably income from student fees, research contracts and consulting), as of low levels of government spending. Moreover, spending levels must be seen in the context of overall levels of economic development. Total public spending on higher education institutions in Mexico in 2015 represented one percent of GDP, the same proportion as in Germany and above the proportion spent by the United States (OECD, 2018, p. 267[39]).

Figure 3.2. Public and private spending per student in public HEIs, selected countries (2015)

Expenditure per FTE student in public higher education institutions from public and private sources in USD converted using PPP

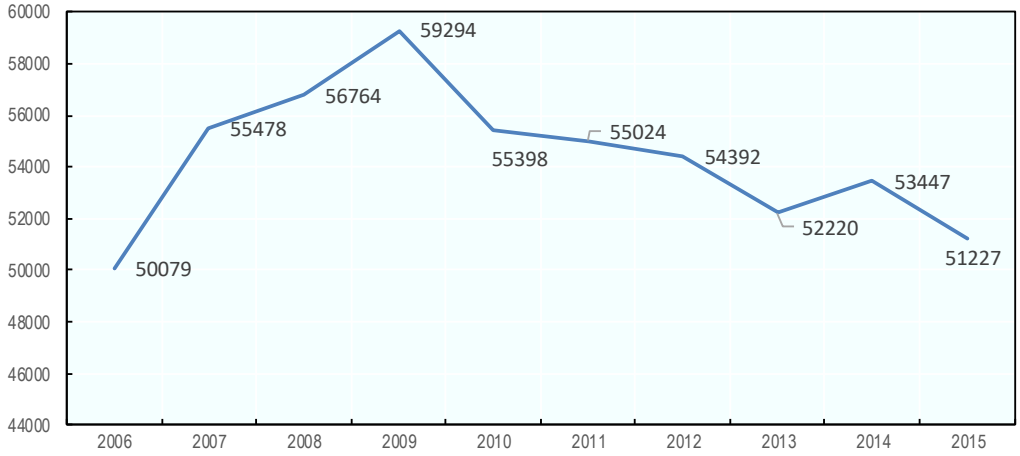


Note: * Data for the United Kingdom refer to institutions that formally have private, not-for-profit, legal status, but which have historically been government-dependent and considered to be public institutions in national policy documents.
Source: OECD Educational Finance Indicators. Expenditure per full-time equivalent student, by source of funds and type of expenditure (OECD, 2018[39]).

In Mexico, recent analyses suggest that, despite real terms increases, government spending per student has failed to keep pace with the expansion of enrolment. Over the four annual budget exercises from 2012 to 2015, Mendoza Rojas (2017[37]) calculates that federal spending on higher education (excluding research funds directed through CONACyT) increased in real terms by 8.4%, albeit with considerable variation between federal institutions and subsidies to the states. The same paper argues that real-terms *spending per student* actually fell over the same period, as shown in Figure 3.3. This trend reflects considerable increases in student numbers in public institutions, driven in part by government initiatives to expand provision and access to higher education, in line with the goals of the National Development Plan and Sectoral Education Programme.

Figure 3.3. Federal subsidy for higher education per student

Federal spending on all types of public higher education institution per student in 2015 Mexican pesos (MXN)



Note: Calculations only take into account enrolment in face-to-face programmes and exclude normal schools. Spending data includes all federal spending on higher education institutions, including ordinary subsidies to federal institutions, extraordinary funding programmes and earmarked transfers to states.
Source: Financiamiento de la educación superior en la primera mitad del gobierno de Enrique Peña Nieto: ¿fin del periodo de expansión? (Mendoza Rojas, Javier, 2017[37]).

2015 was a year characterised by significant strain on federal budgets in Mexico in the wake of a sharp fall in the global oil price. Although data from the SEP show that the federal budget for higher education increased in nominal terms year-on-year in the years 2016-2018, analysis by ANUIES (2018, p. 90[11]) suggests that the federal budget for higher education, excluding research, fell in real terms by almost 8% over the two years from 2015 to 2017. According to the same ANUIES analysis, over the same period, enrolment in public institutions (excluding normal schools) rose by 8%.

A complex system of core funding to higher education institutions, lacking transparent allocation mechanisms

The complex network of subsystems of institutional types within Mexican higher education and the division of responsibility for higher education between the federal government and the states is mirrored in a complex system of funding for public higher education institutions. Across subsystems, institutions receive core funding to cover staff and operating costs referred to as "ordinary funding". Public institutions – in particular State Public Universities - may also be eligible for targeted "extraordinary" funding, allocated to specific government programmes and awarded to institutions through competitive calls for proposal or – in a few cases[12] – allocation formulae.

Federal higher education institutions receive their core ("ordinary") funding directly from the federal government, with the amount of subsidy for each institution specified each year in the Federal Budget Act (Congreso de los Estados Unidos Mexicanos, 2017[40]). Ordinary subsidies are allocated to federal higher education institutions under Section 11 of the federal budget, with institutions receiving specific amounts from distinct functional budget lines ("programmes"), of which the most significant are for institutional

management ("Public service and good government" - O001); "Higher education and postgraduate services" (E010); and "Scientific research and technological development" (E021)[13]. The sum of the amounts allocated under these budget lines forms the total ordinary subsidy for each federal institution for a given year. Although a nominal distinction is made in the Budget Act between allocations for undergraduate and postgraduate education and for research (and for upper secondary education for institutions that incorporate schools), the amounts under each heading are based on a historic cost model and adjusted each year, depending on the availability of federal funds. No specific formulae exist to guide the allocation of resources for different budget lines, meaning there is no direct relationship between enrolment, activities or outputs and the budget institutions receive.

Autonomous State Public Universities (UPES) and non-autonomous public higher education institutions under the responsibility of the states (UPEAS, Technological Universities, Polytechnic Universities, Intercultural Universities, decentralised Institutes of Technology and other types of state higher education institution such as arts or music schools) receive a share of their core ("ordinary") funding from the federal government and a share from the state government. For non-autonomous state institutions – which account for the majority of public institutions, although not a majority of student enrolment – state governments and the Federation each provide 50% of core funding (Mendoza Rojas, 2018[10]). Annual budgets are negotiated between the SEP and state authorities, again on the basis of historical allocations. An amount corresponding to 50% of the total subsidiary is then adopted explicitly for each institution in each state's budget act, while the federal share of funding is dispersed by the department of the SEP responsible for the subsystem in question, using funds allocated for this purpose in the federal budget (Section 11, budget line U006 "Subsidies for state decentralised organisations").

The situation for autonomous State Public Universities, which are typically the largest institutions in states outside the capital, is more complex. While responsibility for core institutional funding is also shared between the state and the Federation, the share of total core funding provided by each level is subject to individual negotiations for each institution. The budget shares and amounts are fixed each year in institutional agreements (*convenios*). The share of funding assumed respectively by the federal and state levels varies considerably across the country. Whereas, for some institutions, such as the Universidad Autónoma del Estado de México, the split in funding between Federation and state is roughly 50:50, for others, including the Universidad Autónoma de Tlaxcala and the Universidad Autónoma de Yucatán, state governments contribute less than 15% core funding (ANUIES, 2018[11]).

The distribution of responsibility between the Federation and states for funding public higher education institutions in each subsystem is summarised in Table 3.3. It is important to recall that a majority of the funding from states originally also comes from the federal level in the form of core funding and transfers, as states have limited tax-raising powers.

Table 3.3. Allocation of core funding to public higher education institutions

Subsystem	Legal status	Proportion of core funding from federal government	Proportion of core funding from state government
Federal public universities	Autonomous institutions (universities) / Federal parastatal entity (others)	100%	
State Public Universities (UPES)	Autonomous institution*	44%-90%**	10%-56%**
State Public Universities with Solidarity Support (UPEAS)	State parastatal entity	50%***	50%***
Technological Universities (UT)	State parastatal entity	50%	50%
Polytechnic Universities (UPOL)	State parastatal entity	50%	50%
Intercultural Universities (UIC)	State parastatal entity	50%	50%
Federal Institutes of Technology (IT-FED)	Federal parastatal entity (Part of TecNM)	100%	
Decentralised Institutes of Technology (IT-DESC)	State parastatal entity (Part of TecNM)	50%	50%
Other public HEIs	State parastatal entity	Variable	Variable
Federal normal schools	Federal parastatal entity	100%	
State normal schools	State parastatal entity		100%
CONACyT Research Centres	Federal parastatal entity	100%****	

Note: *One State Public University (*Universidad de Quintana Roo*) is not an autonomous institution; ** ANUIES calculations; *** A limited number of State Public Universities with Solidarity Support receive a different proportion of funding from the federation and their state; **** CONACyT research centres are allocated federal funding through Section 38 of the federal budget, which is specific to CONACyT
Source: OECD based on (ANUIES, 2018[11]; Mendoza Rojas, 2018[10]).

A proportion of the resources from annual budget for the national student grant programme (budget line S243) are allocated directly to federal institutions (such as UNAM, UAM etc.) through the federal budget. In these cases, the institution in question is responsible for allocating the grants to students. The remainder of the grants programme budget is allocated initially to the SEP Directorates-General that oversee the different subsystems of public institutions at state level and thence disbursed to the states for payment to student beneficiaries.

The absence of transparent mechanisms for allocation of resources to public higher education institutions has been criticised by ANUIES, the main representative body for public (and some private) institutions. In their most recent policy proposals (ANUIES, 2018[11]), the Association calls for a more rational and equitable (see below) funding allocation model, based on an assessment of the real costs associated with providing educational services (different types of programme in different fields) and other institutional activities. Mendoza Rojas (2017[37]) notes that reform of the funding model has been on the agenda in Mexico for some years and was even included as a priority in a previous Sectoral Education Programme, but was not mentioned in the 2013-2018 programme.

It seems likely that reform has been hindered by a) a lack of information, b) the inherent complexity of designing an effective new formula-based system, c) the sensitivity of university funding as such and d) a lack of additional public funds to help implement

changes. Experience from other countries (Bennetot Pruvot, Claeys-Kulik and Estermann, 2015[41]) shows that the transition from historical budgeting to funding formulae requires additional resources to minimise the budget reductions for institutions that stand to lose from a more rational, activity and output-based allocation mechanism and, more significantly, allocate additional money to institutions that have previously been "underfunded" according to the new model.

Unjustified differences in funding per student exist between and within subsystems, with some subsystems systematically underfunded

There is wide and often unexplained variation in public subsidy per student between higher education institutions in Mexico. This is largely related to the lack of a transparent allocation mechanism for public resources, discussed above. Some variation in per student funding between institutions is to be expected. Some disciplines, such as hard sciences, medicine and certain arts subjects, are inherently more expensive to provide than others, such as social sciences, law or humanities. Equally, the difficulty of disaggregating spending on educational services means that per student spending rates are sometimes calculated using total institutional budgets, which include spending on research, innovation and engagement. Institutions with large research budgets and significant engagement activities will inevitably be more expensive.

Even taking into account these factors, wide variation in per student funding is visible between institutions in Mexico in single subsystems and with theoretically similar missions and profiles. A prominent example is that of State Public Universities (UPES). ANUIES calculates that in 2017, the Universidad Autónoma de Guerrero received a core operating budget (ordinary funding) of MXN 34 946 per student, while the Universidad Autónoma de Tamaulipas received 3.7 times as much, with MXN 128 806 per student (ANUIES, 2018[11]). The ANUIES figures include upper secondary students in the enrolment figures for some institutions (weighted to 0.7 of a tertiary student), as it is generally impossible to disaggregate the public funding universities receive for, and spend on, their in-house upper secondary schools. This is another complicating factor in obtaining an accurate picture of per student funding in Mexico. Nevertheless, even when considering just the universities without in-house secondary schools, it is evident that the Universidad Autónoma de Baja California Sur, for example, receives double the subsidy per student obtained by the Universidad Autónoma de Tlaxcala (MXN 85 176 compared to MXN 43 351 in 2017).

In some cases, these differences in funding result from higher contributions from individual state governments to the ordinary funding of UPES. For example, the State of Tamaulipas, with the highest spending per student, also contributes the highest share among all states of the total public funding received by the local State Public University and the highest state subsidy per student in absolute terms. The relatively low funding per student at the Universidad Autónoma Benito Juárez de Oaxaca appears to result from the very low contribution from the State government (only 10% of ordinary subsidy). However, the variation in the level of subsidiary from the federal government between nominally similar institutions is striking. Whereas the UPES in the State of Mexico and in Guerrero receive only around MXN 25 000 in ordinary funding per student per year, the Universidad Autónoma de Yucatán receives MXN 79 859 per student per year. It is also noteworthy that Yucatán, one of the wealthier entities in the Federation, contributes only MXN 11 200 per student to its UPES, an amount that corresponds to 11.5% of the state's GDP per capita.

Table 3.4. State and federal core funding to selected UPES in Mexican pesos (MXN) per student and as a proportion of GDP per capita

	Total budget ordinary budget in 2017	ANUIES spend per student	State share of ordinary subsidy	State spending per student	Federal spending per student	GDP per capita 2015 (MXN)	Spending per student as % GDP per capita
Universidad Autónoma de **Tamaulipas**	4 666 106 444	128 806	56	72 260	56 546	122 206	**59.13%**
Universidad Autónoma de **Yucatán**	2 048 405 685	91 059	12.3	11 200	79 859	97 215	**11.52%**
Universidad **Veracruzana**	4 474 999 534	79 523	47.3	37 614	41 909	83 928	**44.82%**
Benemérita Universidad Autónoma de **Puebla**	5 659 166 038	70 412	32.3	22 743	47 669	70 868	**32.09%**
Universidad Autónoma del **Estado de México**	3 565 508 813	48 929	50.4	24 660	24 269	75 983	**32.45%**
Universidad Autónoma Benito Juárez de **Oaxaca**	971 112 630	44 485	10.3	4 582	39 903	54 034	**8.48%**
Universidad Autónoma de **Nuevo León**	6 756 077 996	41 808	27	11 121	30 687	205 952	**5.40%**
Universidad Autónoma del Estado de **Hidalgo**	1 674 882 116	40 980	25.1	10 286	30 694	78 669	**13.07%**
Universidad Autónoma de **Guerrero**	2 426 335 399	34 946	26.6	9 296	25 650	56 671	**16.40%**

Source: Data on budget, spending per student and state share of ordinary subsidy (ANUIES, 2018[11]); GDP per capita data: http://www.inegi.org.mx/.

The significant variation in federal and state subsidies per student and in the relative financial effort made by individual states in supporting their principal public research universities needs to be addressed in order to establish a more transparent and equitable distribution of funding within this subsystem of higher education.

It is more difficult to obtain data on spending per student for other subsystems of higher education in Mexico as this information is not compiled centrally in an accessible form[14]. With the resources available to them, ANUIES have calculated that, in 2016, federal universities received on average MXN 118 000 per student per year (compared to an average of MXN 56 000 for UPES, discussed above), federal Institutes of Technology MXN 37 000 per student per year, decentralised Institutes of Technology MXN 29 000 and Technological and Polytechnic Universities MXN 24 000 per student per year, on average (ANUIES, 2018, p. 92[11]). No data are available for normal schools or the various types of public higher education institution grouped under the "other" category and which include music and performing arts schools under the control of the states. As noted earlier, the differences between these average funding rates are to some extent explained by differences in the missions of the different types of institution. In particular, federal universities and some UPES concentrate the vast majority of Mexico's academic research activity, medical schools and a large proportion of the country's postgraduate education, which explains their higher funding levels.

In an attempt to gain further insight into the funding of higher education institutions, the OECD review team compared the budgets allocated to individual higher education institutions in the State of Puebla, one of the locations visited during the review mission. The state Budget Act includes the full breakdown of the ordinary budget allocations for the UPES (the Benemerita Universidad Autonoma de Puebla) and the state's share of

ordinary subsidies for other institutional types, including State Public Universities with Solidarity Support (UPEAS), Intercultural Universities (UIC), Technological and Polytechnic Universities (UT and UPOL) and decentralised Institutes of Technology (IT-DESC). Using data from the SEP's enrolment database for 2016-17 and funding allocations form the 2016 state budget law and with the assumption that the 50:50 split in ordinary subsidies between the state and the Federation is respected, it is possible to calculate spending per student for a selection of institution in the state's higher education system. The results are presented in Table 3.5.

Table 3.5. Spending per student in selected public HEIs in the State of Puebla 2016

Budget allocations in Mexican pesos (MXN)

Institution	Subsystem	Enrolment 2016-2017	State Funding*	Federal Funding	Total core public funding	Public funding / student
Benemerita Universidad Autonoma de Puebla	UPES	78 761	1 929 127 863	3 740 414 448	5 669 542 311	71 984
Universidad Interserrana del Estado de Puebla Ahuacatlan	UPEAS	310	9 148 373	9 148 373**	18 296 746	59 022
Universidad Intercultural del Estado de Puebla	UIC	706	12 960 806	12 960 806**	25 921 612	36 716
Instituto Tecnologico Superior de Venustiano Carranza	IT-DESC	553	9 186 881	9 186 881**	1.8 373 762	33 226
Universidad Tecnologica de Puebla	UT	6 773	105 158 314	105 158 314**	210 316 628	31 052
Universidad Tecnologica de Izucar de Matamoros	UT	2 117	30 653 556	30 653 556**	61 307 112	28 959
Instituto Tecnologico Superior de Huauchinango	IT-DESC	1 779	22 660 517	22 660 517**	45 321 034	25 476
Instituto Tecnologico Superior de Teziutlan	IT-DESC	2 545	31 127 804	31 127 804**	62 255 608	24 462
Universidad Tecnologica de Oriental	UT	604	7 385 488	7 385 488**	14 770 976	24 455
Universidad Tecnologica de Huejotzingo	UT	3 493	42 418 579	42 418 579**	84 837 158	24 288
Universidad Interserrana del Estado de Puebla Chilchotla	UPEAS	786	9 235 632	9 235 632**	18 471 264	23 500
Universidad Politecnica de Puebla	UPOL	2 638	29 002 074	29 002 074**	58 004 148	21 988
Universidad Tecnologica de Tecamachalco	UT	3 536	38 012 385	38 012 385**	76 024 770	21 500
Instituto Tecnologico Superior de Zacapoaxtla	IT-DESC	2 361	22 472 106	22 472 106**	44 944 212	19 036
Universidad Tecnologica de Xicotepec de Juarez	UT	3 339	25 223 935	25 223 935**	50 447 870	15 109
Universidad Politecnica de Amozoc	UPOL	1 291	8 084 439	8 084 439**	16 168 878	12 524
Universidad Politecnica Metropolitana de Puebla	UPOL	772	4 088 920	4 088 920**	8 177 840	10 593

Note: * Allocations based on specific attributions in the Puebla State Budget Act for 2016; ** Federal allocations assume that the general principle of 1:1 match-funding between state and Federation for non-autonomous institutions is respected.
Source: Data on funding allocations: (Congreso del Estado de Puebla, 2015[42]) Data on enrolment: (Dirección General Educación Superior Universitaria (DGESU), 2018[27]).

The data, while only relating to one of the states in Mexico (the fifth largest by population), show high spend in UPEAS and Intercultural Universities and very variable spend between decentralised Institutes of Technology and Polytechnic and Technological Universities (which may or may not be explained by differences in disciplinary focus). In the latter two types of institution, the lowest-funded institutions of each type in Puebla State receive less than half the amount of ordinary subsidy received by the best-funded institution of the same category.

A well-established system of competitive and targeted funding, but programmes are fragmented, with overlapping objectives and complex application procedures

Since the early 1990s, the Mexican federal government has operated a series of additional funding programmes to support higher education, in addition to the direct ("ordinary") subsidies it provides to institutions. These "extraordinary" funding programmes provide target funding for specific objectives to public higher education institutions under the remit of the states, and, in particular, to State Public Universities (UPES). Federal public higher education institutions are not generally eligible to receive funds under extraordinary funding programmes.

The programmes are administered by different departments within the SEP, in most cases through annual calls for proposals[15]. The SEP establishes terms of reference and institutions submit proposals, which are then evaluated by external experts or evaluation committees and successful institutions then receive the additional funding directly or through funds transferred via state administrations.

Historically, the extraordinary funding programmes have focused in particular on promoting a) improvements in infrastructure and expansion of the higher education system; b) upgrading the qualification levels of full-time academic staff and c) supporting institutional projects to increase the quality of teaching and learning, including through external accreditation of programmes. A major restructuring of programmes occurred in 2014, when a number of programmes specific to the higher education sector were combined with programmes with similar aims in other sectors of education and training. At this time, the *Programa del Mejoramiento del Profesorado* (PROMEP), which had been providing funds to support academics upgrade their qualifications since 1996, was combined with programmes for training primary and secondary school teachers under the umbrella of the *Programa para el Desarrollo Profesional Docente* (PRODEP). The fundamental focus and actions of the previous programme were retained, but as a strand of a wider programme.

A similar process occurred with other programmes. The *Programa de Fortalecimiento de la Calidad Educativa (PFCE)* was created as a programme to support quality across sectors of education and training, but incorporating distinct action lines from earlier programmes to support institutional projects in higher education and promote acquisition of external quality accreditation. The *Programa para la Inclusión y la Equidad Educativa (PIYEE)*, again covering all educational sectors, supports infrastructure and management projects to improve accessibility for disabled students and develop strategies to support students from vulnerable and disadvantaged backgrounds.

Alongside these programmes that target public higher education institutions in different subsystems, two current programmes provide more structural support to UPES. The *Programa de Carrera Docente en UPES* provides funds to UPES to allow them to reward full-time staff that meet specific criteria (including performance in research, teaching responsibilities etc.) with additional salary bonuses. The *Fondo de Apoyo para el*

Saneamiento Financiero y la Atención a Problemas Estructurales de las UPES provides funds to help UPES meet their obligations in relation to pension payments to former staff as well as improve their internal management processes.

As summarised in Table 3.6, below, two further federal programmes exist at present. The comparatively small *Programa de Apoyo al Desarrollo de la Educación Superior (PADES)*, which support institutional development projects in a wide range of thematic areas, and the *Programa de Expansión de la Educación Media Superior y Superior*, which has historically supported the creation of new facilities, new programmes and new institutions of higher education to improve access. However, in the fiscal year 2018, no funding was allocated to this programme.

Table 3.6. Extraordinary funding programmes for higher education in 2018

Funding programme	Budget line	Institution types eligible	Objective / focus	Total budget 2018 (pesos)
Programme to Strengthen Educational Quality (Higher Education) *Programa de Fortalecimiento de la Calidad Educativa (PFCE)*	S267	UPES, UPEAS, UPOL, UT, UIC, Public normal schools	Support for institutional development plans with projects aimed at improving quality of educational programmes and achieving accreditation	1 862 591 120
Programme to support the development of higher education *Programa de Apoyo al Desarrollo de la Educación Superior (PADES)*	U080	UPES, UPEAS, UPOL, UT, UIC,	Institutional projects to support a) quality ; b) diversification and relevance; c) embedding "transversal content", d) internationalisation; and e) innovation in education	436 966 486
Programme for Educational Inclusion and Equity *Programa para la Inclusión y la Equidad Educativa (PIEE)*	S244	UPES, UPEAS, UPOL, UT, UIC, Public normal schools	Support to institutions to a) improve staying on and completion rates for vulnerable and indigenous students and b) improve accessibility for disabled students	52 497 746
Programme for Professional Development of Teachers (Higher Education) *Programa para el Desarrollo Profesional Docente (PRODEP)*	S247	UPES, UPEAS, UPOL, UT, UIC, Public normal schools	Support to HEIs to fund full-time Academic Staff to gain qualifications (Master's / Doctorate) and activities in Academic Research Groups (*Cuerpos academicos*)	656 407 011
Programme for Academic Careers in UPES *Programa de Carrera Docente en UPES*	U040	The 34 State Public Universities (UPES)	Funding allocated to UPES for bonuses for full –time teaching staff who have proven record of performance in teaching and research	350 000 000
Support fund for financial restructuring & addressing structural problems in UPES *Fondo de Apoyo para el Saneamiento Financiero y la Atención a Problemas Estructurales de las UPES*	U081	The 34 State Public Universities (UPES)	Supporting projects to reduce accumulated pension deficits	700 000 000
Programme for expansion of upper secondary & higher education *Programa de Expansión de la Educación Media Superior y Superior*	U079	UPES, UPEAS, UPOL, UT, UIC, Public normal schools	Creation of new sites and educational programmes and expansion of existing programmes	0 (not funds allocated to HE strand in 2018)

Source: PFCE (SEP, 2018[43]); PADES (SEP, 2018[44]); PIYEE (Dirección General de Educación Superior Universitaría (DGESU), 2018[45]); PRODEP (SEP, 2017[46]); UPES programmes (SEP, 2018[47]; SEP, 2018[48]); Budget data: (Secretaría de Hacienda y Crédito Público, 2018[49]).

In principle, targeted funding programmes, such as the extraordinary funds used in Mexico can be a valuable tool to allow governments to increase the focus of higher education institutions on strategic goals and increase focus on results and performance, while allowing institutions to develop and implement projects that would not be possible with ordinary operating resources. There is a general sense among policy makers and stakeholders in Mexico consulted by the OECD Review Team that the extraordinary funds have indeed had positive impacts, such as increases in the qualification levels of staff and an increase in the number of programmes with external quality accreditation. Even though there have not been systematic impact evaluations, it seems that the extraordinary funds have focused attention within institutions on issues such as quality that are national priorities. This is all the more notable, given the complexity of the Mexican higher education landscape and the strong degree of autonomy enjoyed by research universities, which make it challenging for governments to influence and steer the system.

Despite these positive aspects, the system of extraordinary funding as currently designed in Mexico has a number of weaknesses.

A first, and fundamental, point, raised by several stakeholders and institutional representatives in Mexico is that a proportion of extraordinary funds are used for activities that are not "extraordinary", but part of the everyday operation of HEIs. The most striking examples of this are the specific support programmes for UPES to deal with shortfalls in pension payments or provide incentive payments to staff. Although public institutions may sometimes experience budget difficulties and require additional financial support, it appears that extraordinary support programmes have been in place for UPES in Mexico for at least 10 years (Mendoza Rojas, 2018[10]). This suggests that the allocation mechanisms for *ordinary funding* are not providing effective coverage for operational costs. Similarly, it would be reasonably to expect HEIs develop and fund a system of performance-related remuneration as part of their internal human resources policy, rather than relying on an external fund, which anachronistically applies to only one subsystem of higher education.

More generally, it can be harder to draw the line between activities that should be part of the core business of HEIs and those that warrant dedicated project funding. It could be argued that virtually all activities supported by extraordinary funds should be part of the core missions of effective institutions. However, in the Mexican context, where such a high proportion of institutional funding in public institutions is absorbed by staff costs and basic operating expenses, providing additional project-based resources for institutional project to bolster quality, inclusion and staff capacity building would appear to be a sound and pragmatic solution, provided these projects can be designed and implemented effectively.

A second recurring criticism of the current system of extraordinary funding is its failure to promote long-term planning and projects. As the federal budget is adopted annually, resources are allocated under the extraordinary funds one year at a time. At the same time, the design of programmes and funding levels can vary considerably from one year to the next. ANUIES (2018[11]) and other stakeholders interviewed by the OECD Review Team claim that this has led to a development of *ad hoc* projects that meet the requirements of specific calls for proposals, but are not embedded effectively in long-term institutional development strategies and do not always last long enough to have the desired effects. The budget cuts of recent years are likely to have exacerbated these

problems, as institutions have even less certainty that resources will be available in the medium term to implement ongoing and long-term projects.

A third issue relates to the definition and focus on the extraordinary programmes. Here there are two issues. First, although the main programmes for quality, staff training and inclusion appear relatively clearly focused, the precise added value of the PADES programme, which covers multiple objective with little money, is unclear. It is crucial that the purpose and complementarity of funding programmes is clear to stakeholders. Second, the decision to incorporate higher education programmes into cross-sectoral programmes in 2014 means that programme documents become unwieldy with different requirements and proposed actions for each sector. As with the Sectoral Education Programme, it would make more sense to organise programmes on sectoral lines, with a specific extraordinary programme for higher education.

Finally, the current generation of extraordinary programmes are being implemented without a systematic programme of impact evaluation. The National Council for the Evaluation of Social Development Policy (CONEVAL) undertakes evaluations of the design of the programmes and evaluations and monitoring of programme processes and outputs, which is already a positive step, but in many cases notes the absence of clear evidence on impact (CONEVAL, 2017[50]). Evaluations of extraordinary programmes that have been undertaken (see, for example, (N.I.K. Beta S.C., 2018[51])) note difficulties in establishing a clear intervention logic (linking activities and expected results and impacts), a lack of well-defined indicators of impact and difficulties in obtaining consistent information on results and impacts from institutional reporting. Better information on results and impacts would allow the SEP to adjust the design of the programmes accordingly, although care must be taken not to impose excessive administrative burden on institutions. At present there is little evidence of a culture of evaluation and learning from past experiences in the design of funding programmes.

Unpredictability in funding levels and programmes have hindered medium to long-term planning within institutions

The discussions above have highlighted the absence of transparent mechanisms for awarding core "ordinary" funding to public higher education institutions and considerable instability in the design and funding levels attributed to the various extraordinary funding programmes. These factors reduce the predictability of income streams for institutions and act as a barrier to long-term institutional planning and projects. Further, the fact that enrolment has expanded faster than ordinary funding and longstanding financial problems, such as an inadequacy of institutional pension funds, mean many institutions are focused on finding resources to keep their institutions running, rather than engaging in activities to drive the longer term improvement of their work.

While budget constraints and annual fiscal and budgetary cycles are common across OECD countries, many countries do provide their public higher education institutions with greater predictability, not only through transparent financial allocation mechanisms, but multi-annual budget provisions.

3.4.3. Key recommendations

Ensure the federal budget allocated to higher education is proportionate to political goals and policy targets

Expanding participation in higher education has been a key goal in the 2013-2018 National Development Plan and is likely to remain a priority for the new government. However, educating more students, while seeking to maintain or increase quality, requires more resources. These resources can only realistically come from public funds or tuition fees charged to students. If the political choice of the Mexican government is to rely on public funding sources for public education institutions, then the resources allocated to the sector must be adjusted to reflect increasing student numbers.

Mexico currently spends a similar proportion of its GDP on public subsidy to higher education institutions as some leading OECD economies. However, absolute levels of investment per student are already comparatively low. It is questionable how much more expansion of the system can be achieved within current levels of spending, even with some reallocation between institutions. Moreover, transitioning to a more rational allocation model for institutional funding, as proposed below, is likely to require additional resources. To deal with these challenges, while maintaining the principle of a publicly funded system, Mexico will need to commit additional public money to higher education.

Establish a rational system for allocating public funding to federal and state higher education institutions, taking into account institutional missions and real costs

The current system for allocating public money to public higher education institutions based is not transparent and takes no account of the tasks institutions actually perform for their money or the results they achieve. Mexico should introduce a rational system for allocating core (ordinary) public funding to federal and public state higher education institutions. The new system of funding should:

- Reflect the activities undertaken by higher education institutions, with funding for different types of activity (tertiary education, research, engagement) clearly distinguished in allocations. Budget lines for activities not directly related to the core business of higher education institutions (secondary schooling, provision of community facilities or national scientific services) should be clearly separated from the higher education budgeting process and subject to their own allocation rules.
- Be based on an assessment of real unit costs per student and/or graduate for delivering different types of educational programme, taking into account variation between disciplines, and include weightings to take into account differences in costs between expensive and less expensive locations in the country.
- Focus on compensating “losers” in current system with additional funds, while seeking to minimise funding “shocks” for institutions that currently receive disproportionately high funding and stand to lose out with a more rational funding formula.
- Be accepted by both federal and state governments and applied consistently throughout the Republic.

The development of a new funding model will require a considerable effort of time and resources to develop appropriate unit costs and find ways to replace existing budget processes with a more rational model without causing unacceptable financial instability for individual institutions. An expert committee composed of financial experts from inside and outside the higher education systems and a clear mandate may be the most appropriate way to proceed. This committee should draw on the experience of other OECD countries.

Use the new funding model as a basis for correcting unjustified differences in institutional funding across the system

In the short-term, the new funding mechanism should be used to ensure, in particular, that the technical and professionally oriented sectors (Institutes of Technology, Technological Universities and Polytechnic Universities) are funded at a level that allows them to deliver high quality programmes in sometime expensive fields (such as engineering or nursing), while updating their curricula and teaching methods.

All state public higher education institutions, including autonomous State Public Universities, should be funded on an equitable basis, most probably with half of core funding from the Federation and half from States.

In the longer term, the public normal schools should be funded through the same model. However, it is likely that the current network of often very small schools will be an expensive basis on which to calculate unit operating costs. As such, reform of the funding model should be combined with attempts to maximise efficiency in normal schools, notably through alliances and mergers.

