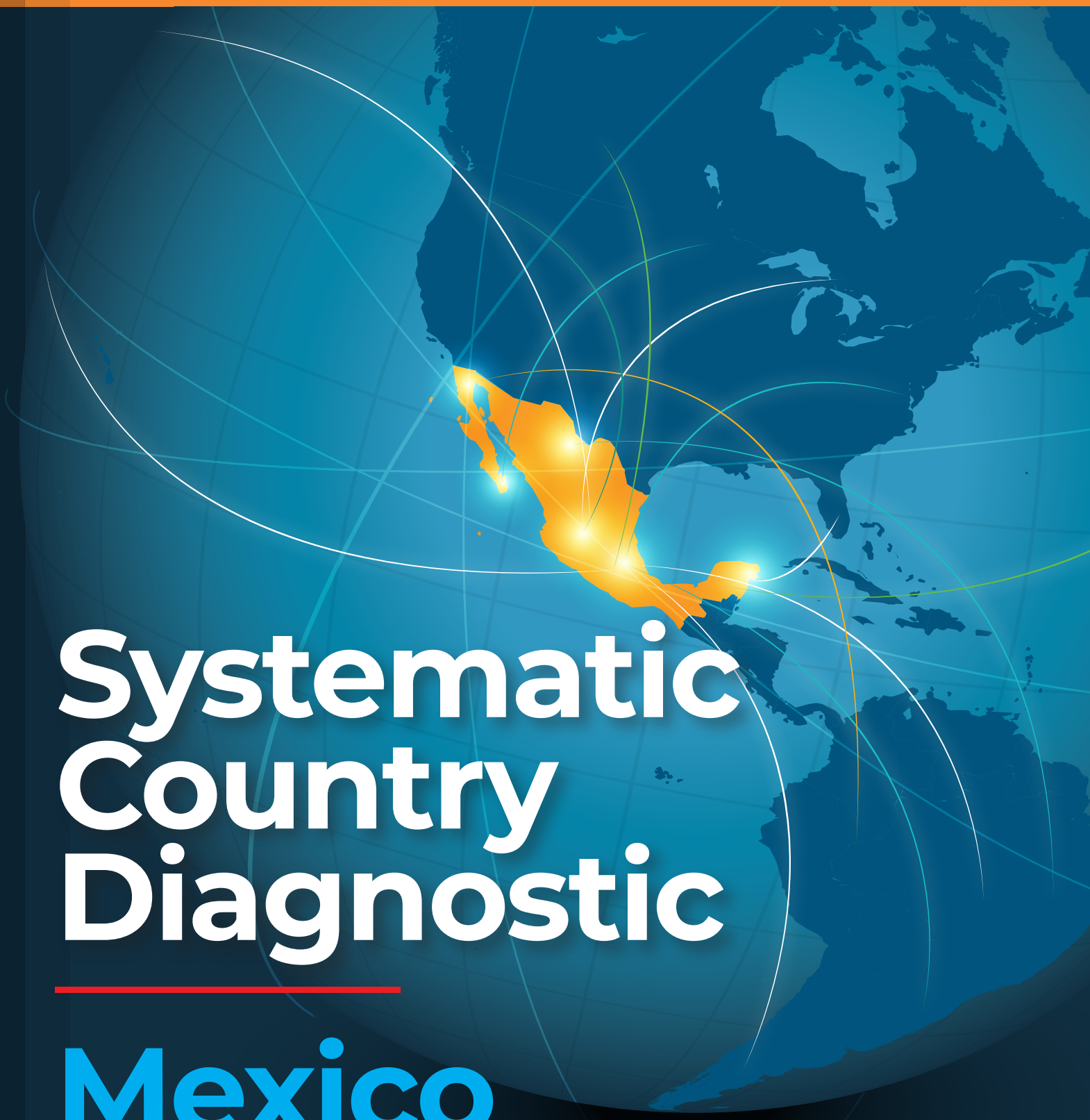

Systematic Country Diagnostic

Mexico

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List of abbreviations

ASERCA	Agencia de Servicios a la Comercialización y Desarrollo de Mercados Agropecuarios (Agency for Marketing Services and Development of Agricultural Market)
CDMX	Ciudad de México (Mexico City)
CEDLAS	Centro de Estudios Distributivos, Laborales y Sociales (Center of Distributive, Labor and Social Studies)
CFE	Community-Based Forest Enterprise (National Foresrtry Comission)
COFECE	Comisión Federal de Competencia Económica (Federal Commission for Economic Competition)
CONAFE	Consejo Nacional de Fomento Educativo (National Council for Education Development)
CONAFOR	Comisión Nacional Forestal
CONEVAL	Consejo Nacional de Evaluación de la Política de Desarrollo Social (National Council for the Evaluation of Social Development Policy)
ECOPRED	Encuesta de Cohesión Social para la Prevención de la Violencia y la Delincuencia (Social Cohesion Survey for the Prevention of Violence and Crime)
EMOVI	Encuesta de Movilidad Social (Social Mobility Survey)
ENIGH	Encuesta Nacional de Ingresos y Gastos de Los Hogares (National Survey of Household Incomes and Expenditures)
ENLACE	Evaluación Nacional del Logro Académico en Centros Escolares (National Evaluation for Academic Achievement in Schools)
ENOE	Encuesta Nacional de Ocupación y Empleo (National Survey on Occupation and Employment)
ENSANUT	Encuesta Nacional de Salud y Nutrición (National Health and Nutrition Survey)
ESRU	Fundación Espinosa Rugarcía (Espinosa Rugarcia Foundation)
FAEB-FONE	Fondo de Aportaciones para la Nómina Educativa y el Gasto Operativo (Contribution Fund for Educational Payroll and Operational Expenditure)
FAO	Food and Agriculture Organization of the United Nations
FASSA	Fondo de Aportaciones para los Servicios de Salud (Contributions Fund for Health Services)
FDI	Foreign Direct Investment
FONDEN	Fondo Nacional de Desastres Naturales (National Natural Disaster Fund)
GATT	General Agreement on Trade and Tariffs
GDP	Gross Domestic Product
GHG	Greenhouse Gas
IDA	International Development Association

IFC	International Finance Corporation
IFE	Federal Elections Institute
ILOSTAT	International Labor Organization Statistics
INEGI	Instituto Nacional de Estadística y Geografía (National Institute of Statistics and Geography)
LFPRH	Ley Federal de Presupuesto y Responsabilidad Hacendaria (Federal Budget and Fiscal Responsibility Law)
MCS-ENIGH	Módulo de Condiciones Socioeconómicas – ENIGH (Module of Socioeconomic Conditions – ENIGH)
MEC	Modelo de Comparabilidad Estadísticas (Statistics Comparability Model)
MIGA	Multilateral Investment Guarantee Agency
NAFTA	North American Free Trade Agreement
OECD	Organisation for Economic Co-operation and Development
PEMEX	Petróleos Mexicanos
PISA	Programa Internacional de Evaluación de los Alumnos (Programme for International Student Assessment)
PROAGRO	Programa de Oferta Agropecuaria (Agricultural Offer Program)
PROCAMPO	Programa de Apoyos Directos al Campo (Direct Support for Farming Program)
PSBR	Public-Sector Borrowing Requirements
SAR	Special Administrative Region (China)
SEDESOL	Secretaría de Desarrollo Social (Secretariat of Social Development)
SEDLAC	Socio-Economic Database for Latin America and the Caribbean
SPSS	Social Protection System
TFP	Total Factor Productivity
UDLAP	Universidad de las Américas Puebla

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1. Overview

1.1 Setting the stage

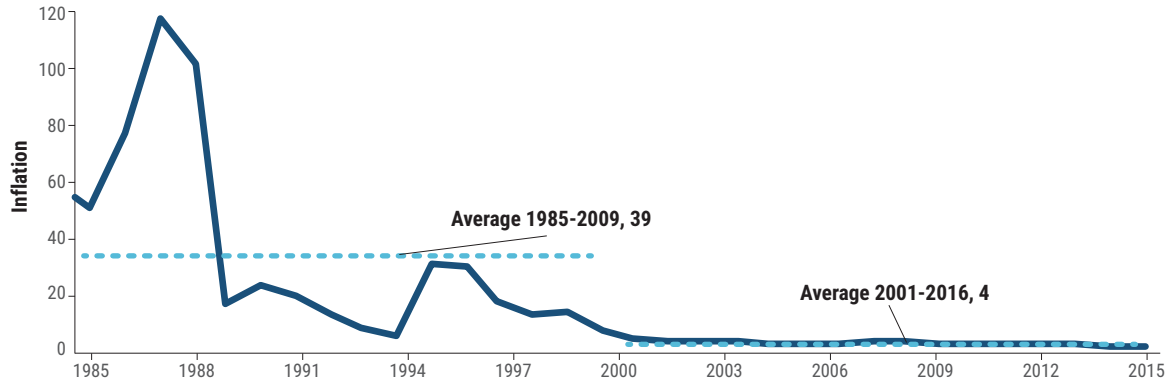
1. **The development process in Mexico has been partly framed by a set of defining characteristics as well as by significant economic reforms during recent decades.** The country has established a strong track record of prudent macroeconomic policies. The Central Bank and the Ministry of Finance have delivered stable and sustainable monetary and fiscal policies, and garnered high credibility in international markets. Successive governments have implemented a broad set of reforms that have opened the economy to trade and liberalized domestic markets. In the social sectors, Mexico has led the way among emerging and developing economies in reshaping social protection, health care, and education policies. These reforms have helped transform the country over the last 30 years. Aside from reforms and policies that have improved outcomes, Mexico has, at least, three key defining characteristics: (1) a privileged geography, (2) abundant natural capital, and (3) a democracy that has allowed the emergence of more political parties over the last 20 years. These factors have each partly shaped the country's development and delivered significant economic and social outcomes. Yet, the question remains: how can Mexico grow more rapidly and become more inclusive along its development path? These are the central issues covered in this Systematic Country Diagnostic (SCD).

1.1.1. Reform progress

2. **Mexico has strong macroeconomic institutions, with a commendable policy track record.** During the 1980s and 1990s, the country undertook deep structural reforms, including privatization, deregulation, and trade liberalization. These led to large capital inflows, a surge in credit to the private sector, and an appreciation of the Mexican peso. This progress stopped abruptly in late 1994 when the United States tightened monetary policy, which, together with other factors, resulted in a currency crisis and a deep recession. The crisis motivated successive governments to implement prudent monetary and fiscal policies through strengthened macroeconomic institutions, and these policies proved to be long-lasting. Key reforms included the adoption of a flexible exchange rate, an inflation-targeting regime, an autonomous Central Bank, fiscal consolidation when needed, improved debt management, strengthened macroprudential regulations, and an opening up of the financial sector to foreign participation. Inflation was brought down from an average of 39 percent a year between 1985 and 2000 to 4 percent between 2001 and 2016 (Figure 1). Over the years, the Mexican authorities showed a strong track record in macroeconomic management that is well regarded in international capital markets and that has made the Mexican peso the most highly traded emerging market currency.

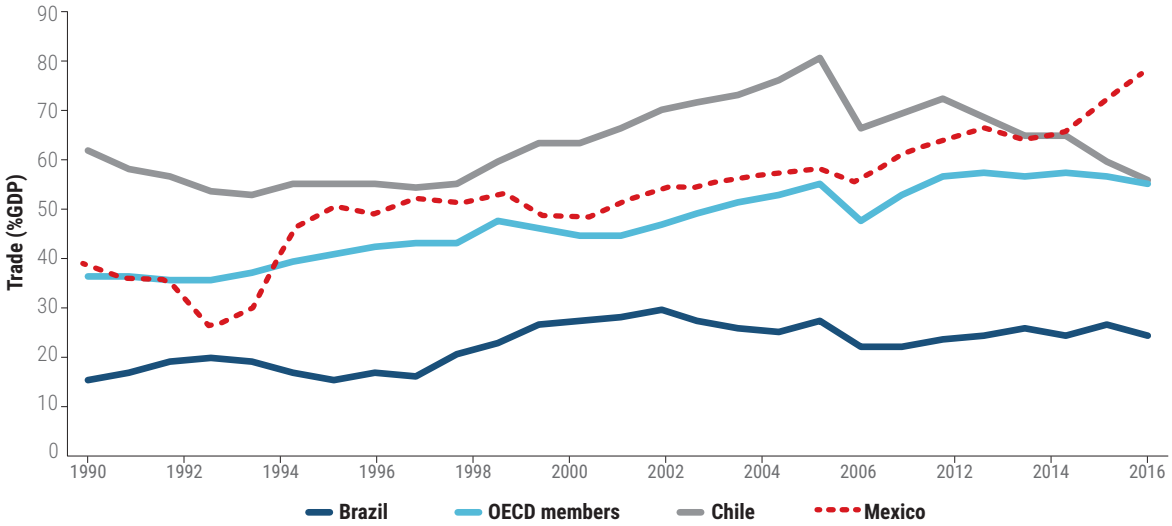
3. **The economy has also been opened to foreign trade and private investment.** The entering into force of the North American Free Trade Agreement (NAFTA) in 1994 had a

Figure 1. Inflation in single digits since 2000



Source: Data of WDI (World Development Indicators) (database), World Bank, Washington, DC, http://data.worldbank.org/products/wdi.

Figure 2. Trade as a share of GDP has doubled since 1990



Source: Data of WDI (World Development Indicators) (database), World Bank, Washington, DC, http://data.worldbank.org/products/wdi.

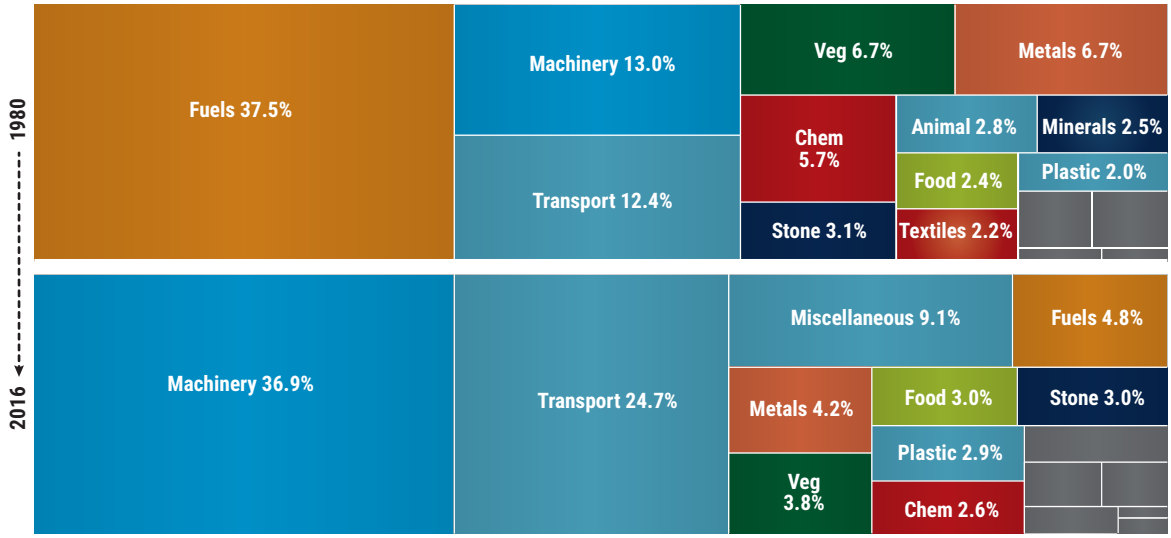
profound effect on the economy. NAFTA eliminated trade tariffs among Canada, Mexico, and the United States, but it also established the protection of intellectual property rights, removed many barriers to investment, stipulated mechanisms for investment dispute resolution, and introduced measures for environmental and labor protection. Exports from Mexico to the United States rose beyond expectations from US$18.5 billion in 1990 to US$327 billion in 2017, while the value of imports to Mexico from the United States increased from US$20 billion to US$195 billion. Mexico has become the world's 15th largest exporter (in US$ terms). Moreover, its trade accounted for close to 80 percent of gross domestic product (GDP) in 2016, compared with less than 40 percent in 1990 (Figure 2). Foreign direct investment (FDI) expanded from 1 percent of GDP in 1990 to 3.2 percent in 2016, as the country became deeply integrated into regional and global value chains (GVCs), especially in the motor vehicle sector, which, in 2016, accounted for 70 percent of total inward FDI. The exports of agricultural products grew by 3.9 percent a year following the launch of NAFTA (compared with an average GDP growth of 2.4 percent in real terms). In 2016, the total annual value of exports in agriculture was US$14.74 billion, up from US$3.68 billion in 1993.[1]

4. **The country has also diversified away from oil and developed a stronger productive structure in the private sector.** The growth in manufacturing transformed the export basket away from the dominance of raw materials, especially oil, toward manufactured products. These include machinery, electronics, and transport vehicles (Figure 3). The country strengthened its productive capacities in the most complex sectors and is today a competitive exporter in products that have a high share of domestic value added (Figure 4).

5. **Mexico has led the way in reforms across emerging and developing countries in social protection and health.** Between 1997 and 2014, 6.1 million households were brought under the main social protection scheme, Prospera (Figure 5),

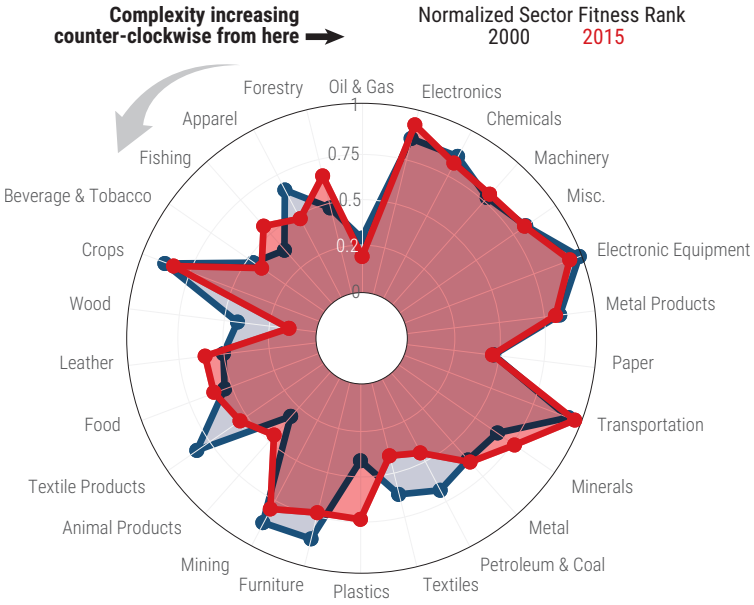
1 The main export products include tomatoes, avocados, berries, broccoli, and zucchini. In 2014, Mexico accounted for more than 80 percent of the tomato imports to the United States according to the U.S. Department of Agriculture. There is some evidence that the growth in tomato exports also contributed to increased income and employment opportunities among the poor.

Figure 3. The economy has diversified away from oil



Source: Data of WITS (World Integrated Trade Solution) (database), World Bank, Washington, DC, http://wits.worldbank.org/WITS/.

Figure 4. Normalized sectoral fitness rank, Mexico, 2000–15

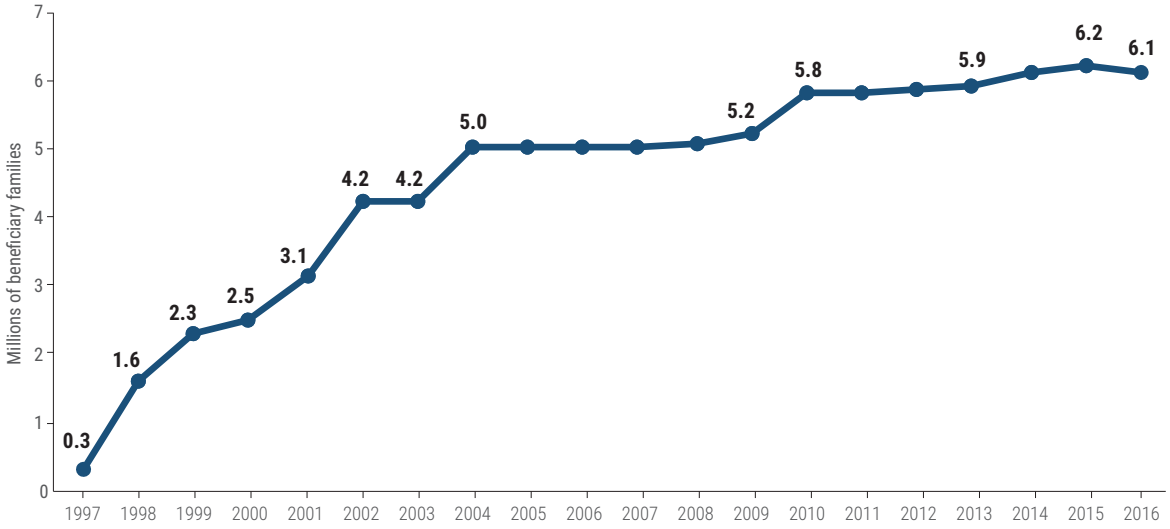


Source: Data of the International Finance Corporation.

as the country shifted from general subsidies to targeted and conditional transfers starting in the 1990s. The Prospera Program conditions cash transfers on human capital accumulation (attendance at school and health check-ups). It has been key to improving the number of years of schooling among the poorest. Over the last two decades, the share of the population with some college educational attainment or more almost doubled, while the share of the labor force with some high school education rose by more than 20 percentage points, to 55 percent (Figure 6). Other social programs, including the noncontributory health program Seguro Popular, were implemented and expanded, contributing to improved access to health care among the poor. Mexico is well-known for its innovations in social policy since the late 1990s, many of which (particularly conditional cash transfers) have been adopted by dozens of countries around the world.

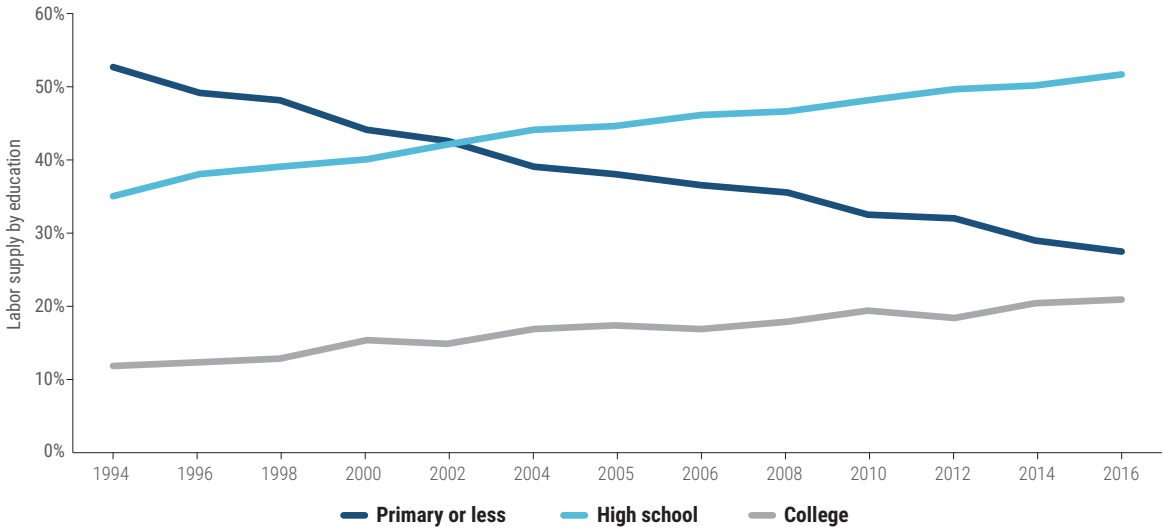
6. **Since 2012, Mexico embarked on a new wave of structural reforms to tackle critical development challenges, which will leave a solid base for future growth.** In particular, these included reforms in education, tax policy, energy, telecommunication, competition, labor, and the financial sector (Box 1). The education reform of 2013 introduced improved teacher evaluations and merit-based entry, pay and promotions. In energy, a constitutional amendment, approved in 2013, opened the electricity, oil, and gas sectors to private sector participation to bolster overall economic growth. With this reform, Mexico aimed to tackle three challenges: (1) energy security, (2) sectoral sustainability, and (3) energy efficiency. The financial and telecommunication reforms, signed into law along with secondary legislation in 2014, aimed at deconcentrating these two markets by lifting entry restrictions, thereby incentivizing more competition. The

Figure 5. Prospera coverage, 1997–2016 (millions of beneficiary families)



Source: Data of Secretaría de Desarrollo Social (Secretariat of Social Development, SEDESOL).

Figure 6. Structure of labor supply, by educational attainment, 1993–2013



Source: Data of SEDLAC (Socio-Economic Database for Latin America and the Caribbean), Center for Distributive, Labor, and Social Studies, Facultad de Ciencias Económicas, Universidad Nacional de La Plata, La Plata, Argentina, and Equity Lab, Team for Statistical Development, World Bank, Washington, DC, http://www.worldbank.org/equityla

Box 1. Key reforms in Mexico 1997-2012

- Reform of the pension system (1997)
- Reform of the fiscal coordination Law (1997)
- Reform of social protection programs (Prospera) (1998)
- Education reform on mandatory preschool education (2002)
- Noncontributory health insurance (Seguro Popular) (2002)
- Judicial process reform (2008)
- Education reform on mandatory high school education (2012)

ultimate objective was to reduce prices and improve the quality of banking and telecommunication services. While there is still a significant reform agenda in these areas, the reforms adopted have already started to bear fruit through greater accountability, lower consumer prices, and investment (see Box 2). A focus on implementation will help realize the full economic impact of the reforms over time; they also provide a solid basis for additional measures going forward.

7. **Also, more recently, and in the context of the 2014 oil price drop, the authorities reacted with prudent policies, enabling the country to withstand the shock while still achieving economic growth.** Oil price collapses in the past in Mexico had significant negative effects on both output and the fiscal position. In this last episode, however, the 2013 tax reform generated sufficient additional revenues to help offset the drastic drop in oil revenues. The authorities also applied an expenditure rationaliza-

Box 2. Structural reforms 2012-2017: initial results

Labor market reform (2012)

- More than 3 percentage points of GDP in additional tax revenues
- Informality dropped from 59.5 percent in 2012 to 56.9 percent in 2017

Tax policy reform (2013)

- More than 3 percentage points of GDP in additional tax revenues
- Oil revenues as share of total tax revenues from 39 to 17 percent
- Tax base increased from 38 to 66 million taxpayers

Education quality reform (2013)

- Scholarships from 3 out of 10 students in public schools

Energy market reform (2013)

- Expected investment between 160 and 200 US$ bn
- More than 70 new energy firms

Competition policy and regulatory reform (2013)

- Double in fines for monopolistic practices

Financial sector liberalization (2014)

- 13 million people gained access to financial services

Telecommunication reform (2014)

- 50 million additional subscribers to mobile broadband
- 24 percent decrease in telecommunications prices between 2013 and 2017

Fiscal responsibility Law for subnational discipline (2016)

- States' debt to non-earmarked transfer ratio reduced from 88 to 80 percent in 2017

In addition to these structural reforms, the basis for significant changes in governance issues were also enacted, including reforms to:

- Anticorruption and transparency (2015)
- New criminal justice system (2016)

Source: SHCP (2018)

tion program in 2015-16 to improve the fiscal stance, and after the initial shock, public debt started to stabilize and, more recently, to decline, leading the way among emerging and developing economies (Figure 7 and Figure 8). All this occurred while the economy continued to grow close to its average pace. The last years showed that the economy is more resilient to terms of trade shocks than before, and that macroeconomic policies have continued to be prudent, safeguarding the country's economic stability and sustainability.

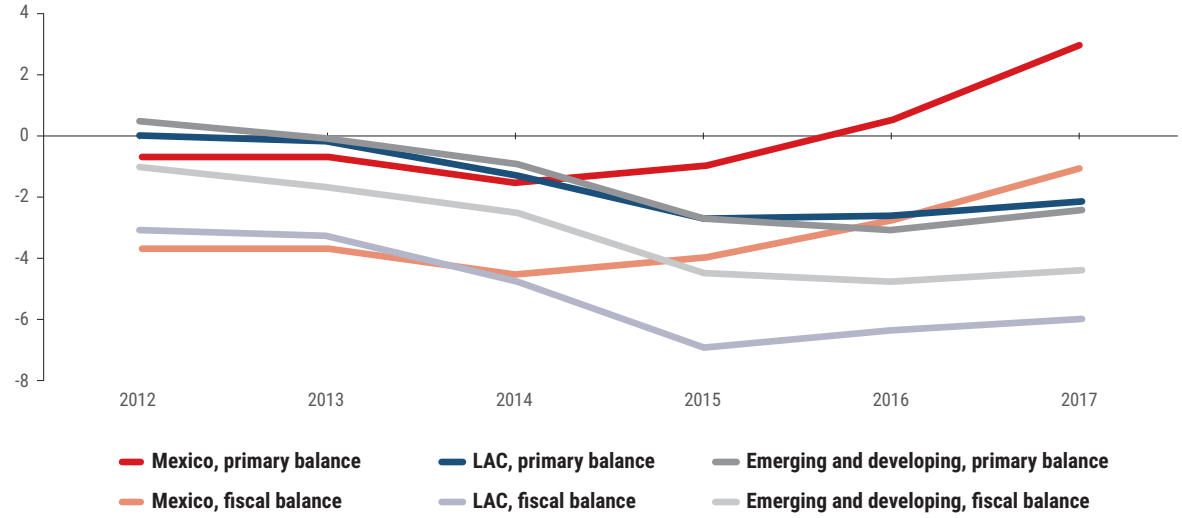
1.1.2. Other key defining characteristics

8. **Mexico has a favorable geography and abundant natural resources.** Mexico is flanked by the Pacific Ocean and, on the Atlantic side, the Gulf of Mexico and the Caribbean Sea. It has a border with the United States (the largest economy in the world) in the north and Central America in the south. It has a significant share of arable land and abundant natural capital, including substantial endowments of hydrocarbons and mineral deposits. Because of its rich and diverse natural setting, it has great potential (even beyond what it has been realized) in agriculture and tourism.[2]

9. **Its proximity to the United States (and the integration with the U.S. economy through trade) has been a driver of the country's economic transformation.** Beginning with its entry into the General Agreement on Trade and Tariffs, the precursor of the World Trade Organization, in 1984, and later through its integration with North America through NAFTA in 1994, Mexico experienced a process of deep integration with the United States in terms of economic activity. A gravity model would have predicted export flows from Mexico to the United States equivalent to 33.3 percent (using 2013 trade data), while actual flows were equivalent to 71.5 percent, more than 2.1 times greater than the predicted level of integration (Figure 9).