Reform extraordinary funding programmes to focus exclusively on quality and equity-related projects that complement the core activities of HEIs

The reformed funding formula outlined above, should ensure public higher education institutions receive adequate funds to cover reasonable operating costs and staff compensation and pension policies. The extraordinary funding programmes should be maintained, but focused exclusively on projects that go above and beyond the day-to-day operation of institutions. The funds should be explicitly linked to priorities established in the new Sectoral Education Programme. These could include:

- Supporting quality and innovation in learning and teaching (through a reformed quality and innovation programme), with differentiated support for institutions at different stages in their quality development.
- Promoting equity, through targeted institutional measures to improve support and facilities for learners from disadvantaged backgrounds. This fund should, as at present, complement, but in no way overlap with mainstream student financial support mechanisms.
- Supporting the establishment and implementation of system-wide norms and procedures, including the proposed credit transfer and accumulation system and an improved higher education statistical system.

In order to achieve efficiency and encourage mutual learning between institutions, the extraordinary funds should encourage, where appropriate, joint cooperation projects between institutions. The programmes should also support multi-year projects to facilitate activities with a long-term impact.

Move to long-term budget planning

The current system of annual budgeting reflects the annual state budget cycle, but creates considerable financial instability and unpredictability for public higher education institutions. The SEP and the higher education sector should work together with the Secretariat for Finance and Public Credit to find a method to provide multi-annual budget commitments to institutions.

In return for greater financial predictability, institutions should be required to present clear institutional development plans and report in an accurate and timely manner on their use of resources, activities and performance.

Notes

[1] Examples of this include the Universities and Colleges Admissions Service (UCAS) in the UK or Parcoursup in France.

[2] Participaciones a Entidades Federativas y Municipios (Ramo 28)

[3] Aportaciones Federales para Entidades Federativas y Municipios (Ramo 33)

[4] Although federal and state universities have different funding arrangements, they share a similar autonomous status.

[5] Managed by the horizontal *Coordinación General de Educación Intercultural y Bilingüe*

[6] The Standing Conference of the Ministers of Education and Cultural Affairs (*Kultusministerkonferenz*), for example, plays this role in Germany's decentralised system of higher education.

[7] According to the National Development Plan, "completion rate" is defined as "the percentage of students who manage to complete their studies in a timely manner in each educational level, according to the average formal duration established for programmes at each level". For higher education the average formal duration is fixed as five years, which corresponds to the formal duration of a bachelor's degree (*licenciatura*).

[8] "To strengthen the quality and relevance of upper secondary education, higher education and professional training, in order to contribute to the development of Mexico"

[9] "To ensure greater coverage, inclusion and educational equity among all groups of the population to build a fairer society"

[10] ANUIES published an updated analysis and set of proposals in advance of the 2018 presidential election (ANUIES, 2018[34]).

[11] Jalisco, Guanajuato, Oaxaca and Yucatán

[12] For example, the Programme for Academic Careers in State Public Universities

[13] Other less frequent allocations are made for "Social infrastructure projects in the education sector" (K009); "Maintenance of infrastructure" (K027)

[14] In principle the data gathered from the Format 911 would allow this information to be compiled, although it would require considerable resources to cross-check financial information supplied by institutions with budget allocations made by federal and state authorities.

[15] The *Fondo de Apoyo para la Atención a Problemas Estructurales de las UPES* is allocated on a formula basis.

References

ANUIES (2018), *Visión y acción 2030: Propuesta de la ANUIES para renovar la educación superior en México*, Asociación Nacional de Universidades e Instituciones de Educación Superior (ANUIES), México, D. F., http://www.anuies.mx/media/docs/avisos/pdf/VISION_Y_ACCION_2030.pdf (accessed on 9 October 2018). [11]

ANUIES (2012), *Inclusión con responsabilidad social - Una neuva generación de políticas de educación superior*, Asociación Nacional de Universidades e Instituciones de Educación Superior (ANUIES), México, D.F., https://crcs.anuies.mx/wp-content/uploads/2012/09/Inclusion-con-responsabilidad-social-ANUIES.pdf (accessed on 11 October 2018). [28]

Bennetot Pruvot, E., A. Claeys-Kulik and T. Estermann (2015), *Designing strategies for efficient funding of universities in Europe*, European University Association, Brussels, http://www.eua.be (accessed on 29 October 2018). [41]

BIS (2014), *National strategy for access and student success in higher education*, Department for Business, Innovation and Skills, London, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/299689/bis-14-516-national-strategy-for-access-and-student-success.pdf (accessed on 08 October 2018). [19]

Browne, J. (2010), *Securing a Sustainable future for higher education: an independent review of higher education funding and student finance*, https://www.gov.uk/government/publications/the-browne-report-higher-education-funding-and-student-finance (accessed on 28 October 2018). [35]

CONEVAL (2017), *Ficha de Monitoreo 2016-2017 - Fortalecimiento de la Calidad Educativa*, Consejo Nacional de Evaluación de la Política de Desarrollo Social (CONEVAL), Ciudad de México, https://www.gob.mx/cms/uploads/attachment/file/264014/S267_Ficha_de_Monitoreo_y_Evaluacio_n_2017.pdf (accessed on 13 October 2018). [50]

Congreso de los Estados Unidos Mexicanos (2018), *Ley de Planeación*, http://www.diputados.gob.mx/LeyesBiblio/pdf/59_160218.pdf (accessed on 09 October 2018). [22]

Congreso de los Estados Unidos Mexicanos (2017), *Presupuesto de Egresos de la Federación para el Ejercicio Fiscal 2018*, Estados Unidos Mexicanos, http://www.diputados.gob.mx/LeyesBiblio/pdf/PEF_2018_291117.pdf (accessed on 03 October 2018). [40]

Congreso de los Estados Unidos Mexicanos (1993), *Ley General de Educación*, https://www.sep.gob.mx/work/models/sep1/Resource/558c2c24-0b12-4676-ad90-8ab78086b184/ley_general_educacion.pdf (accessed on 28 October 2018). [15]

Congreso de los Estados Unidos Mexicanos (1978), *Ley de Coordinación Fiscal*, http://www.diputados.gob.mx/LeyesBiblio/pdf/31_300118.pdf (accessed on 26 October 2018). [3]

Congreso de los Estados Unidos Mexicanos (1978), *Ley para la Coordinacion de la Educación Superior*, https://www.sep.gob.mx/work/models/sep1/Resource/558c2c24-0b12-4676-ad90-8ab78086b184/ley_coord_educ_superior.pdf (accessed on 26 October 2018). [4]

Congreso del Estado de Puebla (2015), *Decreto del Honorable Congreso del Estado, por el que expide la Ley de Egresos del Estado de Puebla, para el Ejercicio Fiscal 2016*, Gobierno Constitucional del Estado de Puebla, http://www.auditoriapuebla.gob.mx/images/transparencia/LEYES/2016/Puebla%20Estado%20Egresos2016.pdf (accessed on 11 October 2018). [42]

Department of Education (2018), *U.S. Department of Education Strategic Plan for Fiscal Years 2018-22*, United States government, https://www2.ed.gov/about/reports/strat/plan2018-22/strategic-plan.pdf (accessed on 28 September 2018). [20]

Department of Education and Skills (2011), *National Strategy for Higher Education to 2030 Report of the Strategy Group*, Ireland Government Publications Office, Dublin, http://hea.ie/assets/uploads/2017/06/National-Strategy-for-Higher-Education-2030.pdf (accessed on 28 September 2018). [17]

DGPPyEE (2018), *Información Estadística e Indicadores Educativos*, Dirección General de Planeación, Programación y Estadística Educativa (DGPPyEE)/SEP, CDMX, http://www.planeacion.sep.gob.mx/estadisticaeindicadores.aspx (accessed on 11 October 2018). [30]

Dirección General de Educación Superior Universitaría (DGESU) (2018), *Convocatoria para la presentación de Proyectos Institucionales en el marco del Programa para la Inclusión y la Equidad Educativa, para el tipo superior*, Secretaría de Educación Pública, Meixco City, http://dsa.sep.gob.mx/s244/. (accessed on 13 October 2018). [45]

Dirección General Educación Superior Universitaria (DGESU) (2018), *Panorama de la educación superior*, http://www.dgesu.ses.sep.gob.mx/Panorama_de_la_educacion_superior.aspx (accessed on 09 October 2018). [27]

EUA (2018), *University Autonomy in Europe*, European University Association (EUA), https://www.university-autonomy.eu/ (accessed on 15 October 2018). [9]

European Commission (2018), *The European Higher Education Area in 2018: Bologna Process Implementation Report*, European Commission/EACEA/Eurydice, Publications Office of the European Union, Luxembourg, http://dx.doi.org/10.2797/63509. [13]

Gilch, H. (2014), *Eine kurze Geschichte der Studiengebühren an deutschen Hochschulen*, HIS-Institut für Hochschulentwicklung, Hannover, https://his-he.de/fileadmin/user_upload/Veranstaltungen_Vortraege/2014/Tagung_der_Leiterinnen_und_Leiter_von_Studierendensekretariaten_2014/06_gilch.pdf (accessed on 29 October 2018). [36]

Gobierno de la República (2017), *Constitución Política de los Estados Unidos Mexicanos - Texto Vigente*, https://www.juridicas.unam.mx/legislacion/ordenamiento/constitucion-politica-de-los-estados-unidos-mexicanos#10538 (accessed on 15 October 2018). [7]

Gobierno de la República (2013), *Plan Nacional de Desarrollo 2013-2018*, Estados Unidos Mexicanos, http://pnd.gob.mx/. [23]

Gobierno de los Estados Unidos Mexicanos (2018), *6to Informe de Gobierno 2017-2018*, Presidencia de la República, Ciudad de México, http://cdn.presidencia.gob.mx/sextoinforme/informe/6_IG_INFORME_COMPLETO.pdf. [26]

Gobierno del Estado de Guanajuato (2013), *Programa Sectorial Guanajuato Educado - Visión 2018*, https://transparencia.guanajuato.gob.mx/biblioteca_digital/docart10/201501131054080.ProgramaSectorialGuanajuatoEducadoVision2018.pdf (accessed on 28 October 2018). [34]

INEP (2017), *Sinopses Estatísticas da Educação Superior – Graduação*, Instituto Nacional de Estudos, Brasília, http://portal.inep.gov.br/web/guest/sinopses-estatisticas-da-educacao-superior (accessed on 28 October 2018). [38]

Levy, D. (1980), *University and Government in Mexico: Autonomy in an Authoritarian System.*, Praeger Publishers, CBS Educational and Professional Publishing, 521 Fifth Ave., New York, NY 10017, https://eric.ed.gov/?id=ED188530 (accessed on 28 October 2018). [8]

Malo, S. (2018), *Planeación integral de la educación superior - Reunión con autoridades de educación superior - 9 de Abril de 2018*, Secretaría de Educación Pública, Mexico City, http://www.pides.mx/pides_2017/pides_conferencias_2018/s_malo_pides_abril_2018.pdf (accessed on 09 October 2018). [31]

Mendoza Rojas, Javier (2017), "Financiamiento de la educación superior en la primera mitad del gobierno de Enrique Peña Nieto: ¿fin del periodo de expansión?", *Perfiles educativos*, Vol. 39/156, pp. 119-140, http://www.scielo.org.mx/scielo.php?script=sci_arttext&pid=S0185-26982017000200119 (accessed on 12 October 2018). [37]

Institucional, C. (ed.) (2018), *Subsistemas de Educación Superior. Estadística básica 2006-2017*, DGEI-UNAM, Ciudad de México, https://www.ses.unam.mx/integrantes/uploadfile/jmendoza/Mendoza2018_SubsistemasDeEducacionSuperior.pdf. [10]

Ministère de l'Éducation nationale, D. (2017), *Livre Blanc de l'Enseignement Supérieur et de la Recherche 2017*, Ministère de l'Éducation nationale, de l'Enseignement supérieur et de la Recherche, Paris, http://cache.media.enseignementsup-recherche.gouv.fr/file/Actus/04/1/ESR_Livre_Blanc_707041.pdf (accessed on 28 September 2018). [16]

Ministry of Education, Culture and Science (2015), *The value of knowledge: Strategic Agenda for Higher Education*, Directorate of Higher Education and Student Grants, Ministry of Education, Culture and Science, Netherlands, https://www.government.nl/documents/reports/2015/07/01/the-value-of-knowledge. [18]

N.I.K. Beta S.C. (2018), *Evaluación de Consistencia y Resultados 2017-2018: Programa para la Inclusión y la Equidad Educativa Secretaría de Educación Pública*, Secretaría de Educación Pública, https://www.gob.mx/cms/uploads/attachment/file/344504/Informe_Final_-_S244_Programa_para_la_Inclusio_n_y_la_Equidad_Educativa.pdf (accessed on 15 October 2018). [51]

OECD (2018), *Education at a Glance 2018: OECD Indicators*, OECD Publishing, Paris, http://dx.doi.org/10.1787/eag-2018-en. [39]

OECD (2017), *Towards a Stronger and More Inclusive Mexico: An Assessment of Recent Policy Reforms*, Better Policies, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264189553-en. [5]

OECD (2008), *OECD Reviews of Tertiary Education: Mexico 2008*, OECD Reviews of Tertiary Education, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264039247-en. [2]

Ordorika, I. (2003), "The limits of university autonomy: Power and politics at the Universidad Nacional Autónoma de México", *Higher Education*, http://dx.doi.org/10.1023/A:1025382504110. [6]

Ordorika, I., R. Rodríguez Gómez and M. Lloyd (2018), "Mexico: the dilemmas of federalism in a highly politicized and semi-decentralized system", in Martin Carnoy et al. (eds.), *Higher Education in Federal Countries: A Comparative Study*, SAGE Publications Pvt. Ltd, New Delhi, https://uk.sagepub.com/en-gb/eur/higher-education-in-federal-countries/book263092. [1]

Real Instituto Elcano (2018), *Elcano Global Presence Report 2018*, Real Instituto Elcano, Madrid, http://www.globalpresence.realinstitutoelcano.org/en/data/Global_Presence_2018.pdf (accessed on 09 October 2018). [25]

Sánchez Escobedo, P. and L. Martínez Lobatos (2011), "El Sistema de Asignación y Transferencia de Créditos Académicos (satca) en México: origen, seguimiento y prospectivas", *Revista Iberoamericana de Educación Superior*, Vol. II/4, pp. 123-134, http://www.redalyc.org/articulo.oa?id=299124247007 (accessed on 28 October 2018). [14]

Schwab, K. (2017), *The Global Competitiveness Report 2017–2018*, World Economic Forum, Geneva, http://www3.weforum.org/docs/GCR2017-2018/05FullReport/TheGlobalCompetitivenessReport2017%E2%80%932018.pdf (accessed on 09 October 2018). [24]

Secretaría de Hacienda y Crédito Público (2018), *Presupuesto de Egresos de la Federación 2018 - Análisis Funcional Programático Económico – Ramo 11 Educación Pública*, Secretaría de Hacienda y Crédito Público, Ciudad de México, https://www.pef.hacienda.gob.mx/es/PEF2018 (accessed on 04 October 2018). [49]

SEP (2018), *Lineamientos 2018 del Programa de Carrera Docente en UPES U040*, Secretaría de Educación Pública (SEP), Ciudad de México, http://www.esdeped.sep.gob.mx/extraordinario/ (accessed on 13 October 2018). [48]

SEP (2018), *Lineamientos del Programa de Apoyo al Desarrollo de la Educación Superior (PADES) 2018*, Secretaría de Educación Pública, Ciudad de México, http://www.dgesu.ses.sep.gob.mx/documentos/PADES/Lineamientos%20PADES%202018_%20VF_Vo%20Bo_%20SES%202feb18.pdf (accessed on 13 October 2018). [44]

SEP (2018), *Lineamientos para la operación del fondo 'Apoyos para la atención a problemas estructurales de las universidades públicas estatales 2018*, Secretaría de Educación Pública (SEP), Ciudad de México, https://www.dgesu.ses.sep.gob.mx/documentos/FASFAPE/Lineamientos%20U081_2018.pdf (accessed on 13 October 2018). [47]

SEP (2018), *Organigrama de la Secretaría de Educación Pública*, Secretaría de Educación Pública (SEP), Ciudad de México, https://www.gob.mx/sep/acciones-y-programas/organigrama-de-la-secretaria-de-educacion-publica?state=published (accessed on 26 October 2018). [12]

SEP (2018), *Planeación integral de la educación superior*, Secretaría de Educación Pública (SEP), Ciudad de México, http://www.pides.mx/pides_2017/index.html (accessed on 09 October 2018). [33]

SEP (2018), *Programa de Fortalecimiento de la Calidad Educativa - Guía para la formulación de la planeación estratégica académica y de la gestión institucional*, Secretaría de Educación Pública (SEP), Ciudad de México, http://www.dgesu.sep.gob.mx. (accessed on 13 October 2018). [43]

SEP (2018), *SEP/DGPPyEE - Estadística 911*, Secretaría de Educación Pública (SEP), Ciudad de México, https://www.f911.sep.gob.mx/2018-2019/Login.aspx (accessed on 10 October 2018). [29]

SEP (2018), *TRESMEX - Transformación en la Educación Superior en México*, Secretaría de Educación Pública (SEP), Ciudad de México, http://www.pides.mx/tresmex_2017/ (accessed on 11 October 2018). [32]

SEP (2017), *Reglas de Operación del Programa para el Desarrollo Profesional Docente para el ejercicio fiscal 2018.*, Secretaría de Educación Pública (SEP), Ciudad de México, http://www.dgesu.ses.sep.gob.mx/Documentos/DSA%20gobmx/Prodep_S247.pdf (accessed on 13 October 2018). [46]

SEP (2013), *Programa Sectorial de Educación 2013-2018*, Secretaría de Educación Pública (SEP), México, D.F., http://www.sep.gob.mx/work/models/sep1/Resource/4479/4/images/PROGRAMA_SECTORIAL_DE_EDUCACION_2013_2018_WEB.pdf (accessed on 25 September 2018). [21]

Chapter 4. Quality in higher education

This chapter examines the external mechanisms in place in Mexico to assure the quality of higher education. Unlike many other OECD member countries, Mexico does not have a comprehensive and mandatory system of external accreditation and quality assurance for higher education providers. Rather, for undergraduate programmes, it relies on the voluntary participation of higher education institutions in external accreditation processes organised by non-governmental accreditation bodies. At postgraduate level, the National Council for Science and Technology (CONACyT) plays a significant role in external quality assurance. The chapter assesses government policy in relation to external quality assurance and the relevance and likely effectiveness of the structures and processes currently in place, before providing a series of specific recommendations for improvement.

4.1. Focus of this chapter

Well-functioning systems of higher education ensure the quality of the higher education programmes offered to students, and the relevance of the skills they develop to life beyond higher education – as citizens and as working professionals. They do this while permitting – and encouraging - higher education institutions to engage in innovation – with respect to valuable new course content, new technologies or learning approaches. Below we briefly outline the characteristics of effective quality assurance systems, and then examine the performance of Mexico's system in light of these characteristics.

Many variables can affect the design of quality assurance systems in higher education. National contexts have a strong impact on how quality assurance systems are organised, and there is no one-size-fits-all institutional model of good practice. However, the analyses of various international associations working in the field of quality assurance in higher education point to a growing international consensus around a set of principles that can guide the design of effective external quality assurance. Based on international guidelines and available literature, some key attributes of effective external quality assurance systems are summarised in Table 4.1 below.

Table 4.1. Characteristics of effective quality assurance systems

Aspect of the system	Characteristics of effective QA systems
1. Objectives and scope of QA processes.	The objectives of quality assurance {QA] processes are clearly formulated and relevant to the challenges faced by the higher education system. The QA system is comprehensive every higher education institution awarding a recognised credential participates in the system. An appropriate balance is struck between avoiding poor quality provision and improving existing provision, including provision that is already judged to be of good quality.
2. Definition and measurement of quality fitness, relevance, and diversity.	The quality of teaching and learning is evaluated in light of its capacity to develop skills needed for a lifetime of active citizenship, professional success, and intellectual growth. QA procedures consider the relevance of programmes and skills to society and to the labour market, and engage external stakeholders with a commitment to quality. Definitions and indicators of quality are flexible and recognise quality in different forms in different types of educational programmes (e.g. academic vs professional courses). Quality is measured using an appropriately wide range of relevant and reliable indicators, including input, process and output indicators.
3. Responsibility for quality and for quality assurance.	Teaching staff and higher education providers are clearly identified as those with primary responsibility for delivering quality. Subsidiarity: decisions about quality are taken at the lowest level possible while maintaining effectiveness and adequate accountability. Quality assurance agency/ agencies act in the public interest; are adequately resourced; and are sufficiently independent from both the higher education sector and government. Additional government initiatives to promote quality are coordinated with quality assurance systems to ensure consistency.
4. Use of information about quality.	Where appropriate, evidence of poor quality is used to eliminate poor quality provision, with demonstrable results. Information about the performance of programmes and institutions is used by institutions to improve quality, and made public to ensure transparency.
5. Adaptation to innovation.	The QA system adapts flexibly to take account of changes in the way teaching and learning are offered, and supports the adoption of valuable new course content, new technologies or learning approaches.

Source: Developed by the OECD Education and Skills Directorate, drawing on INQAAHE Guidelines of Good Practices 2016 (INQAAHE, 2016[1]); Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG, 2015[2]) and; CIQG International Quality Principles: Toward a Shared Understanding of Quality (CHEA, 2016[3]).

The design of licensing, evaluation, and accreditation procedures for higher education in Mexico falls short of these principles.

- Mexico lacks an authoritative public quality assurance body. It has a variety of public and non-governmental bodies that engage in licensing, evaluating, and accrediting higher education programmes, and in assessing student learning. Though the federal government attempts to coordinate their work, there is no single framework for quality assurance, and they function with different criteria, standards and procedures to evaluate quality of programmes and institutions, not as a system.
- The work of accreditation and evaluation bodies is not comprehensive. Many higher education programmes in Mexico at the undergraduate and postgraduate level are not subject to external evaluation and accreditation procedures.
- Public policies and institutional leaders are less strongly oriented towards the continuous improvement of quality than in other higher education systems.

- The work of CENEVAL to undertake standardised assessments of student learning outcomes helps to focus the quality on the development of skills; however, participation in its assessments is limited.
- Quality standards used in external accreditation and quality assessment are not suitably linked to labour market relevance, and experts from the world of practice, including firms and non-profit bodies, are not consistently engaged in quality processes.
- The definition and measurement of quality in higher education programmes is beginning to adapt to the diversity of provision, including professional and distance education, though further progress is needed.
- The common landscape of indicators to measure inputs, processes, and outputs – such as cohort graduation rates, and graduate employment and earnings - is badly underdeveloped, and hampers quality assurance.
- There are no effective procedures for the accreditation of higher education institutions, preventing them from taking an appropriate role in assuring the quality of their programmes.
- Evidence about institutional performance is not used to ensure public transparency, and appears to play a modest role in eliminating poor provision.
- The varied and voluntary arrangements for quality in higher education do not typically constrain innovation in new technologies, courses, or pedagogical approaches, and do little to promote these developments.

In this chapter, we examine the mechanisms for quality assurance that lead to these results, and identify options for their improvement.

4.2. Mexico's existing mechanisms for quality assurance

The existing mechanisms for external quality assurance of higher education provision in Mexico fall into four categories:

- Procedures regulating the establishment of new higher education programmes in private institutions – effectively a form of licensing;
- Procedures for the external evaluation and accreditation of undergraduate programmes;
- Procedures for the external evaluation and accreditation of higher education institutions (limited to specific cases in Mexico) and;
- Procedures for external evaluation and accreditation of postgraduate programmes.

These four regulatory and quality assurance-related functions exist in many OECD countries, albeit in varying forms and combined in different ways. In Mexico, as in some other OECD countries, private providers are subject to distinct licensing rules, which public sector providers do not have to follow. However, in contrast to many other OECD higher education systems, all aspects of the external licensing and quality assurance process are essentially voluntary for higher education institutions.

4.2.1. Licensing Private Higher Education Programmes

The creation of study programmes by private institutions in Mexico is not subject to compulsory approval or monitoring by public authorities. If, however, private higher education institutions wish for a programme to be recognised as part of the National Education System, and for graduates of the programme to obtain a professional certificate (*cédula profesional*) or professional title (*titulado profesional*), they must obtain official recognition of the programme, and a separate recognition for each location in which the programme is offered (SEP, 2018[4]). This recognition (or licensing) process is known as Recognition of the Official Validity of Study Programmes (*Reconocimiento de Validez Oficial de Estudios*, or RVOE). Academic programmes of all levels (short-cycle, bachelor's (*licenciatura*), master's and doctorate) and all types of educational modalities (face-to-face, distance and blended) are subject to this process of recognition. In 2018, 21 981 study programmes offered by 1 918 private institutions held a RVOE.

If private institutions choose to offer the study programme without recognition, they have a legal obligation to state that the programme offers "studies without recognition of official validity", and students may consult the website of the federal Secretariat for Public Education (SEP) to identify whether a programme is recognised (SEP, 2018[5]). Holding a *cédula profesional* or *título profesional* is required for entry to postgraduate study in a higher education programme that is part of the National Education System, and may frequently be beneficial when seeking employment. However, these formal certificates are not indispensable. Fewer than three-quarters (72.5%) of all students who completed their studies (*egresados*) in bachelor's programmes in 2016-2017 obtained formal certification from their programmes to become a *titulado*.

The SEP awards a RVOE that is valid on a nationwide basis for study programmes in private institutions. State government authorities can also issue RVOEs for study programmes in private institutions; however, these are valid only within their own state. In addition, federal and state autonomous universities can authorise private operators to deliver study programmes that are like those they offer, similar to a franchising model (*incorporación)*.

Governments award an RVOE when the study programme meets conditions with respect to staff, infrastructure and curriculum. SEP officials train state officials and invite them to adopt procedures and criteria consistent with those they have developed, although exact conditions and procedures needed to obtain a RVOE vary from one state to another, and between state and federal governments. SEP has worked to align RVOE standards among authorities who are authorised to recognise programmes. A ministerial agreement from November 2017, referred to as Agreement 17/11/17, (SEP, 2017[6]) established revised requirements and mechanisms for RVOEs awarded by SEP, including procedures to simplify the RVOE process.

The SEP RVOE approval process consists of a desk-based review of educational plans, instructional materials, and web-based resources submitted by the institution; and, for institutions without a prior RVOE, a site visit to assess the suitability and safety of facilities. Site-based inspections to ensure continuing compliance with the RVOE, or to commence an administrative process to withdraw it, are initiated in response to complaints from students, news reports, or recommendations from state authorities, according to SEP officials who oversee the process.

4.2.2. External programme evaluation and accreditation

Public and private higher education institutions are not obligated to have their programmes of study undergo external evaluation or accreditation; however, they may volunteer to do so. The evaluation of undergraduate programmes is organised by the Inter-institutional Committees for the Evaluation of Higher Education (*Comités Interinstitucionales para la Evaluación de la Educación Superior*) or CIEES, and their accreditation by the Council for the Accreditation of Higher Education (*Consejo para la Acreditación de la Educación Superior*) or COPAES.

CIEES was established in 1991 as an initiative of the National Association of Universities and Higher Education Institutions (ANUIES), and, in 2009, was relaunched as an independent, non-profit civil association. CIEES is comprised of nine committees, seven of which focus on broad fields of knowledge, such as health sciences or agricultural sciences, and two of which focus, respectively, on the management and external engagement activities of institutions. The committees perform evaluations of public and private institutions, for all modes of instruction – face-to-face, blended and distance courses – and at study programmes at all degree levels.

Following the submission of a self-evaluation, CIEES draws upon a pool of over 1200 external peer evaluators to organise visits by expert teams, who carry out site-based reviews (CIEES, 2018[7]). The relevant committee makes a decision on the quality of the programme or institution. Over 350 evaluations are carried out annually, and evaluations can result in one of three categories of quality designation, two of which are classed as "level one" (with durations five and three years respectively), and another (level two) that indicates recognition of "good" quality is not granted (CIEES, 2018[8]).

The second body, COPAES, is an independent, non-profit civil association that operates as coordinating body or umbrella organisation: it defines a reference framework for accreditation of academic programmes, and recognises and supervises 30 accrediting organisations (*Organismos acreditadores*). These accrediting organisations carry out the work of assessing programmes in different fields of study, and range in focus from veterinary medicine (CONEVET, *Consejo Nacional de Educación de la Medicina Veterinaria y Zootecnia*) to the social sciences (ACCECISO, *Asociación para la Acreditación y Certificación de Ciencias Sociales*). The accrediting agencies draw upon a pool of more than 3 500 evaluators, who are higher education instructors, researchers, and, in some cases, from firms (COPAES, 2018[9]).

The accreditation framework established by COPAES identifies ten domains of programme quality on which accrediting organisations are to focus, including:

Academic staff	Support services for learning
Student experience	Extension and linkage
Curriculum	Research
Evaluation of learning	Infrastructure and equipment
Comprehensive training	Administrative management and financing

This framework further disaggregates each of these domains into criteria and associated indicators. With respect to the student experience, for example, accredited programmes are required to report on processes of student selection, induction, and grouping, as well as progression though the programme and formal certification (*titulación*) at its end. The framework also specifies the evidence needed to support programme evaluation. In the case of the student experience, programmes must provide evidence with respect to completion rates ("*terminal efficiency*") and graduates' results in CENEVAL's

standardised exit examinations for bachelor's programmes (*Exámenes Generales para el Egreso de Licenciatura*, EGEL). Once obtained, the programme accreditation remains valid for a period of five years. At the time of writing, the 30 agencies recognised by COPAES had accredited 3 797 programmes in 393 institutions (COPAES, 2018[9]).

The evaluation and accreditation activities performed by CIEES and the bodies accredited by COPAES are mostly overlapping, but, in part, complementary. Stakeholders with whom the OECD review team met noted that higher education institutions designate programmes with clear professional profiles for accreditation by agencies recognised by COPAES, while simultaneously relying upon CIEES to carry out reviews for study fields where no specialised agencies of COPAES are available, or where they wish to have distance or blended programmes evaluated. Some higher education institutions choose to participate in both processes. Taken together, programmes positively evaluated by CIEES (at level one, with a five-year quality designation) and accredited by COPAES are designated by SEP as "programmes of quality" and encompass about one-half (53%) of undergraduate enrolments in Mexico (SEP, 2018[10]).

4.2.3. Institutional evaluation

Both CIEES and COPAES assess the quality of individual higher education programmes – or, in the case of CIEES, some functional areas within higher education institutions. However, neither evaluates institutions *in toto,* or academic departments. Mexico has one evaluation process focused on higher education institutions, as distinct from programmes: the institutional evaluation process organised by the Mexican Federation of Private Higher Education Institutions (*Federación de Instituciones Mexicanas Particulares de Educación Superior*, FIMPES). Created in 1982, FIMPES is an association of 109 private universities, both non-profit and for-profit. While FIMPES members comprise only four percent of private institutions, together they contain just over half of enrolment in private higher education institutions, and 18% of all higher education enrolment in Mexico (FIMPES, 2018[11]). FIMPES admits institutions to membership following an external, peer-review process of institutional evaluation. In this process, academic units, services, and management are subject to assessment against a set of ten indicators ranging from institutional philosophy to financial resources. First implemented in 1994, this evaluation process has been supported by SEP, which since 2003 has permitted universities accredited by FIMPES to seek SEP's approval to join a "Register of Academic Excellence" (*Registro de Excelencia Académica*) permitting them to access SEP's Programme for Administrative Simplification and thereby benefit from a streamlined RVOE process (FIMPES, 2018[12]). In 2018, 38 private institutions were part of the register, and were authorised to follow simplified and expedited procedures for establishing new programmes or modifying existing programmes (FIMPES,(n.d.)[13]).