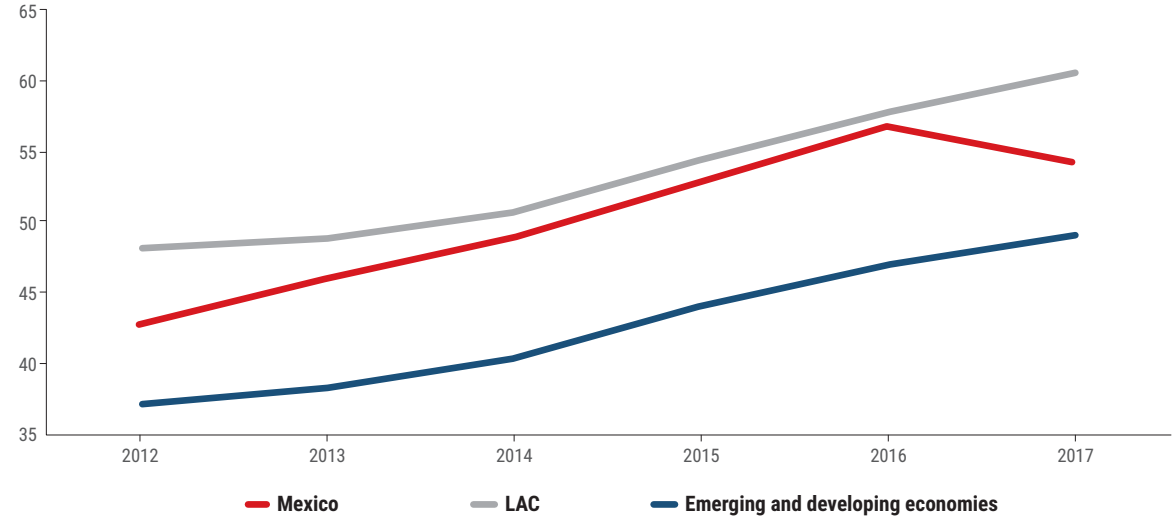
2 See Annex 1 for the detailed description on the identification of comparators/peer countries for Mexico.

Figure 7. General government fiscal balances, % of GDP



Source: IMF, World Bank.

Figure 8. Gross general government debt, % of GDP



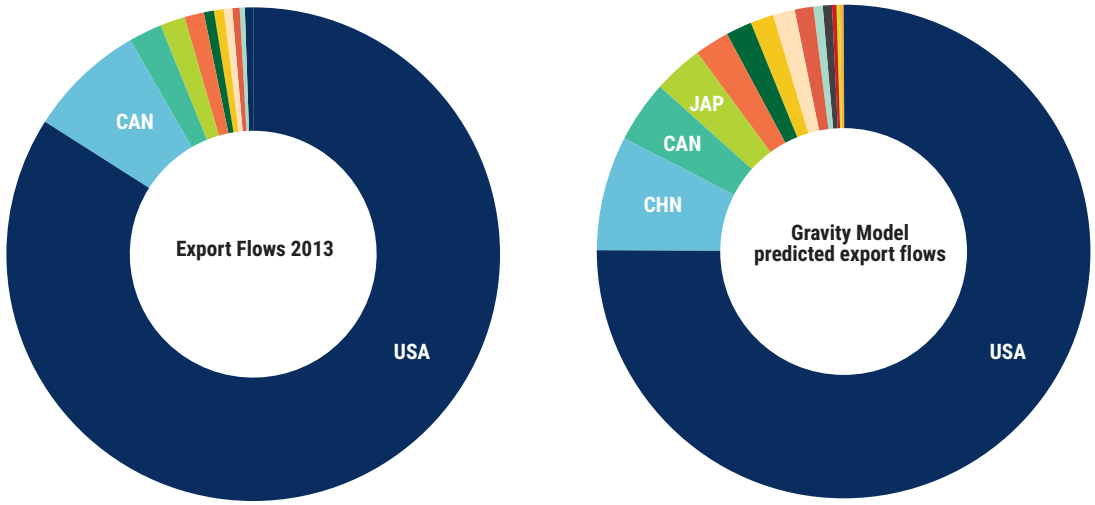
Source: IMF, World Bank.

10. **Due to its geographic position, Mexico is also prone to a wide range of natural hazards; 41 percent of its territory and 31 percent of its population are exposed to hurricanes, other storms, droughts, floods, earthquakes, and volcanic eruptions.** In economic terms, this translates into 30 percent of GDP at risk from three or more hazards, and 71 percent at risk from two or more hazards.[3] Population growth and the rising concentration of physical assets in urban areas are contributing to the country's increased vulnerability to hazards. These trends are likely to continue and, together with a changing climate and increased climate variability, are expected to result in growing losses from disasters, particularly in the poorer regions of the country. Between 2000 and 2013, Mexico experienced the second and third costliest disasters in the country's history after the 1985 earthquake. To mitigate these threats and deal with the events, Mexico has been developing innovative first-rate response institutions, becoming an example to the countries of the Latin America and Caribbean region and other emerging countries in the world.

11. **Mexico's natural resource base (agriculture, forests, fisheries, water, and coastal resources) is an important contributor to the economy.** It represents approximately 11 percent of GDP. Natural resources provide important environmental benefits, including the regulation of the hydrological regime and water quality, erosion control, and the provision of habitats for wildlife. Mexico accounts for approximately 12 percent of the world's biodiversity. Natural resources directly support the livelihoods of more than 30 million people in rural areas, many of whom are poor. Due its natural beauty and diversity, and cultural heritage, Mexico is also a top travel destination (Figure 10). In 2016, the country received more international tourists than Ar-

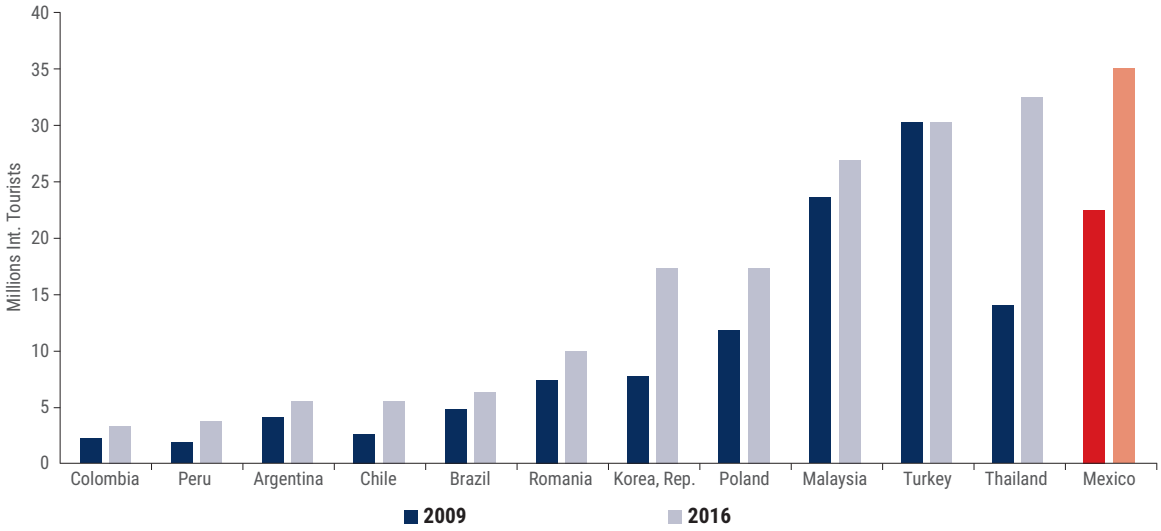
3 Fondo de Desastres Naturales: Una reseña. Banco Mundial, Secretaría de Gobernación y Secretaría de Hacienda de México (2012).

Figure 9. Export flows, Mexico–United States (actual and predicted by a gravity model, 2013)



Source: World Bank calculations based on data of Bown et al. 2017.

Figure 10. Inbound international tourists (1,000s), 2009 and 2016



Source: Data of WDI (World Development Indicators) (database), World Bank, Washington, DC, http://data.worldbank.org/products/wdi.

gentina, Brazil, Chile, Colombia, and Peru combined. In the same year, tourism directly contributed 8.5 percent of GDP to the economy. However, natural resources are also vulnerable to climate change and weather variations. Moreover, disparities in the incidence of natural resources, such as water, combined with underinvestment in natural capital, carries the prospect of severe resource shortages that can negatively impact regional development.

12. **Mexico also has a significant endowment of nonrenewable resources, particularly oil.** The country is a large producer, consumer, and exporter of energy. It is one of the 10 largest oil producers in the world and Latin America's second largest energy consumer. Mexico's energy sector has been of strategic importance to the economy and is a key driver of economic growth and productivity. Mexico's hydrocarbon sector has been controlled by a state-owned company, Petróleos Mexicanos (PEMEX), which had a public monopoly on exploration, production, and refining activities in the national territory until 2013. But oil production gradually dropped over the last decades due to limited investment and other factors. It is, however, expected to bounce back over the medium term owing to the far-reaching energy reform of 2013 that enabled private sector participation in this area.[4]

13. **Mexico's democracy was dominated by a single party until 20 years ago, and thus it is still in the process of developing its institutions.** Mexico's democracy dates to the revolution of 1917. But between 1929 and 2000, it was dominated by one party, the *Partido Revolucionario Institucional (PRI)*. Over these 71 years, in addition to the pres-

4 The prolonged decline of oil prices has had important fiscal implications for Mexico, although not for the balance of payments. Oil revenue has been shrinking since 2011 (from 7.1 percent of GDP in 2011 to 6.8 percent in 2012, 6.1 percent in 2013, and a dramatic 4.9 percent in 2015). Although oil prices rose slightly in 2017, Mexico's 2017 budget was still affected by low oil revenues.

ident, most of the governors, mayors, senators, and representatives belonged to this party or affiliated parties. In 2000, another party, the *Partido Acción Nacional (PAN)*, was elected for the first time at the federal level. By 2016, the electoral map had changed substantially with respect to 1990. Most of the states are now under a party that has not been historically dominant. The more competitive democracy has been effective at redistributing power. But some local observers have argued that, at the same time, it has maintained or even expanded rent seeking, particularly at local levels, limiting the effectiveness and accountability of institutions and control mechanisms across the government. The electoral map changed even more dramatically recently (in July 2018) with the land slide victory of the *Movimiento de Regeneración Nacional (MORENA)* party.

14. **Despite policy reforms and many favorable defining characteristics, the country has underperformed in terms of growth, inclusion, and poverty reduction compared to its peers.** This SCD argues that the country's defining characteristics alone, that is, geography, natural capital, and the young institutions in its more competitive democracy, cannot explain the performance of the country in growth and inclusion. Instead, it highlights that the interaction between these characteristics (some with positive and some with negative impacts) and structural impediments arising from incomplete (or not fully implemented) reforms, limitations in the development of institutions, and other factors, explain the sluggish dynamics of growth and inclusion.

15. **Lifting these impediments can help support an accelerated and more inclusive growth in Mexico over the next years.** The report also argues that key aspects of fiscal, environmental and social sustainability are critical to consider in order to achieve sustained growth and poverty reduction over the medium and long term. It is important to highlight at the outset that significant progress has been made. As highlighted earlier, the past decade has seen important and positive reforms across a number of policy areas that are starting to render fruits and are likely to help foster growth over the medium term. Thus, the report focuses more deeply on the pending agenda ahead.

1.2 Growth dynamics

16. **Mexico's economic growth averaged only 2.4 percent between 1980 and 2017, limiting progress in convergence relative to the U.S.** per capita income (Figure 11). On a per capita basis, average growth was close to 1 percent. The country's per capita GDP today stands at 34 percent of U.S. per capita GDP, compared with 49 percent in 1980 (Figure 12). The Republic of Korea had, by 2017, reached 66 percent of U.S. per capita income, even though, in 1980, it had less than half the per capita income of Mexico. Other countries, such as Chile, Malaysia, and Poland, which all had lower per capita incomes than Mexico in 1980, had, by 2017, achieved higher income levels and had closed the gap with respect to the United States.

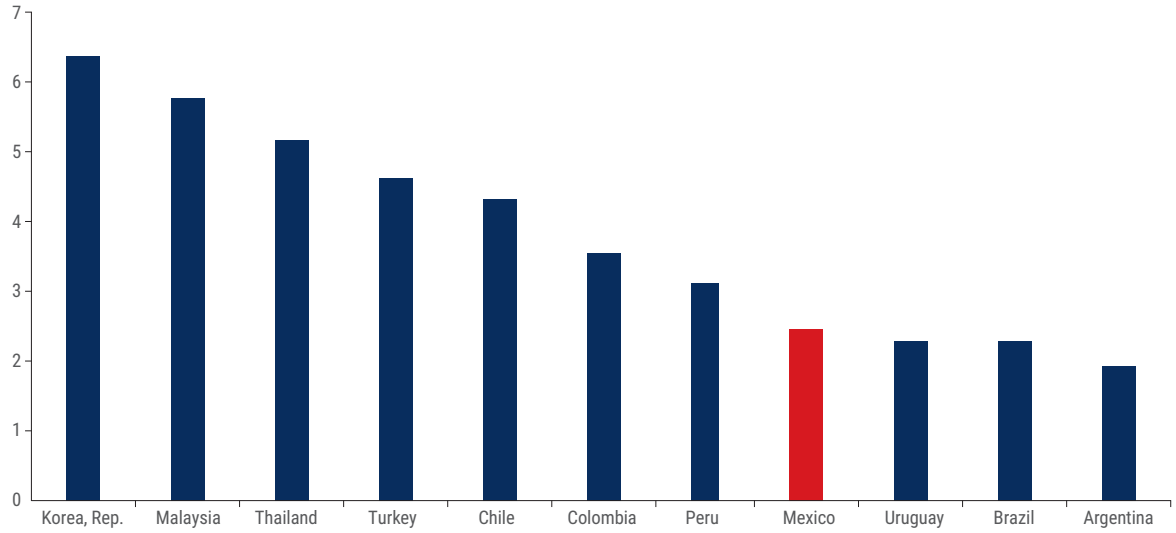
17. **On the supply side, growth in the private sector was primarily driven by the expansion in services, although some manufacturing subsectors also showed rapid growth rates.** Telecommunications and financial services were the most rapidly growing service subsectors over the last two decades. Despite the overall decrease of manufacturing in value added, some higher value added manufacturing subsectors have become central to regional and global value chains and important growth drivers, boosted by trade liberalization. The production of transport equipment, electronics, and computers grew well above GDP, as Mexico joined regional and GVCs in the auto, electronics, and aerospace subsectors. Other manufacturing industries, however, especially those that tend to be more labor intensive, such as wood, textiles, and clothing, declined in importance over the same period, dragging the overall share of manufacturing in value added down from 17.2 percent in 1993 to 16.6 percent in 2017. On the demand side, private consumption has been the main growth driver (expanding an average of 2.8 percent a year between 1994 and 2017), contributing more than two-thirds to GDP growth. Investment rose 2.3 percent a year, below the overall GDP growth rate, as public capital spending entered a secular decline. Net exports, on the other hand, contributed little to growth. While gross exports grew by as much as 6.2 percent an annum on the back of the boom in manufactured exports, imports expanded at a similar pace.

18. **As in many countries in the region, growth in Mexico has been affected by a series of frequent negative shocks to the economy.** The economy experienced greater volatility since the early 1980s, particularly through several successive external and domestic shocks that included the 1982 debt crisis, the 1985 earthquake in Mexico City, the financial crisis of 1994/95, the entry of China into the World Trade Organization in 2001, the bursting of the U.S. stock market bubble in 2001–02, the global crisis in 2008–09, and (to a lesser extend) the collapse in oil prices in 2014. Growth volatility in Mexico seems to be relatively high compared with the rest of the region and the world (see chapter 2).

19. **Capital accumulation has not been sufficient to support higher growth over the last four decades.** While overall investment is not low by Latin America and Caribbean standards (total investment has averaged 20 percent of GDP since 1990), the annual investment and capital stock growth has been lower in Mexico than in rapidly growing emerging economies that are converging to higher income levels: 33 percent in the Republic of Korea and 28 percent in Malaysia, for example. The growth in capital stock began to slow in the early 1980s, coinciding with the slump in GDP growth.

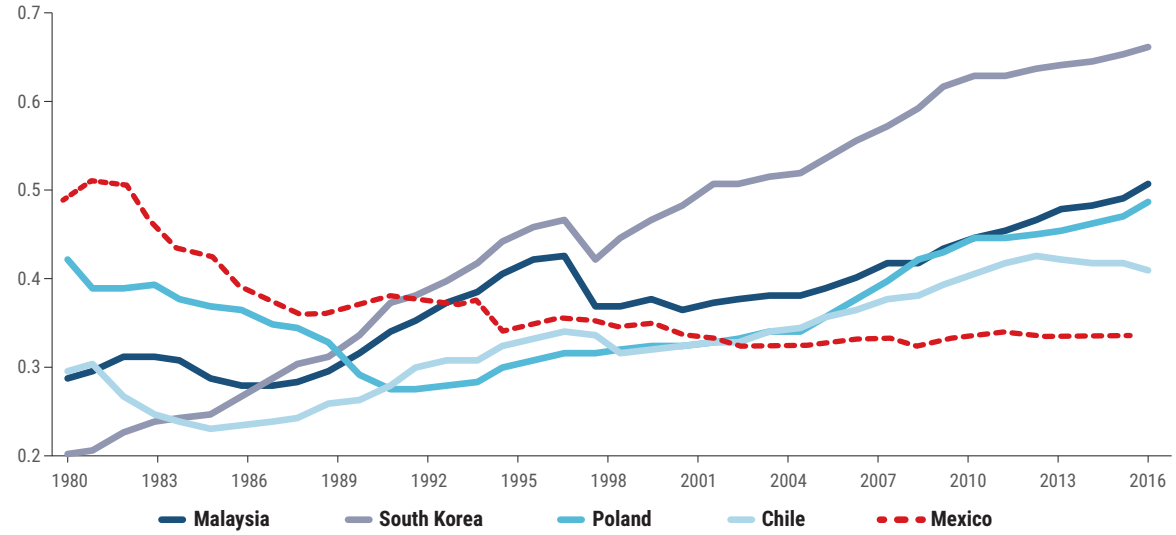
20. **Mexico's public investment in infrastructure only reached an average of 3.2 percent of GDP between 2008**

Figure 11. Average GDP growth rates for Mexico and comparators, 1980–2016 (%)



Source: Data of WDI (World Development Indicators) (database), World Bank, Washington, DC, http://data.worldbank.org/products/wdi.
Note: Growth rates of GDP measured in constant local currency unit.

Figure 12. Per capita income as a share of U.S. per capita income



Source: November 2017 data of Total Economy Database, Conference Board, New York, https://www.conference-board.org/data/economydatabase/.

and 2015. [5] Excluding PEMEX, that number would be 1.7 percent of GDP in 2017. This level falls short of those fast-growing Latin American countries and emerging economies that spend above 5 percent of GDP in this area. Since 2008, private investment in four key sectors—water, roads, energy, and telecommunication—accounted, on average, for one-third of total investment in these sectors. Public-private partnerships have grown in importance. Since 1990, 296 projects have been undertaken as public-private partnerships, representing a value of US$83 billion, half of which since 2006.[6] Yet, insufficient overall investment resulted in infrastructure bottlenecks that have ben also hampering private sector growth. Even though transport infrastructure is better in Mexico than in many other Latin American countries, it is aging, and new investment in the sector has trailed that among regional peers.[7] Moreover, the transport, logistics, and facilitation services to support export markets other than the United States, such as Asian markets through export corridors toward the Pacific Ocean ports, are relatively weak. The country also continues to experience deficiencies in electricity (particularly in transmission capacity and distribution) and telecommunication. These gaps suggest that an increased role is needed for the public and private sectors in infrastructure financing.

21. **Average growth rates in Mexico mask significant regional income and growth disparities, with very limited domestic convergence among states.** There are large differences between the industrialized north and center-north and the

5 Infralatam (Economic Infrastructure Investment Data, Latin America and the Caribbean) (database), Economic Commission for Latin America and the Caribbean, the Development Bank of Latin America, and the IADB, Washington, DC, http://infralatam.info/. Includes PEMEX.
6 PPI Project Database (Private Participation in Infrastructure), World Bank, Washington, DC, http://ppi.worldbank.org/.
7 Infrastructure pillar (2017/18), GCI (Global Competitiveness Index) (database), World Economic Forum, Geneva, http://reports.weforum.org/global-competitiveness-index/.

less developed south. In 2016, the average GDP per capita of one of the richest states (Nuevo León) was close to the average in Poland, while that of the poorest state (Chiapas) was similar to that of Honduras or Timor-Leste. Moreover, there has been very limited domestic regional converge over the last 20 years. The more developed regions are home to industries that have been able to take advantage of the market opportunities that NAFTA fostered. These high-growth industries and states have not built significant backward linkages to other parts of the economy and other states.

22. **Aggregate productivity growth has been historically low, and the dispersion in labor productivity growth across states has been substantial.** The contribution of total factor productivity (TFP) to growth was negative (−1 percent) between 1991 and 2016, representing the weakest performance among Mexico's structural and aspirational peers (TFP growth had been marginally positive in the early 1990s). The contribution of labor has been driven mostly by quantity, that is, a growing labor force, rather than labor quality, which has improved only moderately. A simple calculation suggests that, if Mexico's productivity had grown at a pace similar to the rate during the high-growth period between 1950 and 1970 (1.3 percent a year), GDP per capita would have been 128 percent higher than the current level. Similarly, if TFP growth were similar to that of the United States, Mexico could reduce its GDP per worker gap with the United States by 22 percent. However, capital per worker would still be far too low to reach the same level, suggesting that improvements in productivity would need to be accompanied by increased and faster capital accumulation. Labor productivity in the states of Aguascalientes, Chihuahua, Nuevo León, Querétaro, and Zacatecas increased at an average annual rate of over 1 percent between 1993 and 2015, while labor productivity in Chiapas, Hidalgo, Oaxaca, Quintana Roo, and Tlaxcala declined. As a result, the divergence in productivity growth has become more pronounced in the last two decades. Today, the differences are significant. Measured by value added per worker, productivity is five times higher in Mexico City than in Chiapas. If labor productivity in states at the bottom had grown at the same rate as in Aguascalientes (one of the top performers), their current GDP per capita would be 81 percent higher.

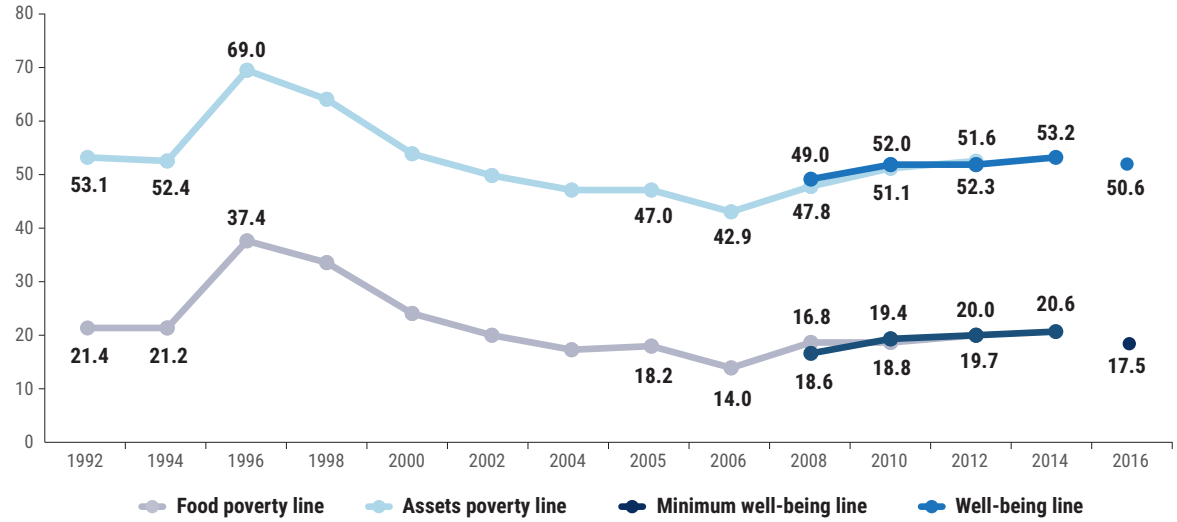
23. **Factor misallocation and informality are a drag on productivity growth in Mexico.** Productivity differences between sectors are large, but productivity dispersion between firms within sectors is even larger. In recent years, as labor productivity in the manufacturing sector declined, its share of total labor fell. At the same time, productivity also decreased in the services and commerce sectors, yet their share in total labor increased. Overall, reallocation between sectors alone does not explain the sluggish productivity trend, as maintaining sectoral labor shares constant at 1990 level would have only marginally improved productivity growth. It is misallocation within sectors that is one of the main culprits of low productivity growth. In fact, comparing the distribution of productivity across sectors with the distribution of productivity across firms within each sector reveals that firm-level productivity is significantly more dispersed and has a larger standard deviation, with most firms below the sectoral average and a fat left tail of unproductive firms. Productivity dispersion is much higher in Mexico than it is in the United States or in any other Latin American country for which comparable data are available.[8] These productivity differences persist even within narrowly defined sectors, such as cut-and-sewn apparel manufacturing, where the most-productive firms are about 8 times more productive than the least-productive firms. One way in which this is manifested is that firms do not grow: firms that are in business for 10 years or more, employ only marginally more labor than those in business for 5 years. Within-firm growth, on the other hand, drives productivity growth. In the manufacturing sector, the within-firm component represents about 80 percent of productivity growth. However, very few firms are productive at the global level: the domestic frontier is far below the global frontier in all industries, and there has been limited improvement in the past decade.[9] At the same time, high levels of informality persist. At the national level, 56.5 percent of total employment was in the informal economy in 2017, although there is significant variation across states.[10] By some estimates, up to 97 percent of firms in the manufacturing and services sector rely partially or wholly on informal labor and absorb 80 percent of labor and 70 percent of capital.[11] This large concentration of factors in informality contributes to low aggregate productivity. Estimates suggest that Mexican formal firms are on average 84 percent more productive than informal firms.[12]

1.3 Poverty reduction, shared prosperity, and inclusion dynamics

24. **Progress towards poverty reduction and shared prosperity has been moderate.** Starting in 1992, official monetary poverty rates rapidly increased due to the Peso Crisis of 1994-95 (by 1996, assets poverty and food poverty rates reached their peak at 69 percent and 37.4 percent, respectively).[13] And although Mexico has made considerable progress since 1996, the Global Financial Crisis of 2008–09 and other prior shocks in output, encumbered poverty reduction until 2014 (assets poverty in 2014 was 53.2 percent versus 53.1 percent in 1992, while food poverty rate

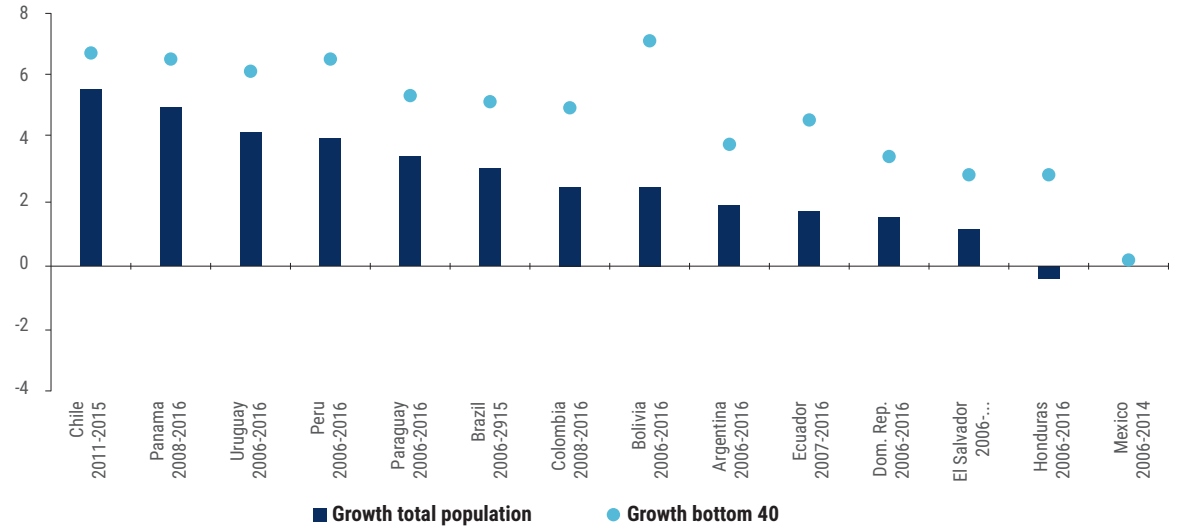
8 Busso et al.(2013)
9 Araujo et al. (2016).
10 Data of the National Institute of Statistics and Geography (INEGI).
11 Busso, Fazio, and Levy (2012). Estimates based on 2008 data.
12 Busso, Fazio, and Levy (2012).
13 For more detail on the official methodology for poverty measurement, see Annex 2.