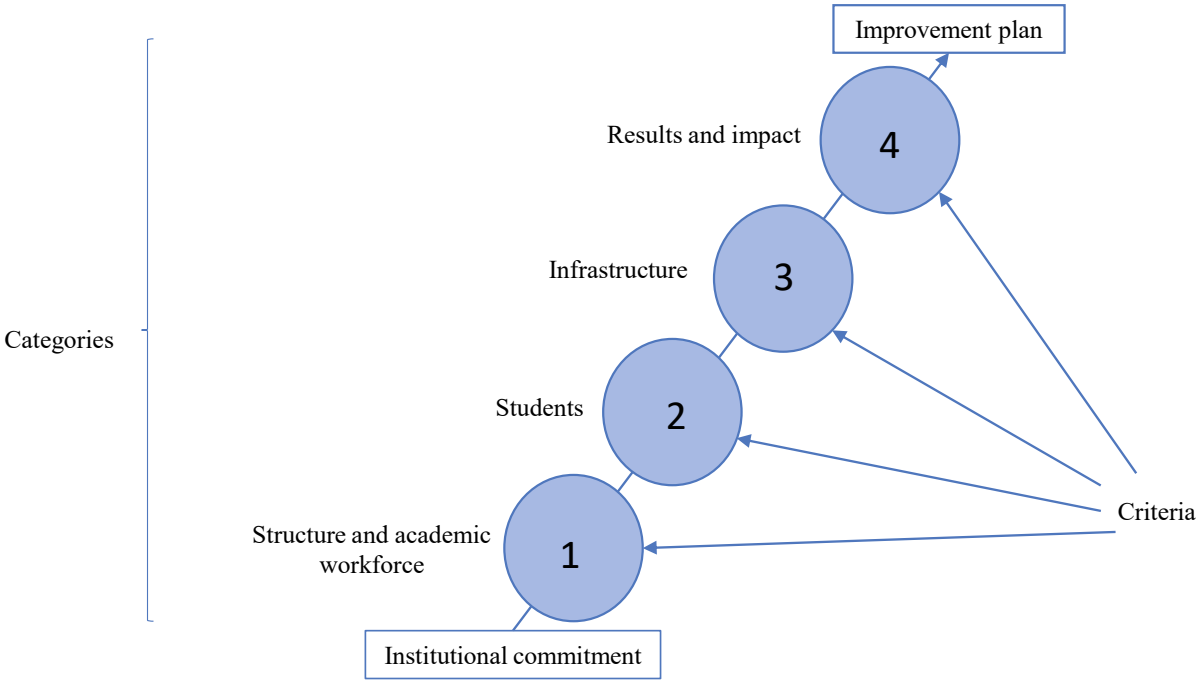
4.2.4. Quality assurance of postgraduate education

As with undergraduate programmes, accreditation of postgraduate programmes in Mexican higher education is not mandatory. However, the National Council for Science and Technology (*Consejo Nacional de Ciencia y Tecnología*, CONACyT) operates a system to accredit postgraduate programmes through the National Programme of Quality Postgraduate Studies (*Programa Nacional de Posgrados de Calidad*, PNPC). The accreditation of programmes encompasses face-to-face programmes with a professional orientation, as well as those with research orientation, programmes with industry, programmes for medical specialisations, and distance and blended programmes. The

methodology implemented in the accreditation process is based in 25 years of evolution and continuous improvement.

The evaluation process follows a sequence of self-evaluation (ex-ante evaluation); peer evaluation (external evaluation), and assessment of results and impact (ex-post evaluation), by the National Graduate Council (*Consejo Nacional de Posgrado*). The evaluation focuses on four areas of quality represented in Figure 4.1: the programme structure and academic workforce, the student experience, the programme infrastructure, and the research results and external impact of the programme. Programmes are required to have in place a continuous improvement plan.

Figure 4.1. Elements of the CONACyT Evaluation Model



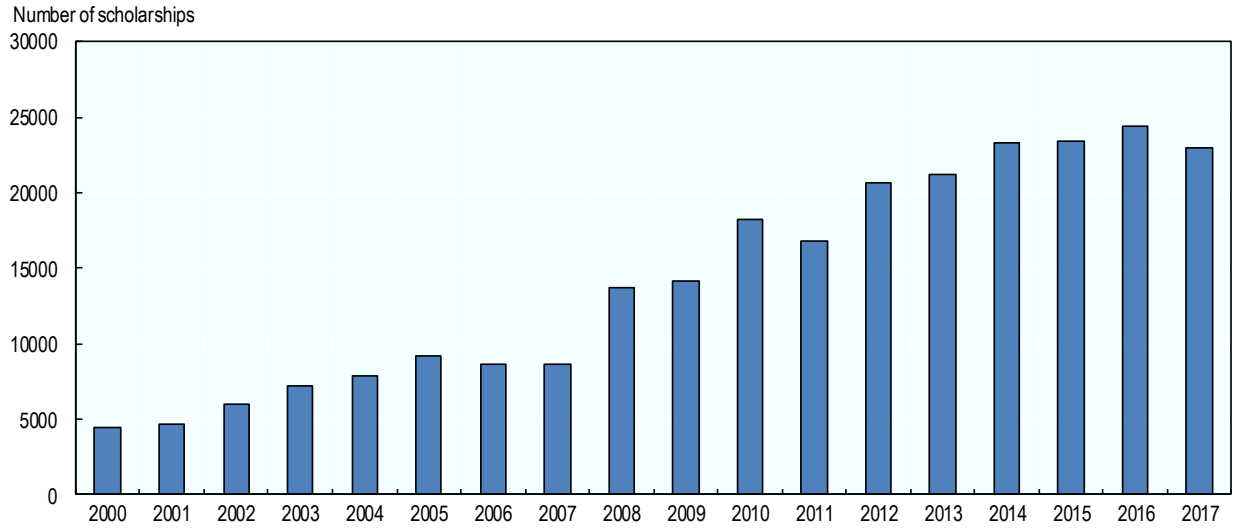
Source: Subsecretaría de Educación Superior, https://www.conacyt.gob.mx/index.php/becas-y-posgrados/programa-nacional-de-posgrados-de-calidad/convocatorias-avisos-y-resultados/marcos-de-referencia-pnpc/17214-marco-de-referencia-modalidad-escol/file.

The National Graduate Council recognises four levels of programme quality: international level; well-developed (*consolidado*); developing; and recently established, and in recent years about four in ten programmes that have undergone review have been judged to be at first two levels (SEP, 2015[14]).

In 2018, about one in four (23.5%) postgraduate programmes in Mexico were recognised by CONACyT to be a quality programme (2 297 out of 9 737 postgraduate programmes). Most (66%) these programmes were in Science, Technology, Engineering, and Mathematics (STEM), while the remaining 34% were in Social Science, Humanities, and Arts. Completion of CONACyT accreditation permits researchers and their institutions to receive CONACyT grants for the projects they submit, and students on the programmes to receive CONACyT fellowships (SEP, 2018[15]). CONACyT awards over 20 000 new scholarships for postgraduate students in PNPC programmes directly each year (Gobierno de la República, 2018[16]).

Figure 4.2. New CONACyT scholarships for postgraduate students, 2000-2017

New scholarships awarded for studies in postgraduate programmes whose quality was recognised by CONACyT and SEP



Source: Mexico Country Background Report, SEP (SEP, 2018[15]).

4.3. Strengths and challenges of the current systems for external quality assurance

4.3.1. SEP has undertaken reforms aimed at simplifying and updating the RVOE process for private providers, but shortcomings remain

In November 2017, SEP adopted a redesign of the RVOE process that aimed, among other things, to close loopholes in the existing procedures, to accommodate the growing importance of distance education, and to modernise, accelerate and streamline the RVOE administrative procedures.

SEP has also attempted to increase participation in the RVOE process by making administrative procedures less burdensome to applicants. Agreement 17/11/17, adopted in November 2017, aims to (a) streamline the RVOE process to make it less difficult for private institutions operating programmes without a RVOE to undertake, thus raising the proportion of programmes with a RVOE and (b) ensure that RVOE standards support educational innovation, and "the capacity and employability of graduates" (SEP, 2017[6])

Streamlining was accomplished by the introduction of an Institutional Improvement Programme that established three categories of institutions: those in the process of accreditation, recently accredited institutions, and institutions with well-established (*consolidado*) accreditation. Institutions in each category receive a different level of administrative simplification commensurate with their accreditation status.

Responding to the growing importance of distance education, SEP also put forward for the first time programmatic guidelines with respect to online and hybrid programmes. Among these requirements is a description of the theoretical and pedagogical model the programme plans follow; learning strategies, teaching materials and resources, and processes for evaluating learning outcomes; the technology platform to be used, both

software and hardware; and plans for continuity of service and the protection of personal information.

Nonetheless, the process provides little guarantee that minimum levels of educational quality are achieved by all private higher education institutions. A proportion of institutions is likely to continue to operate without RVOEs. The requirements of the RVOE process with respect to key educational inputs are focused heavily on educational plans and materials, and permissive with respect to instructional resources. There is little assurance that the programme plans approved are implemented with fidelity, owing to weak processes of monitoring and infrequent enforcement.

Participation in the RVOE process is likely to remain incomplete

The registration of private higher education programmes through the RVOE process is not strictly compulsory: private institutions may establish programmes and enrol students without obtaining Ministerial recognition of their programmes as part of the national system of education. An unknown number of programmes in private institutions operate in this way.

Some private institutions do not comply with regulations, and offer programmes without indicating - as the law requires - that their programmes lack "the recognition of official validity." Other institutions, stakeholders averred when meeting with the OECD Review Team, may mislead prospective students by falsely reporting that recognition of their programmes is pending, although this practice is explicitly prohibited by Article 43 of Agreement 17/11/17. (SEP, 2017[6])

Private higher education institutions acknowledge that revisions to the RVOE procedures promise to simplify administrative processes. However, representatives of higher education associations do not expect the revised procedures to have a significant impact on the quality of provision. Private institutions with few resources and little reputation to safeguard are expected to remain weakly motivated to embark upon registration to obtain RVOEs. Their decision to forego recognition results, in part, from the functioning of Mexican labour markets. Many young higher education graduates are self-employed (10%) or work in informal jobs (25%), and many work in jobs that do not require a higher education (46%) (OECD, 2019[17]). For these students the absence of a *cédula profesional* or *titulado profesional* that comes from a registered programme may not adversely affect their employment prospects or earnings.

Permissive input requirements create a risk of poor educational quality

The RVOE process focuses heavily upon the review and approval of programmes as intended, rather than the programmes as implemented or delivered. Institutions submit a study plan (*plan de estudio*), a proposed curricular map (*mapa curricular*), evidence with respect to the infrastructure of provision, and a statement indicating the suitability of staff qualifications and experience to the proposed programme of study.

Among the inputs thought to be prerequisites of quality education – infrastructure that is fit for purpose, carefully designed study plans and well-chosen materials, and skilful instructors – the last of these, instructors, are often believed to be the most important factor in student learning (Strang et al., 2016[18]). Because the quality of instructors is not directly observable, quality assurance systems typically set policies with respect to proxies that can be observed and measured: the number, contractual status, educational

qualifications, and specialisation of instructors associated with a programme (Strang et al., 2016[18]).

In the design of quality assurance systems, higher education institutions with a record of effective performance and demonstrated capacity for the management of quality are typically authorised to exercise independent judgment with respect to questions of staffing, while institutions that lack this record of performance and evidence of capacity are not. In contrast, Article 7 of the 17/11/17 Agreement, permits private institutions of all types of private institutions to determine the staff profile fitted to the proposed programme:

> *It is the responsibility of the institution to ensure the profile of its academic staff is suitable for the delivery of its plans and study programs, gathering staff with sufficient academic background, knowledge, skills and experience necessary for the development of teaching activities, learning, evaluations and other academic activities under their charge. The institution will determine the profile of instructors, and may demonstrate they have the necessary preparation, whether self-educated or through experience, of at least five years in teaching, work or professional field. (SEP, 2017[6])*

Monitoring and enforcement are not robust

Well-developed ex-post monitoring and enforcement can mitigate the risk of poor quality that results from insufficient ex-ante requirements. However, the RVOE process lacks these capacities. Programmes holding a RVOE are not subject to planned compliance inspections. Authorities do not have information systems that permit them to monitor the performance of recognised programmes against a dashboard of indicators that might signal quality problems, such as poor job placement rates or cohort-based graduation rates. Rather, authorities act in response to news reports or complaints from students and local officials about anomalies in the functioning of higher education institutions or one of its academic programmes. Some participants in stakeholder meetings with the OECD review team expressed concerns that state officials have very limited administrative capacities to respond to complaints, and that there were also risks of non-enforcement arising from corruption. SEP authorities responsible for the federal RVOE process indicate that follow-up monitoring may result in prescriptions for corrective actions. Sanctions however, are rare. In 2017, more than 20 000 programmes operated with a RVOE, two of which were withdrawn.

4.3.2. Sound processes for external programme accreditation and evaluation exist, but they remain voluntary and are not appropriate for all sectors of higher education

Established external accreditation and evaluation processes and an institutional commitment to quality in some universities.

Mexico has developed stable and mature processes for quality assurance of undergraduate education. As described above, these processes are managed and guided by independent, fee-based, non-profit organisations – CIEES and COPAES - that are independent of government, that operate following established and well documented procedures, drawing upon a range of scholars to participate in their peer review processes, and produce results that are generally trusted within the higher education community.

External quality evaluation and accreditation is a voluntary activity on the part of Mexican higher education institutions, participation in which requires a significant investment of money (fees) and staff time. Academic and administrators with whom the OECD review team met identified a range of incentives that lead them to participate in quality assurance, notwithstanding these costs. For public universities subject to annual federal budget negotiations, institutional representatives argued that participation in quality assurance "is used in our favour" and provides an increment of additional public spending. For private institutions with moderate or high fees, accreditation is a useful quality signal to prospective students and their families that supports their pricing model. For other institutions, especially those whose graduates enter formal jobs that require higher education skills, external quality assurance provides evidence of graduate quality that assists programmes in securing employer engagement and labour market success for their graduates.

For the federal authorities, expanding the participation of public universities in external processes of accreditation and evaluation has long been a key policy commitment. For nearly two decades, SEP programmes have aimed to improve the quality of public higher education institutions by linking institutional planning processes, institutional self-evaluation and accreditation. These began in 2001 with the Integrated Programme for Institutional Strengthening (*Programa Integral de Fortalecimiento Institucional* PIFI). Over time, the programme has evolved and been periodically redesigned and renamed, and now operates as the *Programa de Fortalecimiento de la Calidad Educativa* or PFCE. These programmes have had an impact on public higher education institutions, increasing the number of accredited undergraduate and graduate programmes, promoting doctorate level training of academics, increasing their research output, incorporating new forms of academic planning and management defined in institutional development plans, and in many cases exercising genuinely participatory processes (Ibarra Colado, 2009[19]).

As discussed in the previous chapter, widening participation in quality assurance and programme evaluation was adopted as a goal in the 2013-2018 Sectoral Education Programme. Progress is monitored and publicised by the SEP through its web-based National Census of Quality Education Programmes (*Padrón Nacional de Programas Educativos de Calidad*) (SEP, 2018[10]); and remains a focus of made the focus of targeted public investment in institutions through the Programme to Strengthen Higher Education Quality (PCFE). In 2018, public higher education institutions received MXN 1.86 million to "improve the quality of educational programmes and achieve accreditation." Fees for programme accreditation or evaluation range from approximately EUR 3 200 to EUR 6 200 per programme, and public higher education institutions do not recover their investment in quality by charging higher tuition fees when programmes are quality assured. This programme has therefore been helpful in aiding public higher education institutions meet the outlays associated with accreditation.

SEP and the Coordinating Commission of Evaluation and Higher Education Bodies (COCOEES) agreed in 2018 to "a new paradigm for evaluation and accreditation of higher education programmes," in which the National Centre for Higher Education Evaluation (CENEVAL) will also recognise quality programmes, through its Census of High Performance programmes (*Padrón de Alto Rendimiento*) (SEP, 2018[20]). Under CENEVAL procedures, programmes enter its Census if a sufficient percentage of students exiting a programme achieve satisfactory or outstanding scores on the standardised *Exámenes Generales para el Egreso de Licenciatura* (EGEL).

This set of initiatives has been, in important respects, a success. Just under half of undergraduate students are now enrolled in programmes for which the quality has been assured by CIEES or a COPAES-recognised body.

The growing number of accredited and evaluated programmes is having a positive impact on the culture of evaluation and quality in some higher education institutions, fostering the development of specialised offices to provide data and training for administrators and faculty members to perform self-evaluation of their programmes.

International engagement on questions of learning and quality is emerging. Some institutions, such as the University of Guadalajara, demonstrate a commitment to quality through their participation in international initiatives on learning assessment, such as the OECD AHELO project and the work of CLA+. Others participate in quality assurance processes outside of Mexico, like the Southern Association of Colleges and Schools (SACS), a US regional accreditation body. Foreign peers, though rarely used in the accreditation of undergraduate programmes, are used in some areas of postgraduate study. Some COPAES accrediting bodies (CAEI, ANPADEH, CONAIC and CONEVET) are members of international networks that group accrediting agencies from different countries in their disciplines. These experiences have influenced the definition of evaluation criteria and standards, and the incorporation of international good practices in quality assurance processes.

However, there are critical shortcomings with respect to the assurance of quality: its coverage remains incomplete; it can be poorly adapted to vocationally oriented education and the demands of working life, or to distance education; and it provides no procedures for institutions to demonstrate their fitness to manage the quality of their programmes.

But the coverage of external evaluation and accreditation is incomplete, particularly in the private and professionally oriented public sectors

In the private sector, just under two in ten students study in programmes that have been externally accredited or evaluated. These are likely to be students from comparatively affluent households enrolled in selective and well-financed institutions, while the risk of seriously deficient provision is borne by low-income students enrolled in poorly resourced private institutions.

Many private institutions compete in a segment of the higher education market in which students from low-income households are attracted by low prices and convenient provision. The system of licensing (RVOE) is the only process of external review with an orientation to quality in which low-price programmes in private institutions will normally participate – and, even then, not in all cases. However, in design and implementation, the RVOE process is not yet sufficient to achieve minimal standards of provision. Fee-based accreditation and external quality assurance are not economically feasible for them, since they are unable to recover their investment in quality by charging higher prices for quality assured programmes.

While the federal government has made large, long-term efforts to reward public higher education for participation in external evaluation and accreditation, it has not done so for private higher education institutions. They are not eligible to participate in competitive funding schemes, such as the PFCE. Only *Sistema Nacional de Investigadores* (SNI) funding and CONACyT funding for postgraduate study and research through PNPC are accessible to private institutions, and few private institutions benefit (Gobierno de la

República, 2014[21]). For example, out of more than 2 500 private higher education institutions in Mexico, 17 receive CONACyT funding through PNPC.

Among public sector higher education institutions, there is wide variation in the frequency of quality assurance, with low levels of participation among institutions for whom existing quality assurance arrangements may be maladapted, particularly in the professionally and technologically oriented subsystems.

Poor adaptation to the needs of certain institutional types and modes of provision, coupled with limited institutional capabilities

Some sectors of public higher education have very low rates of participation in external evaluation, including Intercultural Universities and public Teacher Education Colleges (*educación normal*). Public Teacher Education Colleges are typically exceptionally small institutions, with 70% containing 250 or fewer students. Consequently, they lack the qualified human resources necessary to perform self-evaluation processes. Moreover, existing accreditation agencies do not have fully adequate criteria and procedures to evaluate educational programmes provided by Intercultural Universities adequately, given the special characteristics of the education provided.

The largest number of students who study in programmes without quality assurance attend Technological Universities and Institutes of Technology. For these sectors, both institutional capacity to manage the burden of participation and the maladaptation of quality assurance standards designed for university programmes may pose obstacles to further use of quality assurance. Staff in Institutes of Technology stressed the second of these concerns with the OECD Review Team, noting that some of accreditation bodies set standards poorly adapted to the structure and content of their programmes.

While State Public Universities have very high rates of enrolment in quality assured programmes (90%), federal universities have a significantly lower rate (72%), with about 115 000 federal university students enrolled in programmes without an external assurance of quality. At the National Pedagogical University (UPN) 80% are - a share below the average level of state institutions - while at UNAM one-third of students (33.1%) of students study in programmes that are not externally evaluated or accredited. Institutional capacity and alignment of criteria to programmes are unlikely to be major obstacles to participation by federal universities, though concerns about the benefit of external accreditation or quality assurance might be.

Table 4.2. Enrolment in programmes designated as "good quality", by sector (August 2018)

Subsystem	Enrolment in "quality" programmes	Enrolment in evaluable programmes*	Total enrolment	% coverage ("quality" programmes)	% coverage (evaluable programmes)
State Public Universities	956 660	1 062 650	1 144 944	83.56%	90.03%
State Public Universities with Solidarity Support	22 913	44 562	60 433	37.91%	51.42%
Polytechnic Universities	34 004	83 934	96 442	35.26%	40.51%
Intercultural Universities	789	11 300	13 784	5.72%	6.98%
Federal public universities	294 554	409 443	432 569	68.09%	71.94%
Technological Universities	94 529	163 721	245 154	38.56%	57.74%
Institutes of Technology	299 153	551 054	591 989	50.53%	54.29%
Other public higher education institutions (HEIs)	6 975	84 161	114 270	6.10%	8.29%
Professional HEIs of education	435	26 922	37 194	1.17%	1.62%
Public normal schools	13 715	68 108	77 033	17.80%	20.14%
Private institutions	209 698	1 111 886	1 396 048	15.02%	18.86%
Total	**1 933 425**	**3 617 741**	**4 209 860**	**45.93%**	**53.44%**

Source: SEP, *Corte de Calidad del mes de agosto 2018, Tab 10*. Evaluable programmes: those with one or more cohorts of exiting students in programmes not established in the period 2013-2017.

Distance education has presented a special challenge to Mexico's policies of registration and external quality assurance, one that affects both public and private sectors in Mexican higher education. While a total 1.9 million students study in quality assured undergraduate programmes, representing over half of all undergraduate students, only 46 000 study in quality distance education programmes, representing only about 17.5% of all undergraduates enrolled in distance education programmes (DGESU, 2018[22]).

The public and private bodies responsible for evaluation, accreditation, and registration have been slow to develop processes tailored to distance and hybrid (blended) programmes. Their policies have lagged behind the growth of distance education enrolments, and in some instances impeded participation in external accreditation. CIEES has responded most swiftly to the challenge of distance and hybrid programmes, carrying out its first evaluation of a distance programme in 2006. In 2014, CIESS established a common methodology for quality evaluation of distance and hybrid programmes, and by 2015, it had awarded 22 distance programmes and 12 hybrid programmes a Level 1 rating – among the 1 156 programmes it had awarded this distinction in total.

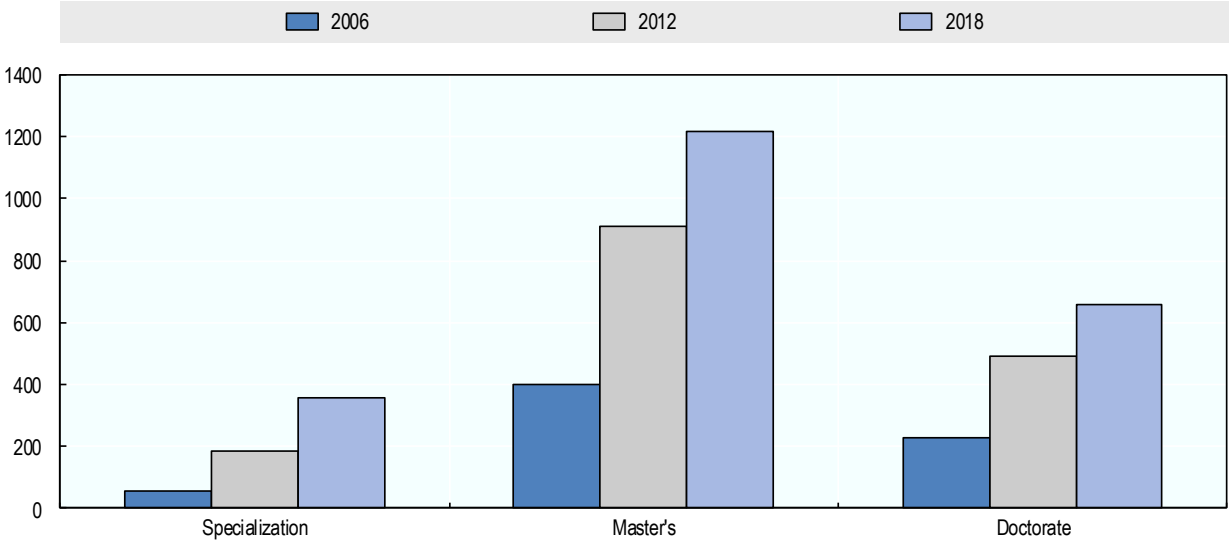
COPAES has responded slowly to the challenge of distance education, and in the view those seeking accreditation for distance education programmes, the accreditors that it recognises have created an uneven and sometimes contradictory accreditation processes:

> *Each [COPAES-recognised accrediting] organisation has its own instrument, which is similar [to the ones used by other organisations], but not the same. There is a lack of a common reference framework for the accreditation of*

distance programmes and each [accrediting] organisation has adopted distinct criteria, with radically opposed positions, ranging from organisations that will evaluate virtual programmes without a specific instrument, but offer flexibility to use alternative equivalent criteria aligned to the mode [of provision], to organisations with a developed instrument for distance education that refuse to conduct evaluations because they are awaiting approval from COPAES (Navarro Navarro and Gómez Hernández, 2017[23]).

At postgraduate level, CONACyT has established an especially well conceived evaluation process, the scale of which has expanded substantially over the past decade, with the total number of accredited programmes increasing from 859 in 2 007 to 2 207 in 2017. Programmes below the doctoral level (specialisation programmes and master's degrees) comprise about 70 percent of the total number of accredited programme (SEP, 2018[15]).

Figure 4.3. Number of postgraduate programmes in the PNPC, 2006, 2012 and 2018



Source: Mexico Country Background Report, SEP (SEP, 2018[15]).

The recognition of postgraduate programme quality by CONACyT is not designed to be a comprehensive system for the accreditation of all postgraduate programmes in Mexico. Rather, its evaluation of postgraduate programmes is a means to an end: to ensure that public monies invested in research and postgraduate training are well spent. The number and type of accredited programmes is guided by the availability of resources to finance scholarships for students, and it is possible that there will be quality postgraduate programmes that are not accredited by CONACyT, as they are outside its areas of investment priority.

While Mexico had 9 737 postgraduate programmes (specialisation, master's degrees and doctorates) offered by higher education institutions and research centres, only 2 054 (21%) were recognised "programmes of quality" as part of CONACyT's National Programme of Quality Postgraduate Education (PNPC) as of January 2018. Of the 334 109 postgraduate students enrolled, just under one in four (23.4%) were enrolled in a programme registered in the PNPC (Table 4.3).

Table 4.3. Enrolment in postgraduate programmes with quality recognition, 2018

	Active institutions, postgraduate	Institutions with quality programmes*		Postgraduate enrolment	Enrolment in quality programmes*		Postgraduate programmes	Quality programmes*	
Subsystem	a	b	c = b/a (%)	d	e	f = e/d (%)	g	h	i = h/g (%)
Federal public universities	7	6	85.7	43 051	33 030	76.7	545	320	58.7
State Public Universities	34	34	100.0	54 723	29 431	53.8	2 091	1 183	56.6
State Public Universities with Solidarity Support	16	8	50.0	1 248	440	35.3	104	36	34.6
Intercultural Universities	2	0	0.0	73	0	0.0	8	0	0.0
Technological Universities	1	0	0.0	20	0	0.0	1	0	0.0
Polytechnic Universities	16	6	37.5	1 151	119	17.3	45	13	28.9
Federal Institutes of Technology	60	42	70.0	3 701	2 585	69.8	171	98	57.3
Decentralised Institutes of Technology	19	6	31.6	897	322	35.9	39	9	23.1
CONACyT Research Centres	24	24	100.0	4 161	3 665	88.1	147	124	84.4
Public normal schools	33	0	0.0	3 108	0	0	71	0	0.0
Other public HEIs	145	14	9.7	28 145	4 830	17.2	719	145	20.2
Public HEIs (total)	*357*	*140*	*39.2*	*140 278*	*74 502*	*53.1*	*3 941*	*1 928*	*48.9*
Private HEIs	*1 041*	*17*	*1.6*	*193 831*	*3 816*	*2*	*5 796*	*126*	*2.2*
Total	**1 398**	**157**	**11.2**	**334 109**	**78 318**	**2.4**	**9 737**	**2 054**	**21.1**

Note: *Programs listed in the PNPC of CONACyT in January 2018 in any of its four levels: recent creation, in development, "consolidated" and international competency.
Source: Adapted from (ANUIES, 2018[24]) *Visión y acción 2030*.

Doctoral programmes in science and technology more often obtain CONACyT recognition for quality than those in other areas of study, and the Sectoral Education Programme set for the agency the goal of increasing the proportion of science and technology doctoral programmes gaining PNPC recognition from 63.5% in 2012 to 71.6% in 2018 (SEP, 2013[25]). Moreover, PNPC programmes are heavily concentrated in a comparatively small number of higher education institutions, principally in the nation's federal and state public universities. About three in four (73%) of quality postgraduate programmes are located either in a federal or state university.

4.3.3. Quality assurance policies have focused on programmes and not supported the development of institutional capabilities and responsibilities with respect to quality.

Education programmes within higher education institutions – rather than institutions themselves - have been the focus of public policies with respect to quality assurance, including external evaluation, accreditation, and registration. Institutional accreditation has been limited to the reviews that FIMPES performs as part of its admission process to

the organisation, and institutional evaluations are limited to the examination of management and extension functions that CIEES undertakes as part of its external evaluation of universities.

The absence of institutional accreditation has important implications for higher education in Mexico. In the private sector, although some private institutions have strong and consistent records of achievement in providing educational programmes of high quality, they have no option by which they may exit the RVOE process and take institutional responsibility for the quality of their programmes. While they welcome processes of administrative simplification for the RVOE process, they are displeased at being obligated to comply with a registration and reporting regime from which public institutions are exempt, and disappointed that the new procedures do not offer them the opportunity to autonomously design new academic programmes, modify programmes, or create new campuses.

In the public sector, institutions wishing to demonstrate the quality of their educational processes only have the option to seek external evaluation and accreditation on a programme-by-programme basis. This situation contrasts with that in most other OECD countries, where external accreditation and quality assurance processes typically include institution-wide evaluations. In a number of such systems, public institutions with a demonstrated record of quality provision may self-accredit their own programmes, with the prerequisite that they have rigorous internal quality procedures in place. This is the pattern in most English-speaking countries and the basis of systems in Nordic countries. In other cases, such as the Netherlands, institutions with a strong performance in internal quality assurance are eligible for "lighter touch" programme-level accreditation.

Programmatic autonomy, or self-accrediting status, requires that higher education institutions participate in a rigorous institutional evaluation process that permits them to demonstrate regularly that they have the capacity to take responsibility for the quality of their programmes, and a process that is public and accessible to all institutions, fully independent of the membership process for a private association. This feature is missing from the policy landscape of higher education in Mexico.

4.4. Key recommendations

Mexico is a large, diverse, and socially stratified nation, and it has a higher education system to match. This presents government with very different quality challenges and opportunities at the "top", "middle", and "lower end" of the system – among its universities of global or national standing, a strong and effective "middle" of public and some private universities and institutions, and its small and poorly resourced private and public institutions.

To address these challenges effectively Mexico will need a quality assurance system that is more comprehensive than at present. This has been a focus on policy, and should continue to be in future. However, equally important, Mexico needs a quality assurance system that is much more differentiated – both vertically, and horizontally - to accommodate different types of institutions with different missions. Lastly, it needs a quality assurance system that is better coordinated. Coordination does not mean the establishment of a coordinating body in which stakeholders meet. Rather, a coordinated system of quality assurance is one in which the component parts – registration or licensing, programme accreditation, and institutional accreditation – work together in a coordinated way, permitting institutions to take as much responsibility for quality as their

own capacities permit and the system to collectively raise the quality of teaching and learning in its undergraduate and postgraduate programmes.

4.4.1. Promote further quality improvements in strong institutions by increasing institutional responsibility for programme quality

A decade ago, few public higher education institutions in Mexico had carried out an external review of all or many study programmes they offered. Today, many have. Among Mexico's 34 state universities, 32 have more than 75% of students studying in programmes that have participated in external quality assurance - 21 of which have more than 9 out of 10 students in "quality programmes." In the private sector, another 42 higher education institutions have achieved 75% of enrolments in quality programmes – with 27 surpassing 90%. In total, 229 higher education institutions enrol more than 75% of their students in quality assured undergraduate programmes.

Across the world, and within the OECD, systems of higher education quality assurance that began with comprehensive programmatic quality assurance procedures have often shifted their focus to the development of institutional accreditation procedures. In these systems, institutions that have successfully demonstrated the quality of their programmes - and proven that their institution has the capacity to take responsibility for the quality of their study programmes through a process of institutional accreditation – are permitted to assume responsibility for the quality of their programme offerings, subject to a continuing and periodic renewal of this self-accrediting status. (Lemaitre and Zenteno, 2012[26]). For Mexican higher education institutions like the *Universidad Autónoma De Nuevo León* and the *Universidad La Salle* – in which all undergraduate students are enrolled in quality assured programmes - there is no opportunity to transition from an exclusively programme-focused to institution-level process of quality assurance.

The rationale for providing a pathway from programmatic to institutional accreditation is threefold:

- **Lower Costs/Improved Efficiency**. Large higher education institutions manage scores of programmes, and find it very costly to manage fee-based participation in programmatic accreditation for each of their degree programmes. Institutional accreditation makes it possible to achieve efficiencies by combining reviews of adjacent study programmes (e.g. political science and public administration) or vertically integrated (bachelor's and master's degrees in nursing). Moreover, information and data related with different programmes and departments are usually processed by offices that operate at the central levels of the organisations. Implementing institutional evaluation lessens costs and increases consistency in the cases of institutions that systematically present their programmes to accreditation processes.
- **Improved Learning**. Institutions that have participated in repeated cycles of programme evaluation or accreditation point to diminishing benefits that result from repetition of the accreditation process. As one institutional leader observed in our meetings, "With repetition we stop learning. We know the path to approval." Institutional evaluation can also produce information and strengthen internal quality assurance practices that are difficult to evaluate through specialised reviews of academic programmes. An important set of criteria for accreditation of the programmes, in fact, aims at evaluating the common institutional context of those programmes.