Figure 13. Monetary poverty rates (official), 1992–2016



Sources: Data of Consejo Nacional de Evaluación de la Política de Desarrollo Social (National Council for the Evaluation of Social Development Policy, CONEVAL); INEGI 2016a.
Note: Numbers for 2016 are not strictly comparable.

Figure 14. Shared prosperity is one of the lowest in the region, 2004–14



Source: SEDLAC (Socio-Economic Database for Latin America and the Caribbean), Center for Distributive, Labor, and Social Studies, Facultad de Ciencias Económicas, Universidad Nacional de La Plata, La Plata, Argentina, and Equity Lab, Team for Statistical Development, World Bank, Washington, DC, http://www.worldbank.org/equityla.

was 20.6 percent in 2014 versus 21.4 percent in 1992).[14] Yet, monetary poverty rates—also called wellbeing poverty and measured according to the new methodology for income poverty measurement, dropped from 53.2 percent in 2014 to 50.6 percent by 2016. And over the same period, monetary extreme poverty rates, also called minimum wellbeing poverty, declined from 20.6 percent to 17.5 percent (Figure 13). This is consistent with the recent recovery of labor income shown in the labor force survey data (since 2014 Q4). Nevertheless, even though monetary poverty declined between 2014 and 2016, the rates corresponding to 2016 are still higher than those in 2008.

25. **Mexico's bottom 40 percent have benefitted more from economic growth than the overall population, nevertheless the country lags behind its peers in terms of shared prosperity.** Whereas overall average income contracted by 0.3 percent between 2006 and 2014, the first bottom quintiles of the income distribution (the World Bank's indicator of shared prosperity) grew by 0.2 percent, according to the main household survey ENIGH (Figure 14).[15] Yet, even though growth has been pro-poor, it is far behind its peers in Latin America.[16] There is also significant heterogeneity among regions and states of the country. Three states had a lower average growth rate among the poorest 40 per-

14 In 2014, the well-being line was Mex$2,542 (about US$137) per capita in urban areas and Mex$1,614 (US$87) in rural areas, and the minimum well-being line was Mex$1,242 (US$67) and Mex$ 868 (US$46) per capita, respectively.
15 Numbers corrected for inflation (real growth). This growth is lower than the GDP per capita because the ENIGH survey underestimated higher incomes, which affected the average income.
16 Tabulations of Equity Lab, Team for Statistical Development, World Bank, Washington, DC, based on data in SEDLAC (Socio-Economic Database for Latin America and the Caribbean).

Figure 15. Non-monetary components of the official multidimensional poverty measure, 2010–2016

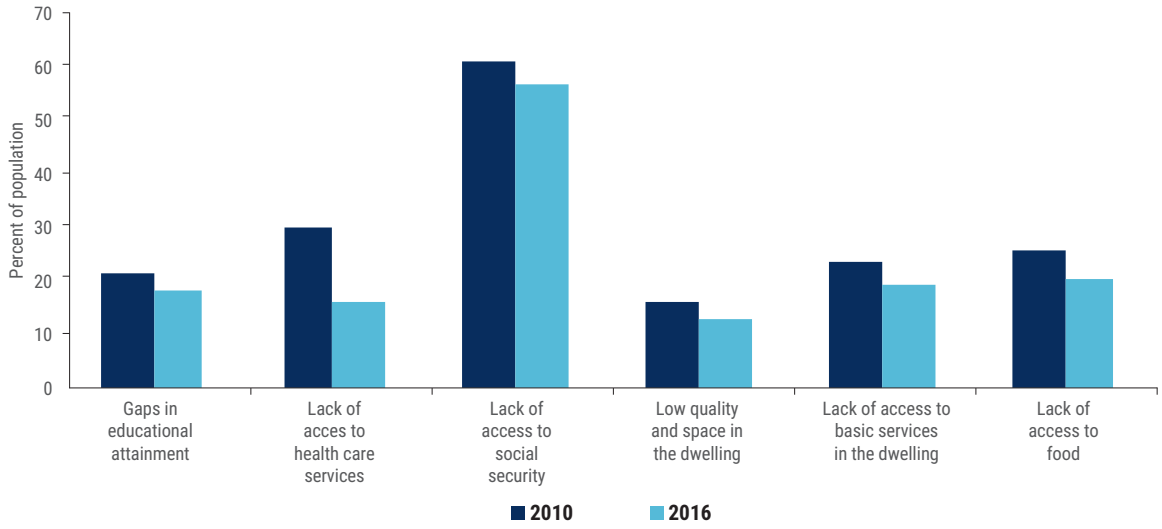
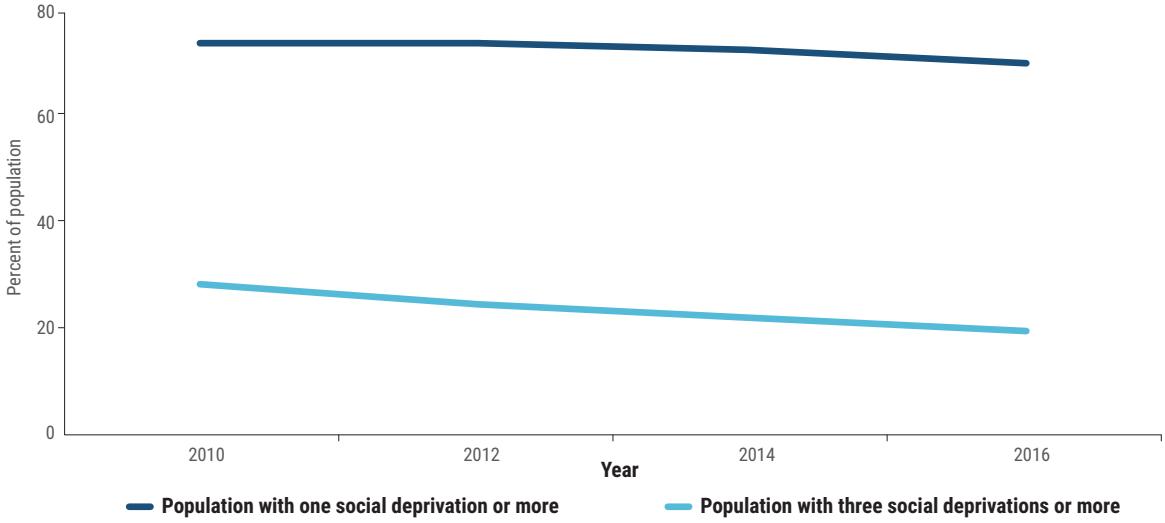


Figure 16. Share of population with simultaneous deprivation in several non-monetary components of poverty



Source: Data of Consejo Nacional de Evaluación de la Política de Desarrollo Social (National Council for the Evaluation of Social Development Policy, CONEVAL); INEGI 2016a.

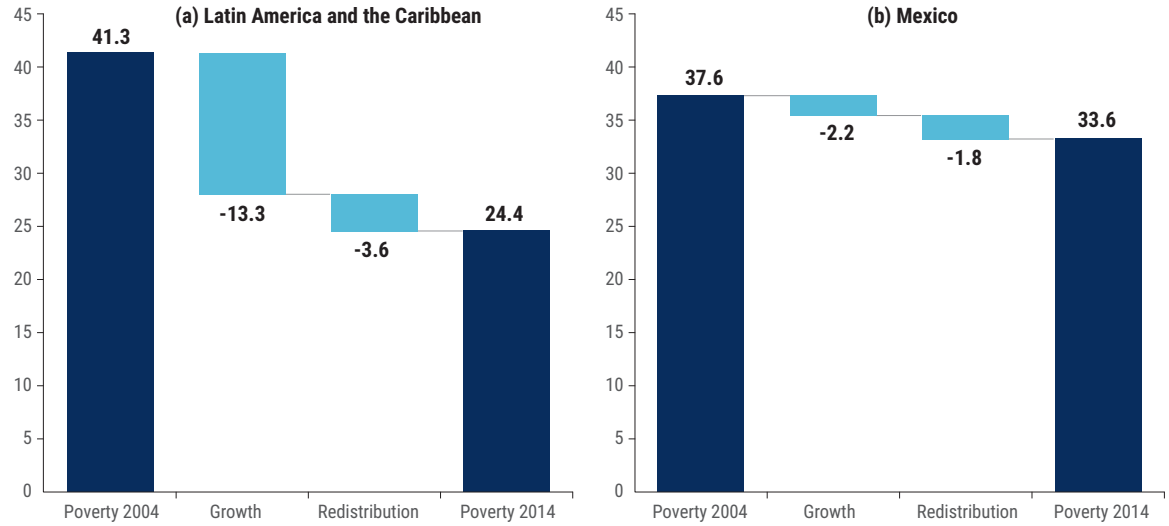
cent of the population than the average growth rate for their entire population between 2005 and 2014.[17]

26. **Reduction in monetary poverty has been limited, however there has been a consistent improvement in nonmonetary dimensions of poverty since they were first established as components of the official multidimensional poverty measure in 2010.** The share of population experiencing deprivation in one or more of the six nonmonetary dimensions of poverty included in the official multidimensional poverty measure, decreased from 74.2 to 70.4 percent from 2010 to 2016. The share of population experiencing deprivation in three or more of these dimensions went down from 28.2 to 18.7 percent in the same period (Figures 15 and 16).

27. **Moderate improvements in poverty reduction seem to be a consequence of insufficient growth and redistribution.** Between 2004 and 2014, moderate poverty at US$5.5/day per capita (2011PPP) in Mexico declined by 4.0 percentage points, from 37.6 percent to 33.6 percent. In contrast, over the same period, moderate poverty in the Latin America and Caribbean region declined 16.8 percentage points, from 41.3 percent to 24.4 percent (Figure 17). Economic growth was the main factor behind both the decline in poverty experienced across Latin America and Mexico over the past decade. However, the relative importance of economic growth compared to redistribution was higher for Latin America and the Caribbean (79 percent versus 21 percent), than for Mexico, (55 percent versus 45 percent). Because of these dynamics, the size of the middle class now lies below the

17 Differences of income growth across the distribution at state level are calculated from poverty maps that use traditional ENIGH survey and Intercensal data, given that representativeness at state level was one of the improvements in the MCS-ENIGH.

Figure 17. Contribution of growth and redistribution to poverty reduction in Latin America and the Caribbean and Mexico, (moderate poverty at $5.5/day per capita), 2004–14



Source: World Bank calculations following a Datt-Ravallion decomposition and based on SEDLAC (Socio-Economic Database for Latin America and the Caribbean), Center for Distributive, Labor, and Social Studies, Facultad de Ciencias Económicas, Universidad Nacional de La Plata, La Plata, Argentina, and Equity Lab, Team for Statistical Development, World Bank, Washington, DC, http://sedlac.econo.unlp.edu.ar/wp/en/estadisticas/sedlac/estadisticas/.

Latin America and Caribbean average (22.3 percent versus 36 percent). And the share of people who are vulnerable to poverty has grown, reaching nearly 43 percent of the population in 2014 (up from 39 percent in 2004), and above the 37 percent average in Latin America and the Caribbean.[18]

28. **Challenges remain in terms of access to basic services and markets, this is particularly the case in the south of the country.** Rural areas suffer a vicious cycle of low productivity, low investments in physical and human capital, and high poverty rates, particularly in the south of the country. At the same time, despite the positive effects of urbanization, most of Mexico's poor live in urban areas with challenges in the provision of services. And regional disparities persist: in 2016, 68 percent of the extreme poor lived in only six of Mexico's thirty-two states. In addition, although it has narrowed, income inequality remains high. There is evidence of intergenerational mobility in education and occupational status (though with unequal patterns by geographic region). Yet, intergenerational mobility processes appear to be unequal for men and women, and for rural and urban populations.

29. **Access to education—a critical component of human capital—is near universal, yet, student performance lags behind, quality remains an issue, and large regional disparities persist.** From near universal in the primary and lower secondary levels, enrolment falls to roughly over half of 15 to 19 year-olds in upper secondary—the lowest rate among countries of the Organisation for Economic Co-operation and Development (OECD). Student achievement also remains subpar: about half of students graduating from primary education have insufficient proficiency in math and language/communication.[19] Poor educational quality is a key challenge towards curbing poverty, reducing inequality and promoting mobility. Disparities in learning outcomes by type of school are telling: the proportion of insufficient proficiency among private schools is 13 percent, 51 percent in general public schools, 70 percent in community schools, and 80 percent among indigenous schools.[20] Educational outcomes also vary across genders—boys outperform girls in science by 8 points—and geographical area.[21] For example, the populations of Mexico City and Nuevo León have about 10 years of educational attainment on average, compared with only slightly more than 6 years in Chiapas. These results have implications for inclusive growth. Only half of 15-year-olds in Mexico obtain the necessary skills to participate effectively in society and the labor market.[22] Taking advantage of digital platforms in education is gradually taking place (mostly at higher levels of education), but with significant room for improvement at all levels.

30. **Access to financial capital for poor and vulnerable households is limited.** In 2017, only 35 percent of adults in Mexico had an account at a formal financial institution, compared to 92 percent in the OECD, 73 percent in upper-middle income countries, and 54 percent in Latin America and the Caribbean. There is also a large gap in access between the poorest 40 and the richest 60 percent of the population—a difference of about 18 percentage points (compared to 5 points in the OECD).[23] The cost of exclusion from the tra-

18 Tabulations of Equity Lab, Team for Statistical Development, World Bank, Washington, DC, based on data in SEDLAC (Socio-Economic Database for Latin America and the Caribbean).
19 Per the national PLANEA-ELSEN, 2017.
20 Educational Indicators Bank (Banco de Indicadores Educativos), RE01a. Share of students that obtain the educational achievement level (*insufficient)* in the areas evaluated in the PLANEA-ELSEN (2015) tests.
21 Refers to the scores of 15-year-old students (girls and boys) on the PISA 2015 science literacy scale.
22 According to results from PISA 2015.
23 Global Findex (Global Financial Inclusion Database), World Bank, Washington, DC, https://globalfindex.worldbank.org/.

ditional financial system can be higher for the poor, who rely more on informal institutions. For instance, despite reforms to increase the availability of access to credit, the cost of borrowing remains significantly higher in the retail banks, which tends to target low income consumers (in 2017, the total annual cost of personal loans ranged from 30 to 60 percent in traditional banks compared to 80 to 120 percent in retail banks).[24]

31. **Uneven development and underinvestment in agriculture, water resource management and forestry limit the potential of abundant natural capital.** A large share of land in Mexico is highly fragmented, with implications for agricultural productivity. Nearly 52 percent of land holdings are small (0 to 2 hectares).[25] The numerous, low-productivity, small-holder sector coexists with significant land concentration among large-scale producers, vertically integrated in agribusiness supply chains chiefly located in the northern states.[26] Thus, large disparities in productivity and growth between North and South remain. In 2015, five states in the North/Center contributed 50 percent of Mexico's agricultural GDP, while that of Southern states—home to a large number of traditional agriculture producers—was much lower. For instance, the primary sector in Oaxaca had little participation in the state's GDP (6 percent), even though 32 percent of employment in the state is concentrated in this sector. Gender inequality also persists in the sector, whereby women farmers own only 10 percent of the land they work and are subject to higher productive exclusion.[27] Natural capital is a particularly important source of income for the poorest population, but it is increasingly at risk due to underinvestment and mismanagement. Twelve million people live in forest areas; of which 88 percent live in highly marginalized localities, and 62 percent are poor. There is a concomitance between areas with high poverty and those that show high rates of deforestation.[28]

32. **Social capital is comparatively low, with implications for productive inclusion.** Mexico lags behind in terms of group cohesion, and measures of safety and trust, based on Social Development Indices. Intergroup cohesion, which measures ethnic tensions and discrimination, puts the country among the worst rankings compared to its peers.[29] Social support appears to have fallen in Mexico over the past decade. The share of people who reported having a friend or relative whom they could count on fell from 88 percent in 2005–07 to 80 percent by 2014–16 (below the OECD average, 89 percent). Low levels of social capital accumulation affect the poor disproportionately, as they rely more on informal networks. For instance, evidence shows that poor farmers in peri-urban areas Mexico expand their chances to improve their poverty status as social capital increases.[30]

33. **Low productivity is common in microenterprises and smallholder agriculture.** The productivity of microenterprises—a key source of employment—is low, and their contribution to GDP is shrinking (from 15 to 9.8 percent of GDP between 2008 and 2014).[31] Most workers in microfirms are informal.[32] Lagged regions are particularly vulnerable: for example, labor productivity in southern states is about 53 percent the national average.[33] In agriculture, low productivity is a critical constraint to inclusion. In Mexico, over 75 percent of producers are semi-subsistence smallholders (under 5 hectares), concentrated in the center and south, employing traditional production practices.

34. **Female and youth labor force participation remain low, with significant implications for growth.** Only 45.5 percent of working age Mexican women are part of the labor force, below the rate in Latin America and Caribbean countries (53 percent), and the OECD (51 percent). Mexico's gender gap in labor market participation has an associated with a potential loss up to 25 percent of income per capita.[34] Additionally, a large share of Mexico's youth is not in employment, education or training (NEET), namely, 25 percent of 20- to 24-year-olds and 14 percent of 15- to 19-year-olds. This has implications for earnings—a 1 percentage point increase in the proportion of NEET predicts a 7 percent reduction in earnings 20 years later–and equity—close to 60 percent of the NEET population is in the bottom 40 percent.[35] Mexico also has one of the biggest gaps between male and female NEETs, and the highest adolescent pregnancy rate in the OECD.

1.4 Sustainability issues

35. **Building public spending pressures over the medium term will weigh on fiscal sustainability.** Pressures stem from mandatory spending items such as pensions, as Mexico's population ages and the costs of pension reform transition build up. Healthcare spending also faces upward pressures stemming from demands for further coverage, growing costs from NCDs, and an aging demographic profile that would require higher spending on long term care.[36]

24 CONDUSEF (2017). See more details on the interest rates per type of bank in Section 3, below.
25 As shown in the 2016 INEGI agricultural census update.
26 Fox and Haigh (2010).
27 World Bank (forthcoming).
28 World Bank (forthcoming).
29 International Institute of Social Studies, Indices of Social Development, 2010.
30 Méndez-Lemus and Vieyra (2017).
31 INEGI (2017).
32 According to the economic census they amount to 93.2 percent, and 96.6 percent from the labor force survey.
33 Deichmann et al. (2004).
34 Cuberes and Tiegnier (2016). According to their estimations, the countries with the largest average total losses are Turkey (33.1 percent), Mexico (25.5 percent), and Italy (21.2 percent), while Iceland (9.2 percent), Norway (9.7 percent), and Finland (9.7 percent) display the smallest losses.
35 De Hoyos et al. (2016).
36 Simulations suggest that, if current technology-related spending trends continue and without considering income growth, health spending will increase from 8.9 percent of GDP in 2006 to 24.2 percent of GDP in 2050. With an income growth rate of 1 percent, the figure would be 15.5 percent, and of 3 percent, it would be 6.6 of GDP (Glassman and Zoloa 2014).

Pressures also arise from people's demand for improved education and multiple public services at the subnational level. At the same time, decades of underinvestment in infrastructure, including for public service delivery, call for additional public investment to avoid compromising future medium-term growth. There is indeed space for efficiency gains and fiscal savings across categories of spending, but the growing spending needs will require measures on the revenue side as well. Mexico still has a relatively low tax-to-GDP ratio. While this ratio increased significantly after the 2013-4 reform (by more than 3 percentage points), it was 17.2 percent in 2016, with a base still eroded by tax expenditures. Moreover, tax evasion (although declining) continues to impose significant revenue losses. Future reforms will need to tackle a program of rationalization and efficiency gains on the expenditure side. Further reforms to expand the tax base (and rates in some cases) will also be needed. Overall, policies will need to be earmarked in the context of a strong medium term fiscal framework.

36. **There is high vulnerability to climate change and environmental degradation, but Mexico has been a leader in using instruments to reduce risk.** Mexico's forests represent an important natural asset, particularly for rural communities. But the country faces the challenge of conserving and sustainably managing them while also meeting a growing demand for timber products. Its payments for conservation and environmental services program, has shown positive results in curbing deforestation and poverty alleviation, and it would need to be fostered moving ahead. Disparate availability of water in terms of both quantity and quality curtails the country potential for evenly distributed growth and inclusion, with a strong connotation of regional, and urban/rural inequality. More than 35 million Mexicans have limited access to water or receive low-quality water services. The economic costs of water depletion and degradation have increased over the last 15 years. The water sector would require significant investments to achieve efficiencies in the system and provide water to the population in a sustainable way. In the period from 2000 to 2005, natural disasters, exacerbated by climate change, were more frequent and severe, increasing poverty between 1.5 and 3.7 percent (depending on the poverty measure used). Research using the Human Development Index indicates that weather events could reduce up to two-year achievements in the HDI index for affected municipalities in Mexico.[37] Progress has been made in disaster risk management, for example through the creation of the Fund for Natural Disasters (Fondo de Desastres Naturales, FONDEN) through which the federal government allocates budget ex-ante for post-disaster response and reconstruction. Nonetheless, climate change mitigation and adaptation policies will need to continue.

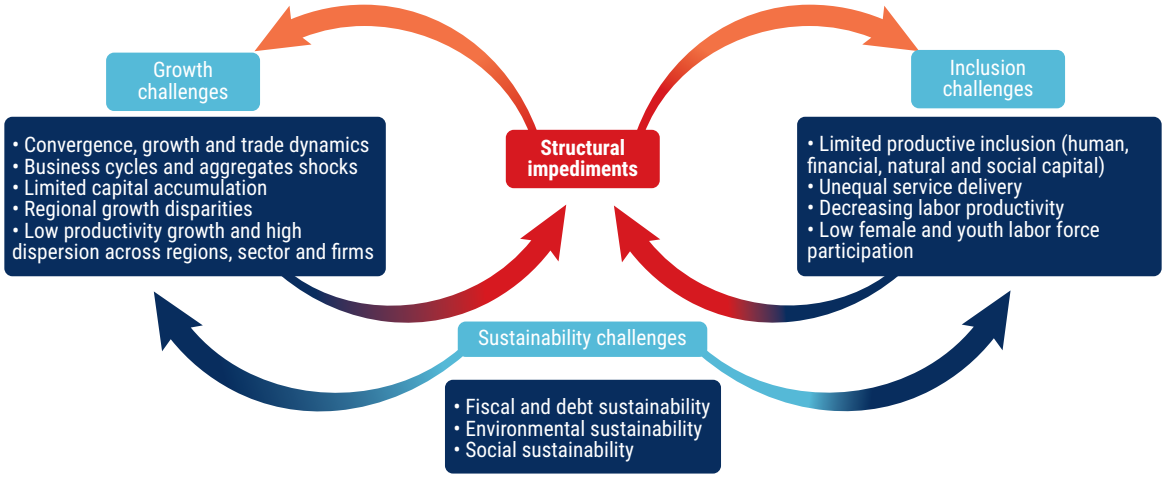
37. **The social sustainability dimension of Mexico's development is defined by several interconnected challenges that include lack of social mobility, unemployed youth, and crime coupled with rule of law challenges.** Inequality of opportunity is prevalent in the country and related to gender and ethnicity—indigenous populations fare worse than other race groups in all categories of social outcomes. For instance, 64.6 percent of the indigenous population experience deprivations in terms of access to basic services in the dwelling, compared to 16.3 percent for the non-indigenous population. In terms of learning outcomes, the proportion of insufficient proficiency among students at private schools is 13 percent and at general public schools 51 percent, while in indigenous schools it is *80 percent*. In addition, the social and economic integration of millions of young people who lack opportunities is one of the highest priority social inclusion issues facing the country. The NEETs phenomenon is one element in a chain of subsequent long-term consequences given its several intergenerational dimensions. By definition, it implies that a sizeable part of today's youth population is not accumulating the human capital necessary to effectively contribute to and benefit from labor and economic opportunities. Exclusion and youth disenfranchisement is also correlated with patterns of crime and violence. Low trust in institutions is associated with weaker incentives for cooperation and coordination creating a dynamic of low compliance with norms and free-riding problems. Levels of indicators such as civic engagement, trust in institutions and confidence in the government are low in Mexico compared to its peers. Comprehensive policies to tackle these challenges will need to be designed and implemented.

1.5 Structural impediments

38. **The persistence of well-known structural issues seems to have hampered the long-term path of growth, inclusion and sustainability.** A key argument in this report is that a misallocation of resources in the economy is taking place, within and across sectors in the economy, across regions, firms and individuals, and that it is harming productivity, growth and inclusion.[38] In this context, this part of the report looks to identify the most critical impediments that prevent the assignment of resources to their highest-valued use.[39] Through a filtering process (described in detail in section 5.2 of this report), the SCD arrives at three key areas of structural impediments: (i) product and factor markets, (ii) rule of law institutions; and (iii) resource allocation and institutional policy coordination. These structural impediments appear to be associated with unfinished or incomplete reforms, as well as policies and programs that could be adjusted. It is argued that these areas of structural impediments are linked to the limited growth experienced and high economic disparities (among households,

37 Rodríguez-Oreggia et al. (2013).
38 See Chiquiar and Ramos Francia (2006), Levy and Walton (2009), Hanson (2011) and Levy (2018).
39 For more detail on economic theory of allocative efficiency based on firm dynamics, see Lucas (1978), Hopenhayn (1992), Caballero and Hammour (2001), Haltiwanger (2011), and Bartelsman, Haltiwanger and Scarpetta (2013), among others.

Figure 18. Structural impediments and growth



firms, and regions), which in turn seem to reinforce and perpetuate these same structural impediments creating a vicious circle (Figure 18). They are also linked to below-potential levels of investment as well as to economic vulnerability to external shocks. Moreover, they are also connected to the suboptimal provision of quality inputs for human capital accumulation and to low levels of labor force participation, particularly for women and youth.

1.5.1. Product and factor markets

39. **Product market inefficiencies affect private sector growth.** There are weak linkages between the NAFTA export-oriented firms in the northern and central states of the country, and the large share of low-productivity firms not linked to those GVCs. To strengthen those linkages, it is of critical importance to reduce any hurdles to firms' entry, competition, exit, efficient costs of operation and flow of labor to productive and formal activities, as well as to their access to finance. While progress has been made through a number of recent reforms to strengthen competition (such as telecommunication, energy, and competition policy) and institutions (such as the Federal Commission for Economic Competition, COFECE), there is significant room to reduce limited competition and concentration at the federal and especially at the subnational levels. Regulatory barriers to competition at the local level tend to be dispersed across legal instruments, sectors and jurisdictions, with significant negative effects. For example, high intermediation in the agribusiness chain is associated with consumer loss and reduced benefits for producers. Moreover, reducing barriers to doing business can also bring productivity gains for private firms and welfare gains to households, especially in the south of Mexico. Recent evidence shows that improving the efficiency of factor allocation by a quarter could increase the annual growth of the output of private sector manufacturing and services by 1.4 percentage points over a period of twenty years, where the greatest potential gains are found in some of the poorest states.

40. **Limited access to finance hampers private sector growth and household inclusion.** In the context of the financial sector reform, significant progress has been made over the last four years. For example, Mexico's position in the World Economic Forum's Global Competitiveness Report improved from 63 in 2013 to 36 in 2017. Credit (as a share of GDP) to the private sector increased and more than 13 million people gained access to financial services due to the reforms. Yet further and more accelerated progress would be needed. Mexico continues to have one of the lowest credit-to-GDP ratios among peers (including countries at similar levels of income). The country's unbanked population is far larger than the country's level of economic development would predict. The share of adults with an account at a formal financial institution decreased from 39 percent in 2014 to 35 percent in 2017, far below the level of most comparator countries (for example, 80 percent of adults have a bank account in Brazil or China). In addition, while that proportion remained the same for men (39 percent) between 2014 and 2017, it decreased for women from 39 to 33 percent over these years. Moreover, barely one third of SMEs have loans, and only one in four of the poorest 40 percent of Mexicans have an account in a financial institution. In lieu, the unbanked population often use stores and retailers as their primary source of credit.[40] Moreover, if the unbanked are reached by formal credit institutions, interest rates are often higher than warranted by the risk. Faster progress in traditional access to financial services, together with new innovative approaches through technology, present a great opportunity to boost investments and broad-based growth. Despite positive reforms, the banking sector remains concentrated (the top seven banks control 78 percent of the sector's assets). The

40 See Skelton (2008).

predominance of banking impacts the development of capital markets, through the control of distribution channels and intermediaries. Limited competitive pressures could explain why overhead and administrative costs in commercial banks have not declined and intermediation margins have increased over recent years. Moreover, subsectors of the economy with high levels of concentration appear to obtain a relatively high proportion of financial resources. Despite positive reforms, the banking sector remains concentrated (the top seven banks control 78 percent of the sector's assets). The predominance of banking impacts the development of capital markets, through the control of distribution channels and intermediaries. Limited competitive pressures could explain why overhead and administrative costs in commercial banks have not declined and intermediation margins have increased over recent years. Moreover, subsectors of the economy with high levels of concentration appear to obtain a relatively high proportion of financial resources.