- **Linking Quality to Institutional Strategy.** Fixing responsibility for quality at the level of the university and having it undergo accreditation provides them with an external view of how they are functioning, and helps them to link questions of quality to institutional governance, management, and resource allocation. (Cifuentes-Madrid, Landoni Couture and Llinas-Audet, 2015[27]).

Mexico presently has a process for higher education institutional review organised by FIMPES, the purpose of which is to authorise accession to its membership. Mexico needs a new and separate process for institutional accreditation that is different to this private and organisational process.

Institutional review leading to self-accrediting status could be opened to any public or private institution in which all programmes had successfully undergone external review (accreditation or evaluation) for more than one cycle. It would focus in a comprehensive way on the capacity of institutions to monitor and improve the quality of their educational programmes.

Mexico could benefit from the experience of the European Higher Education Area, and require higher education institutions to have policies for quality assurance. European Standards and Guidelines for Quality Assurance in Higher Education set general standards and guidelines in areas that are important for successful quality provision in higher education to guide the work of institutions, quality assurance agencies and governments. The standards and guidelines for learning and teaching in higher education institutions include a policy for quality assurance; the design and approval of programmes; student-centred learning, teaching and assessment; student admission, progression, recognition and certification; teaching staff; learning resources and student support; information management; public information; ongoing monitoring and the periodic review of programmes; and cyclical external quality assurance (ENQA, 2015).

The process of external institutional review could be organised by a body that is independent of government and higher education institutions, and employ differentiated criteria to take account of the varying missions of higher education institutions. It would award approved institutions self-accrediting status for fixed duration, and monitor their performance on a continuing basis.

Federal policymakers should consider whether a process of institutional review might best be developed drawing upon the processes and capabilities of CIEES. CIEES currently evaluates university functions including administrative and financial management, and infrastructure and services, and it has recently developed optional evaluation modules focusing on research management, innovation, outreach, internationalisation, and management of the dissemination of culture and science (CIEES, 2017[28]).

4.4.2. Expand external quality assurance in other higher education institutions, including through processes better tailored to professional programmes

Many higher education institutions in Mexico have begun to engage in the practice of external quality assurance, but have had limited experience with it. In these institutions, half or fewer of their students are studying in “quality” programmes, or the institution has only recent, but not recurring experience of programme-level of quality assurance. Some of these operate in Mexico’s public sector of higher education, with examples including Technological Universities (UTs) and Institutes of Technology (ITs). Many others are part of Mexico’s private sector of institutions.

The focus of public policy for this large, intermediate set of institutions should be to twofold. First, government should aim to **expand participation** in external programme-level review. The important support provided by *Programa de Fortalecimiento de la Calidad Educativa* (PCFE) should be continued, potentially at past levels. However, as leading public universities transition to institutional accreditation, government should target these funds at those parts of the public sector in which participation in quality assurance has been lagging.

Second, government policy should focus on supporting the development of **suitable** diversity in quality assurance, so accreditors and evaluators define and measure quality in ways that are consistent with the missions of all types of institution.

For example, a process of quality assurance for research-led universities might appropriately expect instructors to hold PhD degrees and for many to work with permanent and full-time contracts and hold exclusive employment with their university institution. This model is neither affordable nor suited to private institutions that provide high-quality education programmes in law or business, nor is it suitable to public institutions such as Institutes of Technology. For institutions that are not research-led universities, an accreditation process that is suitably adapted to institutional missions would evaluate the instructional workforce by focusing on the durability and quality of the relationship between instructors and students. Indicators of sufficient durability and quality might include (among others) the continuity of the teaching workforce, the availability of the instructors to mentor and advise students, the institution's investment in the continued professional development of its instructors, the institution's willingness to evaluate and properly reward excellent teaching, and the link between the instructor's professional accomplishments and teaching responsibilities.

Diversifying quality assurance to take proper account of the missions and instructional practices of technical and professionally oriented higher education institutions is a challenge in higher education systems across the world, within the OECD, and, stakeholders indicated, in Mexico as well.

Well-functioning higher education institutions with a professional and technical focus – whether in France, Netherlands, or Portugal – differ from research universities in their curriculum, staff, pedagogy, and the external stakeholders with which they engage. Quality assurance processes need to take these differences into account in developing evaluation criteria, in assessing learning outcomes, and in looking for labour market outcomes of graduates.

Likewise, quality assurance needs to be adapted to the mode of provision, with attention to the particular risks and needs of programmes delivered in whole or in large part through distance education. According to stakeholders with whom the review team met, CIEES has most effectively performed this work to date, and the processes it has established should be continued.

Quality assurance in Mexico needs significantly greater attention to labour market outcomes and stronger input with respect to the key skills that graduates need, including from private firms, public agencies, professional associations, and non-profit organisations – than at present. This is most especially true for technically oriented institutions.

Federal policymakers can help support the development of both capacities by providing targeted funding to evaluation and accreditation bodies to develop and implement a more diversified set of evaluation and accreditation instruments and processes.

4.4.3. Raising the bar – ensure better protection for students by enforcing minimum quality standards in the private sector more rigorously

Ensuring that every student has a higher education that meets minimum standards of quality – and therefore prepares them for a lifetime of engaged citizenship and productive employment – remains a policy goal that has not been fully achieved.

Mexico should prioritise reform of the licensing system, the RVOE, so that it provides an effective guarantee basic quality in the private sector. The reform of RVOE would benefit from a new legal basis. Borrowing from the experience of other higher education systems in the region (and across the OECD), Mexico could consider a **compulsory** registration process in which private institutions must obtain permission to operate – to enrol students - from the federal government. Here Mexico might look, for example, to the model of Brazil, which has a vast system of private higher education. In this system, every private higher education institution is part of the Federal system of education, and is required to obtain formal external accreditation (*credenciamento*) from federal authorities to begin operation, and to participate in a periodic process of *recredenciamento* to continue operations.

Like registration and recognition arrangements through the region and across the OECD, the aim of the recognition process must be modest and realistic: to ensure an acceptable minimum level of provision through a process of inspection that focuses on educational inputs and processes for new institutions and programmes, and extending to outputs for programmes seeking re-accreditation. The process would pay attention both to institutional features and maintain a requirement for all programmes to be licensed separately.

Where governments aim to protect students by ensuring a common minimum level of provision, there is no rationale for criteria and processes to differ from one sub-national jurisdiction to another. Thus, for example, the accreditation process in Brazil is the responsibility of federal authorities, and **uniform** across its states. Mexico would benefit from a similar consistency in policy across its federal system, aiming to ensure that students can expect a common minimum, whether they study in Baja California or Chiapas.

A reformed system would benefit from improved **monitoring and enforcement** capabilities. Permission to operate should be accompanied by a requirement that institutions provide federal authorities with a minimum data set that supports ongoing monitoring and enforcement, diminishing their exclusive reliance on complaints as the basis for intervention. Clear and effective sanctions for non-compliance with RVOE conditions should be introduced.

Mexican authorities should build upon the work begun with 17/11/17 Agreement, moving forward to develop a fuller framework for the categorisation of private institutions. This framework should take into account the progress that institutions make in accrediting their programmes. The process should provide a graduated pathway permitting institutions progressively wider responsibility in developing new study programmes or modifying study plans.

These changes should be part of a strategic rethinking about the role of the private sector within the nation's higher education system, and of the relationship between public authorities and private institutions. Apart from support at the postgraduate level - for a small number of institutions - federal programmes do not fund students and activities in private higher education institutions. As we have indicated in Chapter 5, Mexico should

consider extending eligibility to award maintenance grants to private institutions – if students who study in SEP-recognised quality programmes, and if these programmes are based within higher education institutions that have a well-demonstrated capacity for sound financial management. This would assist Mexico in achieving quality expansion, fairer treatment of disadvantaged students who enrolled in public and private institutions, and provide an inducement for private institutions to expand their participation in external quality assurance.

4.4.4. Widen coverage of external quality assurance for postgraduate education

CONACyT has an important role to play in developing the national research capacity of Mexico, most especially in fields that are critical to the development of the nation's economy, including life sciences, exact sciences, technology, and engineering. However, its assessment of postgraduate study programmes through the PNPC is not entirely aligned to this mission, since PNPC focuses more heavily on specialisation and master's programmes than PhD programmes, which comprise only 28.5% of all PNPC programmes.

In the decade ahead, higher education institutions will gain experience in monitoring and improving quality, and accreditation and evaluation bodies operating at undergraduate level gain further experience in supporting HEIs. As they do, they should be able to take responsibility for professionally oriented postgraduate education (at the specialisation and master's degree levels), thereby permitting CONACyT to focus its attention on the training of PhDs, as is often the case in other systems of quality assurance (such as Brazil or many European countries).

Mexico's PhD students in quality assured programmes should be trained at an international level, and to ensure that this level is met the evaluation of programmes should consistently engage international researchers. International experience demonstrates that it is a good practice for quality assurance systems to incorporate international academics: this grants a higher degree of impartiality to evaluations in specialised fields that contain few national experts, and introduces beneficial learning from other university systems. (Gacel-Ávila and Rodríguez-Rodríguez, 2018[29]).

The link between CONACyT funding and quality assurance should continue, with the award of postgraduate study scholarships made dependent on students studying on a quality assured programme.

4.4.5. Adapt institutional arrangements for external quality assurance to implement the preceding recommendations

What institutional arrangements are best suited to take forward these quality policies? It is the view of the OECD review team that Mexico should establish a quality assurance body to guide the work of quality assurance for undergraduate and postgraduate professional education, while continuing to rely upon CONACyT to organise quality assurance in doctoral education.

To be trusted, impartial, and stable the body must be independent of both higher education institutions and government. Given the success that non-profit, non-governmental bodies have had in taking forward the work of quality assurance – such as COPAES, CIEES, and CENEVAL – it is advisable that a quality assurance body take this form. International experience offers models of special legal forms that provide quality assurance bodies with a very high degree of autonomy, such as Portugal's Agency for

Assessment and Accreditation of Higher Education (A3ES). However, national policy makers must adapt international experience to local legal forms.

In the near-term, targeted public funding would be necessary to develop properly the capacities of the quality assurance organisation, while on a long-term basis the organisation would best achieve independence by operating on a fee basis.

The organisation would be responsible for:

- Taking a strategic view of the relationship between quality in undergraduate and postgraduate education.
- Ensuring that quality is being properly cared for across the entire system of higher education: by institutions that are self-accrediting; by institutions that are gaining increasing experience of external programme-level review; and by institutions that operate within a reformed system of institutional registration or licensing (RVOE).
- Advising the Secretary for Public Education which bodies should be recognised to perform the work of evaluation, assessment, and accreditation of higher education institutions and programmes.
- Setting the conditions that institutions need to achieve to become self-accrediting (as, for example, the Australian Tertiary Education Quality and Standards Agency does in Risk Assessment Framework) (Tertiary Education Quality and Standards Agency, 2017[30]).
- Ensuring that programme-focused quality reviews are sufficiently diversified to accommodate the range of higher education providers.
- Ensuring selection and training processes for peer reviewers, including foreign academics, are rigorous and appropriate.
- Advising the Secretary for Public Education which bodies should be recognised to perform the work of evaluation, assessment, and accreditation of higher education institutions and programmes.
- Giving advice to government on questions of policy related to quality, including on suitable policy targets for the Sectoral Education Programme, and the means best suited to achieve them.
- Advising the Secretary for Public Education on programmes or institutions that fail to meet quality standards, and should therefore be subject to de-recognition (in the private sector) or loss of eligibility for public funds (discretionary funds awarded through calls and competition).
- Advising the SEP on the data infrastructure that is needed to support the monitoring of quality in a reformed RVOE process, and to determine whether HEIs are eligible for self-accrediting status.

References

ANUIES (2018), *Visión y acción 2030: Propuesta de la ANUIES para renovar la educación superior en México*, Asociación Nacional de Universidades e Instituciones de Educación Superior (ANUIES), México, D. F., http://www.anuies.mx/media/docs/avisos/pdf/VISION_Y_ACCION_2030.pdf (accessed on 9 October 2018). [24]

CHEA (2016), *The CIQG International Quality Principles: Toward a Shared Understanding of Quality*, Council for Higher Education Accreditation/International Quality Group, Washington, DC, https://www.chea.org/userfiles/CIQG/Principles_Papers_Complete_web.pdf. [3]

CIEES (2018), *CIEES in English*, Comités Interinstitucionales para la Evaluación de la Educación Superior (CIEES), CDMX, https://ciees.edu.mx/ciees-in-english/ (accessed on 22 November 2018). [7]

CIEES (2018), *Proceso general para la evaluación de programas educativos de educación superior*, Comités Interinstitucionales para la Evaluación de la Educación Superior (CIEES), CDMX, http://www.ciees.edu.mx (accessed on 22 November 2018). [8]

CIEES (2017), *Estándares para la acreditación de funciones de instituciones de educación superior de México 2017*, Comités Interinstitucionales para la Evaluación de la Educación Superior (CIEES), CDMX, http://www.sgc.uagro.mx/Descargas/CIEES.pdf. [28]

Cifuentes-Madrid, J., P. Landoni Couture and X. Llinas-Audet (2015), *Strategic Management of Universities in the Ibero-America Region: A Comparative Perspective*, Springer International Publishing, Dordrecht, http://dx.doi.org/10.1007/978-3-319-14684-3. [27]

COPAES (2018), *Padrón de Evaluadores*, Consejo para la Acreditación de la Educación Superior A.C. (COPAES), Ciudad de México, http://www.copaes.org/padron_evaluadores.php (accessed on 26 October 2018). [9]

DGESU (2018), *Corte 31 de Agosto 2018 - matricula de calidad*, Dirección General Educación Superior Universitaria, http://www.dgesu.ses.sep.gob.mx/Calidad.aspx (accessed on 24 October 2018). [22]

ESG (2015), *Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG)*. [2]

FIMPES (2018), *¿Qué es la FIMPES?*, Federación de Instituciones Mexicanas Particulares de Educación Superior (FIMPES), Ciudad de México, https://www.fimpes.org.mx/index.php/fimpes/que-es-la-fimpes (accessed on 29 October 2018). [11]

FIMPES (2018), *Sistema de Acreditación a través del Desarrollo y Fortalecimiento Institucional*, Federación de Instituciones Mexicanas Particulares de Educación Superior (FIMPES), Ciudad de México, https://www.fimpes.org.mx/congreso-academico/images/banners/V3_2/Index.html (accessed on 29 October 2018). [12]

FIMPES((n.d.)), *Registro de Excelencia*, Federación de Instituciones Mexicanas Particulares de Educación Superior (FIMPES), Ciudad de México, https://www.fimpes.org.mx/index.php/registro-de-excelencia (accessed on 22 November 2018). [13]

Gacel-Ávila, J. and S. Rodríguez-Rodríguez (2018), *Internacionalización de la educación superior en América Latina y el Caribe. Un balance*, UNESCO IESALC, Universidad de Guadalajara, Benemérita Universidad Autónoma de Puebla, México, http://obiret-iesalc.udg.mx/sites/default/files/publicaciones/libro_internacionalizacion_un_balance_0.pdf. [29]

Gobierno de la República (2018), *Becas CONACyT Nacionales 2018 Inversión en el Conocimiento*, Dirección Adjunta de Posgrado y Becas, CONACyT, México, D.F., https://www.conacyt.gob.mx/index.php/convocatorias-b-nacionales/convocatorias-abiertas-becas-nacionales/16819-conv-bn-18/file (accessed on 29 October 2018). [16]

Gobierno de la República (2014), *Firma de Convenio entre el CONACyT y Universidades Particulares para Fomentar el Desarrollo Científico y Tecnológico de México*, CONACyT, México D.F., https://www.conacyt.gob.mx/index.php/comunicacion/comunicados-prensa/293-firma-de-convenio-entre-el-conacyt-y-universidades-particulares-para-fomentar-el-desarrollo-cientifico-y-tecnologico-de-mexico (accessed on 29 October 2018). [21]

Ibarra Colado, E. (2009), "Impacto de la Evaluación en la Educación Superior Mexicana: Valoración y Debates", *Revista de la Educación Superior*, Vol. 38/149, pp. 173-182, http://publicaciones.anuies.mx/pdfs/revista/Revista149_S5A1ES.pdf. [19]

INQAAHE (2016), *INQAAHE Guidelines of Good Practices 2016 - revised edition*, International Network for Quality Assurance Agencies in Higher Education (INQAAHE), Barcelona, http://www.inqaahe.org/. [1]

Lemaitre, M. and M. Zenteno (2012), *Aseguramiento de la calidad en Iberoamerica: Educación Superior Informe 2012*, Centro Interuniversitario de Desarrollo (CINDA), Santiago. [26]

Navarro Navarro, F. and M. Gómez Hernández (2017), "Evaluación de la calidad de los programas educativos a distancia del Sistema de Universidad Virtual", *Memorias del Encuentro Internacional de Educación a Distancia*, Vol. 5/5, http://www.udgvirtual.udg.mx/remeied/index.php/memorias/article/view/232 (accessed on 29 October 2018). [23]

OECD (2019), *Higher Education in Mexico: Labour Market Relevance and Outcomes*, OECD Publishing, Paris, https://doi.org/10.1787/9789264309432-en.. [17]

SEP (2018), *La Educación Superior en México 2007-2017 - Revisión de la política educativa, avances y retos (Country Background Report)*, Secretaría de Educación Pública (SEP), Ciudad de México. [15]

SEP (2018), *Padrón Nacional de Programas Educativos de Calidad*, Secretaría de Educación Pública (SEP), Ciudad de México, https://www.pnpec.sep.gob.mx/ (accessed on 26 October 2018). [10]

SEP (2018), *SEP y organismos acreditadores acuerdan trabajar para configurar un nuevo paradigma de evaluación y la acreditación de programas de nivel superior*, Subsecretaría de Educación Superior (SES), https://www.ses.sep.gob.mx/comunicados/090318.html (accessed on 29 October 2018). [20]

SEP (2018), *Sistema de Reconocimiento de Validez Oficial de Estudios*, Secretaría de Educación Pública (SEP), Ciudad de México, https://www.sirvoes.sep.gob.mx/sirvoes/mvc/marcoNormativo (accessed on 26 October 2018). [4]

SEP (2018), *Sistema de Reconocimiento de Validez Oficial de Estudios - Consulta de instituciones*, Secretaría de Educación Pública (SEP), Ciudad de México, https://www.sirvoes.sep.gob.mx/sirvoes/mvc/consultas (accessed on 26 October 2018). [5]

SEP (2017), *ACUERDO número 17/11/17 por el que se establecen los trámites y procedimientos relacionados con el reconocimiento de validez oficial de estudios del tipo superior*, Diario Oficial de la Federación, Estados Unidos Mexicanos, http://www.dof.gob.mx/nota_detalle.php?codigo=5504348&fecha=13/11/2017 (accessed on 24 October 2018). [6]

SEP (2015), *Marco de Referencia para la Evaluación y Seguimiento de Programas de Posgrado Presenciales*, Secretaría de Educación Pública (SEP), Ciudad de México, https://www.conacyt.gob.mx/index.php/becas-y-posgrados/programa-nacional-de-posgrados-de-calidad/convocatorias-avisos-y-resultados/marcos-de-referencia-pnpc/17214-marco-de-referencia-modalidad-escol/file (accessed on 29 October 2018). [14]

SEP (2013), *Programa Sectorial de Educación 2013-2018*, Secretaría de Educación Pública (SEP), México, D.F., http://www.sep.gob.mx/work/models/sep1/Resource/4479/4/images/PROGRAMA_SECTORIAL_DE_EDUCACION_2013_2018_WEB.pdf (accessed on 25 September 2018). [25]

Strang, L. et al. (2016), "Review of the Research Literature on Defining and Demonstrating Quality Teaching and Impact in Higher Education", https://www.rand.org/pubs/external_publications/EP66719.html (accessed on 29 October 2018). [18]

Tertiary Education Quality and Standards Agency (2017), *Risk Assessment Framework*, Australian government, https://www.teqsa.gov.au/risk-assessment-framework (accessed on 29 October 2018). [30]

Chapter 5. Equity

This chapter reviews some of the key social challenges facing Mexico, which form the social context for equity policy in higher education, before examining three key issues that influence the ability of the Mexican higher education system to support social equity and inclusion goals. The chapter first examines access routes to higher education and, in particular, the role of school education in preparing students for higher learning. It then considers the extent to which the Mexican higher education system provides a diversity of programmes that can cater effectively to the needs of students from different backgrounds, before assessing the effectiveness of current government and institutional policies to provide student support. The chapter concludes by providing a set of recommendations to support the development of policies to promote social equity in Mexican higher education.

5.1. Focus of this chapter

Equitable higher education systems ensure that access to and participation in tertiary education depend only on individuals' abilities, efforts, and interests – rather than being the result of personal and social circumstances, such as socio-economic status, gender, origin, age, or disability. To this end, highly equitable higher education systems rely upon:

- equitable ***access routes*** to tertiary education made possible by high quality, inclusive systems of primary and secondary schooling that develop the talents and aspirations of all young people to a high level, and without regard to personal or family circumstances;
- wide opportunities for ***participation*** in tertiary study that are: made available to students on the basis of transparent processes of selection; adequate to meet student demand; sufficiently diverse to meet the varied needs of learners; offered at sufficient levels of quality and adequately resourced, and aligned to social and labour market needs; and,
- ***support*** for learners that permits them to study without regard to their (or their family's) ability to pay; and provides attention to academic, health, and socio-emotional challenges that can undermine prospects for success.

In this chapter, we first review some of the key social challenges facing Mexico, which form the social context for equity policy in higher education, before examining the three key dimensions outlined above, as well as evaluating the performance of the Mexican higher education system in ensuring equitable ***access, participation, and support*** for learners. We conclude by offering recommendations that hold the promise of further strengthening each dimension of equity in its higher education system.

5.2. Equitable access, participation and support: strengths and weaknesses of the Mexican higher education system

5.2.1. A challenging economic and social context for achieving educational equity

High income and wealth inequality in the population at large

Mexico is a country marked by high levels of poverty and inequality in income and wealth. 43.6% of the population lives in poverty, while 7.6% lives in extreme poverty (CONEVAL, 2017[1]). Mexico has the highest Gini coefficient value (after taxes and transfers) among OECD countries (OECD, 2018[2]). The Gini coefficient for Mexico – measuring inequality on a scale of zero to one, where zero is perfect equality and one is perfect inequality – is 0.459, compared to an OECD average of 0.318. The S90/S10 disposable income share ratio - the share of income received by the top 10% divided by the share of income received by the bottom 10% of the income distribution - is 20.9, compared to 9.4 on average in the OECD. This indicates a high level of inequality between the top 10% and the bottom 10% of the income distribution (OECD, 2017[3]).

Significant and often marginalised indigenous populations

Indigenous people constitute a significant part of the Mexican population. 21.5% of Mexicans self-identify as indigenous, 10.1% live in a household where someone speaks

an indigenous language, and 6.5% of those aged three years or older speak an indigenous language (INEGI, 2016[4]). Over three-quarters of indigenous people live in poverty, compared to 41% of non-indigenous people (CONEVAL, 2017[1]). The rate of extreme poverty among indigenous people was 34.8% in 2016, about six times the rate of non-indigenous people. While extreme poverty decreased by about 10 percentage points between 2010 and 2016, overall poverty rates have decreased only about two percentage points among both indigenous and non-indigenous populations.

Educational outcomes for indigenous populations are lower than for non-indigenous populations. Among indigenous 25-64 year-olds in 2015, only 6.6% had completed tertiary education and only 9.7% had completed upper secondary, compared to 18.7% and 19.6% respectively in the rest of the population (Table 5.1).

Table 5.1. Education level by indigenous status, 25-64 year-olds, 2015

	Total population (%)	Indigenous* (%)	Rest of population (%)
No schooling	4.8	16.0	3.7
Primary incomplete	10.5	21.8	9.4
Primary completed	19.4	24.1	19.0
Lower secondary completed	28.6	21.4	29.3
Upper secondary completed	18.8	9.7	19.6
Tertiary completed	17.6	6.6	18.7
Not specified	0.3	0.4	0.3

Note: * Difference is statistically significant at 90% with respect to the rest of the population. Data based on methodology by the National Commission for the Development of Indigenous Peoples (CDI).
Source: Adapted from (INEE, 2017[5]). *Breve panorama educativo de la población indígena*. http://publicaciones.inee.edu.mx/buscadorPub/P3/B/107/P3B107.pdf.

There are also inequalities in labour market outcomes between indigenous and non-indigenous persons. The national activity rate stood at 50.3% in 2015, while for indigenous persons this rate stood at 43.9% (CDI, 2015[6]). It is estimated that 11.9% of indigenous persons that are employed have no income - a situation that describes, among others, subsistence farmers and those employed by members of their family without being remunerated - compared to 3.0% of the national employed population. About 52.9% of the employed national population earns over twice the minimum wage, while only 30.0% of indigenous persons have this level of earnings.

Economic and educational inequalities related to skin colour

Social and economic inequality follows "colour" lines as well. In 2017, skin tone was included in the National Survey on Discrimination in Mexico (INEGI, 2017[7]). The skin tone instrument, PERLA[1], asked respondents 18 and older to identify with one of eleven skin tones. It found that about 59% identified as an intermediate skin tone, about 29% identified as a light skin tone, and about 11% identified as a dark skin tone. The survey results revealed that those with lighter skin tones had achieved higher levels of education (30.4% finishing at least one year of higher education, 18.0% not finishing basic education) than those with dark skin tones (16.0% and 33.5% respectively). Moreover, those with lighter skin tones were more likely to have jobs such as official, director, manager, professional or technician/expert, while those with darker skin tones were more likely to work in personal services, support, agricultural activities, and artisanship.

Persistent gender disparities

Large inequalities with respect to gender are also persistent characteristics of the Mexican economy and society. Women have a lower employment rate and earn less than men: tertiary-educated women earn only 66% of the average earnings of tertiary-educated men (OECD, 2018[8]). Women in Mexico held 5.2% of seats on boards of the largest publicly listed companies in 2016, compared to 20.0% on average in the OECD. 2.3% of employed women are employers, while 5.6% of employed men are employers (OECD, 2018[9]).

Among 25-54 year-olds in 2016, the labour force participation rate for men in Mexico was 94.2%, while for women it was 55.5% (OECD, 2018[9]). This is significantly lower than the OECD average for women, at 72.6%, while for men the average was 91.3%. 24.4% of 25-54 year-old women in Mexico were in part-time employment, compared to 8.5% of men. On average, women earned 16.5% less than men in Mexico in 2016. This compares to an average pay gap in the OECD of 14.1%.

36% of women aged 18-24 in Mexico were in neither employment nor education and training (NEET) in 2017, compared to 8% of men. The gap in NEET rates between women and men in Mexico – 28 percentage points – is the highest among OECD countries (OECD, 2018[8]). Over 90% of female NEETs in Mexico are inactive – neither employed nor actively looking for a job in the formal labour market – and this is the largest share among OECD and partner countries.

While enrolment at all levels of education have reached parity between men and women in Mexico, there remain small differences in educational attainment, and attainment rates are significantly below the OECD average. 52% of both male and female 25-34 year-olds in Mexico have attained less than upper secondary education, compared to an OECD average of 17% of men and 14% of women (OECD, 2018[8]). Among 25-34 year-olds in Mexico, the highest level of attainment for 25% of men and 26% of women is upper secondary education, below the OECD average of 46% and 37% respectively. 23% of both genders among 25-34 year-olds in Mexico have attained tertiary education, compared to an OECD average of 38% for men and 50% for women. In terms of tertiary education entry and exit, 50% of first-time entrants and 53% of first-time graduates are women, as compared to 54% and 57% respectively across the OECD on average.

Substantial inequality in income across the regions of Mexico

Inequality in Mexico has an important spatial dimension: its southern states contain larger indigenous populations and have higher levels of poverty than other regions of the country. States with above average poverty rates tend to have above average percentages of indigenous persons. The southern state of Chiapas has the highest percentage of its population living in poverty, with a rate of 77.1% in 2016 (CONEVAL, 2017[1]). This is markedly higher than in Mexico City (27.6%) and the northern state of Nuevo Leon (14.2%), which has the lowest percentage of people living in poverty. In 2016, the disposable income per capita in current prices and current PPP in Mexico City stood at USD 6 688, over three times higher than the income in Chiapas (USD 1 850) (OECD, 2018[2]).

Inequalities between rural and urban populations can also be observed. While poverty overall and the gap between rural and urban areas decreased between 2010 and 2016, rural areas have about a 50% higher incidence of poverty (58.2% in rural areas as

compared to 39.2% in urban areas), with extreme poverty about 4 times as high (4.7% as compared to 17.4%) in rural areas (CONEVAL, 2017[1]).

In the area of education, some inequalities between rural and urban have decreased over time. In 2016, rural 15-24 year-olds had a literacy rate of 97.3%, compared to 57.1% among the rural population aged over 65 (CEDLAS and The World Bank, 2017[10]). The gap between rural and urban literacy rates is only 1.7% among 15-24 year-olds, compared to a gap of 27.2% among those over 65. However, in older students, large inequalities persist. Results from the PISA 2012 survey show a larger difference than most OECD countries between the performance of students in schools in cities versus rural areas. The difference in mean performance in mathematics - after accounting for socio-economic status - between schools in cities and schools in rural areas is 32, compared to an OECD average difference of 13 (OECD, 2013, p. 223[11]).

5.2.2. Challenges of quality and inclusion in secondary education constrain the further development of equity in higher education[2]

While the economic and social inequalities discussed above manifest themselves in the nation's schooling system, public authorities have made concerted efforts to address disparities in opportunities for learning, focusing efforts on access to educational services and successful completion. As an example, expansion of pre-primary education has led to enrolment of three-year-olds in early childhood education nearly doubling since 2005, while enrolment by age four in pre-primary education in 2014 stood at 90%, 5 percentage points higher than the OECD average (OECD, 2018[12]).

At the level of secondary schooling, Mexico has also moved forward with important reform programmes. For example, in 2012, upper secondary education became compulsory in an effort to increase enrolment and attainment and reach a goal of universal coverage by 2022 (OECD, 2018[12]). Enrolment in upper secondary school stood at 76.6% in 2016-2017, up from 65.9% in 2012-2013, and first-time graduation rates in secondary education have increased significantly, from 40% in 2000 to 56% in 2015. In addition to reforms to the legal framework, various programmes have been put in place to improve educational outcomes. These include SEP's federal Programme for Inclusion and Educational Equity (*Programa para la Inclusión y la Equidad Educativa (PIEE)*), created in 2014, and the reviewed and expanded *PROSPERA* programme, which have strengthened the capacities of education providers and provided cash transfers and scholarships to improve educational and other outcomes respectively. The *PROSPERA* programme, which will be discussed in more detail later in this chapter, is the largest anti-poverty programme in Mexico and is designed to support completion of school. However, further efforts are needed to improve in several areas of schooling.

Quality challenges and inequality between schools throughout the school system

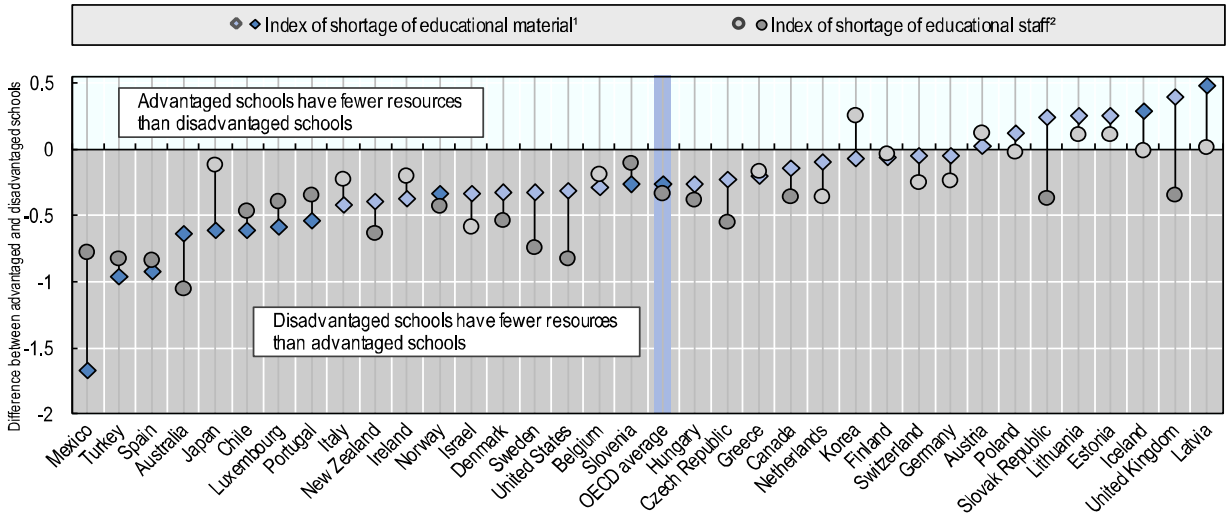
There is evidence of poor and variable quality at different levels of the school system in Mexico. At the lowest levels of education, while enrolment in pre-primary education has increased, as noted above, capacity for the youngest age groups remains low and there are concerns about the quality of what is provided. Only 45.8% of 3-year-olds were enrolled in pre-primary education in 2015, compared to an OECD average of 77.8%. Moreover, data from the 2015 round of the OECD's PISA survey indicate that 15-year-olds in Mexico who had attended at least two years of pre-primary education had no statistically significant difference in their performance in science, even after accounting for socio-economic differences (OECD, 2017[13]). This suggests that while, in many countries,

attendance of pre-primary education has a positive impact on subsequent learning outcomes, this is not generally the case in Mexico.