41. **Well-intentioned labor legislation aimed to protect workers could be unintentionally contributing to foster informality and labor misallocation.** Recent reforms made an impact, albeit moderate, on the persistent problem informality (informality dropped from 59.7 percent in 2012 to 56.9 in 2017).[41] Yet, still a large portion the current employment in Mexico is informal, including wage earners that do not have access to social security and self-employed workers. To the extent that social security is primarily financed by wage-based contributions, and is not fully valued by affiliated workers, it acts as a tax on salaried employment.[42] This incentivizes firms to move towards non-salaried and informal contracts, and the illegal evasion of social security, with consequences on productivity and growth. Moreover, settling labor disputes when firing occurs (based on formal employment contracts) is also a long and expensive process, which together with other factors, deters formal labor demand and does not help workers.

1.5.2. Rule of law institutions

42. **Mexico ranks low on international indicators for the rule of law.** In the Rule of Law Index 2017–2018, for example, Mexico ranked in 92nd place out of 113 countries.[43] Mexico is at the bottom of the pack of upper middle-income countries (34 out of 36 countries), only above Turkey and Venezuela and below China, Russia, and the DR. A second wave of legal reform to the civil and commercial justice could help significantly. To incentivize a faster and more transparent resolution of lawsuits, an initiative approved by Congress in October 2017 increased the scope of oral procedures to resolve commercial disputes. Moving from written to oral trials can help improve the outcomes and timeliness of economic disputes, for instance, those related to contract enforcement. Nevertheless, most civil and commercial cases are still handled using the unreformed justice system. In terms of the application of the rule of law, impunity continues to be a major challenge. Mexico ranked 58 of 59 countries in the Global Impunity Index (GII) published by UDLAP in 2015. According to the MCCI, the probability of a crime being reported, investigated, prosecuted and resolved in the Mexican criminal system is only 2.95 percent. Beyond criminal offences, impunity in Mexico extends to civil and administrative crime.

43. **Uneven application of the rule of law and shortcomings in the control of corruption increases the cost of doing business affecting private sector growth and impacts poorer households through higher unproductive out-of-pocket expenses.** Transparency International's Corruption Perceptions Index, placed Mexico in 123rd out of 176 countries, scoring last among OECD nations. Furthermore, Mexico's relative place in performance in control of corruption rankings has been worsening in relative terms over time compared to peers in the LAC region. WEF's Global Competitiveness index (2017-18) ranks Mexico in 123rd place among 137 countries with a negative trend, with corruption seen as the most problematic factor for doing business by the private sector. About 65 percent of entrepreneurs in Mexico report having missed a business opportunity due to unfair competition, where competitors use political influence or handouts.[44] Some studies argue that Mexican households spent 14 percent of their income on unofficial payments, but that share could be higher for low-income households.[45] The poor and vulnerable are also particularly susceptible to clientelism—the exchange of political support for typically short-term benefits—given their liquidity constraints and higher time preference for the present.[46]

44. **Shortcomings in institutional effectiveness may also be reflected in the rise in crime and violence, which also deters economic activity and household welfare.** The WEF's Global Competitiveness index (2017-18) ranks Mexico in 131st place among 137 countries in terms of the business cost of crime and violence, and in 131st place both in terms of organized crime and the reliability of police services. Insecurity and crime are consistently rated as the top problem for firms to operating in Mexico and by Mexican citizens. Increased crime and violence can contribute to a worse allocation of productive assets, including notably through their effect on labor market outcomes and hampered investment, with implications for equity and growth. Crime and violence also seem to be affecting the accumulation and use of human capital, diverting away resources from their highest valued use, via an unskilled young labor force.

41 INEGI, informality rate based on ENOE survey data. Indicators of employment and occupation published May, 2018.
42 Levy (2009).
43 WJP (2018).
44 WJP (2018).
45 WJP (2018).
46 Díaz-Cayeros et al. 2016.

Recent evidence has found a high correlation between the share of NEETs and murder rates between 2008 and 2013.

1.5.3. Resource allocation and institutional policy coordination

45. **Inefficiencies in public resource allocation may result from tax and expenditure policy issues.** In general, issues of tax structure, and tax policy and administration may lead to inefficiencies in the economy or limitations in revenue mobilization. Inefficiencies may also be linked to labor and social insurance revenues or expenditure regulations and policies (and their enforcement), special subsidies, the distribution of resources to subnational governments through the intergovernmental transfers system, as well as technical and allocative inefficiency across spending categories in the budget that affect public service delivery, including investments. This sub-section looks at these issues in the case of Mexico given their relevance.

46. **The tax structure is tilted towards direct taxes, partly reflecting significant tax expenditures in indirect taxes.** Income tax revenue makes up nearly 42 percent of Mexico's total tax revenue, well-above the averages for both the Latin America and Caribbean region and the OECD. By contrast, Mexico derives less than 40 percent of its revenue from indirect taxes, whereas these taxes account for over half of revenues in Latin America. Mexico's tax structure reflects differences in its revenue-generating capacity and has economic and distributional implications. For example, due to exemptions and zero-rating in the VAT regime (among other factors), the country collects only 31.5 percent of the revenue that it could theoretically collect if VAT was applied at the standard rate to all goods and services. By contrast, this VAT revenue ratio is 42.6 percent in Colombia, 55.1 percent in Peru and 64.4 percent in Chile. Despite progress in streamlining tax expenditures in the 2013-14 reform, they remain high (at 3.7 percent of GDP in 2017). Tax expenditures not only reduce public resources, they can also have broader distributional and economic effects.

47. **Public spending is highly rigid, with significant space to reduce inefficiency, and with a relatively low share of investment.** By some measures, rigid spending represents 80 percent of total spending. This reduces fiscal space for investment in infrastructure and the capacity of the authorities to react to economic shocks with adequate counter cyclical policies and to changing priorities over time. During the needed fiscal consolidation of the last years, all discretionary spending was squeezed given the inflexibility of other spending categories, reducing investments to historically low levels, which can affect medium-term growth. Public spending inefficiencies have been reduced recently, but much work remains ahead. Reducing inefficiencies is particularly important as social spending pressures are likely to continue to grow. Public sector procurement presents a good avenue to achieve fiscal savings while increasing expenditure efficiency, but there are several others in the accounts of the economic and functional classifications of the budget. Mexico has a reasonable platform for providing social protection, and social assistance programs are generally well-targeted. However, Mexico's large number of social assistance programs has resulted in some degree of duplication, overlaps (of programs and beneficiaries), and fragmentation. There are at least 5,491 social development programs across government levels. This complexity is heightened by the lack of a single/universal personal (beneficiary) identification that help policy makers avoid overlaps. One of the main obstacles to enhancing spending efficiency and equity is the strong fragmentation observed in health care and allocation efficiency issues across sectors.

48. **The intergovernmental transfer system has a weak equalization power to reduce horizontal disparities of fiscal capacity and the higher needs for services in poorer states.** The spatial concentration of tax bases associated with socioeconomic regional characteristics results in horizontal fiscal imbalances and fosters further regional inequalities in service delivery.[47] This is not compensated for by the intergovernmental transfer system. While the positive reforms of 2007 to the distribution formula for Participaciones (the unconditional federal transfer to states and municipalities) enabled a better allocation of resources and introduced some, albeit limited, incentives to improve subnational government tax collection effort, its equalization effect is limited, as it does not give higher per capita transfers to less developed regions. The distribution criteria of the Aportaciones transfer for education (Fondo de Aportaciones para la Educación Básica) was modified in 2007 to introduce demand-side considerations. In terms of health, there are improvements in the allocative efficiency of the federal fund earmarked for health expenditures, though challenges remain.[48] Despite these positive developments, regional disparities in per capita spending are substantial, with poorer states that have the larger gaps in service delivery and outcomes most affected. Per capita accumulated spending of state and local governments in the northeast states is more than 20 percent higher than in the southwest. Other intergovernmental transfers have regressive rather than equalizing effects. Federal transfers earmarked to promote investment in social infrastructure in poorer municipalities have had limited impact on regional development and welfare effects. Other transfers (such as Ramo 23), which are smaller in size (and represent less than 7 percent of total transfers) are currently used as gap fillers (and are sometimes over executed) without a clear developmental impact. A more rules-based allocation of these transfers, along with other adjustments in

47 State and municipal tax collections per inhabitant in the northeast and center north regions is 4.5 times the collection of state and local governments in the southwest. Mexico City collects 15 times more state and municipal revenues per capita than Chiapas, Oaxaca and Tlaxcala and more than 10 times than in Guerrero and Zacatecas, the states with the lowest subnational tax collections.

48 The fund is the *Fondo de Aportaciones* para los servicios de salud. The 2003 reform to the General Health Law revised the fund allocation rule, linking the transfer to the number of beneficiaries, and a ponderation to health needs, spending, and spending efficiency.

this area, can have significant impact in reducing regional inequalities and fostering long term growth. Notwithstanding the needed adjustments in the transfer system, sub-national governments would also need to be encouraged (using different mechanisms) to collect more own source revenues.

49. **Limited coordination among public entities (including among levels of government) and between public and private sector, constraint the strategic planning of investments (including PPPs) and may contribute to suboptimal outcomes.** The planning and prioritization of investments across the country is an area where further improvements to coordination could make a big difference. Over the last years investment planning has improved significantly under the leadership of the Ministry of Finance, but further work would be needed. Strategic investments to support growth and inclusion could be better set, building long-term pipelines of key development projects and bringing-in more private sector resources, under a strategic plan that could go beyond administration periods. This would also help the maximization of private sector financing of infrastructure in the country, while guarding for fiscal risks. Problems of coordinated policies can be observed among federal entities as well as between federal and sub-national entities (where there is the highest need for investments). Differences in institutional effectiveness across states may have contributed to the duality of Mexico's production system. Case studies on sub-national governments show that the process through which actors and groups interact to influence the allocation of resources and the design of policies is an important factor that contributes to this divergence.[49] For example, the divergence in economic performance between the states of Querétaro and Puebla may be, at least partly, linked to differences in the interaction between policymakers, chambers of businesses and politicians, which led to distinct institutional arrangements and business development in each state. In this context, limited local capacity for planning may exacerbate the challenges of coordination. Municipalities often lack planning capacity, or a strategic vision that considers a territorial and interjurisdictional planning approach, and instead focus on sectoral, frequently siloed and low-return investments.

1.6 Priorities

50. **A process of prioritization of structural impediments and other key constraints to growth, inclusion, and sustainability was undertaken.** The SCD applied two first filters to identify the main structural impediments (discussed in detail in section 5.1) and other key constraints (that also arise from chapters 2, 3, and 4) that are holding back faster growth and inclusion with sustainability in Mexico. The first filter used a research and policy review of the extensive work done on Mexico by local and international scholars and practitioners, analytical work conducted by the World Bank, and other international organizations, and research papers and policy reviews published in peer-reviewed journals and academic and policy outlets. The second filter relied on several rounds of consultations with local and international scholars in academia and experts on Mexico, practitioners, government authorities in various sectors, private sector representatives, civil society, development partners, and other external experts[50]. Additionally, two broad rounds of consultations with all stakeholders were held in-country, in October 2017 and April 2018, including field visits to several states. After applying these two initial filters for prioritization, twelve priority areas of structural impediments and key constraints to growth were selected. Within these (already) priority issues, the SCD used another two filters to further prioritize specific policy levers. A data-driven benchmarking exercise was used as a third filter with the aim to measure Mexico's performance in comparison to the world and selected structural peer groups of countries on a number of specific issues. Additionally, the SCD used the World Bank country expert knowledge to calibrate the prioritization of policy areas as the fourth filter. Table 1 summarizes the more detailed policy priorities.

51. **It is important to point out that this list of priorities does not mean that other issues that were excluded from the list are not important.** Rather, the aim is to provide a sense of priorities and policy direction, based on existing knowledge and the filters of prioritization used and derived from the diagnostic undertaken. This diagnostic also acknowledges a number of knowledge gaps that require further study (section 5.3) and may affect the views on priorities.

52. **Moreover, the priority policy areas do not include strictly macroeconomic stability policies, given the excellent track record of Mexico in this area.** However, the diagnostic assumes and sets prudent and sustainable fiscal and monetary policies as a critical pre-condition for growth, inclusion, and sustainability.

49 World Bank (2017).

50 Teams also provided written inputs, focusing on (i) the most important analytical pieces and sources of their sector, (ii) the key development challenges for sustainable, inclusive growth, and (iii) the main challenges in their sectors. Consulted Global Practice teams included: Agriculture; Education; Energy Extractives; Environmental and Natural Resources; Finance, Competitiveness and Innovation; Governance; Health, Nutrition and Population; International Finance Corporation; Macroeconomic, Trade and Investment; Poverty and Equity; Social Development; Social Protection and Labor; Transport and ICT's; Urban and Disaster Risk Management; Water; Gender CCSA; Jobs CCSA; and Climate Change CCSA.

Table 1: Priority policy areas

Policy areas	Structural Impediments
Product and factor markets	**1. Concentration (and market power) in critical input markets and barriers to entry at the local level** – Promote (and strengthen) regulation and supervision to curb concentration (and market power) in critical input markets and complete implementation of product market reforms. – Address regulatory failures particularly at the local level (reducing the costs of firm establishment and operation), reduce protection for incumbents, remove preferential treatment for politically-connected firms, improve business environment (including protecting SMEs from crime and extortion, removing informal fees). – Strengthen SME capabilities to link with large companies that work within GVCs.
	2. Access to finance – Incentivize lending to MSMEs, including by establishing the legal framework for instruments such as Asset-Based Lending. – Strengthen mechanisms to foster financial inclusion, including through new technologies (e.g., fintech) and with emphasis in rural areas. – Promote the development of the domestic capital market (expanding to a broader set of firms) by fostering competition. – Reform state banks to provide them more developmental oriented goals.
	3. Labor market rigidities and informality – Reduce the costs of formalization for firms and workers, gradually severing the link between payroll taxes and social insurance programs, cutting the costs for hiring and firing, and reducing the length of legal procedures in labor courts. – Strengthen programs targeted at firms to improve formalization and entrepreneurship. – Strengthen the relationship between the education system and the private sector to equip workers with the skills demanded by employers.
Rule of law institutions	**4. Access to justice** – Increase access to justice for vulnerable populations. – Improve litigation times of most frequent cases, such as debt cases, wrongful dismissals, non-violent drug-related offences. – Accelerate the implementation of reforms to enhance commercial justice. – Improve contract enforcement and enforcement of property rights.
	5. Control of corruption – Implement aggressive legislation to fight corruption (e.g., public-private contracts, public procurement, reduce cash transactions between citizens and public servants). – Fully implement the National Anti-Corruption System and extend reforms to the subnational level. – Fully apply OECD's anti-corruption convention.
	6. Crime and violence – Implement programs to promote social cohesion and support youth-at-risk, including youth employment programs. – Strengthen and hold accountable institutions in charge of providing public safety and preventing crime.
Resource allocation and institutional policy coordination	**7. Tax structure and tax expenditures** – Gradually increase revenue mobilization through: base broadening, tax rates where needed, and tapping undertaxed bases (digital economy and subnational), while considering distributional impacts. – Adjust the tax structure and reduce tax expenditures to gradually increase the share of indirect taxes (while reducing payroll taxes). – Reduce collection gaps, through the modernization of tax administration tools and stronger voluntary compliance measures.
	8. Public spending: rigidities, inefficiencies and distributional issues – Reduce public spending inefficiencies to create fiscal space for infrastructure (e.g., room for efficiencies could be found in public procurement, wage bill, consolidation of public sector programs; reducing fragmentation in the health system). – Reduce existing spending rigidities (pensions, wages, other entitlements). – Reduce dependency of payroll taxes for social insurance programs. – Reform the current pension systems to ensure sustainability and promote adequacy and equity. – Explore ways to reduce overlaps and expand reach of the social protection system to the poorest and most marginalized. – Reduce vertical and horizontal fiscal gaps in subnational governments. – Strengthen equalization capacity of the intergovernmental transfer system (while applying stronger incentives for fiscal effort and curtailing ad hoc transfers) to reduce regional inequalities in service delivery and outcomes. – Build larger fiscal buffers to use during difficult times.

Policy areas	Structural Impediments
Resource allocation and institutional policy coordination	**9. Institutional coordination and investment planning shortcomings** – Enhance coordination between the public and private sector, especially at the subnational level, with emphasis on productive investment. – Enhance public investment management process, starting with long term strategic planning (beyond a government period), the development of a solid pipeline of projects with an enhanced feasibility analysis process and cross-institutional coordination. – Promote integrated multisector urban planning and service provision.
Other structural constraints to growth, inclusion and sustainability	**10. Investment in infrastructure** – Raise investment in infrastructure, including through private sector participation. – Further strengthen and streamline the PPP framework, while managing fiscal risks. – Invest in transport, logistics and trade facilitation to strengthen the Pacific side export corridors (including gulf to pacific corridors), as well as to achieve higher efficiencies domestically. – Reduce vulnerability of existing infrastructure and integrate concept of resilience into new investments. – Expand access to services in lagged regions. – Invest in water infrastructure modernization and electricity transmission capacity.
	11. Quality and utilization of human capital – Support youth in making effective school-to-work transitions. – Ensuring basic learning with a particular focus on closing gaps in attainment outcomes. – Promote universal health care reform based on a standard benefit package that promotes horizontal and vertical integration of services. – Strengthen the primary health care system with a focus on prevention and promotion. – Eliminate barriers that hinder participation of women in the labor market focusing on access to quality childcare and promoting gender-neutral flexible work arrangements.
	12. Management of natural capital – Adopt long-term planning and prioritization of investments in water security. – Strengthen effectiveness of current support to agriculture, forestry and other productive, resource-based sectors by focusing on long-term productivity and competitiveness. – Build resilience to deal with climate change and extreme events and foster climate-smart growth.

2. Growth

2.1 Convergence, growth, and trade dynamics

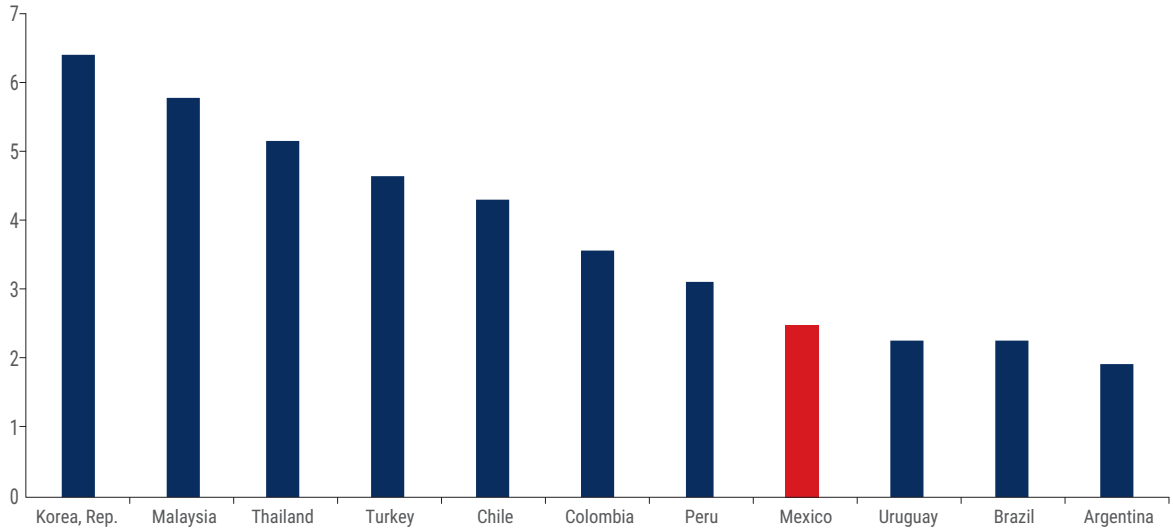
53. **Mexico's economic growth averaged only 2.4 percent between 1980 and 2017, limiting its convergence progress in convergence relative to U.S.** per capita income (Figure 19, Figure 20). The country's per capita GDP today stands at 34 percent of U.S. per capita GDP, compared with 49 percent in 1980. The Republic of Korea had, by 2017, reached 66 percent of U.S. per capita income, even though, in 1980, it had less than half the per capita income of Mexico. Other countries, such as Chile, Malaysia, and Poland, which all had lower per capita incomes than Mexico in 1980, had, by 2017, achieved higher income levels and had closed the gap with respect to the United States.

54. **Private consumption has been the main driver of growth on the demand side.** Private consumption grew an average 2.8 percent a year between 1994 and 2017, contributing more than two-thirds to GDP growth (Figure 21). Investment expanded 2.3 percent a year, below overall GDP growth, as public capital spending entered a secular decline. Net exports, on the other hand, contributed little to growth: while gross exports grew by as much as 6.2 percent per annum on the back of the boom in manufactured exports, imports expanded at a similar pace. This is partly a result of the high import content of Mexico's manufactured exports (40 percent). The trend started to marginally change in 2010–17 (Figure 22).

55. **On the supply side, growth was primarily driven by the expansion in services.** Overall, the services sector recorded annual average growth of 2.9 percent over this period and accounted for 65.7 percent of value added by 2017. This underpinned a further structural transformation of the Mexican economy, which saw a shift away from the primary (–0.4 percentage points) and secondary (–6.8 percentage points) sectors toward the services sector (+7.2 percentage points) between 1993 and 2017. Telecommunications and financial services were the most rapidly growing service subsectors. Between 1993 and 2017, the telecommunications subsector increased its share of value added from 0.3 to 2.4 percent, while the financial sector increased its share from 1.2 to 4.9 percent. Over the last two decades, these subsectors average growth rates reached 11.2 percent and 8.8 percent, respectively, as first mobile telephony and then the Internet became central components of the economy; and as the financial sector was opened up to foreign participation after the 1995 crisis.

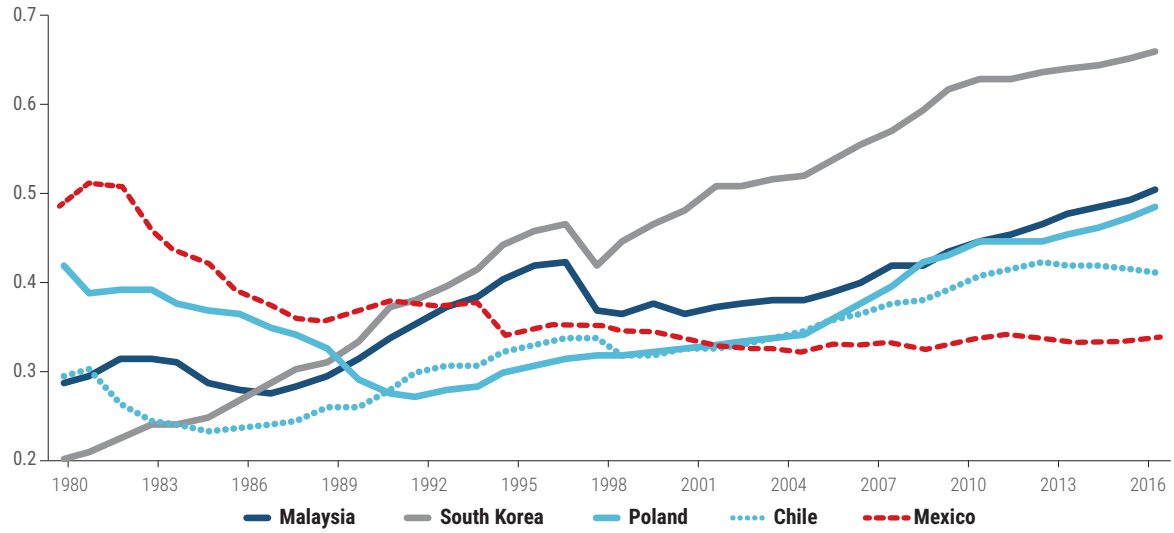
56. **Despite the overall decrease of manufacturing in value added, some private sector manufacturing subsectors also showed rapid growth rates on the back of trade liberalization.** The production of transport equipment, grew at an average rate of 5.6 percent over the last 20 years, as Mexico joined regional and global value chains in the auto and aerospace subsectors (Box 3 and Box 4). Other technology manufacturing subsectors such as electronics and computers have also become central to GVCs and important growth drivers (growing at an annual rate of 7.8 percent over the same period). Other manufacturing industries, however, especially

Figure 19. Average GDP growth rate, Mexico and comparators, 1980–2016 (%)



Source: Data of WDI (World Development Indicators) (database), World Bank, Washington, DC, http://data.worldbank.org/products/wdi.
Note: GDP growth rates measured in constant local currency units.

Figure 20. Per capita income as a share of U.S. per capita income



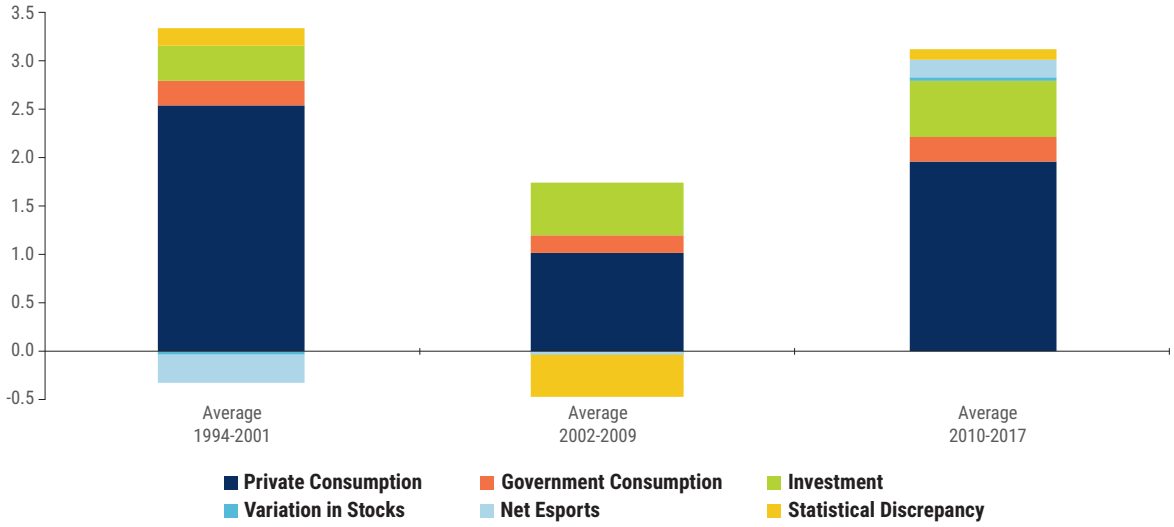
Source: Conference Board, Total Economy Database, November 2017.

those that tend to be more labor intensive, such as wood, textiles, and clothing, declined in importance over the same period, dragging the overall share of manufacturing in value added down from 17.2 percent in 1993 to 16.6 percent in 2017. Oil, gas, and mining, which accounted for over 9 percent of GDP in 1994, contributed positively but marginally to growth after 2004, as oil production began to decrease, falling below 2 million barrels a day by the end of 2017 (from a 2004 peak of 3.4 million barrels a day). This reduction was the result of years of declining investment by the state-owned oil company, Petróleos Mexicanos (PEMEX).

57. **The structural transformation of Mexico's economy has been accompanied by a declining share of primary agriculture in GDP, although its employment share remains significant.** In 2017, the share of total GDP contributed by the primary agriculture sector (including crop and livestock production, fisheries, and forestry) was estimated at 3.2 percent. Following a period of modest growth during the 2000s, the performance of the primary agriculture sector has significantly improved in the present decade, with an average annual growth in agricultural value added of 2.8 percent during 2010–16, versus 1.5 percent during 2000–09. Between 2012 and 2016, TFP growth in the primary sector increased by an accumulated 9.1 percent, compared to a decrease in the secondary and tertiary sectors (Figure 23). The sector employs a significant share (13.5 percent) of the labor force nationally; in the southern states, it provides jobs for 20 to 40 percent of the labor force. However, through its backward and forward links, the sector's contribution to GDP and employment are more substantial. In 2017, the share in total GDP of the agricultural and agribusiness sectors[51] stood at 7.6 percent, more than double the contribution of primary agriculture alone. For example, in Mexico's northern and central states, export-oriented agriculture provides

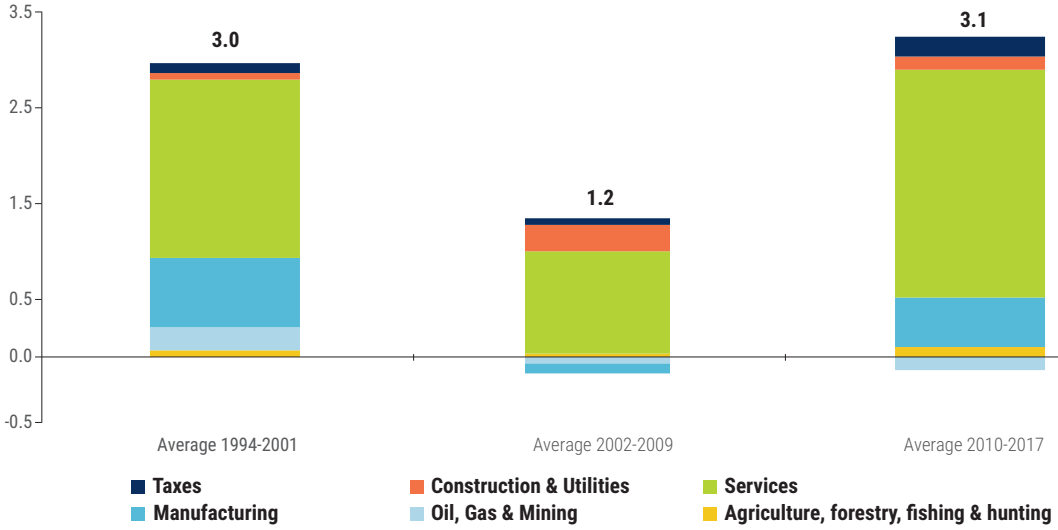
51 The agribusiness sectors included in this share are food, beverages and tobacco.