At the secondary level, learning outcomes by the age of 15 are low, viewed in comparison to other OECD member countries. In the PISA 2015 survey, Mexico performed below the OECD average in science, reading and mathematics (OECD, 2016[14]). Performance has remained relatively unchanged in recent cycles: average science performance has not changed significantly since 2006 and reading has remained stable since 2009. In all three domains, less than 1% of students in Mexico are top performers. The share of low-performing students in Mexico is 48%, the highest among OECD countries, and this share has not changed significantly since 2006. The 2015 PISA survey also found that 11% of the variation in student performance in science in Mexico could be attributed to differences in students' socio-economic status, compared to an average for the OECD of 13% (OECD, 2016[14]).

One of the contributing factors to the low average performance in PISA of the Mexican school system is an inequitable distribution of resources between schools. Data from PISA reveals striking differences in educational resources between advantaged and disadvantaged schools, as reported by schools heads (Figure 5.1). Disadvantaged schools have a higher shortage of educational material than advantaged schools - the largest gap among OECD countries - and disadvantaged schools have a higher shortage of qualified staff than advantaged schools.

Figure 5.1. Differences in educational resources between advantaged and disadvantaged schools



1. The index of shortage of educational material is measured by an index summarising school principals' agreement with four statements about whether the school's capacity to provide instruction is hindered by a lack of and/or inadequate educational materials, including physical infrastructure.
2. The index of shortage of educational staff is measured by an index summarising school principals' agreement with four statements about whether the school's capacity to provide instruction is hindered by a lack and/or inadequate qualifications of the school staff.
Note: Statistically significant differences between advantaged and disadvantaged schools are marked in a darker tone.
Countries and economies are ranked in ascending order of the difference in index of shortage of educational material between advantaged and disadvantaged schools.
Source: (OECD, 2016[15]), *PISA 2015 Results (Volume I): Excellence and Equity in Education*, http://dx.doi.org/10.1787/9789264266490-en.

Social and cultural factors and the quality of upper secondary provision affect completion of upper secondary education

The scope of high quality of upper secondary education and access to it on the part of disadvantaged students places limits on the continued expansion of higher education, and hamper further progress in making entry into - and completion of - higher education more equitable.

The completion of upper secondary education, through the attainment of a *bachillerato,* is a requirement for entry into higher education. However, the highest level of education attained by more than half (52%) of 25-34 year-olds was below upper secondary education in 2017, as compared to an OECD average of 15% (OECD, 2018[12]). In 2016, the first-time upper secondary graduation rate, which represents the estimated percentage of an age group expected to graduate upper secondary at least once in their lifetime, in Mexico reached 57%, 30 percentage points lower than the OECD average of 87%. In Mexico, research suggests that the most relevant factors identified with leaving before completing upper secondary education include "having a head of household unemployed, becoming a household head, low household income, living in rural areas, large household size, and low levels of education of the household head and spouse" (Bentaouet Kattan and Székely, 2015[16]).

Social background has a major influence on students' likelihood to enter and succeed in upper secondary education. Research from Mexico City suggests that a family's social origins influence lower secondary students' decision to take the COMIPEMS exam that gives access to upper secondary education, as well as their choice of schools, performance in the exam, and the final decision to attend upper secondary school (Solís, Rodríguez Rocha and Brunet, 2013[17]). High achievers who come from lower-income families underestimate their ability to perform well on COMIPEMS more than high achievers from higher-income families. Students from lower socio-economic backgrounds select, on average, a range of less selective schools to apply to, and they are more likely to apply to non-elite technological or technical schools (Ortega Hesles, 2015[18]). Research suggests that students whose parents are less-educated and students who have lower course marks in lower secondary school have a higher probability of dropping out when admitted to such elite schools (de Janvry, Dustan and Sadoulet, 2012[19]).

Upper secondary schools vary in quality, and students from economically and socially disadvantaged backgrounds are less likely to enrol in higher quality upper secondary schools. In Mexico City, for example, upper secondary schools are stratified, "with more resources being allocated to schools that incorporate mostly high-achieving students from the top quartiles of the socio-economic distribution," and the more selective schools admitting students from higher family incomes per capita (Ortega Hesles, 2015[18]).

Those who do complete upper secondary education may be exiting upper secondary programmes that leave them weakly prepared for higher education. The comparatively low performance in PISA across all domains discussed above suggests students are entering upper secondary education already behind their OECD peers. Nationally, the newly implemented PLANEA exam, which tested all students in their final year of upper secondary school in 2017, indicates 66% and 34% of students are not achieving key learnings established in the mathematics and language and communication curricula respectively (INEE, 2017[20]).

While the focus of this review is on young people in higher education, it should be noted that access routes for adults with work experience or who are working and study also depend on the quality of schooling, as well as the quality of training they have received over the course of their working life. In the future, Mexico will have a rich base of evidence about adult skills, participation in education and training, and skill use as a result of conducting the Survey of Adults Skills as part of the OECD's Programme for the International Assessment of Adult Competencies (PIAAC).

Government financial support programmes have had limited impact on increasing entry rates into tertiary education

Direct outlays and the opportunity cost of staying in school contribute to high early secondary school leaving rates, particularly among marginalised populations. It is estimated "that the average direct costs of studying (fees, books, exams, etc.) in a public high school represents about 15% of median yearly household income," and this percentage is higher for private high schools (Binelli and Rubio-Codina, 2013[21]). Young people needing to contribute to household income may choose to work rather than study. Recent research on the Mexican economy suggests that a large increase in the demand for low-skilled labour generated by a boost in manufacturing activities and informal employment has decreased the opportunity cost of leaving education, contributing to low graduation rates from secondary education (OECD, 2018[12])

The *Prospera* programme offers one of the main vehicles for the provision of scholarships to support students in meeting the costs of education (Binelli and Rubio-Codina, 2013[21]). Initially implemented in a rural context in 1997 and known as *Progresa*, the programme enrolled 400 000 families during its first year, and by 2004, after expanding to urban areas in 2001, it was serving five million families (Secretariat of Social Development, 2008[22]; Secretariat of Social Development, 1999[23]). The programme served over 6.7 million households in 2016-2017 (CONEVAL, 2017[24]). The programme is the largest anti-poverty programme in the country, providing cash transfers to low-income families conditional on primary, secondary and (starting in 2001) high school attendance (Binelli and Rubio-Codina, 2013[21]). Today, the *Prospera* programme includes scholarships for higher education and vocational training, and it promotes financial, labour market, productive and social inclusion through a variety of mechanisms (Secretariat of Social Development, 2017[25]; World Bank, 2014[26]). The programme has been widely studied, and recent research has found that "childhood exposure [to the programme] improves educational attainment, geographic mobility, labour market performance, and household economic outcomes in early adulthood" (Parker and Vogl, 2018[27]). However, research also suggests "that childhood exposure to *Progresa* does not raise college attendance," which suggests that the labour market returns of the increased educational attainment of *Prospera* recipients is or is perceived to be high enough to forgo college attendance (Parker and Vogl, 2018[27]). Additionally, while *Prospera* has been able to address some of the socio-cultural factors that affect school completion, it has not addressed issues of school quality that prevent students from completing secondary education and accessing tertiary education.

5.2.3. Opportunities for tertiary study are more numerous and diversified, but the quality and relevance of study opportunities for disadvantaged students raises equity concerns

Political leaders and wider Mexican society have supported the very substantial expansion and diversification of higher education in Mexico, and this has reduced inequalities in higher education participation to some extent, especially socio-economic inequality. However, there has been less success in ensuring the quality and relevance of this swiftly expanding provision, putting at risk the equity-enhancing effects of higher education expansion.

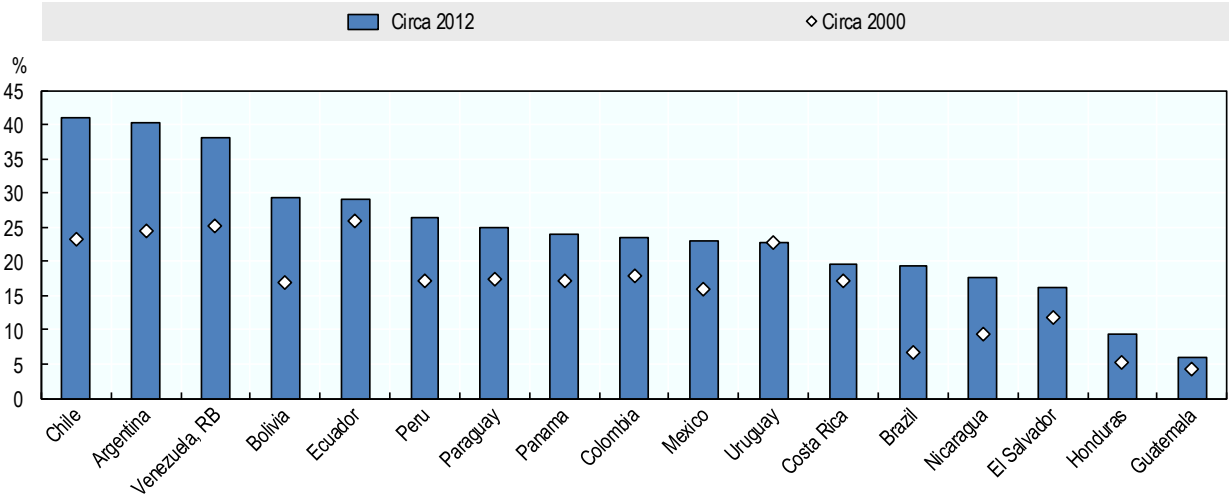
A significant expansion of supply has been achieved, but enrolment gains are smallest among the lowest income groups

There has been a substantial expansion in the scale of higher education. Governments have made raising the gross enrolment rate - or "coverage" - a leading target of federal policy, as evidenced by objectives found in Sectoral Education Programmes over the last 10 years (SEP, 2013[28]; SEP, 2007[29]). Moreover, there have been efforts to monitor the expansion of enrolment across the income distribution, particularly through the creation of Indicator 3.2, which calls for the monitoring of gross enrolment rates in upper secondary and higher education among the bottom four per capita income deciles, in the 2013-18 Sectoral Education Programme (SEP, 2013[28]).

In less than two decades, total enrolment has more than doubled, growing from almost 2.2 million in 2000-2001 to over 4.5 million in 2017-2018 (ANUIES, 2018[30]). Higher education coverage (not including enrolment in graduate programmes) has also increased substantially during the same period, from 20.6% to 38.4% among 18 to 22 year-olds (ANUIES, 2018[30]).

Access to higher education among those in the bottom half of the income distribution has improved along with the overall expansion of enrolment rates. Between 2000 and 2012, among young people aged 18-24, the share of higher education students that belong to the poorest 50% of the population rose in the majority of Latin American countries with data, including Mexico (Figure 5.2). Nonetheless, Mexico still stood roughly in the middle of Latin American countries with respect to participation among those from the lower half of the income distribution, and trailed several countries with lower GDP per capita (at PPP) in 2012, such as Bolivia and Ecuador (World Bank, 2018[32])

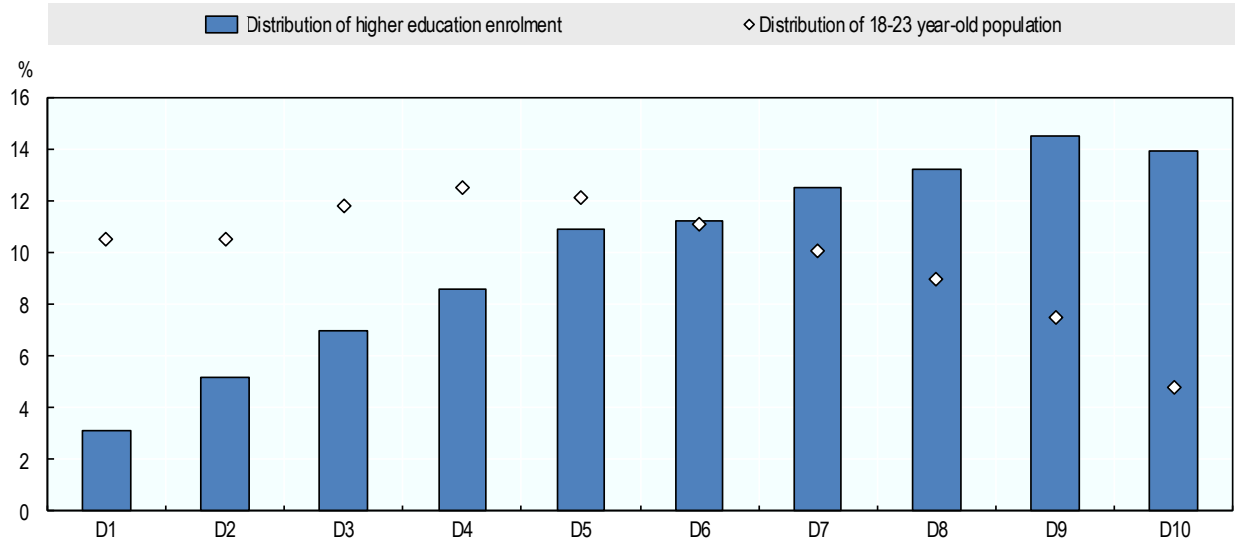
Figure 5.2. Participation of the poorest 50% among higher education students, circa 2000 and 2012



Source: Adapted from (Ferreyra et al., 2017[33]), *At a crossroads: higher education in Latin America and the Caribbean*.

Enrolment in higher education remains much higher among Mexican students from higher-income families than from lower income families (see Figure 5.3). In 2016, students from the lowest decile of family incomes accounted for only 3.1% of enrolments in higher education, while young adults ages 18 to 23—the age range used by SEP when calculating higher education "coverage" rates—from the lowest income decile accounted for 10.5% of the distribution of this age cohort across income deciles. Students from the highest income decile accounted for 13.9% of enrolments, while young adults ages 18 to 23 from the highest income decile accounted for only 4.8% of this age cohort.

Figure 5.3. Distribution of higher education enrolment and distribution of population of 18-23 year-olds, by income decile, 2016



Source: Adapted from (ANUIES, 2018[30]), *Visión y acción 2030*.

Although the national supply of study places has expanded, there appears to be some imbalances in aggregate demand and supply. According to data published by ANUIES, public higher education institutions offered about 890 000 study places at the undergraduate level in 2017-2018 (ANUIES, 2017[34]). In that same year, over 1 360 000 applications for first-time entry were reported in total across all public institutions, and the public system as a whole enrolled almost 700 000 first-time entrants. Private institutions, in aggregate, offered about 770 000 spaces, received about 550 000 applications for first-time entry and enrolled about 420 000 first-time entrants. While there are more first-time applicants than spaces available in the public system, the inverse is true in private institutions. In the combined public and private sectors, there are more first-time applicants than study places available, though it is possible that individual first-time applicants who apply to more than one institution are counted more than once. However, in both the public and private sectors, as well as overall, there are more spaces available than first-time enrolees. This suggests that the system has the potential to absorb more first-time applicants than it currently does, though this would depend on the extent to which available spaces are going to non-first-time applicants, as well as the geographic mobility and individual preferences of first-time applicants.

Regional and local imbalances in demand and supply also exist. While 14 states had more spaces available than first-time applicants in 2017, the remaining 18 states have more first-time applicants than spaces available (ANUIES, 2017[34]). However, it is important to distinguish the total number of places nominally available from those for which there is real demand. In the Mexico City metropolitan area, for example, the Secretariat of Public Education has argued that there are 120 000 more places available in the City of Mexico and the surrounding states of Morelos, Hidalgo and Mexico than the number of graduates from upper secondary in these areas. Thus, they argue, the supply of study places is sufficient to meet demand (SEP, 2016[35]). ANUIES reports that in these four entities, both individually and combined, the number of first-time enrolees was lower than the number of places available (ANUIES, 2017[34]).

Yet certain schools are in high demand, and there are reports that students would rather postpone their studies than attend a less selective institution, which suggests that the supply of quality study places - in other words, those in selective institutions - is not meeting the demand. Indeed, there have been recurring calls for a substantial expansion of enrolment capacity in higher education institutions with low admission rates, most especially at UNAM, where in 2017 about 9% percent of bachelor's programme applicants were admitted (UNAM, 2018[36]). It should be noted that this admission rate does not include those students admitted under UNAM's policy of *pase reglamentado,* whereby students who graduate from one of UNAM's associated upper secondary programmes and meet certain requirements are granted admission outside of the regular selection competition (UNAM, 2018[37]). Indeed, 55% of students admitted to bachelor's programmes entered under the *pase reglamentado* policy in 2017-2018.

In order to find alternative placements for those who were denied admission into highly selective universities in the Mexico City metropolitan area, including UNAM, the programme *Un lugar para tí* has been created. Through its online portal, students can select from available study programmes in participating public and private institutions in the Valley of Mexico Metropolitan Zone (greater Mexico City) and the states of Mexico, Hidalgo and Morelos (SEP, 2018[38]). Applicants are also offered access to scholarships at public institutions and preferential rates at private intuitions affiliated with FIMPES or ALPES. Whether the programme will significantly better balance student demand for coveted study places with supply remains to be seen.

Elsewhere in Latin America - and in OECD countries - leading public research universities within differentiated higher education systems have similarly low admission rates. In Brazil, about 7% of applicants at the University of São Paulo were admitted in 2017 (via competitive exams), while at the University of Campinas about 22% of applicants were accepted (University of São Paolo, 2017[39]; AEPLAN, 2018[40]). In the University of California at Berkeley about 18% and the University of Helsinki about 16% of applicants were admitted in 2017 (UC Berkeley, 2018[41]; University of Helsinki, 2018[42]). In these systems, the focus of policy is typically meeting aggregate demand rather than demand for study places in particular institutions, and efforts are made to ensure that students are able to obtain a study opportunity that is fitted to their needs, interests, and abilities within their higher education system. This is done though provision of study options of sufficient quality and relevance to all students, and by developing student tuition and maintenance support sufficient to permit students to freely choose among the options available to them. This is often accompanied by a unified and coordinated admissions process in which student preferences are prioritised and linked to available study places. Indeed, most OECD member and partner countries in their application process for entry into first-degree public tertiary programmes use either a fully centralised or combined centralised and direct to institutions method (OECD, 2017[43]).

Diversification in educational programmes available, but concerns about the resourcing, quality and relevance of new provision

The expansion of total enrolment capacity has been accompanied by the diversification of higher education programmes in Mexico with respect to: the range of missions or educational profiles offered by higher education institutions; location; and the modes of instruction available to learners. This diversification has had important consequences - both positive and negative - for equity.

New Types of Institutions

In terms of institutional profile, the most significant diversification has occurred in the area of technical and professionally oriented higher education in the public sector. Between 2006-2007 and 2016-2017, 217 new public higher education institutions (HEIs) created - not including new sites, campuses or units of or within existing institutions - were created, or about public 22 HEIs per year (Mendoza Rojas, 2018[44]). About 70% of these institutions (150 of these 217) were in the "technical sector", taking the form of Polytechnic Universities, federal and decentralised Institutes of Technology or Technological Universities. Public HEIs in the technical sector "tend to cater to less affluent students in search of job security," and, as described later in this chapter, they often struggle with lower rates of completion and fewer resources, particularly as compared to elite public schools (Ordorika, Rodríguez Gómez and Lloyd, 2018[45]). We discuss the specific challenges and opportunities faced in these institutional types in Chapter 6.

A second main type of diversification in institutional profile has been the creation and expansion of Intercultural Universities. In 2004, the first institution under the Intercultural University subsystem was created, though another institution, the Autonomous Indigenous University of Mexico in Sinaloa, had been established in 2001 to meet the higher education needs of indigenous persons (Mendoza Rojas, 2018[44]). The subsystem as such was the result of policies set forth in the 2001-2006 National Education Programme, which sought to promote inclusion of local and regional cultures and to meet the higher education needs of populations from traditionally excluded regions (SEP, 2001[46]). Specifically, the plan called for the establishment of innovative institutions that could: meet regional needs, with a focus on inter-culturalism; pertinently meet the increasing demand from indigenous populations; and promote ethnic and regional development and the development of indigenous cultures and languages (SEP, 2001[46]).

Intercultural Universities have been built in regions with large populations of indigenous persons, and, by 2006-2007, the sector had grown to five institutions and about 3 000 enrolees. By 2016-17, 11 institutions were in operation, between them enrolling over 14 000 students (Mendoza Rojas, 2018[44]). Intercultural Universities are small - seven out of 11 had fewer than 1 000 students in 2016-17 - and they have been the most heavily subsidised on a per student basis among public universities (Ordorika, Rodríguez Gómez and Lloyd, 2018[45]). For example, per student funding for the Intercultural University of the State of Puebla was about three times higher than the level of per student funding at the Metropolitan Polytechnic University of Puebla (Chapter 3).

However, on balance, the Intercultural Universities account for only 0.3% of total enrolment in higher education in 2016-2017 and they have accounted for only 1% of the growth in the total public enrolment since 2006-2007, although enrolment in Intercultural Universities leapt from about 3 000 enrolees to almost 15 000 in the same period. It is estimated that over half of students in Intercultural Universities are of indigenous origin (Mendoza Rojas, 2018[44]), while official statistics report that about 36% of students enrolled in these universities spoke an "original" language in 2016-2017 (SEP, 2018[47]). Though the precise figure of indigenous persons studying across all higher education institutions in Mexico is unknown, past estimates have placed this figure between 1% and 3% (Schmelkes, 2009[48]). Most indigenous persons study outside the Intercultural University subsystem.

These new Intercultural Universities - along with State Public Universities with Solidarity Support, most of which have been established in remote areas of the country and share

some characteristics with Intercultural Universities - have helped to substantially diversify the location of offer, ensuring that much larger proportion of higher education institutions were located outside of the nation's capital and traditional centres of learning.

Distance Education – Promise or Peril?

An important part of expanding access in Mexican higher education has been provided by the expansion of distance education. Accounting for 6-7% of all enrolment in higher education between 2000-2001 and 2006-2007, distance programme enrolment began to rise in 2007-2008, and by 2017-2018 had reached 15% of all higher education enrolment (ANUIES, 2018[30]). By field of study, the administration and business field and the social sciences and law field dominate at the undergraduate level, each representing about 32% of distance enrolment in 2017-2018 (ANUIES, 2017[34]). At the postgraduate level, education is the most popular field of study, with 39% of enrolees, followed by administration and business (31%) and social sciences and law (22%).

The private sector share of distance education provision has also grown: 28% of all distance programme enrolment in 2000-2001 was in the private sector, while in 2017-2018 it accounted for 65% of enrolment (ANUIES, 2018[30]). Notably, 61.8% of undergraduate enrolments and 81.4% of postgraduate enrolments in distance education programmes were from the private sector.

Since the late 1990s, Mexico had been discussing the possibility of the provision of distance education, as part of a global conversation on the use of information technology in higher education (Secretaría de Educación Pública, 2018[49]). In 2000, ANUIES called for the creation of a "virtual university", and in 2009, the first students were enrolled in the Secretariat of Public Education's Programme of Open and Distance Higher Education (*Programa de Educación Superior Abierta y a Distancia*). The programme ended in 2012 and by presidential decree the National Open and Distance Education University (UnADM), a federal university under the Secretariat of Public Education, was formally founded in the same year.

The aim of UnADM's creation was to use emerging information and communications technology to expand higher education coverage and provide access to quality programmes for those who were not able to participate in on-campus programmes (SEP, 2009[50]). In 2017-2018, UnADM accounted for 8.8% of all distance programme enrolment at the undergraduate level and 0.4% at the postgraduate level, and has the largest number of students enrolled in undergraduate distance programmes of any higher education institution in Mexico (ANUIES, 2018[30]). In 2017-2018 about 14% of all undergraduate students and 32% of all postgraduate students were enrolled in distance education programmes (ANUIES, 2018[30]).

The expansion of distance education holds the potential to widen opportunities for study among students who are far from campuses, or whose work and family obligations may not permit conventional site-based study. However, distance educational models bring with them specific challenges in terms of development of effective pedagogical approaches, motivation and follow-up of students and effective use of technology.

Rigorous experimental and quasi-experimental research reveals that the effectiveness of distance education varies by how its provision is organised and by the types of students it serves. Pure online education, with no face-to-face instruction, produces significantly worse learning outcomes than blended courses, in which students spend time both in a physical classroom with an instructor and time online with instructional videos and digital

content (Escueta et al., 2017[51]). Online courses are especially difficult for students who are least prepared. "These students' learning and persistence outcomes are worse when they take online courses than they would have been had these same students taken in-person courses" (Bettinger and Loeb, 2017[52]).

Mexico's National Open and Distance Education University (UnADM) has taken special measures to address the risks associated with distance education, both in the design of its courses and in providing learner support. However, UnADM provides only a very small share of distance education at the undergraduate level, and virtually none of Mexico's postgraduate distance education. While it is a federal institution that is affiliated to the Secretariat of Public Education, it is not currently positioned to play a leading role - though it could play this role in the future - in shaping the delivery of distance education throughout the nation's higher education system, whether through research, identification and dissemination of best practices, training or advising with respect to quality assurance.

Most distance education is provided by private institutions, and offered in programmes that have not participated in external evaluation or accreditation (Chapter 4). Much of it delivered in ways, and to students, that does not lead to successful outcomes. Some of the public institutions developing distance education programmes with which the review team met did not appear to possess a well-developed understanding of its limitations and pedagogical demands.

Under the current policy framework, distance education is an attractive low-cost means for expanding the nation's higher education enrolments, but it offers an educational option to vulnerable student populations that carries an elevated risk of little learning and high drop-out.

Social stratification within the Mexican higher education system limits its capacity to promote equity

The Mexican federal government does not collect and report data on the socio-economic backgrounds of students in each of the different subsystems of higher education. However, the higher education institutions with which the OECD Review Team met identified the composition of their student bodies. They did this using "multiples of minimum income" as the metric with which to describe their student profile. Their accounts, taken in total, point to social stratification among higher education institutions – with normal schools, Intercultural Universities, Technological Universities, Institutes of Technology, and low-cost private institutions serving a comparatively large share of students from disadvantaged social backgrounds. Using this field interview data, we note several patterns.

Many students from families in lower income deciles study in public higher education institutions in the technology sector operating with modest physical, financial and human resources. The *Instituto Tecnológico de Pachuca*, for example, is reported to have the highest percentage of low-income students among higher education institutions in the state of Hidalgo. This HEI reported a 2017 operating budget - from all sources of revenue - equivalent to MXN 32 368 per student, a per-student funding base substantially lower than that of institutions serving more affluent student populations. This can be compared to a reported per student funding level of MXN 29 810 at *Universidad Politécnica de Pachuca* and a funding level of MXN 123 588 at UNAM in fiscal year 2018 (UNAM, 2017[53]).

Elite public and private institutions in Mexico disproportionately educate students from families in the highest income deciles, many of whom have studied at *preparatorias* within higher education institutions, or private upper secondary schools. As noted earlier in this chapter, 55% of students admitted into bachelor's programmes at the Autonomous National University of Mexico entered under the *pase reglamentado* policy available only to those who attended associated *preparatoria* programmes.

Students from the lowest income deciles are disproportionately enrolled in inexpensive and comparatively low status private higher education institutions, popularly known in Mexico as *patitos* (ducklings).

Higher education institutions that serve disadvantaged student populations appear often to have high rates of non-completion, though comparable figures are not readily accessible due to gaps in data collection and reporting. Mexico does not have a true cohort-based graduation rate for higher education. The measure used to report on completion is the "terminal efficiency" rate. This rate is calculated by dividing the number of students exiting the institution at the end of their programme (*egresados*) in a given school year by the stock of new entrants (*primero ingreso*) four school years prior (under the assumption that higher education programmes take five years on average to complete). In 2016-17 this ratio was 69.4% nationally for higher education (Gobierno de los Estados Unidos Mexicanos, 2017[54]).

Behind this national rate there appears to be wide variation among institutions in rates of completion, with institutions serving disadvantaged populations having low rates of completion. The *Instituto Tecnológico de Pachuca* offers one postgraduate programme recognised for its quality by CONACYT (CONACYT, 2018[55]) and nine bachelor's programmes accredited by COPAES (three of which were, at the time of writing, in "extension" status pending re-accreditation) (COPAES, 2017[56]), and about 15% of its full-time instructors are recognised for their "desirable profile" in PRODEP (SEP, 2018[57]). Notwithstanding this commitment to quality, "45% of all enrolled students complete their academic programme [and] 38% of all enrolled students obtain their Degree" (Instituto Tecnológico de Pachuca, 2018[58]). The Autonomous University of Mexico City (*Universidad Autónoma de la Ciudad de México*) was established to widen access to higher education and to give "preferential support" to those populations who struggle most to meet their educational needs (UACM, 2018[59]). However, it had a 2016-17 terminal efficiency rate of 9% for students in *Licenciatura* programmes, with 3 097 first-time entrants in 2012-2013 and 266 students exiting at end of programme in 2016-2017 (ANUIES, 2017[34]). By comparison, among elite private schools, the consistently top-rated *Tecnológico de Monterrey* had a graduation rate of 70.1% in 2016-2017, with graduation rate defined as graduating "within 150% of the estimated time for a full-time student" (Tecnológico de Monterrey, 2018[60]).

Graduates of Mexico's leading universities, such as *Tecnológico de Monterrey,* appear to be more likely to complete their studies and to achieve strong employment outcomes. Within three months of graduation, 85.3% of undergraduates in 2016-2017 were employed, and the institution ranked first in Mexico and second in Latin America in employability rankings (Observatory of Educational Innovation, 2018[61]). Such labour market outcome data are not readily available for most HEIs, so reliable comparisons among higher education institutions are difficult. However, many disadvantaged students are enrolled at higher education institutions that are weakly engaged with employers and labour market demands, such as so-called *patitos.* These graduates may find it difficult to

gain formal employment - or employment in positions requiring higher education training - after completing their studies.

5.2.4. Some support for learners exists, but responsibilities of institutions are insufficiently defined and support is provided inconsistently across the higher education system and lacks precise targeting

Higher education systems that achieve high levels of equity ensure that a wide range of students obtain a high quality secondary education and that opportunities for higher education study are sufficiently numerous and varied to meet demand. Ideally, they also adopt policies permitting students to study without regard to their ability to pay, and ensure that higher education institutions attend to the academic, health and socio-emotional challenges that permit students to achieve success in their studies.

Governments in many OECD countries develop policy frameworks and incentive programmes for higher education institutions to promote inclusion and encourage institutions to support students from less advantaged backgrounds. The sections below review the development and effectiveness of these aspects of government policy and institutional practice.

Federal steering mechanisms to promote inclusion at institutional level

A range of laws and policies exist at the federal level designed to combat discrimination, promote inclusion, and improve equity in Mexican higher education (Alcántara Santuario and Navarrete Cazales, 2014[62]). However, Mexican higher education institutions are not under legal obligation to provide a defined set of student supports and services available to all students, nor are they obligated to provide specific supports to particular student populations, such as students with disabilities. Indeed, most institutions are not aware of the existence of students with disabilities on their campuses (Cruz Vadillo and Casillas Alvarado, 2017[63]), and few are prepared to provide the range of supports and services that would allow them to integrate fully into HEIs (Pérez-Castro, 2016[64]).

One funding stream by which the federal government has attempted to steer institutions to better serve vulnerable populations is the Programme for Inclusion and Educational Equity (federal budget programme S244) which aims to "increase coverage, inclusion and educational equity" (SEP, 2016[65]). Through competitive calls for proposals run by SEP, the programme funds specific projects to help institutions, particularly those with infrastructure and equipment needs, provide educational services to vulnerable populations. A recent evaluation of the programme found a number of important deficiencies. Some institutions receiving funds may already be well-equipped to serve the target population; there is no documented federal strategy for increasing participation rates among target populations; there are no documented technical criteria for constituting the expert committees that approve projects; and there are no documented criteria for deciding which projects will be approved and how they will be prioritised in case of limited funding (N.I.K. Beta S.C., 2018[66]).

Even without government stimulus, some individual higher education institutions in Mexico adopt thoughtful and systemic measures to support the academic, health, and socio-emotional needs of higher education students. The OECD Review Team saw evidence of good practice in some higher education institutions. However, little is known about the range of supports that institutions choose to provide, which institutions make this provision available, and the scope of its use and effectiveness. Federal authorities do

not routinely collect information from higher education institutions about student services, or information from students about their use.

Institutional pricing

Public higher education institutions in Mexico are committed to a policy of minimal fees and charges, and their commitment to this policy is maintained by strongly held social and political convictions with respect to this choice. In the view of those who lead public institutions, maintaining symbolic or very low fees for study is an important means by which to promote equity. As UNAM's Rector Enrique Luis Graue Wiechers stated, "We are in a country which is full of inequality, where there is a huge difference between rich and poor. If we charge [the students] tuition, it would limit their access to higher education, which would mean that we would contribute to ongoing inequality" (The Guardian, 2016[67]).

Seen from an economic vantage point, a decision to charge no fees (or, nominal fees) is an untargeted subsidy, the benefits of which often accrue to middle-income families that have the ability to pay fees. In some higher education systems where there are no tuition fees, such as the Nordic countries, the regressivity of this fee policy coupled with high levels of taxation is accepted as part of a cultural belief "that families and/or students should not have to pay for the instructional costs of tertiary education" (OECD, 2008, p. 179[68]). This tax structure, however, is not present in Mexico. A more equitable tuition pricing policy would be to link tuition fees to the student's ability to pay, reducing fees to zero (and providing maintenance grants) through a targeted, means-tested subsidy for those who cannot pay.

Autonomous public universities in Mexico, which are authorised to set their own tuition fee policies, typically charge symbolic or very low fees for registration and/or tuition. In 2015-16, *Benemérita Universidad Autónoma De Puebla* (BUAP) charged MXN 100 (about five USD) per semester for undergraduate study. The nation's largest public university, UNAM, charged an annual registration fee of MXN 200 (about 10 USD), and a per course registration fee of MXN 60 (about three USD).

Private institutions, in contrast, charged tuition fees for higher education studies at the bachelor and postgraduate degree levels that averaged, together, USD 4 711 (PPP) for full-time students in 2014-2015 (OECD, 2018, p. 301[8]). Pricing by private institutions is linked to selectivity, reputation and programme mix. The *Tecnológico de Monterrey*, an internationally ranked research institution, is able to set an annual tuition fee of MXN 111 168 per semester (USD 5 913) (PIE, 2018[69]). At Anahuac University, a private institution with facilities and study programmes modelled on private institutions in the United States, registration and tuition fees total MXN 112 000 per semester. Large for-profit companies, such as Laureate International in Mexico City, offer convenience-oriented programmes (with flexible schedules and shorter programmes) combined with relatively lower costs ranging from MXN 24 000 (USD 1 630) to MXN 93 000 (USD 6 500) per semester in Mexico City (International Finance Corporation, 2015[70]).

Student Financial Support

Mexico supports public higher education students though a system of federally funded and sometimes state co-funded student grants known as the National Scholarships Programme (*Programa Nacional de Becas*, formerly known as PRONABES[3]). There is no federal public student loan programme. The National Scholarships Programme is managed by the National Coordination office for Higher Education Scholarships

(CNBES), which operates under the guidance of SEP's Under-secretariat for Higher Education. Various scholarships are available to undergraduate students, postgraduate students, and teachers under this programme, the largest of which is the Maintenance Scholarship (*Beca de Manutención*). This scholarship is available to Mexican undergraduate students in public institutions who meet a minimum grade point average and whose monthly household per capita income does not exceed four times the national minimum salary per capita in the country. The national minimum salary per capita was MXN 2 905.53 in autumn 2018, calculated by dividing four times the monthly minimum salary by the average household size. Recipients of this scholarship are also eligible for additional support for transportation allowances if the recipient or their family is a beneficiary of the PROSPERA programme or if the recipient spends MXN 500 or more per month in transportation to reach their educational institution (SEP, 2018[71]). According to SEP's latest quarterly update, 486 340 students have received a Maintenance Scholarship during the 2017/18 school year, and 120 133 received a transportation supplement (Subsecretaría de Educación Superior, 2018[72]).

Additional federally funded scholarships are available, as well as some state-level/state-funded grants that target special populations or state residents. The *Beca Inicia tu Carrera SEP-Prospera*, designed for students in economic need and to prevent drop-outs, provides MXN 5 500 to first-year and MXN 5 980 to second-year undergraduate students whose families are beneficiaries of the *Prospera* programme (CNBES, 2018[73]). States also implement their own support schemes. Scholarships are available in the State of Mexico for economically disadvantaged students who are at risk of dropping out (*Becas desarrollo Social Permanencia Escolar*), for indigenous students (*Becas para Estudiantes Indígenas*), for students in teacher education schools (*Becas para Estudiantes Destacados en Escuelas Normales*), and to promote international studies and experiences (*Becarios y Becarias de Excelencia*) (Gobierno del Estado de México, 2018[74]).

Public institutions may also supplement federal and state scholarships with institutional funds, including funds provided by public foundations that they have established. At the Autonomous Benemérita University of Puebla, for example, students with demonstrated academic abilities have access to scholarships and awards for achievements and research, as well as opportunities to receive financial aid through participating in intern programmes (BUAP, 2018[75]). The *Fundacíon BUAP*, an autonomous non-profit foundation, provides scholarships and aid for disadvantaged students at risk of dropping out, among its many activities (Fundación BUAP, 2018[76]).

Private higher education institutions are not eligible to participate in the National Scholarships Programme. Although students pay tuition fees to study, and some of them have sufficiently low incomes that would make them otherwise eligible to obtain financial support, they cannot do so because they are enrolled at a private institution. Instead, private institutions are obligated, as a condition of obtaining a RVOE, to award financial support to some of their students. Institutions are responsible for providing scholarships to five percent of students who are "in need of assistance" to commence, continue or complete their studies, taking into account a student's socio-economic situation . Annual reporting of scholarship awards to the entity awarding the RVOE (e.g. state government) is part of the annual reporting requirements private institutions are to carry out for continued validation of their RVOE. Some private institutions assist students in obtaining loans to finance their studies. According to interviews conducted by the review team, these loans are not capitalised or recovered through higher education institutions themselves, but instead through banks, which offer loans based upon criteria of borrower creditworthiness.

5.3. Key recommendations

5.3.1. Focus efforts on increasing quality in school education to promote equitable access to higher education

The "pipeline" leading to higher education requires continued improvement. More disadvantaged students need better opportunities to continue their studies towards completion of upper secondary education, and to obtain a high quality upper secondary education. While secondary education is outside the purview of this review, we note that some continuing challenges merit further attention on the part of Mexican education authorities. Efforts to expand coverage and increase the quality of higher education institutions need to take into account that many students are finishing upper secondary education with low skills, if they finish (or enter) at all. Key priorities include:

Improve the quality of upper secondary education available to disadvantaged students, not just its duration

- To raise the rate at which disadvantaged youth complete upper secondary education, the government has attempted to reduce financial barriers to continued study. The *Prospera* programme and its precursors have since 2001 reduced the costs of continued study by providing cash transfers to beneficiaries and their families conditional on school attendance. Independent and rigorous evaluations have shown that the programme increases persistence in schooling.
- Large-scale international assessments of adult skills (such as PIAAC) provide strong evidence that additional years of schooling and higher levels of educational attainment can vary widely in their contribution to the skills acquired by adults. Where the quality of education offered to disadvantaged students is uneven – or consistently poor – persistence in schooling may not yield measurable gains in numeracy and literacy skills needed for success in labour markets or higher education. Moreover, research using PIAAC data suggests that "a national HE sector's success in fostering its participants' skills generally reflects the success of the lower educational sectors" (Lindberg and Silvennoinen, 2017[77]). Consequently, additional time in school must be of higher quality if it is to translate into stronger skills and increased rates of entry into higher education.

Use performance-based funding to reward upper secondary institutions for achievement among disadvantaged students

- Given the long tradition and the large scale of involvement by Mexico's universities in *preparatoria* education - and their broad geographic dispersion - they might be key to quality improvement. For example, performance-based funding premia for strong CENEVAL higher education entrance examination results among disadvantaged students might provide universities with *preparatoria* programmes with helpful incentives to enrol more disadvantaged students and strongly support their upper secondary studies.

5.3.2. Ensure sufficiency of provision – adequate supply, diversity, and sufficient minimum quality

Equity in higher education is achieved, in part, by providing wide opportunities for study adequate to meet student demand; programmes of study that are sufficiently varied to

meet the needs of all learners; and courses offered at a level of quality and relevance sufficient to assure that students and society will benefit from their completion. In the first - and especially the last of these conditions - there is scope for improvement in Mexico.

Continue and expand efforts to improve the matching of student demand with enrolment opportunities

- Mexico appears to have a problem in some regions, rather than a national problem, in balancing enrolment demand and supply, particularly in the Mexico City metropolitan area. While the *Un lugar para tí* programme in the greater Mexico City region attempts to match students with schools with available spaces, it currently serves as an ex-post strategy for students who have already been rejected from the most competitive institutions. The balancing of demand and supply in upper secondary education through a common examination (COMIPEMS) and matching process in Mexico City - with students indicating more than one preferred institution, campus, and programme - could provide a model that can better improve the matching of students to enrolment opportunities.

Improve the quality of provision and quality assurance

- The largest challenge in providing higher education opportunities for disadvantaged students is that they appear often to be enrolled in study programmes that are poorly resourced, and of limited quality and relevance. Elsewhere we take up an analysis of quality assurance in higher education (Chapter 4). Here we note that quality is important for the establishment of a more equitable higher education system.

Collect better equity-relevant data and make these data easily accessible to the public

- Federal authorities need better data about students to more fully understand and address issues of equity. For example, SEP does not collect reliable and comparable data on the socio-economic background of students in each public higher education institution (and subsystem). This prevents the federal and state authorities from designing of equity-oriented funding methodologies that allocate resources based on student characteristics, and limits transparency with respect to the equity performance of public institutions.
- There is no single web page or portal for all higher education data, including key input indicators such as admission rates, coverage and enrolment; key outcome indicators such as graduation rate, completion rate, "terminal efficiency" and drop-out rates; and quality indicators such as accreditation status, standardised exam scores and teacher quality. This web page or portal should aggregate data from various sources – such as censuses and Formats 911 – and should allow the user to disaggregate the data along any indicator by subsystem, subgroup, modality, institution, area of study and other categories relevant to equity.
- The use of a unique student identifier – which could take the form of use of the Unique Population Registry Code (CURP) – would allow for the collection of longitudinal data across the education pipeline, producing true cohort-based

measures with respect to completion of studies and transitions into the labour market.

5.3.3. Strengthen student support

Give priority to the improvement of high-quality student support programmes in higher education institutions

- There is a need to provide additional supports beyond financial assistance to students. These additional supports could include mandatory institutional services and accommodations for students with special needs, as well as counselling and socio-emotional support for all students.
- Funding to institutions through the PIEE target student populations with specific needs, and this model can be improved. While PIEE provides financial support for institutional projects that promote equity and inclusion, funds are awarded competitively, which implies that some institutions may not be able to adequately serve students with specific needs. Moreover, funding is short-term and ad-hoc, and not part of a clear strategy to ensure all students have access to needed supports.
- One or more extraordinary (competitive) funding programmes should be refocused on the development of student support programmes, giving preference to higher education institutions serving larger numbers of disadvantaged students, and inviting them to adopt student support practices that research has shown to be effective.

Specify in law or regulation student supports that HEIs must provide -- and will be held accountable for -- particularly for vulnerable populations such as students with disabilities

- This should be done through the creation of a new law or regulation or the creation of additional conditions to the use of federal funds, backed by monitoring of compliance that leads to effective penalties (e.g. loss of funding).

Require, at a minimum, that all student support and extraordinary funding programmes offer a clear model of their logic – and that selected programmes demonstrate their impact

- Evaluating programmes is slow and costly, and cannot routinely be undertaken. However, all programmes meant to benefit specific student populations should be required to provide, at a minimum, a clear logic model. Logic models connect actions to expected outcomes - often expressed in changes in student performance and achievement, by linking resources, activities, outputs, and outcomes.

Improve the targeting of maintenance scholarships (and related transportation benefit) by making it a fully federalised benefit

- Maintenance scholarships and transportation benefits should be, preferably, a federal programme. Specifically, as a federal programme student need would be assessed according to a federal methodology, the student benefit would be

calculated based upon a federally established payment schedule, and the benefit would be a student entitlement applicable to any institution in which they enrol.

- This would increase transparency, improve the targeting of support to those most in need, and support student mobility.

Consider restoring lost purchasing power of Maintenance Scholarships – in combination with a fully federalised benefit - linking them to a consumer price index to maintain stable purchasing power

- Maintenance scholarships are not a mandated benefit indexed to a cost of living, and they have lost purchasing power, since raising the benefit requires legislative authorisation and therefore occurs infrequently.

Extend public scholarships to private institutions and link eligibility for such student financial assistance to participation in quality assurance

- If maintenance scholarships were established as a fully federal benefit, with a common methodology of the determination of financial need and the calculation of benefits, then students enrolled in private institutions that have undergone institutional accreditation or participate widely in quality assurance processes recognised by SEP should be able to obtain support as their peers do in public institutions. This has the potential to reduce inequities in student support, and to provide strong incentives for private institutions to assure the quality of their programmes.

Notes

[1] The Project on Ethnicity and Race in Latin America (PERLA) is a collaborative project led by researchers at Princeton University (USA). The Center of Research and Higher Education in Social Anthropology (CIESAS) and the National Council to Prevent Discrimination (CONAPRED) in Mexico participate in this project. For further information, see https://perla.princeton.edu/.

[2] For a more detailed discussion on the strengths and challenges in Mexican schools, see the forthcoming review of school policies in Mexico (OECD, 2019[78]).

[3] Programa Nacional de Becas para Estudios Superiores

References

AEPLAN (2018), *Anuário Estatístico 2017*, Assessoria de Economia e Planejamento (AEPLAN), Campinas, https://www.aeplan.unicamp.br/anuario/anuario.php (accessed on 23 October 2018). [39]

Alcántara Santuario, A. and Z. Navarrete Cazales (2014), "Inclusión, equidad y cohesión social en las políticas de educación superior en México", *Revista mexicana de investigación educativa*, Vol. 19/60, pp. 213-239, http://www.scielo.org.mx/scielo.php?script=sci_arttext&pid=S1405-66662014000100010 (accessed on 15 October 2018). [61]

ANUIES (2018), *Visión y acción 2030: Propuesta de la ANUIES para renovar la educación superior en México*, Asociación Nacional de Universidades e Instituciones de Educación Superior (ANUIES), México, D. F., http://www.anuies.mx/media/docs/avisos/pdf/VISION_Y_ACCION_2030.pdf (accessed on 9 October 2018). [30]

ANUIES (2017), *Anuarios Estadísticos de Educación Superior*, http://www.anuies.mx/informacion-y-servicios/informacion-estadistica-de-educacion-superior/anuario-estadistico-de-educacion-superior (accessed on 09 October 2018). [33]

Bentaouet Kattan, R. and M. Székely (2015), "Patterns, Consequences, and Possible Causes of Drop-out in Upper Secondary Education in Mexico", *Education Research International*, Vol. 2015, pp. 1-12, http://dx.doi.org/10.1155/2015/676472. [16]

Bettinger, E. and S. Loeb (2017), "Promises and pitfalls of online education", *Evidence Speaks Reports*, Vol. 2/15, p. 4, https://www.brookings.edu/wp-content/uploads/2017/06/ccf_20170609_loeb_evidence_speaks1.pdf (accessed on 23 November 2018). [51]

Binelli, C. and M. Rubio-Codina (2013), "The Returns to Private Education: Evidence from Mexico", *Economics of Education Review*, Vol. 36, pp. 198-215, http://dx.doi.org/10.1016/J.ECONEDUREV.2013.06.004. [21]

BUAP (2018), *Scholarship Programs and Financial Aid*, Benemérita Universidad Autónoma de Puebla (BUAP), http://cmas.siu.buap.mx/portal_pprd/wb/English/scholarship_programs_and_financial_aid (accessed on 16 October 2018). [74]

CDI (2015), *Indicadores Socioeconómicos de los Pueblos Indígenas de México*, Comisión Nacional para el Desarrollo de los Pueblos Indígenas (CDI), https://www.gob.mx/cdi/articulos/indicadores-socioeconomicos-de-los-pueblos-indigenas-de-mexico-2015-116128?idiom=es (accessed on 30 August 2018). [6]

CEDLAS and The World Bank (2017), *Socio-Economic Database for Latin America and the Caribbean*, http://www.cedlas.econo.unlp.edu.ar/wp/en/estadisticas/sedlac/estadisticas/ (accessed on 30 August 2018). [10]

CNBES (2018), *Conoce las convocatorias de Becas para Educación Superior*, Coordinación Nacional de Becas de Educación Superior (CNBES), CDMX, https://www.gob.mx/sep/articulos/conoce-las-convocatorias-de-becas-de-eduacion-superior-mas-recientes?idiom=es (accessed on 16 October 2018). [72]

CONACYT (2018), *Padrón del Programa Nacional de Posgrados de Calidad*, Consejo Nacional de Ciencia y Tecnología (CONACyT), Ciudad de México, http://svrtmp.main.conacyt.mx/ConsultasPNPC/padron-pnpc.php (accessed on 22 October 2018). [54]

CONEVAL (2017), *Ficha de Monitoreo 2016-2017 - PROSPERA Programa de Inclusión Social*, Consejo Nacional de Evaluación de la Política de Desarrollo Social (CONEVAL), Ciudad de México, https://www.coneval.org.mx/Evaluacion/Documents/EVALUACIONES/FMyE_2016_2017/FMyE_20_S072.pdf (accessed on 08 October 2018). [24]

CONEVAL (2017), *Medición de la Pobreza*, https://www.coneval.org.mx/Medicion/Paginas/PobrezaInicio.aspx (accessed on 2018 August 30). [1]

COPAES (2017), *Padrón de Programas Acreditados a Nivel Nacional*, Consejo para la Acreditación de la Educación Superior A.C. (COPAES), Ciudad de México, http://www.copaes.org/consulta.php (accessed on 22 October 2018). [55]

Cruz Vadillo, R. and M. Casillas Alvarado (2017), "Las instituciones de educación superior y los estudiantes con discapacidad en México", *Revista de la Educación Superior*, Vol. 46/181, pp. 37-53, http://dx.doi.org/10.1016/j.resu.2016.11.002. [62]

de Janvry, A., A. Dustan and E. Sadoulet (2012), *The Benefits and Hazards of Elite High School Admission: Academic Opportunity and Drop-out Risk in Mexico City*, University of California, Berkeley, https://www.dartmouth.edu/~neudc2012/docs/paper_87.pdf (accessed on 09 October 2018). [19]

Escueta, M. et al. (2017), "Education Technology: An Evidence-Based Review"*, NBER Working Paper Series*, No. 23744, National Bureau of Economic Research, Cambridge, http://www.nber.org/papers/w23744 (accessed on 23 November 2018). [50]

Ferreyra, M. et al. (2017), "At a Crossroads : Higher Education in Latin America and the Caribbean", *Directions in Development—Human Development*, World Bank, Washington, DC., https://openknowledge.worldbank.org/handle/10986/26489. [32]

Fundación BUAP (2018), *Becas y apoyos a estudiantes*, Fundación de la Benemérita Universidad Autónoma de Puebla (BUAP) A.C., http://www.fundacionbuap.org.mx/webFB01/ (accessed on 16 October 2018). [75]

Gobierno de los Estados Unidos Mexicanos (2017), *5to Informe de Gobierno 2016-2017: Anexo Estadístico*, Presidencia de la República, Ciudad de México, https://framework-gb.cdn.gob.mx/quintoinforme/5IG_ANEXO_FINAL_TGM_250818.pdf (accessed on 14 October 2018). [53]

Gobierno del Estado de México (2018), *Becas*, Secretaría de Educación, Toluca, http://seduc.edomex.gob.mx/becas (accessed on 16 October 2018). [73]

INEE (2017), *Breve panorama educativo de la población indígena*, Instituto Nacional para la Evaluación de la Educación (INEE), Ciudad de México, http://publicaciones.inee.edu.mx/buscadorPub/P3/B/107/P3B107.pdf (accessed on 21 October 2018). [5]

INEE (2017), *Planea: Resultados nacionales 2017 Educación Media Superior*, Instituto Nacional para la Evaluación de la Educación (INEE), http://planea.sep.gob.mx/content/general/docs/2017/ResultadosNacionalesPlaneaMS2017.PDF (accessed on 06 October 2018). [20]

INEGI (2017), *Encuesta Nacional Sobre Discriminación 2017: Resultados Principales*, Instituto Nacional de Estadística y Geografía (INEGI), http://www.beta.inegi.org.mx/contenidos/proyectos/enchogares/especiales/enadis/2017/doc/enadis2017_resultados.pdf (accessed on 07 August 2018). [7]

INEGI (2016), *Encuesta Intercensal 2015*, Instituto Nacional de Estadística y Geografía (INEGI), http://www.beta.inegi.org.mx/proyectos/enchogares/especiales/intercensal/ (accessed on 27 October 2018). [4]

Instituto Tecnológico de Pachuca (2018), *Interview with Instituto Tecnológico de Pachuca*. [57]

International Finance Corporation (2015), *Affordable Higher Education in Mexico: Implications for Career Advancement and Social Mobility Acknowledgements Charles from C230 Consultores*, https://www.ifc.org/wps/wcm/connect/130ebb00483535468aceff299ede9589/IFC+-+Laureate+Affordable+Higher+Education+in+Mexico+C230+Final+Report+confidential+clause+removed.pdf?MOD=AJPERES (accessed on 15 October 2018). [69]

Lindberg, M. and H. Silvennoinen (2017), "Assessing the basic skills of the highly educated in 21 OECD countries: an international benchmark study of graduates' proficiency in literacy and numeracy using the PIAAC 2012 data", *Comparative Education*, Vol. 54/3, pp. 325-351, http://dx.doi.org/10.1080/03050068.2017.1403676. [76]

Institucional, C. (ed.) (2018), *Subsistemas de Educación Superior. Estadística básica 2006-2017*, DGEI-UNAM, Ciudad de México, https://www.ses.unam.mx/integrantes/uploadfile/jmendoza/Mendoza2018_SubsistemasDeEducacionSuperior.pdf. [43]

N.I.K. Beta S.C. (2018), *Evaluación de Consistencia y Resultados 2017-2018: Programa para la Inclusión y la Equidad Educativa Secretaría de Educación Pública*, Secretaría de Educación Pública, https://www.gob.mx/cms/uploads/attachment/file/344504/Informe_Final_-_S244_Programa_para_la_Inclusio_n_y_la_Equidad_Educativa.pdf (accessed on 15 October 2018). [65]

Observatory of Educational Innovation (2018), *The best universities in the employability of their graduates*, Tecnológico de Monterrey, Monterrey, https://observatory.itesm.mx/edu-news/the-best-universities-in-the-employability-of-their-graduates (accessed on 14 October 2018). [60]

OECD (2019), *Strong Foundations for Quality and Equity in Mexican Schools*, OECD Publishing (forthcoming), Paris. [78]

OECD (2018), *Education at a Glance 2018: OECD Indicators*, OECD Publishing, Paris, http://dx.doi.org/10.1787/eag-2018-en. [8]

OECD (2018), *Education Policy Outlook: Mexico*, http://www.oecd.org/education/policyoutlook.htm. [12]

OECD (2018), *OECD Gender Data Portal*, http://www.oecd.org/gender/data/ (accessed on Augsut 2018 30). [9]

OECD (2018), *OECD Regional Statistics*, https://doi.org/10.1787/region-data-en. [2]

OECD (2017), *Education at a Glance 2017: OECD Indicators*, OECD Publishing, Paris, https://doi.org/10.1787/eag-2017-en. [42]

OECD (2017), *OECD Economic Surveys: Mexico 2017*, OECD Publishing, Paris, http://dx.doi.org/10.1787/eco_surveys-mex-2017-en. [3]

OECD (2017), "Policy outcomes of early childhood education and care: Performance at age 15, impact for disadvantaged children, effect on health and well-being, and mother employability", in *Starting Strong 2017: Key OECD Indicators on Early Childhood Education and Care*, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264276116-7-en. [13]

OECD (2016), *PISA 2015 Results (Volume I): Excellence and Equity in Education*, PISA, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264266490-en. [15]

OECD (2016), *Results for PISA 2015 - Country Note: Mexico*, https://www.oecd.org/pisa/PISA-2015-Mexico.pdf (accessed on 2018 October 4). [14]

OECD (2013), *PISA 2012 Results: Excellence through Equity (Volume II): Giving Every Student the Chance to Succeed*, PISA, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264201132-en. [11]

OECD (2008), *Tertiary Education for the Knowledge Society: Volume 1 and Volume 2*, OECD Reviews of Tertiary Education, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264046535-en. [67]

Ordorika, I., R. Rodríguez Gómez and M. Lloyd (2018), "Mexico: the dilemmas of federalism in a highly politicized and semi-decentralized system", in Martin Carnoy et al. (eds.), *Higher Education in Federal Countries: A Comparative Study*, SAGE Publications Pvt. Ltd, New Delhi, https://uk.sagepub.com/en-gb/eur/higher-education-in-federal-countries/book263092. [44]

Ortega Hesles, M. (2015), *School Choice and Educational Opportunities: The Upper-Secondary Student-Assignment Process in Mexico City*, Doctoral dissertation, Harvard Graduate School of Education, http://nrs.harvard.edu/urn-3:HUL.InstRepos:16461054 (accessed on 09 October 2018). [18]

Parker, S. and T. Vogl (2018), *Do Conditional Cash Transfers Improve Economic Outcomes in the Next Generation? Evidence from Mexico*, National Bureau of Economic Research, Cambridge, http://dx.doi.org/10.3386/w24303. [27]

Pérez-Castro, J. (2016), "La inclusión de las personas con discapacidad en la educación superior en México", *Sinéctica, [S.l.]* 46, https://sinectica.iteso.mx/index.php/SINECTICA/article/view/614/753 (accessed on 15 October 2018). [63]

PIE (2018), *Costos*, Plan de Inversión Educativa (PIE), Instituto Tecnológico y de Estudios Superiores de Monterrey, México, http://pie.itesm.mx/costos (accessed on 15 October 2018). [68]

Schmelkes, S. (2009), "Intercultural universities in Mexico: progress and difficulties", *Intercultural Education*, Vol. 20/1, pp. 5-17, http://dx.doi.org/10.1080/14675980802700649. [47]

Secretaría de Educación Pública (2018), *Antecedentes - Universidad Abierta y a Distancia de México*, https://www.unadmexico.mx/index.php/2015-09-09-22-32-08/antecedentes (accessed on 12 October 2018). [48]

Secretariat of Social Development (2017), *ACUERDO por el que se emiten las Reglas de Operación de PROSPERA Programa de Inclusión Social, para el ejercicio fiscal 2018.*, Diario Oficial de la Federación, Estados Unidos Mexicanos, https://www.gob.mx/cms/uploads/attachment/file/285177/ROP_PROSPERA_2018_dof.pdf (accessed on 08 October 2018). [25]

Secretariat of Social Development (2008), *External Evaluation of Oportunidades 2008. 1997-2007: 10 Years of Intervention in Rural Areas Volume I: Impacts of Oportunidades After 10 Years of Operation in Rural Mexico*, Coordinación Nacional del Programa de Desarrollo Humano Oportunidades, México, D.F., http://lanic.utexas.edu/project/etext/oportunidades/2008/gonzalez_eng.pdf (accessed on 08 October 2018). [22]

Secretariat of Social Development (1999), *Progresa: Más oportunidades para las familias pobres: Evaluación de Resultados del Programa de Educación, Salud y Alimentación*, Secretaría de Desarrollo Social, México, https://evaluacion.prospera.gob.mx/es/wersd53465sdg1/docs/1999/1999_libro_evaluacion.pdf (accessed on 08 October 2018). [23]

SEP (2018), *Comunicado 200.- Ofrece SEP espacios en educación superior, a través del portal Un Lugar para ti*, Secretaría de Educación Pública (SEP), Ciudad de México, https://www.gob.mx/sep/prensa/comunicado-200-ofrece-sep-espacios-en-educacion-superior-a-traves-del-portal-un-lugar-para-ti?idiom=es (accessed on 10 October 2018). [37]

SEP (2018), *Evaluación de los Programas Sociales Apoyados con Subsidios y Transferencias (S247)*, Secretaría de Educación Pública (SEP), Ciudad de México, http://www.dgesu.ses.sep.gob.mx/documentos/DSA%20gobmx/3er_Informe_S247_2018.pdf (accessed on 22 October 2018). [56]

SEP (2018), *Programa Nacional de Becas 2018: Beca de Manutención, Ciclo escolar 2017-2018*, Secretaría de Educación Pública (SEP), Ciudad de México, https://www.becaseducacionsuperior.sep.gob.mx/199-beca-de-manutenci%C3%B3n (accessed on 16 October 2018). [70]

SEP (2018), *Sistema Nacional de Información Estadística Educativa: Reporte de Indicadores Educativos*, Secretaría de Educación Pública (SEP), Ciudad de México, http://www.snie.sep.gob.mx/indicadores.html (accessed on 23 October 2018). [77]

SEP (2018), *Universidades Interculturales | CGEIB*, Secretaría de Educación Pública (SEP), Ciudad de México, https://eib.sep.gob.mx/universidades-interculturales/ (accessed on 11 October 2018). [46]

SEP (2016), *Programa para la Inclusión y la Equidad Educativa - Objectivo General*, Secretaría de Educación Pública (SEP), Ciudad de México, https://www.inclusionyequidad.sep.gob.mx/es/acerca/objetivo-general.html (accessed on 15 October 2018). [64]

SEP (2016), *Un Lugar para Ti ofertará más de 463 mil lugares en Educación Superior, en la Zona Metropolitana*, Secretaría de Educación Pública (SEP), Ciudad de México, https://www.ses.sep.gob.mx/comunicados/2016/060716.html (accessed on 10 October 2018). [34]

SEP (2013), *Programa Sectorial de Educación 2013-2018*, Secretaría de Educación Pública (SEP), México, D.F., http://www.sep.gob.mx/work/models/sep1/Resource/4479/4/images/PROGRAMA_SECTORIAL_DE_EDUCACION_2013_2018_WEB.pdf (accessed on 25 September 2018). [28]

SEP (2009), *Comunicado 201.- Abre la SEP nueva modalidad en educación superior: abierta y a distancia*, Secretaría de Educación Pública (SEP), Ciudad de México, http://www.sep.gob.mx/wb/sep1/bol2010809#Mi0_WfvrPs (accessed on 12 October 2018). [49]

SEP (2007), *Programa Sectorial de Educación 2007-2012*, Secretaría de Educación Pública (SEP), México, D.F., http://ith.mx/pasada/secciones09a/programasectorialdeeducacion2007-2012.pdf (accessed on 09 October 2018). [29]

SEP (2001), *Programa Nacional de Educación 2001-2006*, Secretaría de Educación Pública (SEP), México, D.F., https://www.oei.es/historico/quipu/mexico/Plan_educ_2001_2006.pdf. [45]

Solís, P., E. Rodríguez Rocha and N. Brunet (2013), "ORÍGENES SOCIALES, INSTITUCIONES, Y DECISIONES EDUCATIVAS EN LA TRANSICIÓN A LA EDUCACIÓN MEDIA SUPERIOR: El caso del Distrito Federal", *Revista Mexicana de Investigación Educativa RMIE*, Vol. 18/59, pp. 1103-1136, http://www.comie.org.mx/documentos/rmie/v18/n059/pdf/59004.pdf (accessed on 09 October 2018). [17]

Subsecretaría de Educación Superior (2018), *II Informe Trimestral abril - junio 2018: Programa Presupuestario S243: Porgrama Nacional de Becas*, Secretaría de Educación Pública (SEP), Ciudad de México, https://www.becaseducacionsuperior.sep.gob.mx/files/Comunicacion/Transparencia/2018/Informes%20Trimestrales/II_INF_TRIM_S243_2018.pdf (accessed on 16 October 2018). [71]

Tecnológico de Monterrey (2018), *Public Accountability*, Instituto Tecnológico y de Estudios Superiores de Monterrey, Monterrey, https://tec.mx/en/public-accountability (accessed on 14 October 2018). [59]

The Guardian (2016), *New rector of Mexico City's public university vows not to raise tuition*, https://www.theguardian.com/world/2016/mar/02/mexico-city-public-university-new-rector-tuition (accessed on 16 October 2018). [66]

UACM (2018), *Portal de la Universidad Autónoma de la Ciudad de México: Misión-Visión*, Universidad Autónoma de la Ciudad de México (UACM), https://www.uacm.edu.mx/UACM/Mision-Vision#3868269--aumentar-las-oportunidades-de-educacin-superior (accessed on 14 October 2018). [58]

UC Berkeley (2018), *Student Profile | Office of Undergraduate Admissions*, University of California, Berkeley, https://admissions.berkeley.edu/student-profile (accessed on 23 October 2018). [40]

UNAM (2018), *Cronograma: Pase Relgamentado 2018*, Universidad Nacional Autónoma de México (UNAM), https://www.escolar.unam.mx/Pase2018/index.html (accessed on 10 October 2018). [36]

UNAM (2018), *Portal de Estadísticas Universitarias*, Universidad Nacional Autónoma de México (UNAM), http://www.estadistica.unam.mx/series_inst/ (accessed on 10 October 2018). [35]

UNAM (2017), *Información financiera del presupuesto asignado anual*, http://www.transparencia.unam.mx/obligaciones/consulta/informacion-presupuesto-anual (accessed on 14 October 2018). [52]

University of Helsinki (2018), *Tilastoja opiskelijavalinnoista [Statistics about Admissions]*, https://www.helsinki.fi/fi/opiskelijaksi/hae-opiskelijaksi/tilastoja-opiskelijavalinnoista#section-59432 (accessed on 23 October 2018). [41]

University of São Paolo (2017), *Anuário Estatístico [Statistical Yearbook] 2017*, https://uspdigital.usp.br/anuario/br/acervo/AnuarioUSP_2017.pdf (accessed on 23 October 2018). [38]

World Bank (2018), *World Development Indicators (database)*, https://datacatalog.worldbank.org/dataset/world-development-indicators (accessed on 4 October 2018). [31]

World Bank (2014), *A Model from Mexico for the World*, http://www.worldbank.org/en/news/feature/2014/11/19/un-modelo-de-mexico-para-el-mundo (accessed on 08 October 2018). [26]

Chapter 6. Educational sectors: Specific challenges and opportunities

This chapter builds on the system-wide analysis in the preceding chapters to examine in more depth some of the strengths and weaknesses of two components of Mexico's public higher education system that face particular challenges. It first examines challenges and opportunities facing the technical sector of higher education (the federal and decentralised Institutes of Technology that now make up the Tecnológico Nacional de México (TecNM) and the Polytechnic and Technological Universities), before turning to the public Teacher Education Colleges (the normal schools). For each set of institutions, the chapter focuses on five key topics: governance; funding; staffing; equity; and the quality and relevance of educational provision and its capacity for innovation. The analysis draws on issues raised during the review visit and available evidence from relevant policy and academic literature, acknowledging the limits to what is possible in the context of this broad review. For both clusters of institutions, we then provide specific recommendations.