Figure 21. Contribution to GDP growth, by component (demand side)



Source: World Bank calculations based on data of the National Institute of Statistics and Geography.

Figure 22. Contribution to GDP growth, by component (supply side)



Source: World Bank calculations based on data of the National Institute of Statistics and Geography.

Box 3. The motor vehicle industry in Mexico

One of the industries that has benefited the most from the rise in manufactured exports following the launch of NAFTA is the motor vehicle industry. The industry's share in total GDP more than doubled between 1993 and 2017, from 1.4 to 2.9 percent; and its share in manufacturing GDP increased by 10 percentage points, from 8.3 to 18.3 percent. By 2015, Mexico had become the seventh largest producer of motor vehicles in the world. Mexico's share of U.S. vehicle imports rose from 10 to 26 percent between 1995 and 2015; for auto parts, the share increased from 23 to 35 percent in the same period.

Mexico's auto parts and vehicle assembly subsectors attracted US$6.9 billion in FDI in 2017, an amount equivalent to 23 percent of total FDI in that year. As of December 2015, 875,382 people were directly employed in the automotive industry: 81,927 in the manufacture of automobiles and trucks, and 793,456 in the auto parts sector. Average salaries in the assembly and auto parts industry are higher than in other manufacturing sectors in Mexico (almost triple in the case of auto assembly).

Sources: ProMexico 2017; Secretaría de Economía.

jobs on farms to large numbers of Mexicans, but also off-farm activities such as packaging and agrifood processing.

58. **The increase in total wealth is driven by produced capital.** Mexico's total wealth, measured as the sum of produced, natural, and human capital, increased by almost 40 percent between 1995 and 2014, but the growth rate is lower than the average in Latin America (65.5 percent) and among upper-middle-income countries (161 percent). In per capita terms, Mexico's wealth only rose 5.2 percent, the second

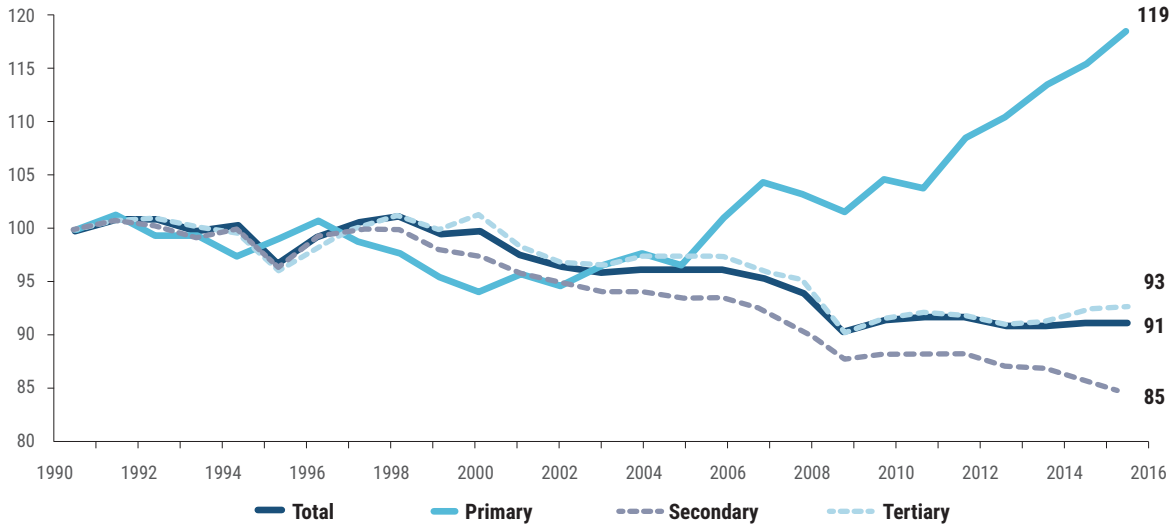
Box 4. The aerospace industry in Querétaro: A success story of public-private sector collaboration

The aerospace industry is one of the most rapidly growing industries in Mexico. Aerospace-related manufacturing activities grew by 178 percent in real terms, compared with 22 percent for manufacturing as a whole, between 2005 and 2017. In 2017, it accounted for 0.8 percent of Mexico's manufacturing GDP. The total number of aeronautical companies rose from 60 in 2005 to 330 in 2016, of which more than two-thirds are engaged in manufacturing; 11 percent in maintenance, repair, and overhaul; 13 percent in the design and engineering side; and the remainder in academic activities (universities and research centers). These companies are concentrated in the states of Baja California, Chihuahua, Nuevo León, Querétaro, and Sonora, states in which the public, private, and educational sectors have worked together to form specialized clusters that have fostered the development of the industry on a regional scale.

One of the most prominent examples of this cooperation is the case of Querétaro, home to Mexico's only university specialized entirely in the aerospace sector. The Aeronautical University of Querétaro, a public university financed in equal parts by the federal and the state governments, was founded in 2007 shortly after the arrival of the Canadian company Bombardier that initiated the establishment of the aeronautics cluster in the state. Private sector firms and the university collaborated in defining the skills and profiles required for the workforce in the cluster, as well as the qualifications needed among teaching staff. In the initial phase of the cluster, the university's curriculum focused on the basic technical skills needed for the simple assembly of parts. In a second phase (2009 onward), reflecting the growing sophistication of the cluster, the university introduced a tertiary-level program to train technicians in more advanced manufacturing skills. Beginning in 2010, the university offered the full master and doctoral degrees required for the assembly of airplanes, as well as design and innovation. Today, the aerospace industry in Querétaro directly employs approximately 10,000 staff, of whom 7,000 were trained at the university, in 53 companies in the cluster. It accounts for 4.5 percent of the state's GDP and 37.0 percent of all aerospace exports in Mexico.

Sources: ProMéxico 2017; data of Instituto Nacional de Estadística y Geografía (National Institute of Statistics and Geography, INEGI); interview with university management.

Figure 23. Total factor productivity (TFP) by sector (1990=100)

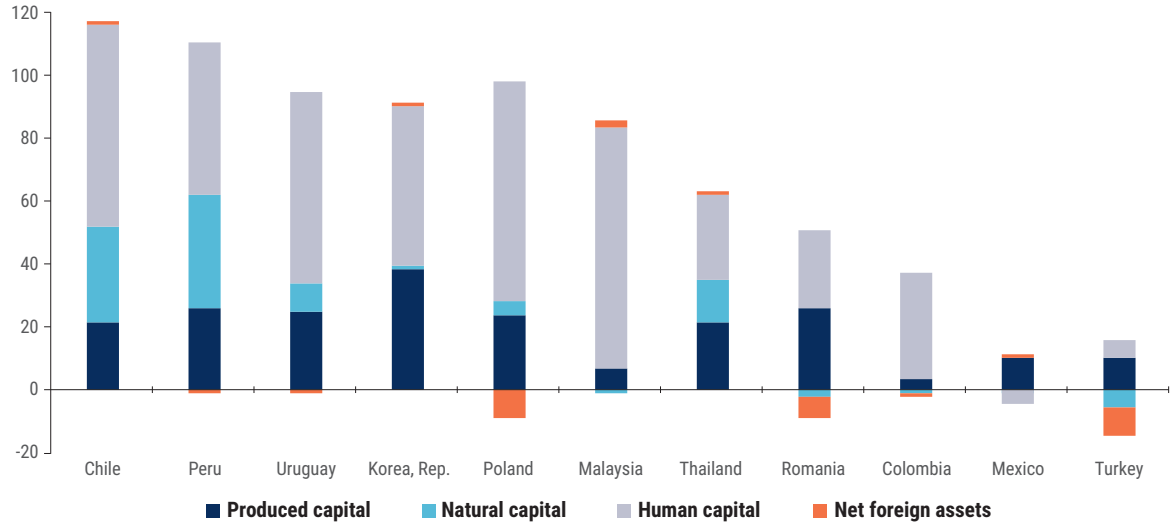


Source: INEGI

lowest growth rate among the comparator countries after Turkey (Figure 24). Mexico experienced an erosion in human capital (the value of earnings over a person's lifetime), which fell by 7.3 percent over this period and, in 2014, only accounted for 54 percent of total wealth, compared with 61 percent in 1995. This was primarily caused by stagnant wages. Natural capital also declined slightly due to unsound management and underinvestment in renewable resources, including water, forests, cropland, and pastureland, suggesting a lack of investment in rural areas in particular. For example, the per capita value of agricultural land fell by 20 percent between 1995 and 2014. Nonrenewable natural capital, including oil, gas, and minerals, increased as a share in total natural capital to 40 percent of this asset class (up from 28 percent in 1995). Not captured in the data is the significant water depletion and degradation, the costs of which rose from 0.5 to almost 0.8 percent of GDP between 2003 and 2015. On top of these costs, there were significant reductions in asset values because of soil and water contamination. The trend over the last 15 years shows the loss associated with the depletion of these natural resources increasing 10-fold.[52]

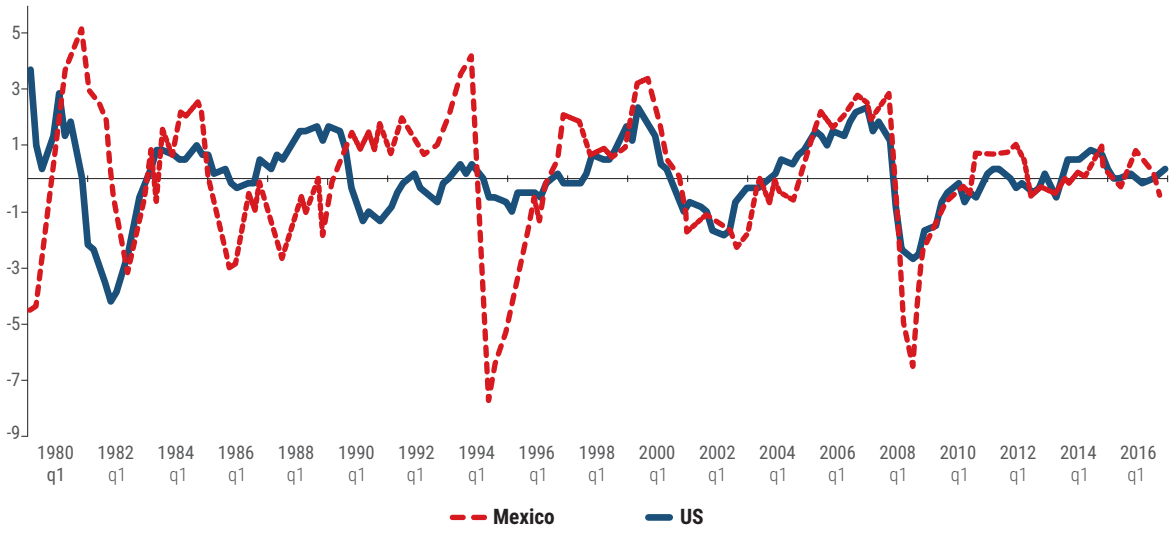
52 INEGI (2016b).

Figure 24. Contributions to growth in total wealth (%), 1995–2014



Source: World Bank calculations based on World Bank 2018.

Figure 25. Cyclical component of GDP in the United States and Mexico (annual % change



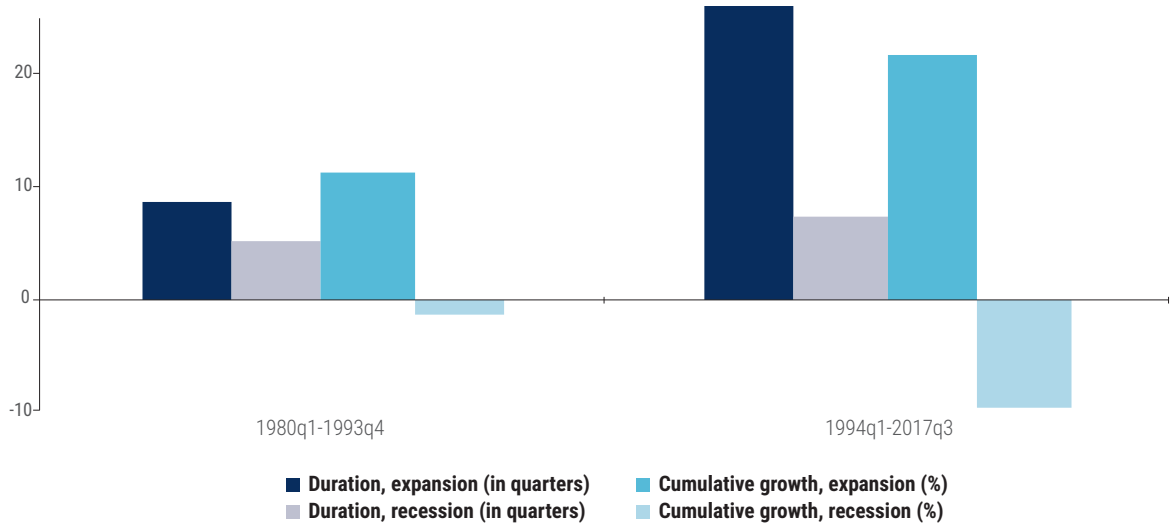
Source: World Bank calculations based on data of U.S. Federal Reserve and INEGI.
Note: Cyclical component estimated using the Hodrick-Prescott filter

59. **As a result of close trade integration in North America through NAFTA, the Mexican and U.S.** economies have become more synchronized. The business cycles in the two countries have co-moved more closely since the mid-1990s (Figure 25). This became particularly pronounced following the launch of NAFTA in 1994, given the close trade relationship that developed between the two countries: in 1990, the United States was the market for 70 percent of total Mexican exports; by 2016, the share had risen to 81 percent. Similarly, 47 percent of Mexico's imports originate in the United States.

60. **At the same time, business cycles have become more pronounced.** As economic integration with the United States deepened and the business cycles of the two countries became more closely synchronized, both the magnitude and the duration of economic expansions and contractions increased in Mexico (Figure 26). A business cycle lasted nearly 14 quarters before NAFTA, increasing to 32 quarters after NAFTA. The expansion phases rose from 11 to 27 quarters, while recessions increased by 1 quarter on average. Meanwhile, the cumulative growth during expansions increased 12 percentage points, to 23 percent, but expansions were slower because of lower average annual growth rates. Recessions, on the other hand, deepened by 5 percentage points to –7 percent. While a similar trend can be observed in the other NAFTA partners, the effect was far larger in Mexico.

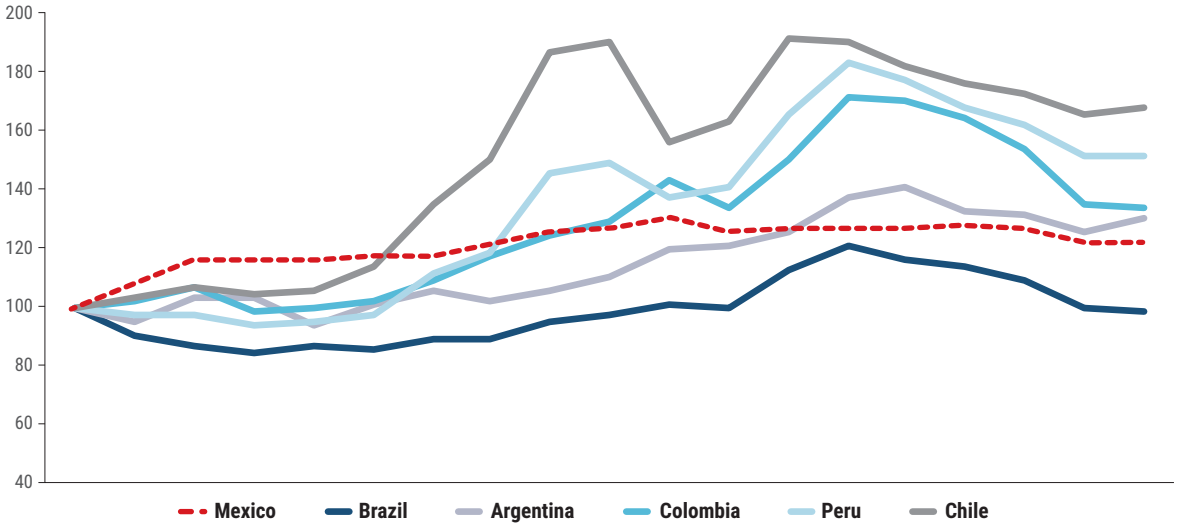
61. **The share of Mexico in world trade has expanded appreciably in recent decades.** Between 1990 and 2016, Mexico's exports increased 14-fold as world trade expanded 10-fold, so that the share of Mexico's exports in world exports rose from 1.9 to 2.6 percent. The country's export basket also underwent significant change: fuels accounted for 37.5 percent of exports in 1990, but only 4.8 percent by 2016, while the country's share in the global fuel trade fell from 12.8 to 1.7 percent. The share of transport equipment in the export basket doubled from 12.4 to 24.7 percent, while the share of machinery and electronics nearly tripled, from 13.0 to 36.9 percent. Mex-

Figure 26. Mexico's business cycles pre- and post-NAFTA



Source: Calculations of the Organisation for Economic Co-operation and Development and World Bank.

Figure 27. Mexico's terms of trade compared with Latin American peers (1998=100)



Source: Data of WDI (World Development Indicators) (database), World Bank, Washington, DC, http://data.worldbank.org/products/wdi.

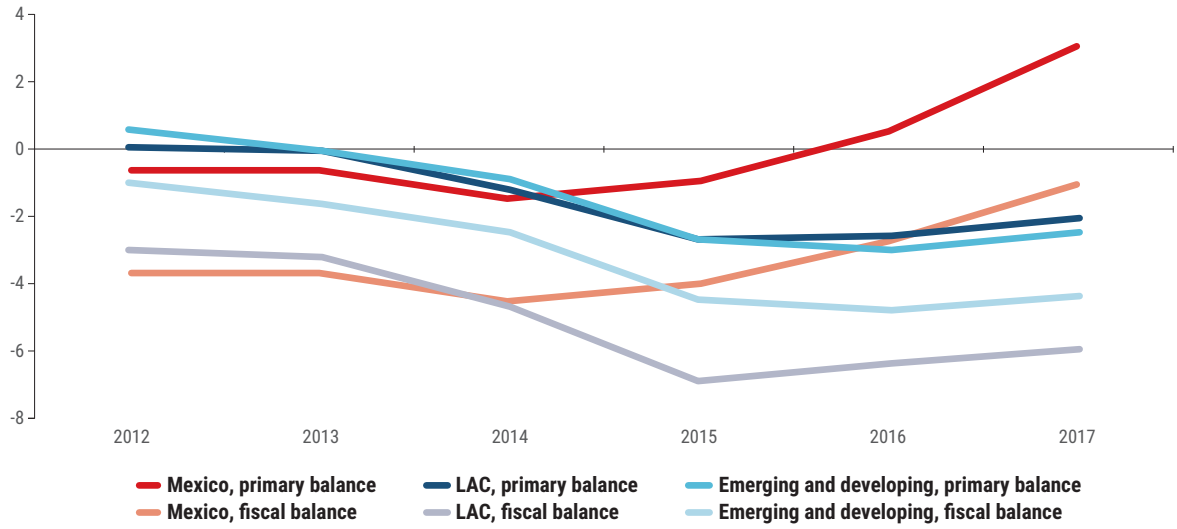
ico's share of global trade in transport equipment rose from 0.4 percent in 1990 to 2.6 percent in 2016, while the share in machinery and electronics increased from 0.8 to 3.3 percent over the same period. Today, Mexico ranks eighth globally in exports of transport equipment (behind the United States, Germany, the United Kingdom, France, China, Canada, and Italy) and fifth in machinery and electronics (behind the United States; China; Hong Kong SAR, China; and Germany).

62. **Efforts to diversify export markets through trade agreements have been under way.** Mexico has an extensive network of 12 free trade agreements, covering 46 countries, as well as another 32 investment agreements covering 33 countries. In the context of NAFTA renegotiations, Mexico has continued to extend and upgrade its trade agreements, signing on March 8, 2018, for example, the Comprehensive and Progressive Agreement for Trans-Pacific Partnership, together with 10 other countries.[53] Meanwhile, negotiations are at an advanced stage between Mexico and the European Union on an updated global agreement, and with Brazil on the Agreement on Economic Complementarity no. 53. Mexico has also pursued closer economic integration with Chile, Colombia, and Peru through the Pacific Alliance, through which the vast majority of traded goods are no longer subject to tariffs.

63. **Trade agreements are one of the factors that have made Mexico an attractive market for FDI.** Since 2005, Mexico has received, on average, US$28.7 billion in inward FDI a year, accounting for 3 percent of GDP and representing 12 percent of total investment. As a result, the country has ranked among the global top 20 inward FDI recipients in recent years.[54] During this period, the United States has accounted for 46 percent of total FDI, followed by Spain (10

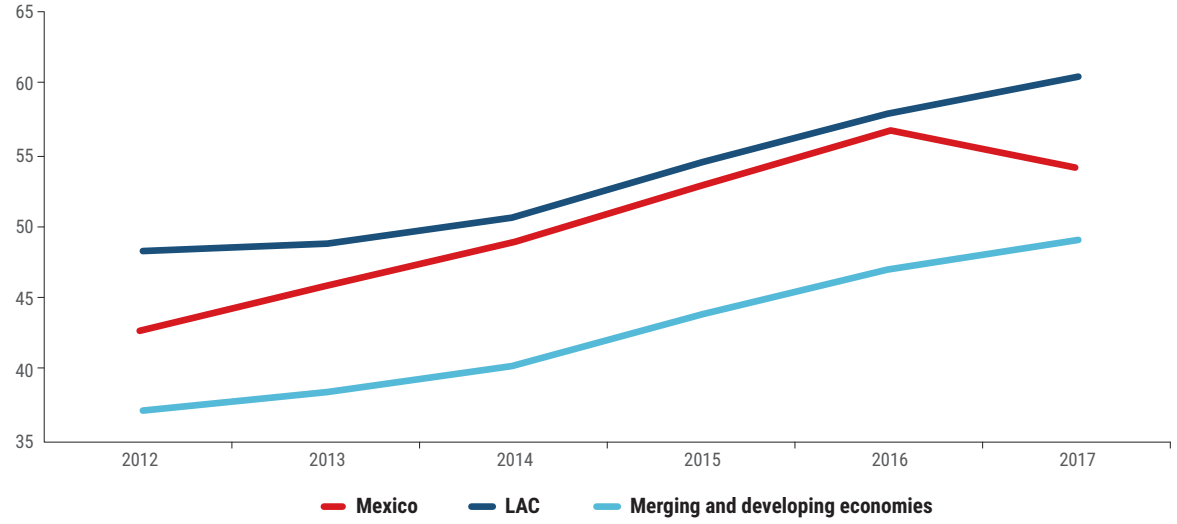
53 Australia, Brunei Darussalam, Canada, Chile, Japan, Malaysia, New Zealand, Peru, Singapore, and Vietnam.
54 UNCTAD (2017).

Figure 28. General government fiscal balances, % of GDP



Source: IMF, World Bank.

Figure 29. Gross general government debt, % of GDP



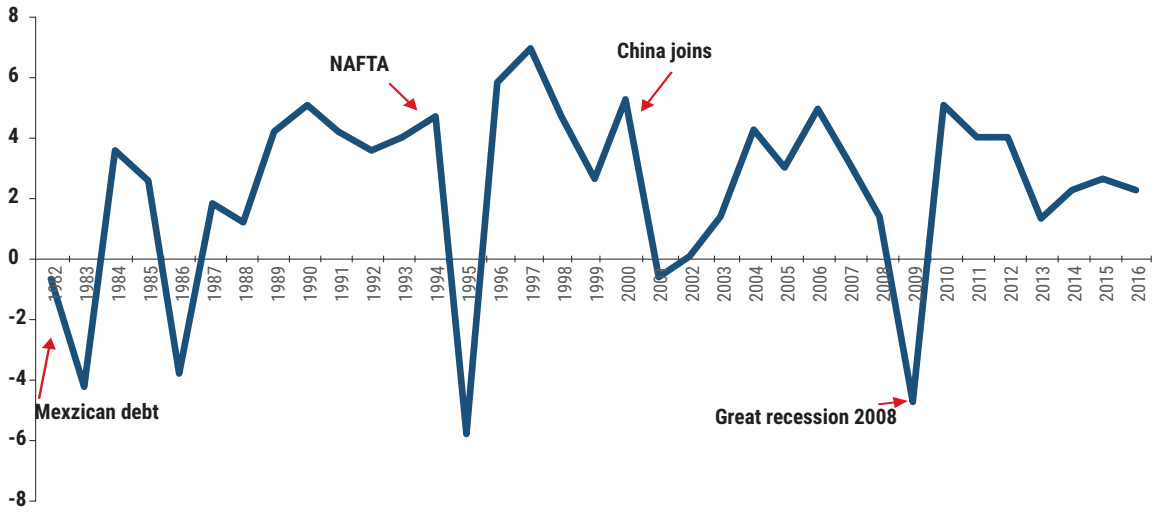
Source: IMF, World Bank.

percent), Canada (8 percent), and Japan and Belgium (5 percent each). Manufacturing accounted for half of all FDI (of which a quarter went to transport equipment alone), while the remainder was divided between financial services (10 percent), mining (7 percent), retail and wholesale trade (7 percent), and others. Geographically, the largest shares of FDI went to Mexico City (19.0 percent), Nuevo León (8.8 percent), and Chihuahua (6.6 percent).

64. **The tail wind of the commodities super cycle (2003–13) was limited in Mexico, even though the oil price drop in 2014 had significant impacts.** Despite Mexico's considerable wealth in nonrenewable resources, the reduction in oil production, which set in at a time of rising oil prices, meant that Mexico did not benefit as much from the commodities super cycle as its South American peers. Moreover, Mexico now relies increasingly on manufactured exports and trades mainly with the United States, rather than with China. Instead of benefiting from China's demand for raw materials, Mexico has been competing with it in the export of manufactured goods, such as electronics. This competition became more significant after China joined the World Trade Organization in late 2001. The prevalence of manufactured exports also meant that Mexico's terms of trade did not experience the same sharp strengthening that large commodity exporters such as Argentina, Brazil, and Chile experienced between 2003 and 2013 (Figure 27). However, the drop in oil prices caused a significant reduction in oil revenues from PEMEX on the order of 4.5 percent of GDP between 2013 and 2017.

65. **The authorities reacted with prudent policies to the oil price impacts, enabling the country to withstand the shock while still achieving economic growth.** Oil price collapses in the past had significant negative effects on output (and the fiscal position). In this last episode, however, the 2013 tax reform generated sufficient additional revenues to help offset the drastic drop in oil revenues. The authorities also applied an expenditure rationalization program in 2015-16 to improve the fiscal stance, and after the initial shock, public debt started to stabilize and, more recently, to decline,

Figure 30. Annual GPD growth, Mexico (%), 1982–2016



Source: Data of WDI (World Development Indicators) (database), World Bank, Washington, DC, http://data.worldbank.org/products/wdi.

leading the way among emerging and developing economies (Figure 28 and Figure 29). All of this occurred while the economy continued to grow close to its average pace. Recent years showed that the economy is more resilient to terms of trade shocks than before, and that macroeconomic policies have continued to be prudent safeguarding the country's economic stability and sustainability.

2.2 Dynamics affecting growth rates

66. **The convergence, growth, and wealth dynamics presented in this section raise the question of why growth rates have been moderate, despite the country's significant reforms undertaken.** At the outset, it is important to highlight that structural reforms, like the ones undertaken over the last years, take time to render the outcomes expected. In the case of Mexico, they have started to produce fruits and may generate higher growth rates over the medium term. This sub-section examines the past dynamics that have affected growth from an aggregate perspective (section 5.2 looks at micro-structural roots of the growth performance). It focuses on the role of shocks and economic volatility, subdued capital investment growth, regional disparities and the lack of internal convergence, and productivity disparities across regions, sectors, and firms.

2.2.1. Business cycles and aggregate shocks

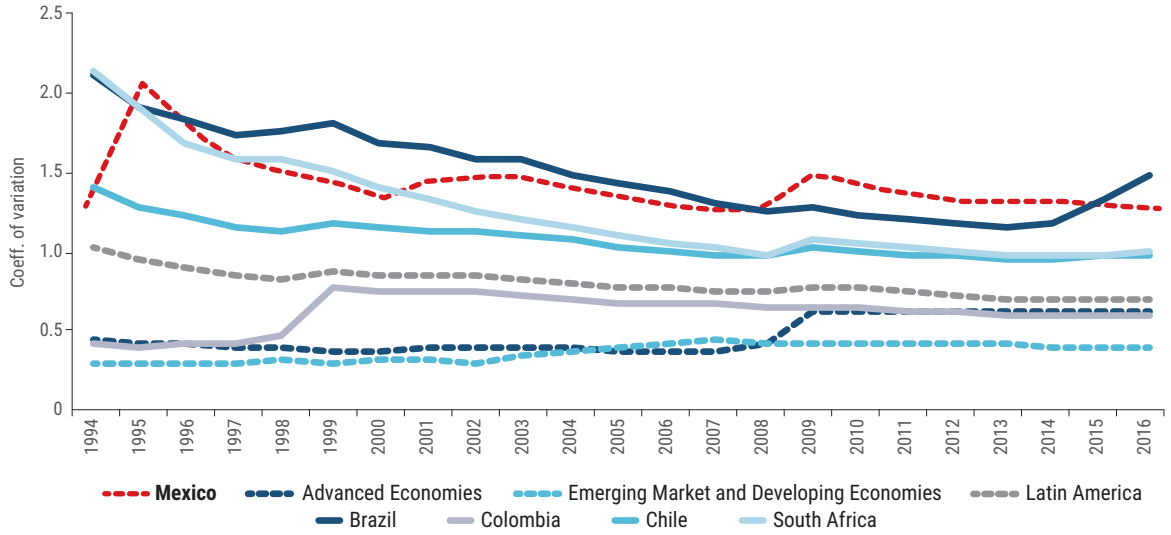
67. **As in many countries in the region, growth in Mexico has been impacted by a series of negative shocks.** Mexico's economy has experienced greater volatility and lower average growth since the early 1980s (Figure 30).[55] In this period, Mexico experienced several successive external and domestic shocks that resulted in large swings in economic output. The 1982 debt crisis was followed by the 1985 earthquake in Mexico City, the financial crisis of 1994/95 that followed on the heels of NAFTA, the entry of China into the World Trade Organization in 2001, the bursting of the U.S. stock market bubble in 2001–02, the Great Recession in 2008–09, which coincided with the spike in drug-related crime and the outbreak of the A(H1N1) flu epidemic, and the collapse in oil prices in 2014 (Figure 30). All these episodes (except, to some extent, for the latter) meant output downswings and in some cases, severe recessions. Overall, growth volatility in Mexico historically seems relatively high compared with comparators regionally and globally (Figure 31). Moreover, the country did not experience a single spell of growth, that is, over 5 percent per annum, over a sustained period.

2.2.2. Limited capital accumulation

68. **Mexico's capital accumulation does not seem to have been sufficient to support higher growth rates.** While the investment level is not acutely low relative to LAC (total investment has averaged 20 percent of GDP since 1990), it has been much lower than that in rapidly growing emerging economies that are converging to higher income levels, for example: 33 percent in Korea and 28 percent in Malaysia. Moreover, annual growth rates in capital stock have been below fast growing emerging and relevant comparators over the last decades. The growth in capital stock began to slowdown in the early 1980s, coinciding with the slump in GDP growth (Figure 33). Evidence suggests that the collapse in capital accumulation was not primarily a

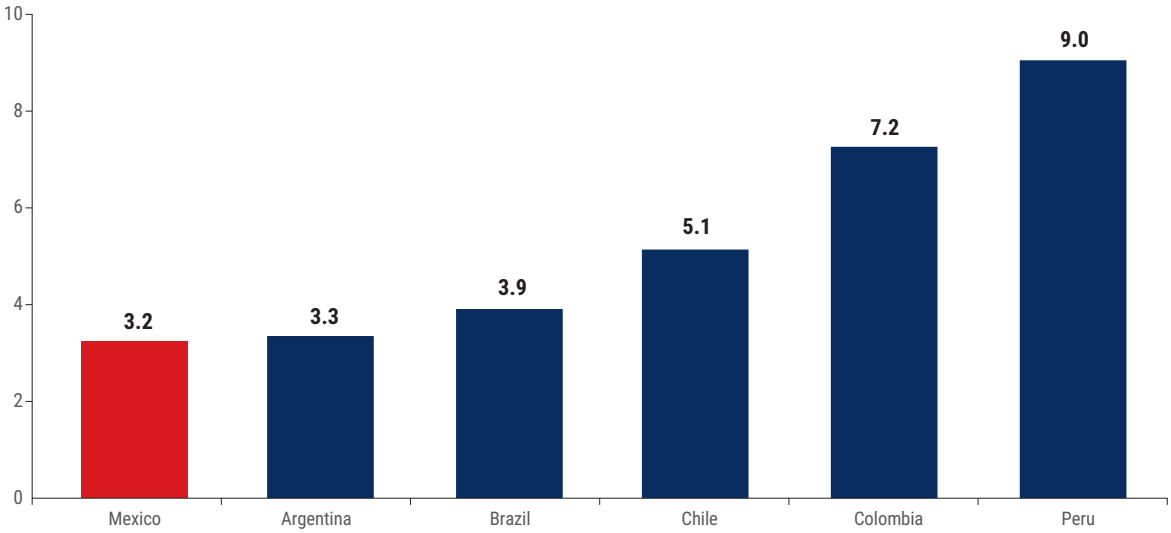
55 Between 1950 and 1981, Mexico's economy expanded at 6.6 percent annually. Rapid industrialization led to the migration of labor away from rural agriculture into the cities, and the expansion of education contributed to significant improvements in human capital. However, the inward-looking nature of the development model, supported by import substitution, began to reach its limits in the late 1970s. By 1981, the economic imbalances had resulted in high inflation, fiscal deficits, and unsustainable increases in public debt, culminating in the debt crisis of 1982 (for instance, see Esquivel and Hernández-Trillo 2009; Kehoe and Meza 2011).

Figure 31. Growth volatility in Mexico and selected comparators



Source: World Bank calculations based on data of WEO (World Economic Outlook Database), IMF, Washington, DC, https://www.imf.org/external/pubs/ft/weo/2016/01/weodata/index.aspx.
Note: Coefficient of variation is defined as the ratio of the standard deviation to the average growth rate.

Figure 32. Average annual public investment in infrastructure, 2008-2015 (% of GDP)



Source: Infralatam (Economic Infrastructure Investment Data of WDI (World Development Indicators, Latin America and the Caribeean) (database), World Economic Comission for Latin America and the Caribbean, the Development Bank of Latin America, and the IADB, Washington, DC, http://data.worldbank.org/products/wdi.http://infralatam.info/.

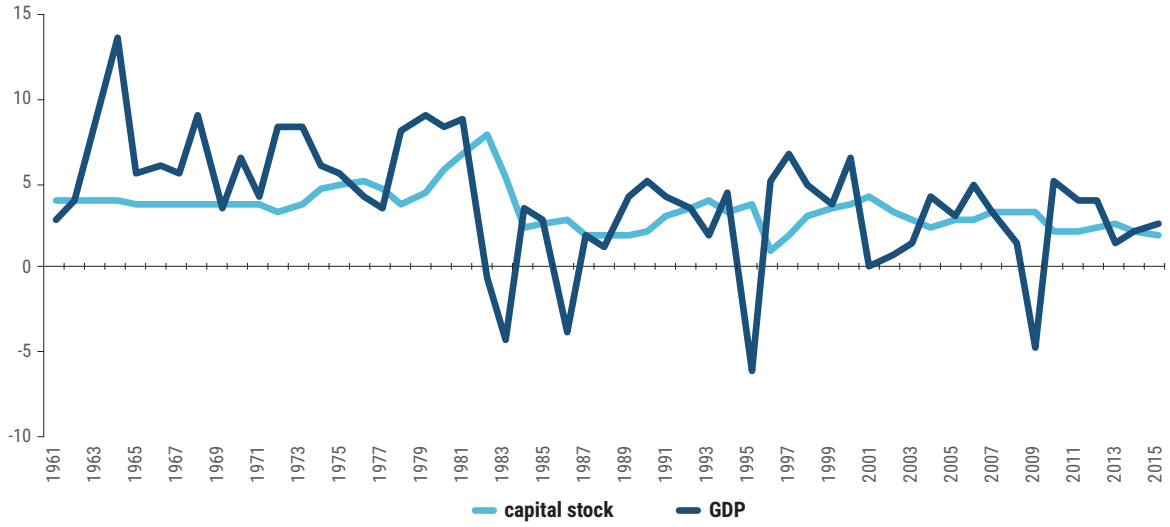
result of a low savings rate, but rather of the increase in the capital-output ratio following the debt crisis of the early 1980s.[56]

69. **Public investment, and public spending in infrastructure, has been particularly low compared to fast growing economies.** Mexico's public investment in infrastructure only reached an average of 3.2 percent of GDP between 2008 and 2015 (Figure 32).[57] In fact, public investment in infrastructure fell to 2.6 percent of GDP in 2017 in the context of the needed and commended fiscal consolation process of recent years. Excluding PEMEX, that number would be 1.7 percent of GDP for 2017. These levels fall short of those fast-growing Latin American and emerging economies that spend above 5 percent of GDP in this area.

70. **Insufficient investment has resulted in infrastructure bottlenecks.** Even though transport infrastructure is better in Mexico than in many other Latin American countries, it is aging, and new investment in the sector has trailed that of regional peers (Figure 34).[58] Moreover, the transport, logistics, and facilitation services to support export markets other than the United States, such as Asian markets through export corridors toward the Pacific Ocean ports, are relatively weak. It also ranks in the middle of the pack in terms of the quality of railroad, port, and airport infrastructure, which all require significant investments

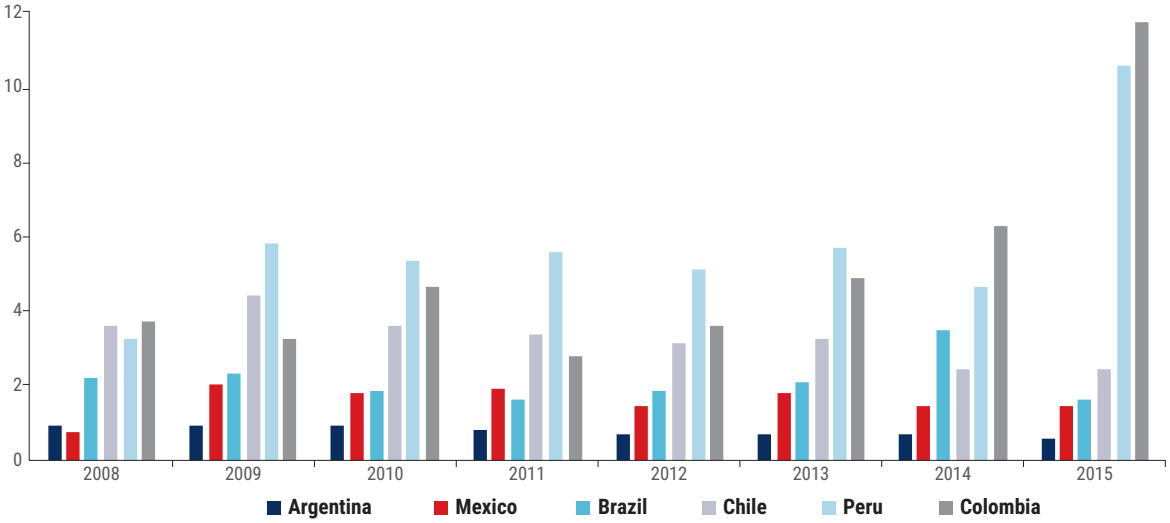
56 Bacha and Bonelli (2015).
57 Infralatam (Economic Infrastructure Investment Data, Latin America and the Caribbean) (database), Economic Commission for Latin America and the Caribbean, the Development Bank of Latin America, and the IADB, Washington, DC, http://infralatam.info/. Includes PEMEX.
58 Infrastructure pillar (2017/18), GCI (Global Competitiveness Index) (database), World Economic Forum, Geneva, http://reports.weforum.org/global-competitiveness-index/.

Figure 33. Growth in capital stock and GDP (1961-2015)



Source: IMF Investment and Capital Stock Dataset, 2017.

Figure 34. Investment in the transport sector (public + private), % of GDP



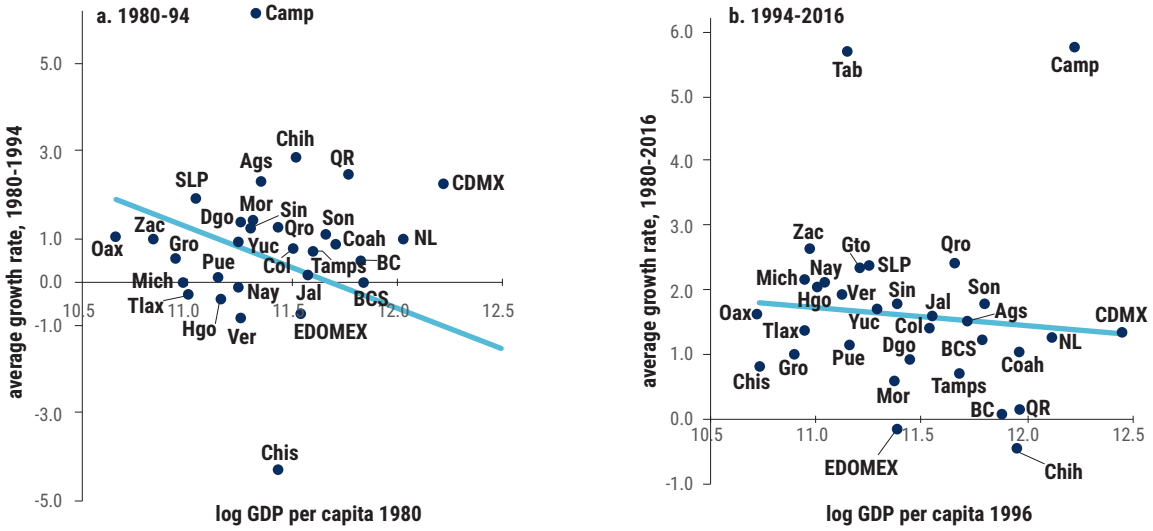
Source: Infralatam (Economic Infrastructure Investment Data, Latin America and the Caribbean) (database)

as Mexico attempts to diversify trade markets and support growth across sectors.[59] Overall, the country invests barely one-quarter of what is needed in the sector, opening a wide transport infrastructure gap.[60] The country also continues to have important deficiencies in electricity (particularly in transmission capacity and distribution) and telecommunication. These sectors would benefit from investments through the full implementation of recent structural reforms. Similar shortcomings may be observed in the water sector infrastructure. These gaps suggest that an increased role is needed for the public and private sectors in infrastructure financing.

71. **The private sector plays an increasingly important role in investment, including in infrastructure.** Since 2008, private investment across four key sectors (water, roads, energy, and telecommunication) accounted, on average, for one-third of total investment in these sectors.[61] Public-private partnerships, in particular, have grown in importance. Once largely focused on toll roads, these investments have become more diverse. Since the energy reform in 2013 and 2014 and the telecommunications reform in 2013, electricity and natural gas projects have become increasingly important, while 2017 saw the financing of the Red Compartida Project to develop backbone telecommunication infrastructure.[62] Since 1990, 296 projects have been undertaken as public-private partnerships, amounting to US$83 billion, half of them since 2006.[63]

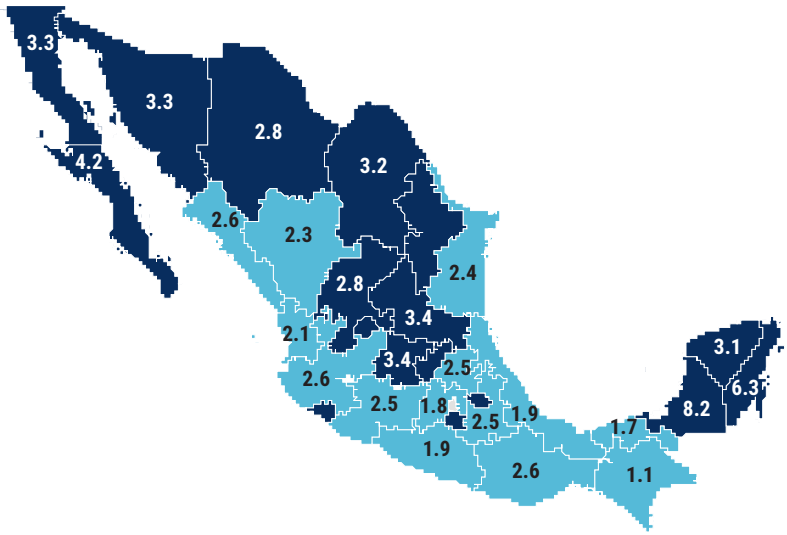
59 Ports on the Pacific side, for example, would be critical for export markets in the Asia-Pacific region, but would need significant enhancements to handle large volumes.
60 Global Infrastructure Outlook (database), Global Infrastructure Hub, Sydney, Australia, https://outlook.gihub.org/.
61 Infralatam (Economic Infrastructure Investment Data, Latin America and the Caribbean) (database), Economic Commission for Latin America and the Caribbean, the Development Bank of Latin America, and the Inter-American Development Bank, Washington, DC, http://infralatam.info/.
62 In addition, the full impact on investment of the 2013-14 reforms will only materialize in the medium term, raising the prospect of further increases in private sector investment.
63 PPI Project Database (Private Participation in Infrastructure), World Bank, Washington, DC, http://ppi.worldbank.org/.

Figure 35. Regional convergence (unconditional) in GDP per capita



Source: World Bank calculations based on data of the National Institute of Statistics and Geography.

Map 1. Average annual growth rate, by region (%), 1980–2016



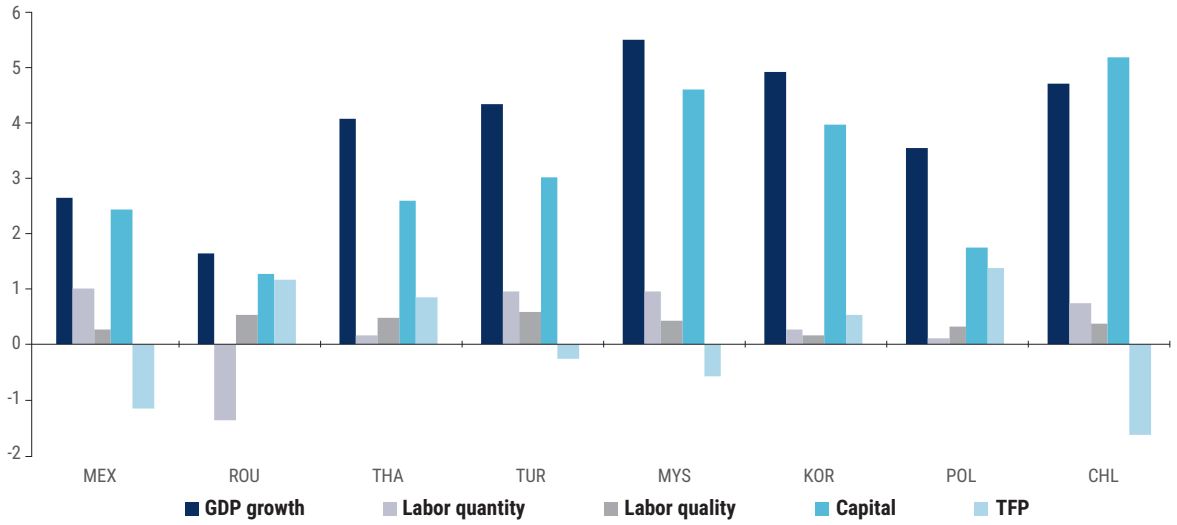
Source: World Bank calculations based on data of the National Institute of Statistics and Geography.

2.2.3. Significant regional growth disparities and limited regional convergence

72. **Average growth rates in Mexico mask, and are to some extent dragged down, by significant regional income and growth disparities.** There are large differences between the industrialized north and center-north of Mexico (per capita GDP of MXN181,100 or US$9,800) and the less well developed south (per capita GDP of MXN67,800 or US$3,300). In 2016, the average GDP per capita of one of the richest states (Nuevo León) was close to the average of Poland, while that of the poorest state (Chiapas) was similar to that of Honduras or Timor-Leste.

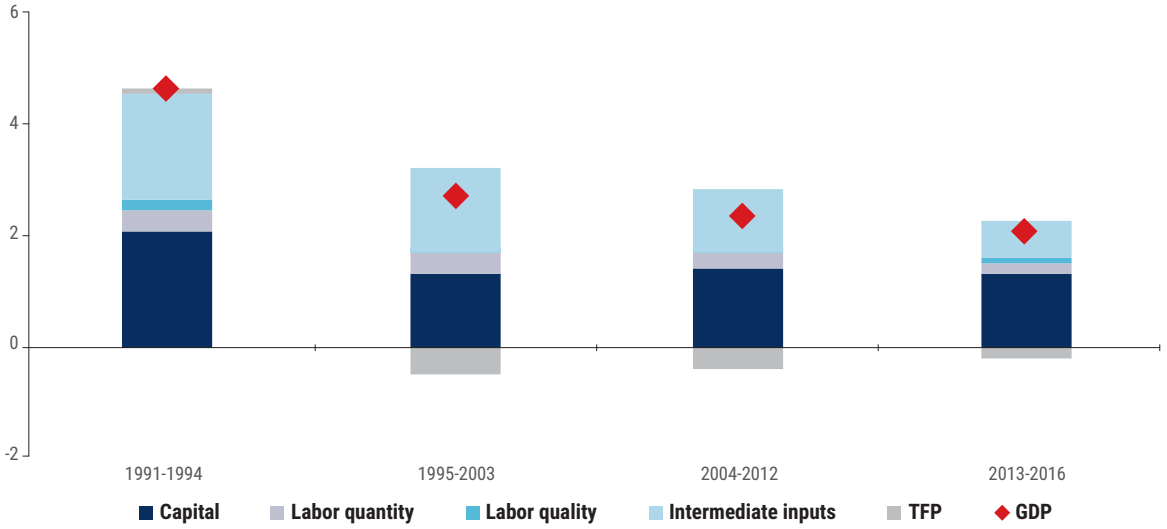
73. **There has been almost no domestic regional convergence over the last 20 years.** While there was some convergence before the mid-1990s, with poorer states experiencing slightly higher GDP per capita growth between 1980 and 1994, the convergence since then has been very limited. The GDP per capita of one of the most rapidly growing and richest states (Querétaro) grew an average 2.5 percent a year in 1996–2016, compared with 0.8 percent a year in Chiapas. Indeed, tests of unconditional convergence in GDP per capita suggest that the rhythm of convergence has slowed and that regions in the north, center-north, and center are benefiting the most from Mexico's economic transformation (Figure 35, Map 1). These more well-developed regions are home to industries that have been able to take advantage of the market opportunities that NAFTA created, including in automobile and associated manufacturing, export-oriented agriculture (high-value fruits and vegetables), machinery, and electronics. However, these high-growth industries and states seem not to have built backward links to other parts of the economy and other states.

Figure 36. Growth accounting, Mexico and comparator countries (% contribution), 1991–2016



Source: November 2017 data of Total Economy Database, Conference Board, New York, https://www.conference-board.org/data/economydatabase/.

Figure 37. Growth accounting, Mexico (% contribution)



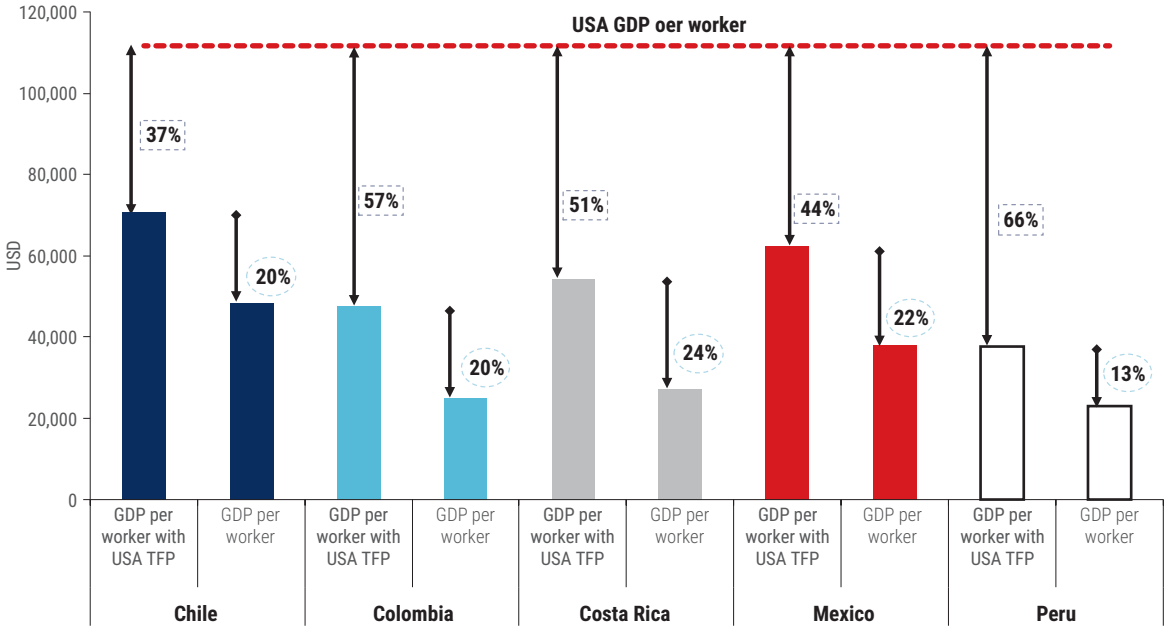
Source: World Bank calculations based on data of INEGI; World KLEMS Data (database), World KLEMS Consortium, University of Groningen, Groningen, the Netherlands, http://www.worldklems.net/data.htm.

2.2.4. Limited productivity growth and significant dispersion across regions, sectors, and firms

74. **The absence of aggregate productivity growth is one of the factors explaining Mexico's lack of convergence.** The contribution of total factor productivity (TFP) to growth was negative (–1 percent) between 1991 and 2016, representing the weakest performance among Mexico's structural and aspirational peers (Figure 36). TFP growth was marginally positive in the early 1990s, but negative from 1995 to 2016 (Figure 37). Falling TFP has partially offset the modest gains from factor accumulation. The contribution of labor has been driven mostly by quantity (a growing labor force) rather than labor quality, which has improved only moderately. A simple calculation suggests that, if Mexico's productivity had grown at a pace similar to the pace during the high-growth period between 1950 and 1970 (1.3 percent a year), the country's GDP per capita would be 128 percent higher than the current level. Similarly, if TFP growth had been similar to that of the United States, Mexico could reduce the GDP per worker gap with the United States by 22 percent. However, capital per worker would still be far too low to reach the same level, suggesting that improvements in productivity would need to be accompanied by more rapid capital accumulation (Figure 38).

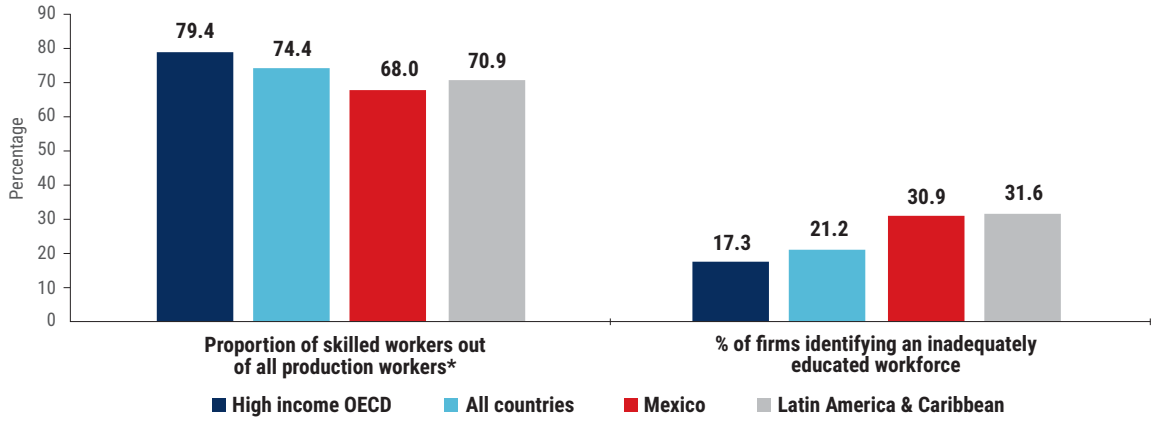
75. **Even though the supply of educated labor has increased, labor quality remains insufficient.** The share of workers with a high school education rose from 35.2 percent in 1994 to 55.5 percent in 2014, and the share of college educated labor doubled from 12.5 percent to 24.3 percent. However, given the increased importance of high-complexity sectors in the economy (which tend to require more technical skills), there is evidence that employers face difficulty filling jobs. In a survey by the Manpower Group, 54 percent of employers stated they had difficulty filling vacancies. Similarly, 31 percent of respondents to the most recent Enterprise Survey in Mexico

Figure 38. Gap between United States GDP per worker and GDP per worker in selected Latin America and Caribbean countries



Source: World Bank calculations using data of Penn World Table (database version 9.0), Groningen Growth and Development Centre, Faculty of Economics and Business, University of Groningen, Groningen, the Netherlands, https://www.rug.nl/ggdc/productivity/pwt/.