6.1. Focus of this chapter

During the review visit, the OECD review team met with management, staff and students from institutions in different subsystems of Mexican higher education, as well as public officials responsible for funding or steering different sectors of the higher education system. The broad focus of the review and time constraints limit the ability of the team to analyse the full range of distinct challenges faced by each type of institution and to formulate detailed recommendations for each subsystem. Nevertheless, different parts of the Mexican higher education system do fulfil different missions and have distinct strengths and weaknesses. In this chapter, we build on the system-wide analysis in the preceding chapters to examine in more depth some of the specific strengths and weaknesses of two components of Mexico's public higher education system that face particular challenges:

1. The professionally and technologically oriented sector of higher education: the federal and decentralised Institutes of Technology that now make up the *Tecnológico Nacional de México* (TecNM) and the Polytechnic and Technological Universities and;
2. The specialised public Teacher Education Colleges: the normal schools.

Together, these two groups of institutions account for almost a quarter of total higher education enrolment in Mexico. The different institutions and institutional types in the professionally and technologically oriented sector can be seen as Mexico's answer to the polytechnic or applied science sectors that exist in many other OECD higher education systems. Indeed, some institutional forms are modelled explicitly on similar institutions in other countries. Here, research and postgraduate education, while present, play a minor role and the focus is primarily on training highly qualified technical experts and professionals for the needs of the Mexican economy. The normal schools reflect Mexico's tradition of concentrating teacher training in specialised institutions - a practice common to some other OECD countries – even though these institutions have now lost their monopoly in pedagogical training. The extensive network of often small institutions faces specific difficulties as it seeks to adapt to a changing policy, regulatory and socio-economic environment.

The sections that follow review the opportunities and challenges facing these two clusters of public institutions, focusing on five key topics: governance; funding; staffing; equity and; the quality and relevance of educational provision and its capacity for innovation. The analysis draws on issues raised during the review visit and available evidence from relevant policy and academic literature, acknowledging the limits to what is possible in the context of this broad review. For both clusters of institutions, we then provide specific recommendations.

6.2. Technical higher education in Mexico

6.2.1. Introduction

Many higher education systems in the OECD distinguish between academically oriented universities and more professionally oriented higher education institutions of various types. The missions of professionally oriented institutions, which range from Universities of Applied Science in many European countries to Community Colleges in the United States, vary between jurisdictions. However, they tend to share common features, including:

- Educational programmes focused on training professionals for specific careers, with an emphasis on applying knowledge and skills.
- In many systems, the provision of short-cycle (two-year) programmes, exclusively or alongside professionally oriented bachelor's programmes and, in some cases, professionally oriented postgraduate education.
- A focus on applied, rather than fundamental, research (although research is not part of the mission of these institutions in all systems).
- Close links with businesses and public services in the sectors for which they provide training, with teaching staff often having work experience in these sectors.
- A general tendency to cater to students from less advantaged backgrounds, as well as older students with previous labour market experience.

Mexico has four subsystems of technical and professionally oriented institutions[1]. First, the federal and decentralised Institutes of Technology, which formally constitute two subsystems, but, since 2014, have all functioned under the umbrella of the *Tecnológico Nacional de México* (TecNM), a coordination body. The Institutes of Technology are the oldest form of technical higher education institution in Mexico, with first Institutes established in the 1940s. They specialise in providing four-year bachelor's programmes (*licenciatura*) in engineering, manufacturing and construction-related fields. In 2017, there were 134 decentralised Institutes of Technology and 126 federal Institutes of Technology, all working within the framework of the *Tecnológico Nacional de México* (Mendoza Rojas, 2018[1]).

Second, there are a set of Technological Universities, opened from 1991 onwards. These institutions were originally modelled on the French *Instituts universitaires de technologie* (IUT) and, like their French counterparts initially focused exclusively on providing short-cycle programmes in professional subjects, which in Mexico primarily take the form of the *Técnico Superior Universitario* (TSU). Unlike the French IUTs, which are integrated within traditional universities, the Technological Universities were established as stand-alone institutions. From 2009, they also began to offer bachelor's programmes. In 2017, the subsystem comprised 54 institutions in 23 states.

Finally, the most recent subsystem of technically and professionally oriented institutions is made up of Polytechnic Universities, the first of which opened in 2001. This subsystem was created in part to provide opportunities for graduates from Technological Universities to supplement their short-cycle qualifications with bachelor's degrees through an additional year's study (de la Garza Vizcaya, 2003[2]), in the period before this was possible in Technological Universities themselves. Polytechnic Universities are also distinct in that they provide accelerated (three-year, 10-term) bachelor's programmes, with several compulsory work-based learning periods. The subsystem currently has 62 institutions and enrols over 90 000 students nationally.

Table 6.1 illustrates the distribution of enrolment between the four subsystems of technical education in Mexico and between the different levels of tertiary education within these institutional types. Overall, these four subsystems enrol around one-fifth of all tertiary students in Mexico. As shown, postgraduate education is very limited in these sectors, albeit with some significant pockets of postgraduate training in engineering in the Federal Institutes of Technology. More generally, the Institutes of Technology focus almost exclusively on providing (standard) five-year bachelor's programmes, the

Polytechnic Universities on accelerated 3-year bachelor's programmes and the Technological Universities on a combination of two-year short-cycle programmes and accelerated bachelor's programmes similar to those in Polytechnic Universities. Technological Universities concentrate over 90% of total enrolment in short-cycle programmes in Mexico (Mendoza Rojas, 2018[1]). Enrolment in short-cycle programmes in Mexico accounts for around 4% of total undergraduate enrolment in the country. This compares with an OECD average of around 12% and 37% in the United States (OECD, 2018[3]).

Table 6.1. Enrolment in the technical sector of higher education 2016-17

	Total enrolment 2016/17	% total enrolment in Mexico	Enrolment in short-cycle	Enrolment in Bachelors degrees	Postgraduate enrolment
Federal Institutes of Technology	340 800*	7.7%	97	336 635	3 701
Decentralised Institutes of Technology	241 035	5.4%	153	239 985	897
Technological Universities	241 688	5.5%	162 794	78 874	20
Polytechnic Universities	92 785	2.1%	0	91 634	1 151
TOTAL for the four subsystems	**915 941**	**20.7%**	**163 044**	**747 128**	**5 769**

Note: *SEP data state 340 800, Data from ANUIES / Mendoza Rojas state 340 433, a difference of 367.
Source: Total enrolment data (SEP, 2018[4]); breakdown by type of programme (Mendoza Rojas, 2018[1]).

Table 6.2 shows the distribution of enrolment in the four technical subsystems between the eight broad fields of study used in Mexico. All four subsystems have a strong concentration of programmes in engineering, manufacturing and construction. Programmes in these fields are designed to prepare professionals primarily for jobs in the manufacturing and construction industries. All institution types also provide a significant number of professional programmes in the administration and law, designed to prepare students for jobs in the public and private service sectors. The Polytechnic Universities offer the most diverse range of programmes, including a significant number in computer science and health-related occupations.

Table 6.2. Proportion of enrolment by field of study in the technical higher education sector

Distribution of enrolment in the four technical sectors in 2016-17

	Education	Arts & humanities	Social sciences, administration & law	Natural, exact & computer sciences	Engineering, manufacturing & construction	Agronomy & veterinary studies	Health	Services
Federal Institutes of Technology	0	0	23.5%	3.1%	68.2%	3.5%	0.3%	1.6%
Decentralised Institutes of Technology	0	0.3%	28.8%	3.7%	62.7%	3.2%	0.2%	1.0%
Technological Universities	0.2%	1.0%	36.8%	0.8%	55.4%	1.9%	3.4%	0.6%
Polytechnic Universities	0	1.5%	22.3%	5.8%	59.1%	1.3%	7.3%	2.7%

Source: *Educación Superior en México 2007-2017 - Revisión de la política educativa, avances y retos* (SEP, 2018[5]).

Taking into account discussions with representatives of technical institutions and SEP's General Coordination office for Technological and Polytechnic Universities (CGUTyP) during the mission to Mexico, as well as available documentary evidence, the sections below review the strengths and weaknesses of the technical higher education system in Mexico, examining governance, funding, staffing, equity, quality and innovation.

6.2.2. Strengths and challenges

1. Governance

The different subsystems that comprise the technical higher education sector in Mexico have distinct governance arrangements. Since their inception in 1948, federal Institutes of Technology have always been entities of the federal government, with control over development projects, staffing and study programmes controlled (to varying degrees) centrally, from Mexico City. The decentralised Institutes of Technology were historically created, in the early 1990s, under the authority of the states and supervised by state higher education authorities. Since 2014, both types of institute have been united under the umbrella of the *Tecnológico Nacional de México* (TecNM), an arms-length ("deconcentrated") body of the SEP. The creation of TecNM means that all Institutes of Technology are nominally part of a single higher education institution, described on the TecNM website as the "largest technical higher education institution in the country" (TecNM, 2018[6]). All Institutes of Technology follow common programme structures (Gamino-Carranza and Grassiel Acosta-González, 2016[7]) and are subject to the standardised institutional policies of the TecNM.

The Technological and Polytechnic Universities are established as independent legal entities under the nominal responsibility of state authorities, which provide 50% of the funding for these institutions and frequently provided the land on which they are built. The federal contribution to the funding of these institutions, as well as overall responsibility for general policies to promote the development and effective operation of the subsystems, lies with SEP's General Coordination office for Technological and Polytechnic Universities (CGUTyP), with the Under-secretariat for Higher Education.

From a governance perspective, two main issues stand out in the relation to the technical subsystems. First, as highlighted in the chapter dealing with governance of the whole

higher education system, there is scope to improve cooperation and coordination between the different systems on a regional (state) level. Institutions consulted during the Review Mission reported they have limited cooperation with other institutions in the same subsystem within their state and virtually no formal contact with other institutions such as State Public Universities. Indeed, there is a sense in which the different subsystems appear to be in competition with each other. Although the TecNM and the CGUTyP support individual institutions at a national level and promote coordination, technical institutions work first and foremost to supply professionals to regional labour markets. Moreover, as many technical institutions are relatively small (with fewer than 1 000 students), greater cooperation with other institutions in the same region could open up new opportunities for joint projects and sharing of facilities. Improved networking within and between subsystems at state level would also support the broader goal of creating more coherent regional higher education systems, under the coordination of reinvigorated State Commissions for Higher Education Planning (COEPES) (see Chapter 3).

Second, while the Technological and Polytechnic Universities appear generally able to develop coherent institutional development plans and adapt their education to regional skills needs, the Institutes of Technology – in particular federal Institutes - suffer from an excess of centralised control. Most decisions about the design of study programmes, resources allocation and staffing are taken centrally, with the rectors of individual Institutes merely acting as managers. This, in combination with the entirely inadequate infrastructure and facilities witnessed in some campuses, limits the ability of individual Institutes to develop distinct institutional development plans and respond to changing regional skills requirements.

2. Funding

Despite their consolidation into the *Tecnológico Nacional de México*, federal and decentralised Institutes of Technology receive their funding through different channels. Federal Institutes receive all their funding directly from the SEP, while decentralised Institutes receive half their funding from the SEP and half from state education authorities in the annual state budgets. Both Technological and Polytechnic Universities receive half their funding from the SEP and half from the states. In all cases of shared responsibility for public funding, the principle of a 50:50 split in funding between the Federation and the state is applied.

As is the case more generally in public higher education in Mexico, there is considerable variation in the level of funding per student received by institutions in different subsystems of the technical higher education sector and between institutions in the same subsystem. ANUIES (ANUIES, 2018, p. 92[8]) estimates that federal Institutes of Technology receive an average of MXN 37 000 per student per year, decentralised Institutes of Technology MXN 29 000 and Technological and Polytechnic Universities MXN 24 000 per student per year, on average. On average, State Public Universities receive MXN 56 000 per student per year in core (ordinary) operating funds. All these figures exclude competitive research funding from CONACyT.

These figures suggest that, in comparison to university-based education, technical higher education in Mexico is funded proportionally less well than in some of the best-regarded technical higher education sectors in the OECD. Data for the Netherlands, the Flemish Community of Belgium and Estonia from an ongoing OECD benchmarking study show that core funding per student for educational activities is similar in technical institutions and universities. In Mexico, although ordinary funding to universities contains some

allocation for research, there is a far greater disparity between the academic and technical sectors in their allocation for education.

Table 6.3. Annual expenditure per student for all services, by subsector in euro (2015)

		Estonia	Flemish Community	Netherlands
Universities	Total expenditure	7 730	19 456	23 722
	Excluding R&D	5 042	8 398	9 345
Professional higher education institutions (HEIs)	Total expenditure	3 637	10 229	10 507
	Excluding R&D	3 541	9 383	10 122

Source: National administrative data.

Differences in funding levels between institutions within the technical higher education sector in Mexico also raise questions. The fact that federal Institutes of Technology receive around 20% more funding per student than their decentralised counterparts may in part be explained by their higher levels of research activity and larger role in postgraduate training (see Table 6.1 above). However, it also reflects a funding allocation model based on historical costs and overheads, rather than enrolment, activities and outputs. As federal Institutes of Technology have a higher proportion of full-time, permanent staff (who are civil servants), their costs are inevitably higher, without this necessarily reflecting the provision of inherently more expensive or better quality forms of education or greater involvement in costly research activities.

The analysis of funding per student in the State of Puebla discussed in Chapter 3 reveals wide variation between institutions in other technical subsystems. As illustrated in Table 3.5 in Puebla, the decentralised Institute of Technology with the lowest funding level receives less than 60% of the funding per student received by the best-funded institution in the same subsystem. For Polytechnic and Technological Universities, the institutions with the lowest levels of funding in relation to enrolment receive less than half the funding per student as the best-funded institutions in their subsystems. While some of these differences could be explained by differences in the orientation of activities and underused capacity (fewer students than infrastructure would allow), such large differences between notionally similar institutions appear unjustified.

Table 6.4. Spending per student in technical HEIs in the State of Puebla in 2016

Budget allocations in Mexican pesos (MXN)

Institution	Subsystem	Enrolment 2016-2017	State Funding*	Federal Funding	Total core public funding	Public funding / student
Instituto Tecnologico Superior de Venustiano Carranza	IT-DESC	553	9 186 881	9 186 881**	1.8 373 762	33 226
Universidad Tecnologica de Puebla	UT	6 773	105 158 314	105 158 314**	210 316 628	31 052
Universidad Tecnologica de Izucar de Matamoros	UT	2 117	30 653 556	30 653 556**	61 307 112	28 959
Instituto Tecnologico Superior de Huauchinango	IT-DESC	1 779	22 660 517	22 660 517**	45 321 034	25 476
Instituto Tecnologico Superior de Teziutlan	IT-DESC	2 545	31 127 804	31 127 804**	62 255 608	24 462
Universidad Tecnologica de Oriental	UT	604	7 385 488	7 385 488**	14 770 976	24 455
Universidad Tecnologica de Huejotzingo	UT	3 493	42 418 579	42 418 579**	84 837 158	24 288
Universidad Politecnica de Puebla	UPOL	2 638	29 002 074	29 002 074**	58 004 148	21 988
Universidad Tecnologica de Tecamachalco	UT	3 536	38 012 385	38 012 385**	76 024 770	21 500
Instituto Tecnologico Superior de Zacapoaxtla	IT-DESC	2 361	22 472 106	22 472 106**	44 944 212	19 036
Universidad Tecnologica de Xicotepec de Juarez	UT	3 339	25 223 935	25 223 935**	50 447 870	15 109
Universidad Politecnica de Amozoc	UPOL	1 291	8 084 439	8 084 439**	16 168 878	12 524
Universidad Politecnica Metropolitana de Puebla	UPOL	772	4 088 920	4 088 920**	8 177 840	10 593

Note: * Allocations based on specific attributions in Puebla Budget Act for 2016; ** Federal allocations assume that the general principle of 1:1 match funding between state and Federation for non-autonomous institutions is respected.
Source: Data on funding allocations: (Gobierno del Estado de Puebla, 2015[9]) Data on enrolment: (Dirección General Educación Superior Universitaria (DGESU), 2018[10]).

Finally, in addition to comparatively low operational expenditure per student and a lack of clarity and equity in the allocation of public to institutions, is a problem of inadequate capital investment in infrastructure and equipment - particularly in the older Institutes of Technology. Whereas Technological and Polytechnic Universities are relatively new institutions and have often received substantial investments in new buildings and equipment, many Institutes of Technology have been operating since the 1960s, or even longer. In one institution visited by the OECD Review Team, staff in the civil and electrical engineering departments were still reliant on machinery dating from the 1970s and reported similar conditions in other Institutes of Technology. In rapidly changing technical fields, where institutions are supposed to be preparing graduates for the labour market, up-to-date curricula and equipment are crucial. Currently, staff in many Institutes of Technology appear to struggle to provide programmes that reflect the latest advances in their fields and equip students with relevant knowledge and skills for the modern Mexican economy.

3. Staffing

Data for the academic year 2016-17 show that there were 48 060 teaching staff employed in the technical higher education sector. This figure includes permanent full-time staff (*Profesores de Tiempo Completo*, PTC), a limited number of part-time permanent staff and a large number of teachers contracted by the hour to teach specific subjects. The balance between full-time and hourly staff varies depending on the profile of the institutions and the historical patterns of employment. As noted, the federal Institutes of Technology have a higher proportion of full-time staff, largely as a legacy of their longstanding status as part of the federal civil service.

Table 6.5. Teaching staff in technical higher education by contract type

Headcount for the year 2016-2017

	Total teaching staff	Full-time staff	Part-time staff	Contracted by the hour
Federal Institutes of Technology	16 790	54.6%	12.8%	32.6%
Decentralised Institutes of Technology	10 498	30.1%	3.5%	66.4%
Technological Universities	14 712	28.7%	1.0%	70.3%
Polytechnic Universities	6 060	22.2%	0.0%	77.7%

Source: Table 11 (Mendoza Rojas, 2018[1]).

Technical higher education institutions in many countries tend to draw more heavily on contracted staff to teach specific subjects than universities, although patterns of academic employment are shifting throughout the world. In Mexico, the State Public Universities the ratio of full-time teaching staff to hourly contracted staff is roughly 4:6 (Mendoza Rojas, 2018[1]), so similar to the pattern seen in decentralised Institutes of Technology. It is not possible to prescribe what the correct balance between full-time staff and contracted staff might be. Professionals are often brought in to technical higher education programmes to teach subjects related to their professional practice and ensure close connections with the labour market. At the same time, an adequate number of full-time staff are needed to develop and implement institutional strategy and ensure the quality and continuity of programmes. With these factors in mind, the proportion of full-time staff in Polytechnic Universities appears to be very low.

It is difficult to comment in any detail on the quality of the teaching workforce in the technical education sector. The Mexican authorities refer to the results of the PRODEP programme (*Programa para el Desarrollo Profesional Docente*), which provides funding to allow full-time teaching staff to upgrade their qualifications, provides financial incentives to reward staff that have "desirable profiles" (in relation to their qualifications, teaching and research activities) and supports participation of staff in academic networks (*cuerpos académicos*). The SEP reports that in 2017, 36% of full-time staff in Polytechnic Universities are recognised in PRODEP as having a "desirable profile", while the proportion was 28% in Technological Universities; 22% in decentralised Institutes of Technology and 14% in Federal Institutes of Technology (SEP, 2018, p. 104[5]). In State Public Universities, the equivalent proportion was 58%.

PRODEP was originally designed to support staff in universities and it is inherently more challenging for staff in the technical higher education sector to meet the requirements to acquire "desirable profile" status. The federal Institutes of Technology also have a proportionally large population of full-time teaching staff. Nevertheless, the low proportion of full-time staff in these institutions that have acquired PRODEP "desirable

profile" status suggests significant numbers of teaching staff in these institutions are currently underperforming against national benchmarks. The reasons for this warrant further investigation.

4. Coverage and equity

Stakeholders consulted by the OECD Review Team affirm that the technical higher education sector in Mexico, like its counterparts in many other OECD countries, caters to a student population that comes disproportionately from lower socio-economic backgrounds. The development of the Technological Universities and their offering of short-cycle programmes was explicitly designed to widen opportunities for less advantaged populations to access high education, as well as to respond to a labour market need for qualified technicians (de la Garza Vizcaya, 2003[2]; Flores Crespo, 2009[11]).

It is not possible to verify the socio-economic make of the student population in the different subsystems of technical higher education, but it is entirely credible that these, often small, regional institutions indeed cater to large numbers of students from lower income backgrounds. In principle, these institutions therefore have the potential to play an important role in increasing educational attainment and promoting social mobility.

A specific concern in this regard relates to the status of short-cycle programmes in Mexico. Many of those interviewed by the OECD Review team, as well as numerous Mexican commentators, note that these programmes suffer from low prestige among families, students and employers. Take-up of short-cycle programmes in Technological Universities did not expand as rapidly as was originally hoped (Flores Crespo, 2009[11]). This is despite the fact that this model of education is in theory well suited to the needs of the Mexican labour market. Recent skills needs analysis by McKinsey, for example, suggests demand for professionals with qualifications at the associate's level (those with short-cycle tertiary qualifications) in Mexico could increase significantly with the introduction of moderate levels of automation in the period up to 2030 (McKinsey Global Institute, 2017[12]).

Although detailed data on the labour market outcomes of graduates from different parts of the higher education system are not available in Mexico, there is some evidence to suggest that students' scepticism with regard to short-cycle programmes is justified. Data from the Mexican Labour Force Survey show that in 2017, 38.1% of short-cycle degree holders aged 25-34 were employed informally, without social security or pension coverage, compared to 27.2% of young workers with a bachelor's degree and 14.3% of those in the same age group with a postgraduate degree (INEGI, 2017[13]). Moreover, the wage premiums for acquiring a short-cycle qualification in Mexico appear to be modest. Young workers with a short-cycle degree in Mexico can expect to be earn only 19% more than upper secondary graduates, while those in the same age range with a bachelor's degree earn 80% more and postgraduate degree holders earn, on average, over three times more than a young worker who has completed upper secondary education (OECD, 2018[3]).

It is difficult to identify the precise causes for the relatively poor labour market outcomes of graduates from short-cycle programmes in Mexico. The situation is likely to result from poor overall labour market conditions (meaning employers in some sectors can pick from a large pool of (often-overqualified) graduates); a lack of knowledge about short-cycle programmes among employers and; mismatch between what programmes are providing and what regional labour markets demand. At present, the challenges facing students taking short-cycle programmes are compounded by the difficulty of pursuing

their studies further to obtain a bachelor's degree. Although short-cycle programme graduates can obtain bachelor's degrees through studying an additional year in the Polytechnic or Technological University where they completed their short-cycle programme, this depends on the availability of suitable programmes in their locality. Moreover, there are still no pathways to allow short-cycle graduates to have their credits recognised to count towards obtaining a bachelor's degree in Institutes of Technology or universities. Tackling these issues is crucial in order to avoid young people from disadvantaged backgrounds embarking on studies, which, despite their notional relevance, do little in practice to increase graduates' success in the labour market.

5. Quality, relevance and innovation

As reported in Chapter 4, like other parts of the higher education system, the technical subsystems have succeeded in increasing the proportion of their students studying in externally accredited programmes. Data from August 2018 show that around 50 percent of students in Institutes of Technology (both federal and decentralised) studies in programmes externally recognised by CIEES or COPAES for their quality. The equivalent figure Polytechnic and Technological Universities was below 40% (DGESU, 2018[14]). As shown in Table 6.6, the proportion of enrolment in quality assured programmes increases notably in both Polytechnic and Technological Universities, when only programmes for which a suitable external evaluation system exists are taken into account. External quality assurance procedures for short-cycle programmes and certain professionally oriented subjects are comparatively underdeveloped in Mexico.

Table 6.6. Enrolment in programmes designated as "good quality", by sector (2018)

Subsystems	Enrolment in "quality" programmes	Total enrolment	Evaluable enrolment*	% coverage (total)	% coverage (evaluable programmes)
Polytechnic Universities (UPOL)	34 004	96 442	83 934	35.26%	40.51%
Technological Universities (UT)	94 529	245 154	163 721	38.56%	57.74%
Institutes of Technology (IT)	299 153	591 989	551 054	50.53%	54.29%

Source: SEP, Corte de Calidad del mes de agosto 2018, Tab 10. Evaluable programmes: those with one or more cohorts of exiting students in programmes not established in the period 2013-2017. (DGESU, 2018[14]).

More generally, study programmes in the technical sector of Mexican higher education vary in their design and focus between institutional types. Nearly all programmes comprise a compulsory period of work-based learning, in addition to the minimum of 480 hours of "social service" (*servicio social*), which are compulsory for all higher education students in Mexico. Undergraduate programmes in Institutes of Technology historically followed a format similar to university bachelor's programmes, but were distinguished by their focus on engineering and applied sciences. With the creation of the *Tecnológico Nacional de México*, a new standardised curriculum format and credit system were introduced, comprising a four-year programme followed by a semester-long "professional residency" (*residencia profesional*) (Gamino-Carranza and Grassiel Acosta-González, 2016[7]). In Polytechnic Universities, programmes typically incorporate one or two three-week periods of work experience (*estancias*) and a 15-week internship (*estadía*) at the end of the programme (de la Garza Vizcaya, 2003[2]). In Technological Universities, two-

year short-cycle programmes also require a 15-week internship at the end of the school-based period of study.

Discussions with institutional representatives in Mexico and available literature demonstrate that those working in the technical sector of higher education have made considerable efforts to implement study programmes focused strongly on equipping students with knowledge and skills relevant to the labour market. Curricula have been radically overhauled and there is a clear emphasis on acquiring generic competencies alongside subject-specific knowledge. In the scope of this review, it is not possible to gain a clear picture of how widely these new programme models have been accepted, how well they have been implemented and how effective they have been in practice at equipping students with skills relevant to the world of work. While many of the efforts to improve curricula observed by the OECD team look promising, only a more rigorous follow-up of graduates from different forms of programme will allow educators and authorities to gain a clearer picture of the ultimate effectiveness of the educational programmes provided.

Irrespective of the inherent quality of the study programme design and school-based elements, it is clear that providers of professionally oriented higher education in Mexico face particular challenges in cooperating with employers and securing appropriate work placements and internships for their students. The high proportion of micro-businesses in the Mexican economy and limited engagement from small and medium-sized businesses makes it more difficult to develop effective work-based learning than in countries with many medium-sized and large employers and a strong tradition of participation in education and training. Responding to this situation is difficult and largely beyond the scope of higher education policy. Nevertheless, there may opportunities to learn from other nations in how to increase cooperation between higher education and employers.

6.2.3. Key recommendations

On the basis of the brief assessment of strengths and challenges above, the OECD review team recommends the following:

Promote cooperation between technical higher education institutions in each state and ensure Institutes of Technology have adequate flexibility to adapt to regional needs

1. As part of wider efforts to re-establish State Commissions for Higher Education Planning (COEPES), the SEP and state authorities should ensure efforts are made specifically to promote cooperation between institutions in the technical higher education sector. This should focus on a) avoiding unnecessary duplication in study programmes, so that institutions have distinct profiles; b) creating transition pathways to allow students to move between institutions and; c) promoting joint projects and sharing of infrastructure where benefits for quality and relevance can be achieved.
2. Within the Tecnológico Nacional de México, initiate a process to devolve greater responsibility for institutional planning, design of study programmes and staffing matters to individual Institutes of Technology. This process should allow the benefits of common curriculum structures and the availability of common support materials to be maintained, while allowing institutions to take greater responsibility for adapting their educational offers to the needs to the localities and regions where they are located. The additional flexibility given to individual

Institutes should extend to financial management and staffing decisions, with a greater proportion of operational resources devolved directly to institutions.

Ensure public funding provided per student is equitable and adequate across technical higher education and invest in infrastructure and equipment, where needed

3. Within the framework of a wider reform of mechanisms for allocating public funding to higher education institution in Mexico (see Chapter 3), the SEP and state authorities should ensure that transparent funding criteria are established for the technical sector, reflecting the true costs of providing good quality technical education, and which ensure institutions receive an equitable level of funding per student.
4. Particularly focusing on Institutes of Technology, the TecNM, with support from SEP, should undertake a systematic analysis of requirements for new equipment and infrastructure in the technical higher education sector in each state. On this basis, where necessary, take steps to provide dedicated funds for investment in new infrastructure and equipment, encouraging consolidation of study programmes into single sites and sharing of expensive infrastructure, wherever feasible.

Devolve additional responsibility for staffing to institutions, maintaining strict transparency rules; review the need for additional full-time staff and implement internal performance review and incentive systems

5. In the context of wider devolution of responsibility to Institutes of Technology for institutional planning and financial management proposed above, ensure rules allow sufficient flexibility for individual institutions to make necessary decisions about staffing, while abiding by strict recruitment procedures to ensure equality and transparency.
6. Review the ratio of full-time to hourly contracted staff in all institutions, taking steps through the budget allocation to strengthen the full-time staff contingent in justified cases. In the process of developing a more rational system of funding allocation to public higher education institutions, take into ratios of full-time to hourly staff, developing an approach that balances effectiveness and efficiency.
7. Encourage institutions to implement internal performance review and incentive systems that encourage and support staff to acquire desirable profiles. If the PRODEP programme is continued, review the criteria for desirable profiles to ensure that they are appropriately adapted to the circumstances of the technical higher education sector.

Take steps to increase the prestige and attractiveness of short-cycle programmes and ensure graduate tracking provides useful feedback to the technical subsystems

8. Draw on existing feedback from employers and convene additional discussions where necessary to identify the real barriers to better employability outcomes for graduates from short-cycle programmes. Based on these findings take corrective measures. Ultimately, the goal should be to consolidate and expand high quality short-cycle provision, as it has the potential to be an effective and cost-effective

way to allow students to acquire skills that correspond to current and future labour market needs. General campaigns and promotion are unlikely to be effective in increasing the prestige of these programmes. Rather, efforts should focus on demonstrating how graduates from such programmes can succeed in the labour market. Intensive, local cooperation projects, linking higher education providers and employers, supported by public incentive programmes could be one option to explore.

9. Ensure broader measures are taken to track graduates' progress in the labour market and provide a breakdown of evidence on labour market outcomes for the technical subsystems of higher education.

Adapt accreditation procedures to fit all types of technical higher education and increase cooperation with technical higher education in other countries

10. Support, as necessary through reconfigured federal extraordinary funding programmes, CIEES and COPAES to take steps to develop accreditation procedures relevant for all types of technically oriented higher education programmes.
11. At national level in Mexico, develop cooperation with representative organisations for the professional and technical sectors of higher education in other OECD countries to support exchange of ideas about effective programme and curriculum design and models for cooperation with employers.
12. Consider the introduction of an extraordinary federal funding programme to support institutional cooperation projects bringing together several technical institutions from a specific region of Mexico and partner institutions in another country to act as a framework for staff and student exchanges for skills development and capacity building.

6.3. Teacher Education Colleges in Mexico

6.3.1. Introduction

Historically, the initial training of primary and secondary school teachers in Mexico was exclusively the responsibility of specialised Teacher Education Colleges: the normal schools (*escuelas normales*). The history of the normal schools is tightly bound up with the expansion of universal education in Mexico, with the establishment of Teacher Education Colleges in the late 19th and 20th centuries playing an essential role in bringing formal education to all regions of the country (Mendoza Rojas, 2018[1]).

Over time, the training provided in normal schools – which have long existed as both public and private institutions – and the environment in which they operate have evolved:

- In 1978, the National Pedagogical University (*Universidad Pedagógica Nacional*, UPN) was founded to provide continuing professional development programmes for existing schoolteachers and train educational specialists in fields such as psychology, thus challenging the monopoly of the normal schools in teacher education.
- In 1984, all normal school programmes were adapted to become bachelor's degrees (*licenciatura*), requiring students to complete upper secondary education (*Preparatoria*) before completing a four-year (eight semester) programme of

teacher training, of which the last one or two semesters were spent on practical training in schools.

- In 1992, as part of the wider reforms of school education in the National Agreement for the Modernisation of Basic Education (ANMEB), responsibility for federal public normal schools was transferred to the states, although responsibility for specifying curricula, staff conditions and the majority of institutional funding remained at federal level in the SEP.
- In 2005, responsibility for the national coordination of the normal schools was transferred from the part of the SEP dealing with school education to a newly created Directorate-General for higher education for educational professionals (DGESPE), within SEP's Under-secretariat for higher education. This was intended to cement the position of the normal schools as part of the national higher education system.
- And in 2013, new legislation (the *Ley General del Servicio Profesional Docente*) (Congreso General de los Estados Unidos Mexicanos, 2013[15]) reformed the procedures for entering the teaching profession in Mexico, putting in place new selection examinations. These reforms removed the automatic right of those having successfully graduated from normal schools to enter the teaching profession and allowed any bachelor's graduate to sit the new entry exams (Medrano, Ángeles Méndez and Morales Hernández, 2017, p. 21[16]).

In the academic year 2016-17, there were 276 public normal schools in Mexico, enrolling almost 84 000 students[2], the majority in face-to-face bachelor's programmes training pre-primary, primary and secondary school teachers. Around 2% of enrolment in public normal schools was in distance programmes and around 3 000 students (4% of total enrolment) were in postgraduate programmes. In the private sector, there were 176 schools enrolling over 14 000 students, meaning roughly 15% of total enrolment in normal education in Mexico was in the private sector (Table 2.2, Table 2.5). Many normal schools are small, particularly in the private sector. More than four out five private normal schools - and a quarter of their public counterparts - enrol fewer than 150 students. In 2015-16, only 14 normal schools in the whole country (13 of them public) enrolled more than 950 students (Medrano, Ángeles Méndez and Morales Hernández, 2017, p. 39[16]).

Successive governments in Mexico have acknowledged both the crucial importance of high quality teacher training for the whole education system and the significant challenges faced by the system of normal schools. Taking into account discussions with representatives of normal schools and the DGESPE, along with available documentary evidence, the sections below provide a brief review of the strengths and weaknesses of the normal schools in Mexico, examining governance, funding, staffing, equity, quality and innovation. We focus here exclusively on public normal schools, given the role of government in funding and steering these institutions, although many of the points raised are likely to be relevant to the private sector.

6.3.2. Strengths and challenges

1. Governance

Public normal schools nominally fall under the responsibility of the state. However, in contrast to other types of public institution under state responsibility, normal schools have very limited autonomy in their day-to-day activities.

Most notably, both the structure and content of programmes are specified centrally for the whole country by the Directorate-General for higher education for educational professionals (DGESPE), with individual schools then responsible for delivering these standardised programmes. Standardised curricula exist for the different bachelor's programmes offered (pre-primary education, primary education, secondary, physical education, special education etc.). Pay and conditions for staff are also established centrally. As discussed below, the states and the Federation share responsibility for funding public normal schools. The creation of new programmes in normal schools is subject to approval by state education authorities, who must subsequently register approved programmes with the DGESPE in Mexico City.

The logic for regulating curricula centrally is that normal schools are responsible for preparing teachers to deliver school-level education, which has been increasingly standardised for the whole country. As such, a close articulation between the system of normal education and the system of school education is needed. This was indeed why normal education remained the responsibility of the SEP departments for school education until just over a decade ago. However, analysts have noted that even when normal schools were grouped with school education, reform of curricula in normal schools was not well coordinated with (planned) reforms of the school curriculum, leading to substantial misalignment in content and approaches over time (Medrano, Ángeles Méndez and Morales Hernández, 2017, p. 28[16]). Moreover, even when centralised normal school curricula are updated, there is a risk that they are too prescriptive, leaving insufficient freedom to individual schools and academic staff to adapt their programmes to local needs or exploit the specific expertise of individual staff members.

In individual states, state education authorities do play a role in evaluating demand for teachers and approving new study programmes and normal schools. In some states, such as Yucatán, the state authorities have also facilitated the creation of networks bringing together all public normal schools in the state to contribute to the strategic planning of the sector, discuss requirements and challenges and exchange experience.

2. Funding

State education authorities, primarily using funds transferred from the federal government, fund public normal schools. Salary costs for academic staff in normal schools are included in specific allocations to the states provided through in Section 33 of the annual federal budget, earmarked for staff and operating costs in the education sector (the *Fondo de Aportaciones para la Nómina Educativa y Gasto Operativo*, FONE). This earmarking of allocations limits state authorities' scope to influence salary levels of staff numbers. The allocation of funds to normal schools via funding streams destined for school-level education means that – in contrast to the situation for other higher education institutions - it is not possible to identify budgets for individual institutions and thus investment per student (Mendoza Rojas, Javier, 2017[17]). ANUIES was not able to include an estimate of average investment per student in normal schools in their most

recent analysis of funding in Mexican higher education (ANUIES, 2018[8]), meaning it is not possible to compare their level of resourcing with that of other public subsystems.

Despite these data limitations, discussions with stakeholders during the Review visit, as well as the analysis by Mexican commentators (Medrano, Ángeles Méndez and Morales Hernández, 2017[16]), suggest that normal schools face structural underfunding problems. Many normal schools are small, operating in poor quality buildings and with limited access to modern teaching resources. As discussed below, the level of funding allocated to the sector also influences the ability of normal schools to employ permanent, full-time staff. The visible impact of funding levels on infrastructure, equipment and staffing has clear implications for the quality of education normal schools can offer.

Normal schools have been eligible for federal extraordinary funding schemes. The most notable have been the programmes for training and capacity building for teaching staff (PRODEP, formerly PROMEP) and for strengthening internal quality systems and gaining external accreditation (PFCE, a programme that follows on from previous more specific programmes for normal schools). While, these programmes appear to have been beneficial for normal schools, responding to and implementing project-based financial incentive programmes such as PRODEP and PFCE, can be challenging for institutions with limited internal management and financial capacity such as the normal schools.

3. Staffing

Well-trained, competent and committed staff are crucial to good teacher training. Historically, teaching staff in public normal schools were often themselves graduates from normal schools. Staff rarely had postgraduate qualifications. This situation created – and continues to create – two main problems.

First, there are risks attached to the high degree of endogamy among teaching staff working in public normal schools and their comparative isolation from other parts of the academic sector. Teaching staff who themselves have been trained primarily (if not exclusively) in normal schools may not have been exposed alternative and valuable approaches to teaching and teacher training. Teaching staff responsible for programmes for aspiring secondary school teachers may not have studied the specific disciplines they are teaching (Spanish, maths, physics etc.) at university. Both teachers and students in normal schools pursue their activities with little contact other academic institutions and the knowledge and influences this could bring. In many other OECD countries, individuals train to be teachers after or alongside another higher education qualification in a specific subject, and generally do so in a comprehensive higher education institution or a specialised institution with strong contacts to other parts of the higher education sector. This means that both students and staff are able to draw on a wide range of experience and specialised knowledge. Despite efforts to network normal schools among themselves, the comparatively closed environment in which normal school staff work creates clear risks for the quality and relevance of study programmes.

Second, it is likely that a proportion of teaching staff in normal schools are simply underqualified compared to their peers in other OECD countries. In 2000, only 15% of teaching staff in public normal schools had a postgraduate qualification. By 2016, this proportion had risen to almost 41%. This increase is in part as a result of the federal PROMEP (now PRODEP) programme, for which normal schools were made eligible in 2009 (Medrano, Ángeles Méndez and Morales Hernández, 2017[16]). Although it is likely that many of staff who upgraded their qualifications, as well as new staff entering normal schools, obtained postgraduate qualifications in fields related to their work (pedagogy or

discipline-related qualifications), no accessible data are available to allow this to be verified. Similarly, no data are available on the fields in which staff have acquired undergraduate degrees. In particular, it is not clear what proportion of the teaching staff responsible for subject-specific courses for aspiring secondary school teachers have a bachelor's degree in the field they are teaching. Whatever the reality in these respects, it is striking that almost 60% of those responsible for teaching the next generation of Mexican schoolteachers still lacks a postgraduate qualification.

Alongside their qualifications, the conditions under which staff work have an important impact on their ability to deliver quality education. Across the subsystem of public normal schools in 2016, around 40% of the 12 100 teaching staff had a full-time post, around 20% were employed part-time and the remaining 40% were employed by the hour. The proportions of staff with a full-time contract varied from over 90% in the state of Zacatecas to less than 20% in the states of Nayarit, Coahuila, Colima, Chiapas and Yucatán (Medrano, Ángeles Méndez and Morales Hernández, 2017, p. 51[16]). Although there are many factors that may explain this variation, it is clear that many public normal schools are operating with very few permanent, full-time staff, further complicating the process of building strong, cohesive teams and developing and implementing long-term strategies for quality and innovation.

4. Coverage and equity

Total enrolment in public normal schools in Mexico has declined from over 101 000 in 2013-14 to around 84 000 in 2016-17. This occurred in the context of a steady increase in overall enrolment at bachelor's level in Mexico over the same period. Stakeholders interviewed by the OECD review team point to three main explanations for this fall. First, a slowdown in the expansion of the school sector (falling demand for teachers), as an increase in the school-leaving age enacted in 2013 has been implemented and population growth rates have decreased. Second, an increase in the entry requirements for accessing normal schools, meaning fewer applicants are actually admitted. And third, the decision, also in 2013, to remove automatic entry to a teaching career for those successfully completing programmes in normal schools and to open the general entrance examination for the teaching profession to graduates from other institutions and programmes. As a result of these changes, normal schools lost their unique status and, to some extent, became less attractive.

The OECD review team does not have access to data on the socio-economic profile of students in public normal schools. It is clear that normal schools, especially those in more remote regions of the country, have historically offered study opportunities to sections of the population for whom higher education would otherwise have been unattainable. Representatives of normal schools interviewed by the OECD team believed that their students continue to come disproportionately from lower income backgrounds. In one Higher Normal School – that trains secondary school teachers – institutional leaders reported 54 percent of their students were scholarship-aided and 40 percent had no internet access at home. As normal schools tend to serve populations in their immediate locality and sub-regions, the profile of student populations is likely to vary considerably between schools in different places. The broader concerns about the adequacy of student financial support raised in Chapter 5 apply equally to normal schools.

5. Quality, relevance and innovation

As in other sectors of higher education, the quality and relevance of the education provided in normal schools depends on a complex set of factors. These include physical infrastructure and equipment; the capacity, skills and motivation of teaching staff; academic and non-academic support given to students; the design and content of the study programmes and; the flexibility of these programmes to adapt to changing needs and circumstances.

The discussion above has already pinpointed challenges relating to infrastructure and staffing (and the availability of resources to pay for these), as well as the small size of institutions – factors that are all likely to affect adversely the quality of education in public normal schools. While acknowledging these challenges, representatives of normal schools interviewed by the OECD during the review visit stressed the strong engagement of staff and students and their commitment to the important social role played by the normal schools and the teachers that they educate. Normal schools have expertise in didactics, unrivalled experience of providing practical training to teachers working in different contexts and a close connection with the regional schools systems and communities they serve. These factors probably contribute to graduates from normal schools achieving the highest average scores in the national entry examinations for the teaching profession, ahead of graduates from the National Pedagogical University or from other higher education institutions (Medrano, Ángeles Méndez and Morales Hernández, 2017, p. 13[16]).

Nevertheless, the quality and relevance of the education provided in normal schools remains a concern for public authorities in Mexico. Over the years, this has led to a series of specific (extraordinary) funding programmes and strategies targeted at the normal schools:

- From 2002 to 2013, the "Programme for Institutional Improvement in Public Normal Schools" (PROMIN) provided funds to support every state to develop and implement "State Plans to Strengthen Normal Education" comprising actions to improve the coordination between normal schools in individual states and specific funds for individual normal schools.
- In 2014, this fund was subsumed, with other funds for specific sectors, into the Programme for strengthening quality in educational institutions (PROFOCIE)
- In 2017, PROFICIE was renamed, while maintaining the same focus, to the Programme for strengthening educational quality (PFCE).
- In July 2017, the federal government launched the National Strategy for the Transformation of the Normal Schools, accompanying its wider policy to implement a new educational model (*Nuevo Modelo Educativo*) in compulsory education. This strategy calls for students in normal schools to acquire greater mastery of academic disciplines, improve use of ICT, the level of English of graduates, develop indigenous education, continue the "professionalisation" of normal school staff and promote cooperation with universities (SEP, 2017[18]).

It is clearly too early to judge the implementation, let alone the impact, of the new strategy. Nevertheless, it is notable that federal funding programmes targeting similar problems in normal schools to those raised in this most recent strategy have been operating for over 15 years without resolving these problems satisfactorily. As an example, although the successive programmes noted above have sought to improve

quality, only 16% of students in public normal schools study in programmes that have been externally accredited. Of 225 public normal schools for which data is available, only 47 have accredited programmes (ANUIES, 2018, p. 71[8]). Although CIEES began to accredit normal school programmes relatively late (in 2008), accreditation tailored to normal school programmes has been available for nearly a decade, with only modest take-up.

More generally, Medrano et al. (2017, p. 17[16]) argue that existing staff in some normal schools struggle to provide the kinds of academic supervision required by the study plans developed in Mexico City. This includes the activities students need to complete to achieve formal certification at the end of their programme (*titulación*), which include the option for an extended academic dissertation. The same authors cite a 1994 report by the *Fundación para la Cultura del Maestro* that maintained that endogamy and isolation from the rest of the academic sector fundamentally affected capacity for change in the public normal schools, where teacher training:

…is characterised by "a lack of discussion with other national and international academic institutions, [and] has a tradition of endogamy that has been institutionalised in the form of routines and procedures, which reject, on principle, any proposals for change – especially those coming from outside" (Medrano, Ángeles Méndez and Morales Hernández, 2017, p. 17[16])

During their discussions, the OECD team noted that normal school staff had an awareness of the challenges they faced and expressed a desire to engage with reform, capacity building and innovation. Nevertheless, the same staff admitted that they still had no cooperation with other parts of the academic sector, including local universities or the National Pedagogical University. Staff were resigned to the fact they would be expected simply to implement new study programmes imposed from Mexico City, without having contributed to their development. Leaders of one for the normal schools visited by the OECD team reported in late June that they expected to receive new curriculum guidelines from SEP in August, which they would be expected to implement in the new academic year from September on.

6.3.3. Key recommendations

On the basis of the brief assessment of strengths and challenges above, the OECD review team recommends the following:

Take short-term measures to improve the financial conditions of public normal schools, while planning for the longer-term sustainability of the subsystem

- In the near-term, as part of the wider review of public funding for higher education institutions recommended earlier in this report, the federal government, in consultation with the states, should create transparent national guidelines on funding of public normal schools. These should take into account assessments of the real costs of operating such institutions and assumed requirements for full-time staff to evaluate the level of investment required to operate existing normal schools effectively. One the basis of the conclusions, the budgets allocated to normal schools should be adjusted accordingly to ensure the schools can operate effectively in the short term
- In the medium term, review the capacity of individual normal schools to provide quality educational experiences, taking into account improved data. On the basis

of these results, consider options for improving effectiveness and efficiency through more intensive networking of normal schools in each state, including through shared administrative and financial services and shared programmes or modules provided online to different campus sites. Consider whether normal schools in a given region should be merged to form campuses of a single regional normal school.

Promote networking between normal schools in each state, communication between the SEP and normal schools and better links to State Public Universities and the National Pedagogical University

- Building on the Strategy on the Transformation of Normal Schools (SEP, 2017[18]), provide incentives from the federal level to ensure all states incorporate their normal schools into a network to allow them to contribute more effectively to strategic planning and to communication with SEP authorities in Mexico City. These networks should be part of the broader policies for enhanced cooperation and networking between institutions in each state recommended earlier in this report.
- Require all subject-specific bachelor's programmes in normal schools for aspiring secondary school teachers to develop systematic cooperation with regional public universities, seeking where possible to ensure students can benefit from courses and learning resources (libraries, etc.) in these larger institutions. Support this requirement through additional funding, including resources for joint projects, potentially allocated from existing funds set aside for the transformation of normal schools.
- In support of this upgrading of staff capacity – and more generally – promote more systematic cooperation between the National Pedagogical University and normal schools (or the networks of normal schools). Cooperation could include provision of continuous professional training programmes and online materials, more systematic dissemination of UPN research results among normal schools and professional exchanges.
- Improve communication and cooperation between the DGESPE and normal schools, both on an individual basis and through the regional networks proposed above. In particular, normal schools should be involved more directly in the development of new study programmes that they must to implement.

Enhance requirements for teaching staff in normal schools

- Require new teaching staff in normal schools to have at least a master's degree in a relevant field and continue to support existing normal school teaching staff to upgrade their qualifications and skills.

Improve monitoring and support for students from disadvantaged backgrounds

- As part of wider efforts in the higher education system, improve monitoring of both the social origin of students, their completion rates and their subsequent career development post-graduation. This information should feed into the planning of the sector at regional level and institutional quality plans.

Notes

[1] The federal *Instituto Politécnico Nacional* (IPN), which enrols over 170 000 students and operates primarily in Mexico City, also has a strong focus on technical higher education. However, the history of this institution, its unique profile and its comparatively strong focus on research and postgraduate education mean it is more appropriate to view it as a technical research university, rather than part of the professional and technical subsector.

[2] There are small differences in the figures contained in data on enrolment and institutions between the data provided by the SEP and those presented by ANUIES.

References

ANUIES (2018), *Visión y acción 2030: Propuesta de la ANUIES para renovar la educación superior en México*, Asociación Nacional de Universidades e Instituciones de Educación Superior (ANUIES), México, D. F., http://www.anuies.mx/media/docs/avisos/pdf/VISION_Y_ACCION_2030.pdf (accessed on 9 October 2018). [8]

Congreso General de los Estados Unidos Mexicanos (2013), *Ley General del Servicio Profesional Docente*, Diaro Oficial de la Federación, http://www.dof.gob.mx/nota_detalle.php?codigo=5313843&fecha=11/09/2013 (accessed on 25 October 2018). [15]

de la Garza Vizcaya, E. (2003), "Las universidades politécnicas. Un nuevo modelo en el sistema de educación superior en México", *Revista de la Educación Superior*, Vol. 32/126, pp. 77-81, http://publicaciones.anuies.mx/pdfs/revista/Revista126_S2A5ES.pdf (accessed on 30 October 2018). [2]

DGESU (2018), *Corte 31 de Agosto 2018 - matricula de calidad*, Dirección General Educación Superior Universitaria, http://www.dgesu.ses.sep.gob.mx/Calidad.aspx (accessed on 24 October 2018). [14]

Dirección General Educación Superior Universitaria (DGESU) (2018), *Panorama de la educación superior*, http://www.dgesu.ses.sep.gob.mx/Panorama_de_la_educacion_superior.aspx (accessed on 09 October 2018). [10]

Flores Crespo, P. (2009), *Trayectoria del modelo de universidades tecnológicas en México (1991-2009)*, Dirección General de Evaluación Institucional, Universidad Nacional Autónoma De México, Mexico City, http://www.dgei.unam.mx/cuaderno3.pdf (accessed on 29 October 2018). [11]

Gamino-Carranza, A. and M. Grassiel Acosta-González (2016), "Modelo curricular del Tecnológico Nacional de México", *Revista Electrónica Educare (Educare Electronic Journal) EISSN*, Vol. 20/1, pp. 1-25, http://dx.doi.org/10.15359/ree.20-1.10. [7]

Gobierno del Estado de Puebla (2015), *Ley de Egresos del Estado de Puebla, para el Ejercicio Fiscal 2016*, http://www.auditoriapuebla.gob.mx/images/transparencia/LEYES/2016/Puebla%20Estado%20Egresos2016.pdf (accessed on 11 October 2018). [9]

INEGI (2017), *Encuesta Nacional de Ocupación y Empleo (ENOE)*, Instituto Nacional de Estadística y Geografía (INEGI), http://www.beta.inegi.org.mx/proyectos/enchogares/regulares/enoe/. [13]

McKinsey Global Institute (2017), *Jobs Lost, Jobs Gained: Workforce Transitions In A Time Of Automisation*, McKinsey & Company, https://www.mckinsey.com/~/media/mckinsey/featured%20insights/future%20of%20organizations/what%20the%20future%20of%20work%20will%20mean%20for%20jobs%20skills%20and%20wages/mgi-jobs-lost-jobs-gained-report-december-6-2017.ashx. [12]

Medrano, V., C. Ángeles Méndez and M. Morales Hernández (2017), *La educación normal en México - Elementos para su análisis*, Instituto Nacional para la Evaluación de la Educación, Mexico City. [16]

Mendoza Rojas, Javier (2017), "Financiamiento de la educación superior en la primera mitad del gobierno de Enrique Peña Nieto: ¿fin del periodo de expansión?", *Perfiles educativos*, Vol. 39/156, pp. 119-140, http://www.scielo.org.mx/scielo.php?script=sci_arttext&pid=S0185-26982017000200119 (accessed on 12 October 2018). [17]

Institucional, C. (ed.) (2018), *Subsistemas de Educación Superior. Estadística básica 2006-2017*, DGEI-UNAM, Ciudad de México, https://www.ses.unam.mx/integrantes/uploadfile/jmendoza/Mendoza2018_SubsistemasDeEducacionSuperior.pdf. [1]

OECD (2018), *Education at a Glance 2018: OECD Indicators*, OECD Publishing, Paris, http://dx.doi.org/10.1787/eag-2018-en. [3]

SEP (2018), *La Educación Superior en México 2007-2017 - Revisión de la política educativa, avances y retos (Country Background Report)*, Secretaría de Educación Pública (SEP), Ciudad de México. [5]

SEP (2018), *Sistema Educativo de los Estados Unidos Mexicanos: Principales Cifras 2016-2017*, Secretaría de Educación Pública (SEP), Ciudad de México, https://planeacion.sep.gob.mx/estadisticaeindicadores.aspx. [4]

SEP (2017), *Escuelas Normales - Estrategia de fortalecimiento y transformación*, Secretaría de Educación Pública (SEP), Ciudad de México, https://www.dgespe.sep.gob.mx/public/estrategia_fortalecimiento/070618-ESTRATEGIA_DE_FORTALECIMIENTO_y_TRANSFORMACION_DE_ESCUELAS_NORMALES.pdf (accessed on 26 October 2018). [18]

TecNM (2018), *Tecnológico Nacional de México - Información - Tecnológico Nacional de México*, https://www.tecnm.mx/informacion/sistema-nacional-de-educacion-superior-tecnologica (accessed on 30 October 2018). [6]

Annex A. Review team

Elizabeth Balbachevsky is an associate professor at the University of São Paulo (USP), in the Department of Political Science and a scientific coordinator in the Centre for Public Policy Research (NUPP) at USP. She holds a PhD in Political Science from the University of São Paulo (1995). She is associated to the Higher Education Group (University of Tampere, Finland), and a member of the Scientific Committee of the European Master's Programme in Research and Innovation in Higher Education (MARIHE) and Professor of Systems in Transition. She is the regional editor for Latin America of the new Encyclopaedia of Higher Education (Dordrecht, Springer). Between 2005 and 2006, she was a Fulbright Scholar in the New Century Scholars Program, conducting a comparative study on the impact of globalisation on higher education policies in emerging countries.

Javier Botero Álvarez is Lead Education Specialist for Latin America at the World Bank. Before joining the World Bank, he served in several leadership positions in education in Colombia. He started the Research and Special Studies Centre at the *Escuela Colombiana de Ingeniería*, where he served as provost and president. He was Vice-Minister of Education in 2002. He was also the country's first Vice-Minister for Higher Education from 2002- 2007 and 2010-2012. Prior to his time in public service, he held several academic and research positions including at the University of Freiburg in Germany, *Escuela Colombiana de Ingeniería* in Bogotá, the University of Tennessee, the Oak Ridge National Laboratory, the Atomic and Molecular Data Unit at the International Atomic Energy Agency in Vienna, and the University of Ulm in Germany. He gained a PhD in Physics from Louisiana State University in 1986.

Pablo Landoni-Couture is a Uruguayan researcher of higher education, Dean of the *Instituto Universitario Asociación Cristiana de Jóvenes* (YMCA University Institute - Uruguay) and a Professor at the Catholic University of Uruguay. He obtained a Master's in Public Administration from Cornell University and a Doctorate in Law and Social Sciences from the *Universidad de la República* (Uruguay). He is an affiliated scholar of the Program for Research on Private Higher Education (PROPHE) - Department of Education Administration and Policy Studies - State University of New York at Albany. Pablo's most recent research focuses on higher education system governance and the role of the state in private sector higher education. He was a Fulbright New Century Scholar in Higher Education for the years 2005 - 2006 and is currently a member of the Board of Alumni Uruguay.

Thomas Weko is a senior analyst at the OECD specialising in higher education. He coordinated the review. He worked on OECD's Tertiary Education for the Knowledge Society in 2005-2006, and subsequently served in the US Department of Education, first as Associate Commissioner for Postsecondary, Adult, and Career Education at the National Center for Education Statistics, and then as Director of the Policy and Program Studies Service. He previously worked at the Washington State Higher Education

Coordinating Board, at the US Government Accountability Office, and as a university professor.

Simon Roy is an analyst at the OECD, with a background in international higher education policy. He joined the OECD in 2017 from the European Commission, where he was a policy officer in DG Education and Culture's higher education policy team. During his time at the Commission, Simon worked on analysis and policy co-operation activities involving EU Member States and partner countries, including in the fields of higher education funding, performance measurement and graduate skills and employability. He coordinated preparation of the Commission's most recent Communication on higher education, focused on EU cooperation in the field and published in May 2017.

Annex B. Schedule for review visit to Mexico

	Monday, 18 June 2018 (Mexico City)
8:30 - 9:50	*Dirección General de Educación Superior Universitaria (DGESU - SEP)* Directorate-General for University Education (SEP)
10:00 – 11:30	*Coordinación Nacional de Becas de Educación Superior (CNBES –SEP)* National Coordination Office for Student Grants (SEP)
14:00 – 15:00	*Subsecretario de Educación Superior* Meeting with Undersecretary for Higher Education
16:30 – 17:20	*Tecnológico Nacional de México (TeNM)* National Technological of Mexico
17:30 – 18:20	*Dirección General de Profesiones (DGP - SEP)* Directorate-General for Professions (SEP)
	Tuesday, 19 June 2018 (Mexico City)
8:30 – 9:50	*Federación de Instituciones Mexicanas Particulares de Educación Superior (FIMPES)* Federation of Mexican Private Higher Education Institutions
10:00 – 10:50	*Comités Interinstitucionales para la Evaluación de la Educación Superior (CIEES)* Inter-institutional Committees for Higher Education Assessment
11:20 – 12:50	*Consejo Nacional de Ciencia y Tecnología (CONACYT)* National Council for Science and Technology
14:00 – 15:50	*Asociación Nacional de Universidades e Instituciones de Educación Superior (ANUIES)* National Association of Universities and Higher Education Institutions
16:00 – 16:50	*Consejo para la Acreditación de la Educación Superior, A.C. (COPAES)* Council for the Accreditation of Higher Education
17:00 – 17:50	*Universidad Abierta y a Distancia de México (UNADM)* Open and Distance University of Mexico
	Wednesday, 20 June 2018 (Puebla)
10:30 – 13:30	*Benemérita Universidad Autónoma de Puebla (BUAP)* Benemérita Autonomous University of Puebla
14:45 – 18:00	*Universidad Popular Autónoma del Estado de Puebla (UPAEP)*
	Thursday, 21 June 2018 (Hidalgo)
10:00 – 13:00 (Group 1)	*Universidad Tecnológica de Mineral de la Reforma* Technological University of Mineral de la Reforma
10:00 – 13:00 (Group 2)	*Universidad Politécnica de Pachuca* Polytechnic University of Pachuca
14:30 – 17:00	*Instituto Tecnológico de Pachuca* Pachuca Institute of Technology
	Friday, 22 June 2018 (Mexico City)
8:00 – 8:50	*Dirección General de Acreditación, Incorporación y Revalidación (SEP)* Directorate-General of Accreditation, Affiliation and Revalidation (SEP)
9:00 – 9:50	*Dirección General Adjunta de Programación y Presupuesto de Educación de la SHCP* Deputy Directorate-General for Education Programming and Budget, Secretariat of Finance (SHCP)
10:00-10:50	*Dirección General de Educación Superior para Profesionales de la Educación (DGESPE - SEP)* Directorate-General for Higher Education for Education Professionals (SEP)
11:00-11:50	*Escuela Normal Superior de México* Higher Normal School of Mexico

	Monday, 25 June 2018 (Mérida)
9:00 – 13:00	*Universidad Autónoma de Yucatán* Autonomous University of Yucatán
15:30 – 18:00	*Universidad Anáhuac Mayab* Anáhuac Mayab University
	Tuesday, 26 June 2018 (Mérida)
9:00 – 10:00	*Secretaría de Investigación, Innovación y Educación Superior del Estado de Yucatán* Secretariat of Research, Innovation and Higher Education of the State of Yucatan
10:10 – 11:00	*Empleadores regionales* Regional employers
12:00 - 13:50 Group 1	*Instituto Tecnológico de Mérida* Technological Institute of Mérida
12:00 - 13:50 Group 2	*Escuela Normal Superior "Profesor Antonio Betancourt Pérez"* Higher Normal School "Profesor Antonio Betancourt Pérez"
	Wednesday, 27 June 2018 (Mexico City)
8:30 – 9:20	*Confederación Nacional de Trabajadores Universitarios (CONTU)* National Confederation of University Workers
9:30 – 11:30	*Sesión de trabajo del equipo OCDE* Working meeting OECD team
13:00 –15:00	*Sesión de presentación de resultados preliminares Subsecretario de Educación Superior* Preliminary results presentation session Under-secretariat of Higher Education

ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT

The OECD is a unique forum where governments work together to address the economic, social and environmental challenges of globalisation. The OECD is also at the forefront of efforts to understand and to help governments respond to new developments and concerns, such as corporate governance, the information economy and the challenges of an ageing population. The Organisation provides a setting where governments can compare policy experiences, seek answers to common problems, identify good practice and work to co-ordinate domestic and international policies.

The OECD member countries are: Australia, Austria, Belgium, Canada, Chile, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Israel, Italy, Japan, Korea, Latvia, Lithuania, Luxembourg, Mexico, the Netherlands, New Zealand, Norway, Poland, Portugal, the Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Turkey, the United Kingdom and the United States. The European Union takes part in the work of the OECD.

OECD Publishing disseminates widely the results of the Organisation's statistics gathering and research on economic, social and environmental issues, as well as the conventions, guidelines and standards agreed by its members.

OECD PUBLISHING, 2, rue André-Pascal, 75775 PARIS CEDEX 16
(91 2018 19 1 P) ISBN 978-92-64-30936-4 – 2019

Reviews of National Policies for Education

The Future of Mexican Higher Education

PROMOTING QUALITY AND EQUITY

This review of higher education policy in Mexico was requested by the Mexican Ministry of Education to take stock of progress since the last OECD review of the higher education system in Mexico, published in 2008, and to support development of the new government's National Development Plan and Sectoral Education Programme.

The report examines the state of the higher education sector in Mexico and analyses key policies implemented by the federal and state governments. It assesses national governance and co-operation structures that help to guide the higher education system, and the relevance of existing national strategies. It also looks at public funding of higher education institutions, how the quality of higher education programmes is assured; and the extent to which the higher education system contributes to equity. The report concludes by exploring two key sectors of higher education: teacher education colleges and professional and technical institutions.

A companion volume focusing on the labour market relevance and outcomes of higher education is also available: *Higher Education in Mexico: Labour Market Relevance and Outcomes.*

OECD*publishing*
www.oecd.org/publishing

ISBN 978-92-64-30936-4
91 2018 19 1 P