Figure 39. Skilled workforce, Mexico and selected countries, 2010



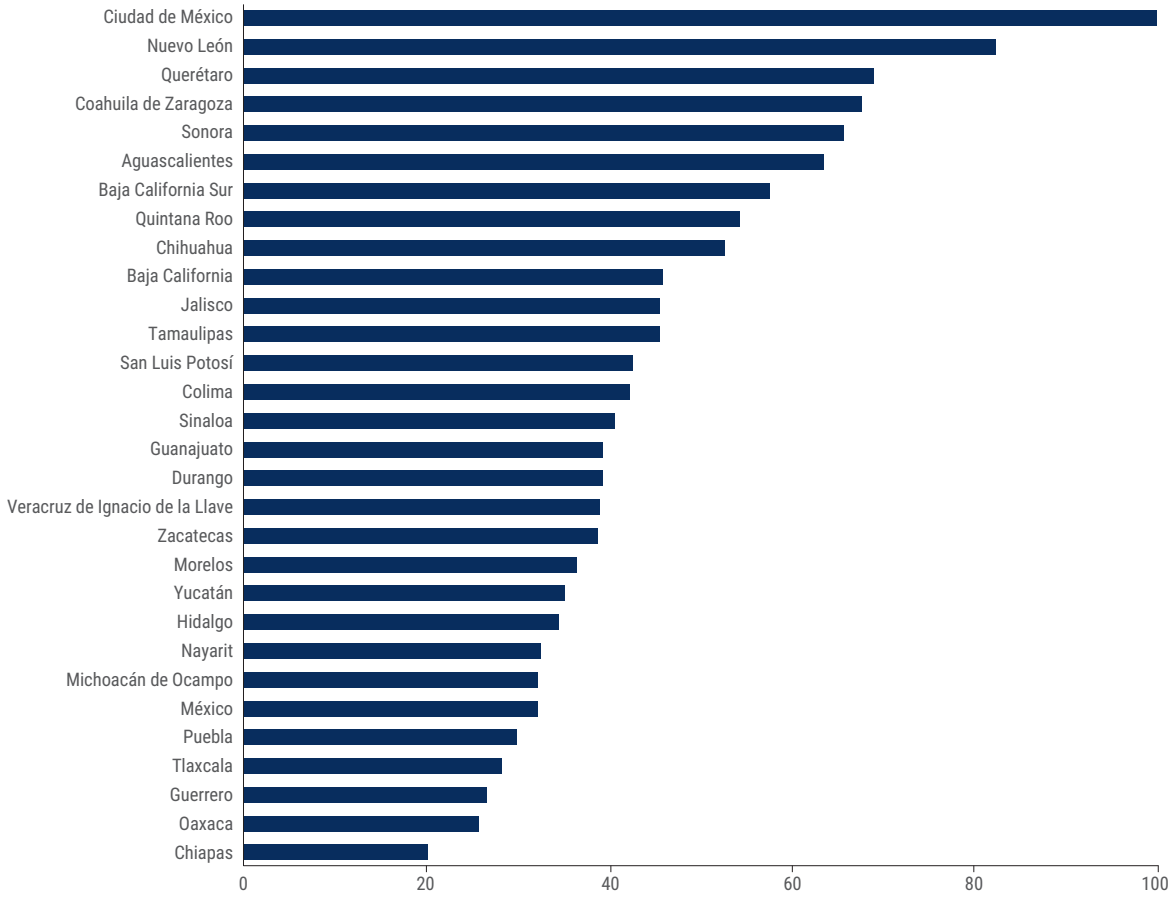
Source: 2010 data of the Enterprise Surveys (database), International Finance Corporation and World Bank, Washington, DC, http://www.enterprisesurveys.org.
Note: This indicator is computed using data only on manufacturing firms. Regional and all-country averages among the indicators are computed by taking a simple average of country point estimates. For each economy, only survey data of the latest available year are used in the computation.

(2010) identified an inadequately educated workforce as a major constraint (Figure 39). Only 68 percent of all production workers are skilled, compared with 79 percent in countries of the Organization for Economic Co-operation and Development (OECD). Labor quality – a function of education and experience – continues to be low, and its contribution to growth has been minimal. Improving the quality of labor is particularly important considering that the share of the 18- to 64-year old population is projected to begin declining in 2027.

76. **There is substantial dispersion in labor productivity growth across states.** States that have experienced higher overall GDP growth rates since 1993 also experienced improvements in labor productivity. Labor productivity in the states of Aguascalientes, Chihuahua, Nuevo León, Querétaro, and Zacatecas rose at an average annual rate of over 1 percent between 1993 and 2015, while labor productivity in Chiapas, Hidalgo, Oaxaca, Quintana Roo, and Tlaxcala declined. As a result, the divergence in productivity growth has become more pronounced in the last two decades. Today, the differences are significant: measured by value added per worker, productivity is five times greater in Mexico City than in Chiapas (Figure 40). If labor productivity in states at the bottom had grown at the same rate as in Aguascalientes (one of the top performers), their current GDP per capita would be 81 percent higher.

77. **High levels of informality persist, especially in some regions, and contribute to low productivity.** At the national level, 56.9 percent of total employment was in the infor-

Figure 40. Labor productivity by state (Mexico City = 100)



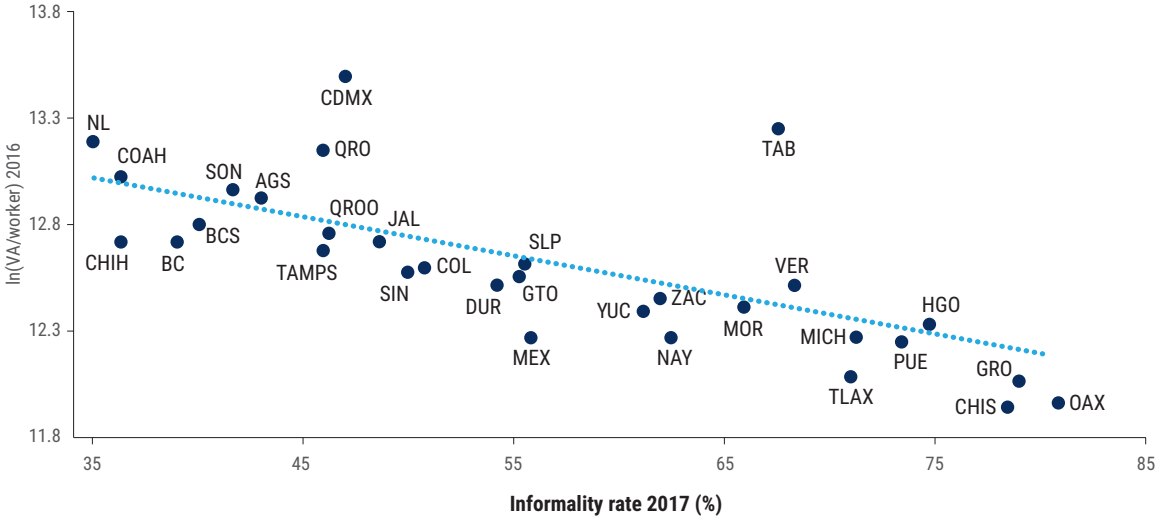
Source: World Bank calculations based on the economic census data of the National Institute of Statistics and Geography.
Note: Labor productivity is defined as value added per worker.

mal economy in 2017.[64] By some estimates, up to 97 percent of firms in manufacturing and services rely partially or wholly on informal labor and absorb 80 percent of labor and 70 percent of capital.[65] This large concentration of factors in the informal sector contributes to low aggregate productivity because there is ample evidence that formal firms tend to be more productive than informal ones.[66] In Mexico, the difference is not trivial: estimates suggest that formal Mexican firms are an average of 84 percent more productive than informal firms.[67] There is, however, great regional variation: states with lower labor productivity also record the highest informality rates, reaching up to 80 percent (Figure 41). The prevalence of micro, small, and medium enterprises is also associated with higher informality rates in states (Figure 42).

78. **Structural transformation accounts for only one-third of the growth in labor productivity.** The correlation between labor productivity and the share of hours worked was positive but weak between 1990 and 2011 (Figure 43). This is because, as the shift-share analysis shows, the strong contribution of shifting labor resources to sectors with higher levels of productivity (+58.1 percent) is offset to a large degree by the impact (–28.9 percent) of shifts to sectors in which productivity growth is slower or even negative.[68] A prime example is the oil and gas extraction sector, which, though it is the sector with the highest level of productivity in value added per hour worked, saw productivity fall by more than half over 1990–2016. At the same time, the sector experienced a modest 0.2 percentage point increase in its share of hours worked across the economy. In aggregate, the manufacturing sector experienced a significant decline in labor share (–4.4 percentage points), even as its average annual labor productivity growth (+1.4 percent) outpaced that of the economy as a whole. The transport equipment subsector is an important exception, experiencing an increase (from 1.4 to 2.4 percent) in its labor share, while also experiencing annual average growth in labor productivity amounting to 1.9 percent, bringing its labor productivity above the economy-wide average. The

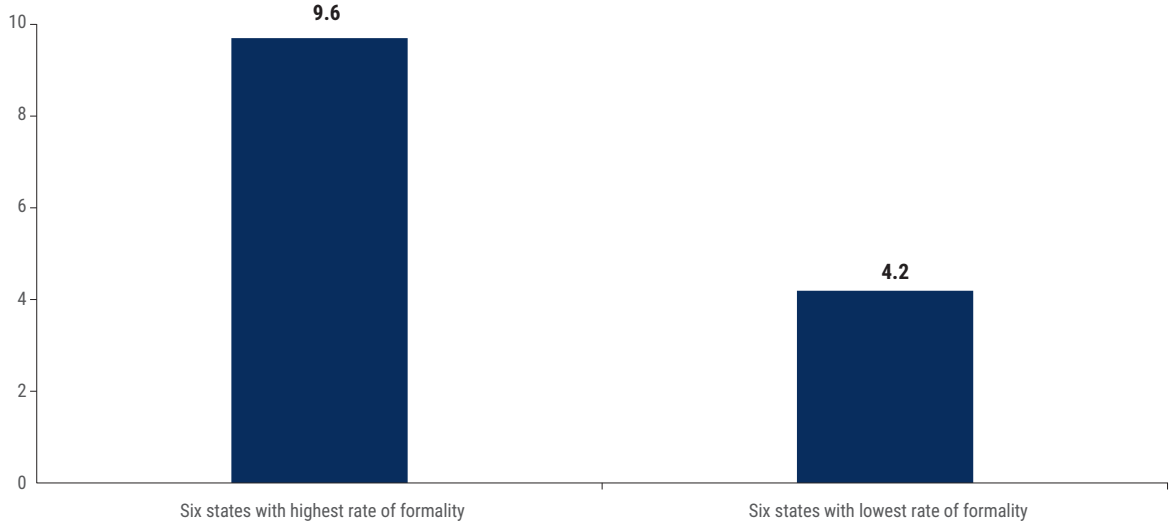
64 Data of the National Institute of Statistics and Geography.
65 Busso, Fazio, and Levy (2012). Estimates based on 2008 data.
66 See La Porta and Shleifer (2008, 2014); Fajnzylber et al. (2011).
67 Busso, Fazio, and Levy (2012).
68 At the 3-digit North American Industry Classification System–level of disaggregation. By comparing the sectoral allocation of both hours worked and value added in 1990 and in 2016, a shift-share analysis disaggregates the impact on economy-wide value added per hour worked of (a) intersectoral (between-sector) changes and (b) intrasectoral (within-sector) changes. The intersectoral element captures the role of structural transformation and can be disaggregated into static and dynamic effects. The static effect results from shifting labor resources between sectors with different levels of productivity, while the dynamic effect results from the shifting of labor resources between sectors with different rates of productivity growth.

Figure 41. Labor productivity vs. informality, states



Source: World Bank calculations based on data of the National Institute of Statistics and Geography.

Figure 42. Economic units with more than 10 employees, share of total (%)



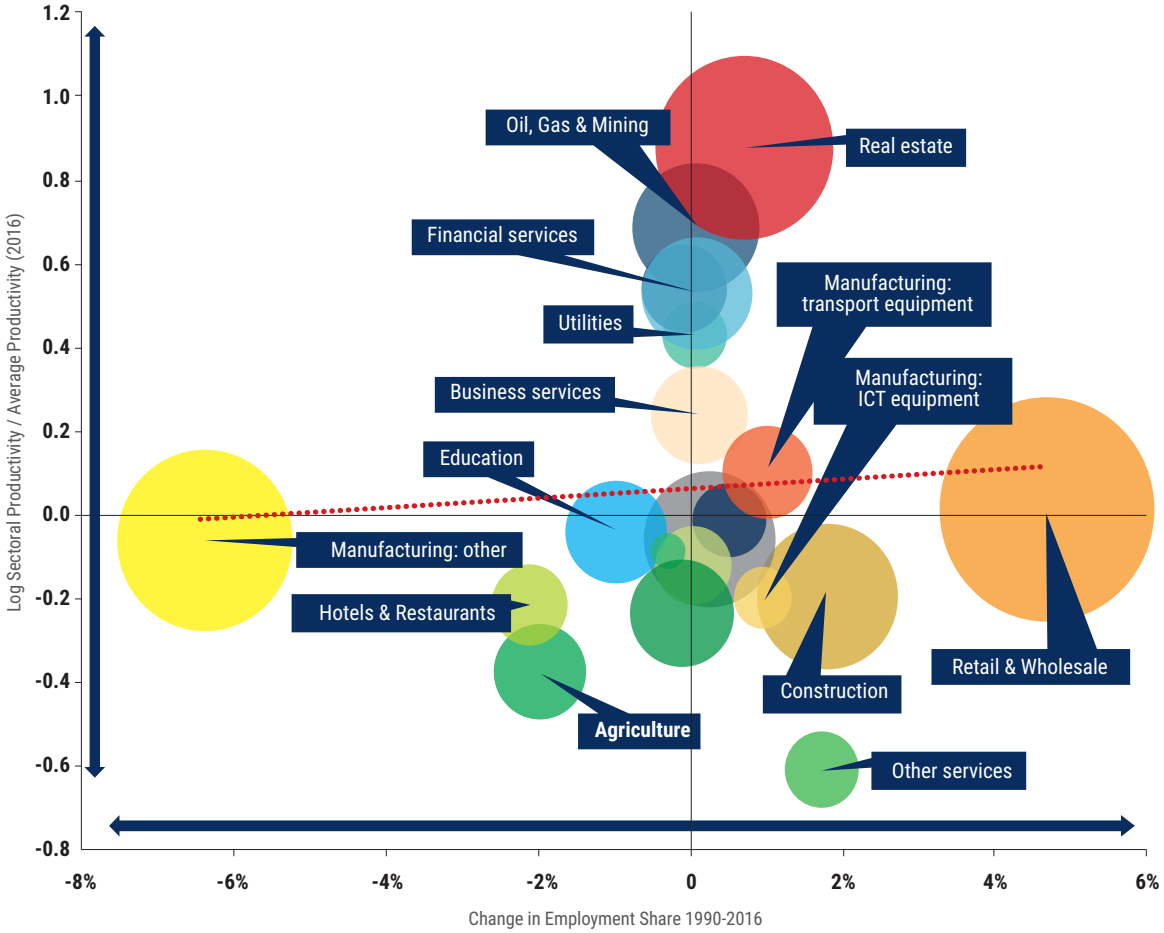
Source: IMCO 2015.

services sector saw its share of hours worked increase by 4.5 percentage points (from 55.7 percent in 1990 to 60.2 percent in 2016), while its relatively strong labor productivity growth saw productivity levels move farther ahead of the economy-wide average.

79. **Large productivity dispersion signals factor misallocation in the economy.** Productivity differences between sectors are large, for example, the distribution of TFP across sectors shows that productive sectors (the top 5 percent) are up to 500 percent more productive than the least productive ones. In recent years, as labor productivity in the manufacturing sector declined, its share of total labor fell. At the same time, productivity also decreased in the services and commerce sectors, yet their share in total labor increased. But reallocation between sectors alone does not explain the sluggish productivity trend (e.g., maintaining sectoral labor shares constant at 1990 level would have only marginally affected productivity growth). Productivity dispersion between firms within sectors, on the other hand, is large.

80. **Indeed, a core source of factor misallocation seems to occur among firms within the same sector.** Comparing the distribution of productivity across sectors with the distribution of productivity across firms within each sector reveals that firm-level productivity is significantly more dispersed and has a larger standard deviation, with most firms below the sectoral average and a fat left tail of unproductive firms. These productivity differences persist even within narrowly defined sectors, such as cut-and-sewn apparel manufacturing, where the most-productive firms are about 8 times more productive than the least-productive firms. The productivity gap between the most and least productive firms in the same sector is considerably larger in Mexico than in the United States. Within the same sector (at 4 digits), productive firms (the top 5 percent) are up to 1,200 percent more productive than the least productive ones. There is also considerable heterogeneity across firms: most have a below-average level of TFP (Figure 44). Despite these large differences, labor does not move from less

Figure 43. Change in employment share vs. labor productivity, by sector



Source: World Bank calculations based on data of the National Institute of Statistics and Geography.
Note: Labor productivity is defined as value added per hour worked.

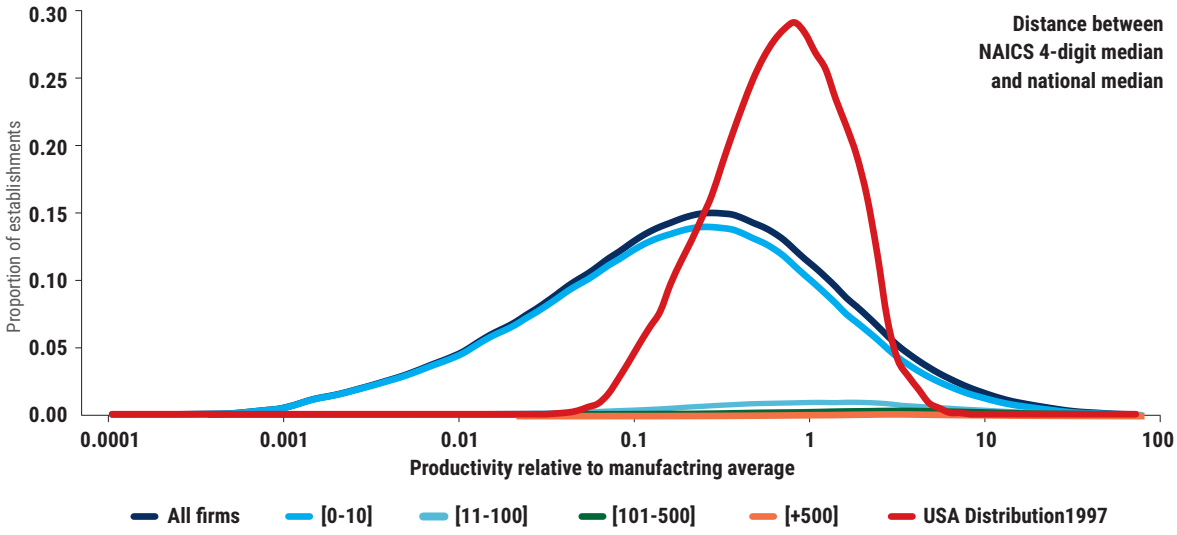
productive firms to more productive ones. One way in which this is manifested is that firms do not grow: firms that have been in business for 10 years or more employ only marginally more labor than those in business for 5 years. High-growth firms tend to be concentrated in few sectors that have a high share of value added, FDI penetration and trade volume, and are more prevalent in the north of the country.[69] According to Mexico's 2014 Economic Census, micro, small, and medium enterprises account for 99.8 percent of the total number of firms in Mexico and absorbed 76.4 percent of employment. However, they only contributed 31.5 percent of total value added. Given the importance of regional value chains and of the geographical proximity to the United States, within-sector dispersion also corresponds, to a large extent, to between-state dispersion: in the agricultural sector, for example, the north and center of the country are home to modern agrifood systems, many of which are global leaders in terms of scale, level of technological sophistication, productivity, integration into markets, and value added. This is in stark contrast with the south, where traditional production practices continue to dominate; productivity is low; land fragmentation is common, and market integration is limited because of scale and the terrain.

81. **At the same time, high levels of informality persist.** At the national level, 56.5 percent of total employment was in the informal economy in 2017, although there is significant variation across states.[70] By some estimates, up to 97 percent of firms in the manufacturing and services sector rely partially or wholly on informal labor and absorb 80 percent of labor and 70 percent of capital.[71] This large concentration of factors in informality contributes to low aggregate productivity. Estimates suggest that Mexican formal firms are on average 84 percent more productive than informal firms.[72]

82. **The shift-share analysis shows that more than two-thirds of the limited labor productivity gains have come about via within-firm dynamics.** In the manufacturing sector, the within-firm component represents about

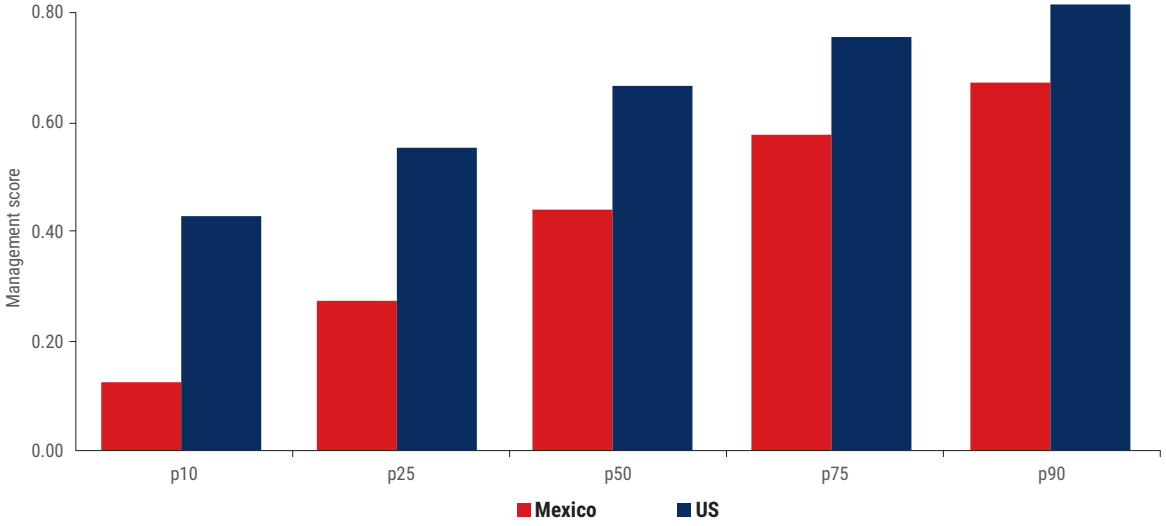
69 Background Paper for the Flagship on "High Growth Enterprises in Developing Countries" (World Bank, forthcoming).
70 Data of the National Institute of Statistics and Geography (INEGI).
71 Busso, Fazio, and Levy (2012). Estimates based on 2008 data.
72 Busso, Fazio, and Levy (2012).

Figure 44. Productivity dispersion in the manufacturing sector by firm size



Source: World Bank calculations based on data of the National Institute of Statistics and Geography; Pages 2010.
Note: NAICS = North American Industry Classification System.

Figure 45. Mexico's manufacturing management score distribution vs. the United States



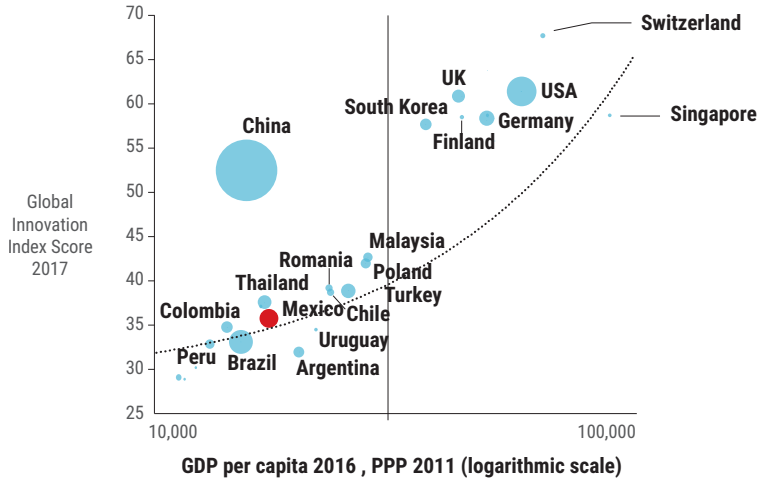
Source: Bloom et al. forthcoming.

80 percent of productivity growth. However, few firms are productive at the global level: the domestic frontier (computed based on the top quartile in the distribution of value added per employee) is far below the global frontier in all industries, and there has been little improvement in the past decade.[73] An important factor is product and process innovation, including quality improvement and management quality. Low management quality explains about one-third of the cross-country difference in TFP.[74] In the manufacturing sector, Mexican firms in the 90th percentile on management scores have roughly the same management quality as the U.S. median (Figure 45). However, Mexican managers consistently overestimate the quality of management in their firms. Mexico also underperforms compared with peers in innovation: the global innovation index, which measures the capacity of countries for and their performance in innovation, puts Mexico below what is expected based on its level of economic development and also indicates that this performance is produced in a relatively inefficient way (Figure 46).

83. **Private sector research and development expenditure is well below that of most OECD countries as well as Brazil, China, India, the Russian Federation, and South Africa.** Innovative firms are more likely than noninnovative firms to participate in international markets.[75] In the case of Mexico, evidence supports the relation between

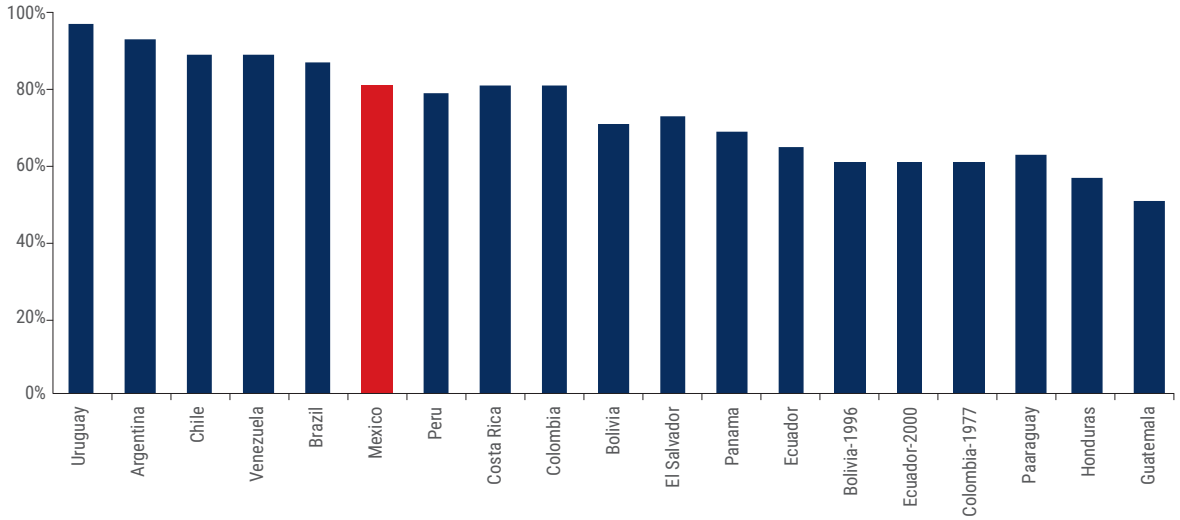
73 Araujo et al. (2016).
74 Bloom et al (2016).
75 OECD (2008, 2015).

Figure 46. Global Innovation Index



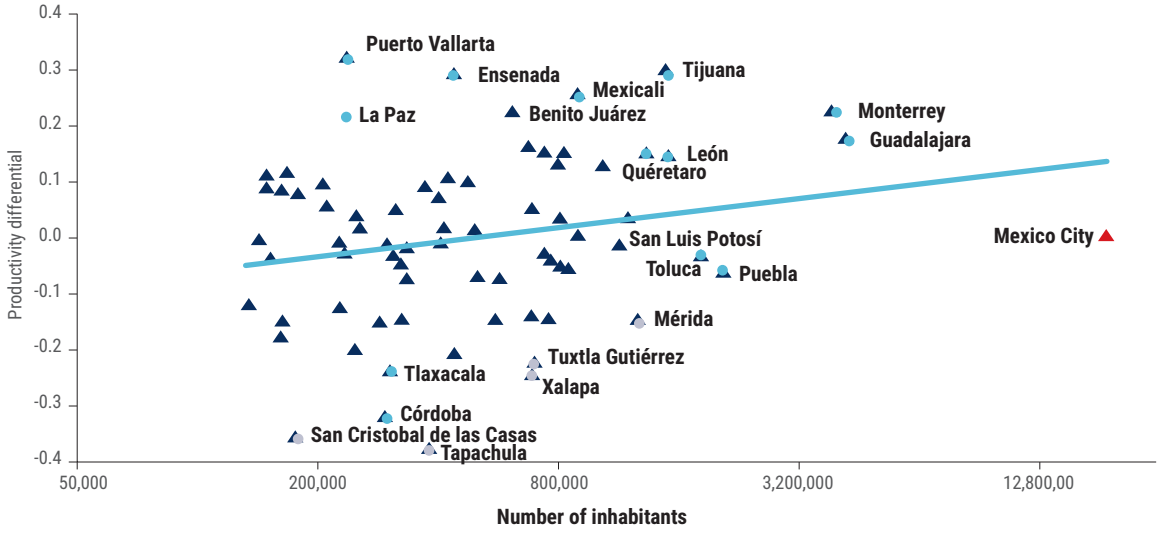
Source: Dutta, Lanvin, and Wunsch-Vincent 2017.

Figure 47. Urban population in 2018 (% total)



Sources: UN, Dept. of Econ. and Social Affairs, Population Division (2018).

Figure 48. Correlation between city size and productivity, Mexico



Source: Ahrend et al. 2014.

innovation and spending in research and development in industry. The relatively low level of private research and development is partly a result of Mexico's industrial structure because more than one-third of manufacturing research and development is carried out in low- and medium-technology sectors. However, obstacles to boosting the country's innovative potential include a weak domestic research and skills base, an underdeveloped knowledge-based start-up environment and institutional challenges.

84. **Although urbanization has been key for economic and productivity growth, its pace has slowed in recent years.** Mexico is at an advanced stage of urbanization; 80.2 percent of the population was living in urban areas in 2018 (Figure 47). Urbanization and cities play an important role in economic and productivity growth: 87 percent of Mexico's gross value added is produced in cities with a population of over 100,000 inhabitants. The results show a clear north-south divide. There are negative outliers in the south and positive outliers in the north, close to the border with the United States (Figure 48).

3. Inclusion

85. **Progress has been made in recent years in social and productive inclusion in Mexico, but there is significant room to improve.** The diagnostic of inclusion in this report is based on the key notion that equity is a necessary condition to sustaining a robust process of inclusive growth.[76] Social inclusion is understood for the purposes of this report as the combination of intragenerational mobility and voice (freedom and influence in the social, economic, and political domains). Productive inclusion is framed in this diagnostic as equal opportunities to access markets and contribute to economic activities based on the four main productive assets available to households: human capital, financial capital, natural capital (such as land, soil, forest, and water), and social capital.[77]

3.1 Social inclusion dynamics

86. **Mexico has experienced improvements in nonmonetary measures of poverty in recent years, but progress in monetary poverty reduction and shared prosperity has been slower.** The official multidimensional poverty rate, which combines income poverty with six indicators of social deprivation, has declined in recent years, from 46.2 percent in 2014 to 43.6 percent in 2016, after being stagnant since 2010.[78] The official extreme poverty rate declined from 11.3 percent in 2010 to 7.6 in 2016.[79] Yet, progress in reducing monetary poverty overall has been limited. The total share of the population living in poverty in 2014 was around 53 percent (the same level as in 1992). Approximately two Mexicans in five were still considered poor in 2016. In contrast, peer countries have all experienced poverty reduction. Most have cut poverty by half in the last 10 years. Nonmonetary measures of poverty have, however, consistently improved in Mexico since they were first established in 2010 (Table 2). The share of the population with one or more social deprivations decreased from 74.2 percent in 2010 to 70.4 percent in 2016, while the share of the population experiencing three or more social deprivations had declined from 28.2 percent to 18.7 percent by 2016. Lack of access to social security is the most prevalent deprivation, at 55.8 percent, followed by lack of access to food at 20.1 percent in 2016. Lack of access to health care services improved by an expansion of a noncontributory health insurance program, Seguro Popular. This was the dimension of nonmonetary measures of poverty showing the largest decline between 2010 and 2016.

87. **Poverty incidence is higher among indigenous populations, households with dependents, and households with a majority of women among adult members.** In 2016, the extreme poverty rate was six times higher among indig-

76 Limited poverty reduction, coupled with relatively high and persistent inequality, usually contributes to low economic growth. See, for instance, Perry et al. (2006). Also, while economic growth is empirically associated with poverty reduction, equity-driven policies enhance the capacity of all groups in society to contribute actively to the growth process, making growth more inclusive and sustainable (Dollar et al. 2016). Growth and its distribution are jointly determined processes (Ferreira 2010).

77 Social capital refers to the preferential treatment and social cooperation among individuals and groups that can contribute to the economic gains of these individuals and groups.

78 The official multidimensional poverty rate declined from 46.1 percent in 2010 to 45.5 percent in 2012, then increased to 46.2 percent in 2014. Annex 2 describes the official methodology and data sources for poverty measurement in Mexico.

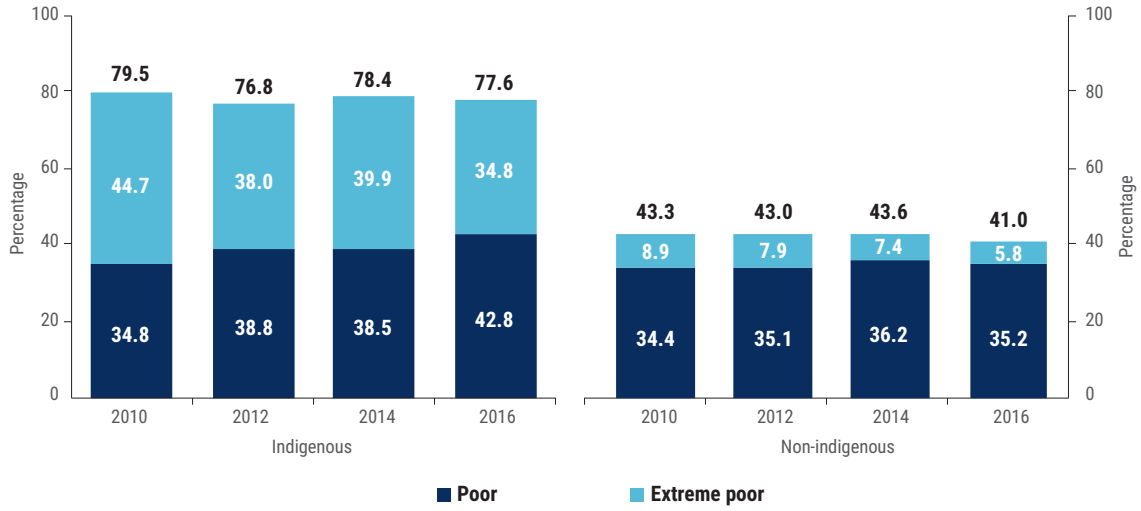
79 Data from *Consejo Nacional de Evaluación de la Política de Desarrollo Social* (National Council for the Evaluation of Social Development Policy, CONEVAL) using ENIGH 2016.

Table 2. Evolution of the social components, multidimensional poverty index, Mexico, 2010–16

Components	2010	2012	2014	2016
Gaps in educational attainment	20.7	19.2	18.7	17.4
Lack of access to health care services	29.2	21.5	18.2	15.5
Lack of access to social security	60.7	61.2	58.5	55.8
Low quality and space in the dwelling	15.2	13.6	12.3	12.0
Lack of access to basic services in the dwelling	22.9	21.2	21.2	19.3
Lack of access to food	24.8	23.3	23.4	20.1

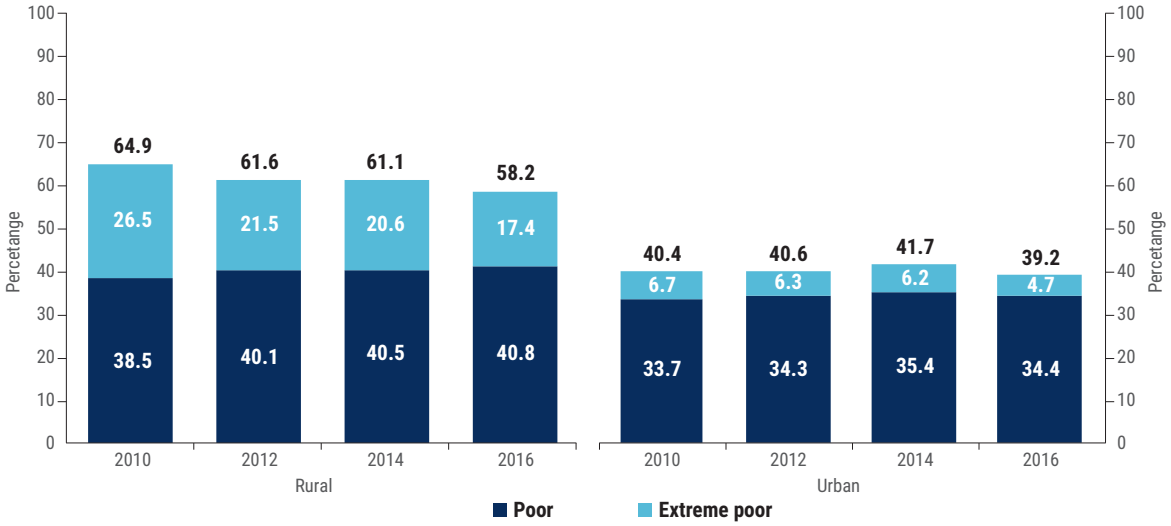
Sources: Data of CONEVAL; INEGI 2016a.

Figure 49. Poverty among indigenous and nonindigenous population groups (%), 2010–16



Sources: Data of CONEVAL; INEGI 2016a.
Note: The indigenous population is classified based on mother tongue.

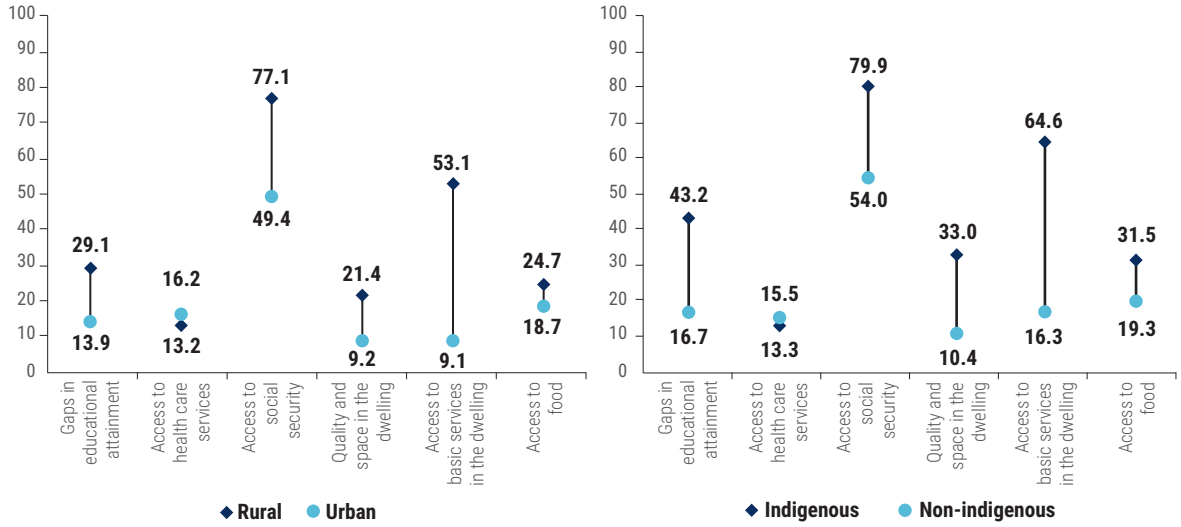
Figure 50. Poverty, by place of residence (%), 2010–16



Sources: Data of CONEVAL; INEGI 2016a.
Note: Rural localities are defined as those with a population below 2,500.

enous populations than among nonindigenous populations. As of 2016, three indigenous people in four were poor based on the official multidimensional poverty rate, while about 40 percent of the nonindigenous population were living in conditions of poverty (Figure 49). About 48 percent of the population living in households with dependents are poor; the corresponding share among households without dependents is 25 percent. In households with an equal or a larger share of adult women in the household, the poverty headcount is slightly larger

Figure 51. Population shares experiencing social deprivations, by area of residence and ethnicity, 2016



Source: World Bank calculations using data of CONEVAL; INEGI 2016a.
Note: Rural localities are defined as those with a population below 2,500. The indigenous population is classified based on mother tongue.

than the national average, while, in households with more adult men, the poverty incidence is 6 percentage points lower.

88. **Although most of the poor live in urban areas, there is a higher incidence of poverty and extreme poverty in rural areas.** In 2016, 58.2 percent and 17.4 percent of the population in rural areas were living in poverty or extreme poverty, respectively, in contrast to 39.2 percent and 4.7 percent in urban areas, although there has been some progress in poverty rates in rural areas over recent years (Figure 50). Moreover, the disparities in access to social rights between urban and rural population groups are large, and they are even wider between indigenous and nonindigenous groups (Figure 51). In particular, the share of the population without access to basic services in their dwelling is almost 50 percentage points higher among indigenous populations and 44 percentage points higher in rural areas compared with nonindigenous and urban areas, respectively.

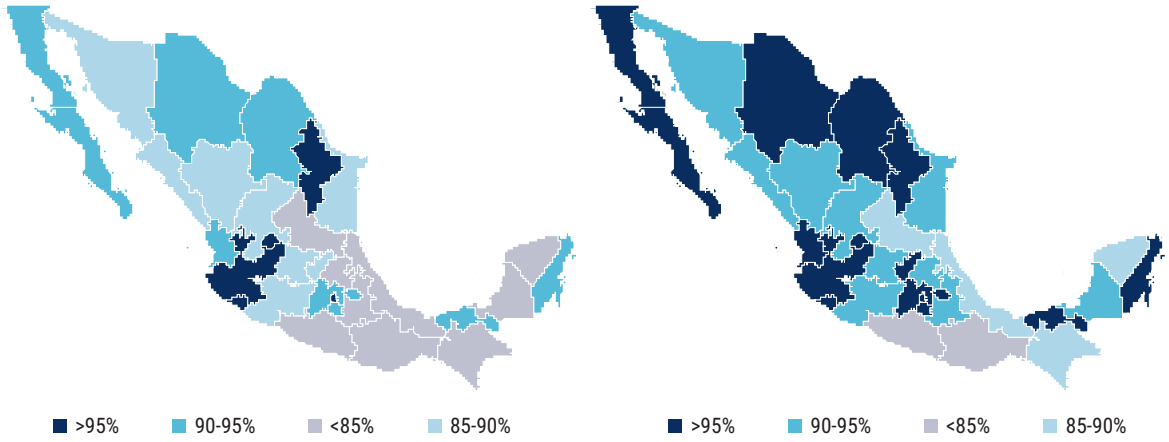
89. **Poverty in rural areas decreased, but they continue to host most of the extreme poor, who tend to be engaged in low-productive primary activities.** The poverty rate in rural areas decreased from 64.9 percent in 2010 to 58.2 percent in 2016, while the extreme poverty rate declined from 26.5 percent to 17.4 percent. Yet, 31 percent of the poor and 53 percent of the extreme poor live in rural areas. In 2016, 62 percent of the household heads among the bottom 40 percent of the distribution in rural areas were employed in primary activities. Primary activities exhibit low productivity. Although the primary sector employs around 13 percent of the total working population nationwide, it only produced 3.3 percent of GDP in 2017. In the poorest states, which are located in southern Mexico, 25 percent of total employment is in agriculture, where access to inputs such as irrigation and formal credit is limited.

90. **Particularly in southern Mexico, rural areas suffer a vicious cycle of low productivity, low investments in physical and human capital, and high poverty rates.** Two decades after the 1994 land reforms, about half of the land in Mexico is under some form of communal or *ejido* ownership. Furthermore, small land-holding -those with fewer than 5 hectares of land- dominate Mexico's agricultural sector, owning or managing more than 75 percent of rural property. Typically, these are traditional or subsistence farmers with limited access to improved seeds, irrigation, formal credit, better training or marketing infrastructure. Southern states with the highest rate of poverty have the highest levels of *ejidos* and incidence of small plot size. In addition, this region hosts a majority of the indigenous people, and is primarily rural. Land fragmentation and land titling correlate with the proportion of subsistence agriculture and of indigenous population. With a large proportion of smallholders involved in producing low value-added crops, Mexico's rural poverty pockets risk being poverty traps.

91. **Female-headed households are poorer and face higher risks of falling into a poverty trap.**[80] About 25 percent of all households in Mexico are headed by females (this percentage is higher than in other countries due to migration, among other factors).[81] Female-headed households are also less likely than male-headed households to have access to energy, infrastructure, formal credit, and land.[82] Twenty-three percent of Mexico's women live in rural areas and in vulnerable conditions with limited access to human

80 World Bank (forthcoming)
81 INEGI (2008).
82 INEGI (2008).

Map 2. Changes in the proportion of households with access to drinking water, 2005-15



Source: Data of CONEVAL-INEGI: Social Gap Index 2005-2015; World Bank calculations

endowments such as education, health, infrastructure, and employment. In 2015, nearly half of all Mexican women were living in households with a per capita income below the poverty line, a poverty rate above the Mexican average in rural areas. Women are also 6 percent more likely to fall into poverty traps, have reduced educational levels, and suffer food insecurity if they are also heading the household.

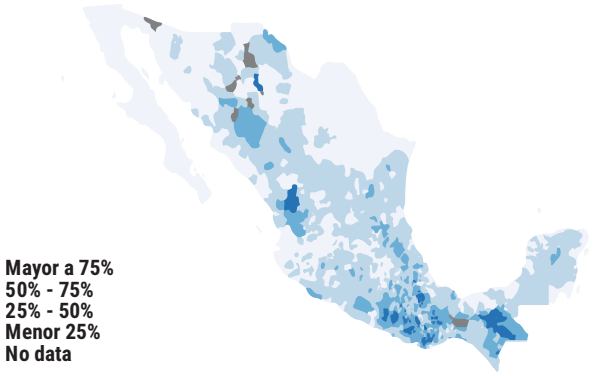
92. **Notwithstanding the positive effects of urbanization, most of Mexico's poor live in urban areas with challenges in the provision of services.** Mexico is at an advanced stage of urbanization, with 80.2 percent of its population living in urban areas in 2018,[83] and 87 percent of its gross value added produced in cities with population over 100,000. Although the pace of urbanization has slowed down, the population in cities continues to grow at an average rate of 1.6 percent per year.[84] Yet, the magnitude in terms of the number of people who are poor and face social deprivations poses a difficult challenge in urban areas. Overall in 2016, 36.9 million poor lived in urban areas, more than double the number in rural areas (16.5 million). Moreover, close 19 million people in urban areas are considered unable to cover basic food needs in contrast to 8 million in rural areas. And, even though cities have reached near universal access to services, issues in the quality of the provision of basic services, and heterogeneity within cities persist. Particularly, as cities continue to sprawl without the corresponding extension of infrastructure and service networks, there are serious implications for the most vulnerable. For instance, it has been shown that the adaptation actions that households in marginal areas of Mexico City implement to deal with water scarcity, low quality, and flooding imply high financial and opportunity costs, with further consequences on poverty.[85]

93. **The provision of water and sanitation services differ greatly between rural and urban communities, north and south regions, and by income quintiles.** In 2014, 86.3 percent of the richest households had access to sewerage, while only 33 percent of the poorest households did. The limited resources in the sector are raised through tariffs, limiting investments in areas with lower demand. Investments rather depend on government's subsidies. Mexicans pay relatively little for water services, compared with the international standard of 4-5 percent of household's income spent on water. Due to subsidized tariffs, water payments in urban areas range from 0.25 to 2.19 percent of household's income. In rural areas, the poorest are paying a higher proportion of their income for water services. Yet, basic water services are essential for human capital accumulation. Delivering safe water supply sanitation and hygiene services contribute to improved health conditions. It is a cost-effective way to improve the economic outcomes of vulnerable populations, given the long-term consequences that poor health status and malnutrition during childhood have on the individuals' cognitive development, years of education, adulthood's wages and labor force participation.[86] There is also a significant north-south gap in access to water and sewage services. Moreover, progress in the last decade has been achieved mostly in the northern (and some central) states (Map 2).

94. **Besides the rural-urban inequalities, national averages for poverty rates hide large territorial disparities that have persisted over time.** In 2016, 68 percent of the extreme poor lived in only six of the thirty-two states: Chiapas (which held 16 percent of the total number of extreme poor), Veracruz (14.2 percent), Oaxaca (11.6 percent), State of Mexico (11.3 percent), Guerrero (8.8 percent), and Puebla (6 percent). In terms of extreme poverty rates, the State of Mexico concentrated 13.5 percent of those with an income lower than the minimum well-being line, while Chiapas, Oaxaca, Guerrero, Veracruz and Puebla housed 44.3 percent (Map 3). According to the 2017 Territorial Equity Index for the SDGs, Mexico has high territorial dispari-

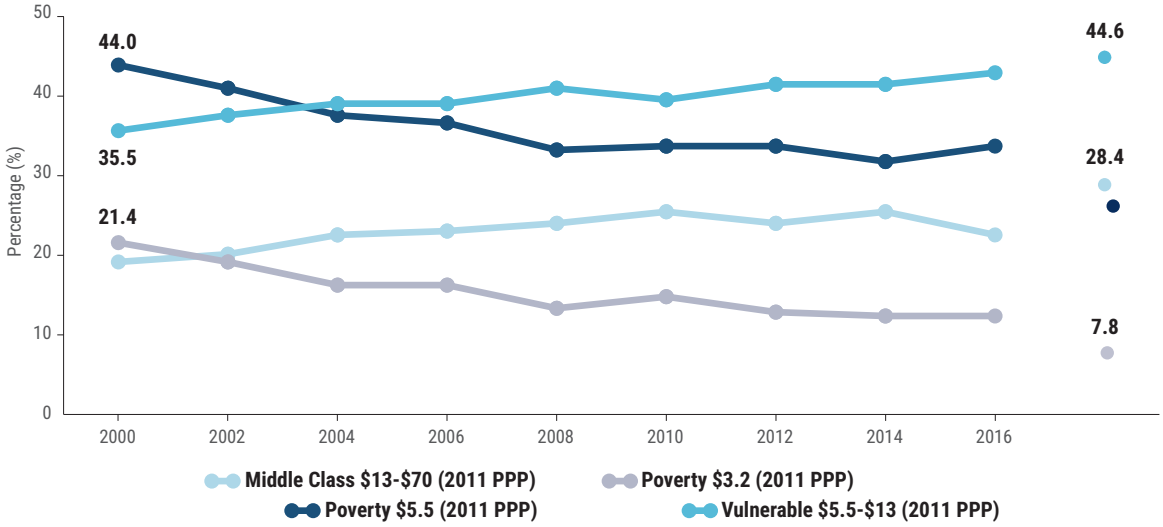
83 World Urbanization Prospects: The 2018 Revision (database), Population Division, Department of Economic and Social Affairs, United Nations, New York, https://esa.un.org/unpd/wup/.
84 UN (2014).
85 Eakin at al. (2016).
86 Conti and Heckman (2014); Hoddinott et al. (2008); Currie and Almond (2011).

Map 3. Extreme poverty by municipality, 2014



Source: 2014 Mapa de pobreza alimentaria, ENIGH 2014 and 2015 Encuesta-intercensal

Figure 52. Socioeconomic classes (%), 2000–16



Source: Tabulations of Equity Lab, Team for Statistical Development, World Bank, Washington, DC, based on data in SEDLAC (Socio-Economic Database for Latin America and the Caribbean).

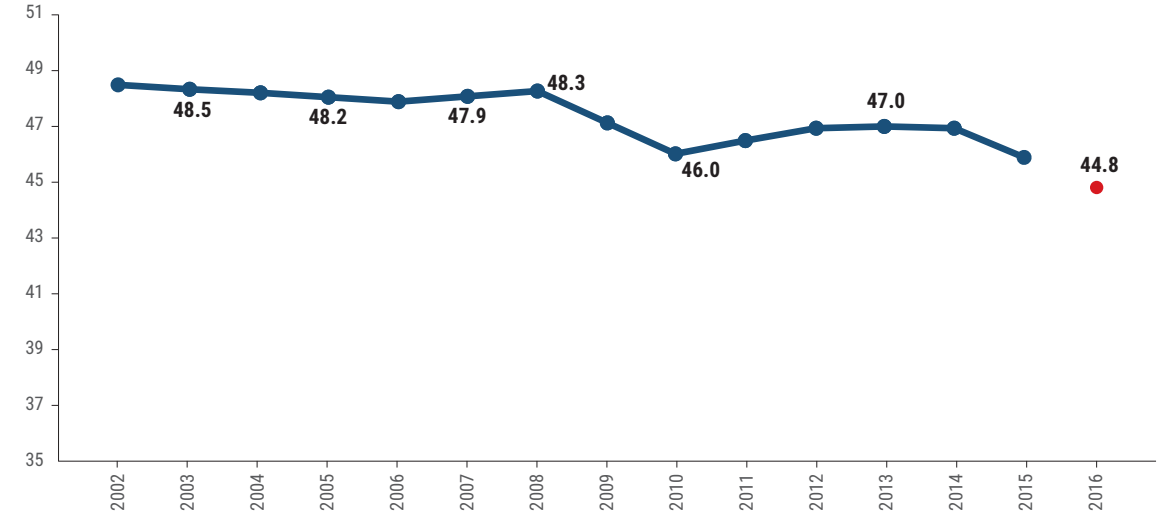
ties, presenting the highest index value out of seven Latin American countries.[87] The evolution of poverty shows territorial disparities.

95. **In transitioning the poor and the vulnerable into the middle class, Mexico underperformed with respect to its regional peers over the past decade.** The middle class in Latin America and the Caribbean, (those living with an income of $13 to $70 a day per capita in 2011 purchasing power parity) achieved overall positive growth between 2002 and 2014; and, for the first time in 2010, the region had more people in the middle class than in poverty. By 2015, however, the region experienced a slowdown in the trends of declining poverty and a growing middle class.[88] By 2014, Mexico had a smaller middle class than the Latin America and Caribbean average (22.3 percent versus 36 percent). The number of vulnerable households at risk of falling into poverty in Mexico is the largest economic group. For many Mexicans, escaping poverty does not mean that they have reached economic security. In 2004, about 39 percent of the population were vulnerable to fall back into poverty, and by 2014 this number reached almost 42.8 percent (Figure 52). [89] This contrasts with the Latin America and Caribbean regional average, where 37 percent of the population was vulnerable in 2014.[90]

96. **While income inequality has narrowed since the 1990s, income distribution remains highly unequal.** More recently, the positive trend seen over the last decades has stagnated, particularly due to the negative effects of the continuous exposure to aggregate shocks. Measured by the Gini coefficient (in per capita terms and after government transfers), inequality fell from 48.5 in 2002 to 47.0 in 2014

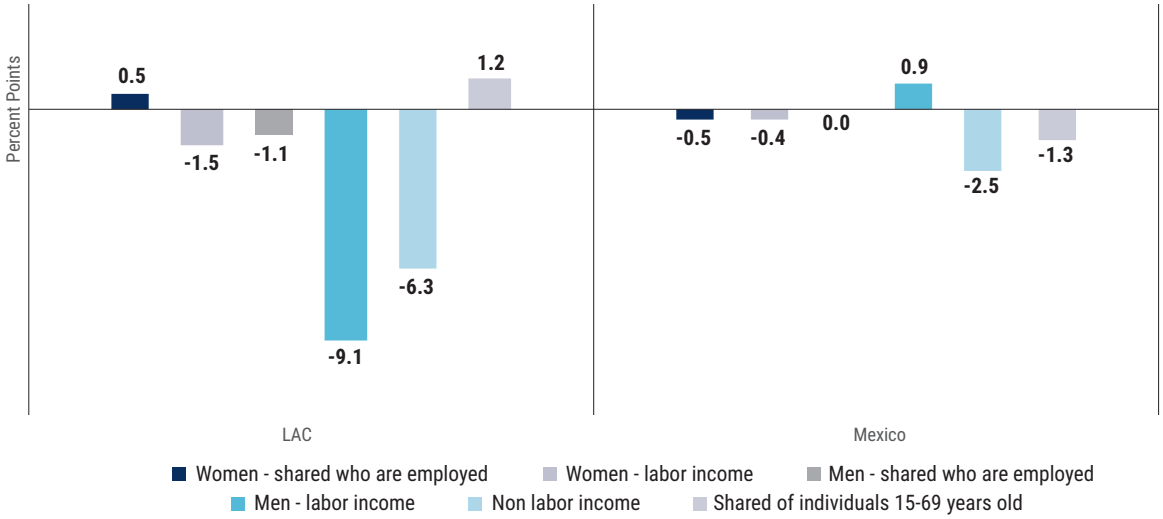
87 The value for Mexico's Territorial Equity Index for the SDGs lies at 0.132, above Guatemala (0.106), Colombia (0.094), Bolivia (0.090), Peru (0.086), Ecuador (0.076), and Chile (0.062). It is worth noting that Mexico is the only country where municipal-level data was used for the calculation of the index—whereby territorial differences tend to be larger than in less disaggregated data (Rimisp-Centro Latinoamericano para el Desarrollo Rural, 2018)
88 World Bank (2013).
89 Tabulations of Equity Lab, Team for Statistical Development, World Bank, Washington, DC, based on data in SEDLAC (Socio-Economic Database for Latin America and the Caribbean).
90 Tabulations of Equity Lab, Team for Statistical Development, World Bank, Washington, DC, based on data in SEDLAC (Socio-Economic Database for Latin America and the Caribbean).

Figure 53. Gini (per capita income), 2002–16



Source: INEGI 2016a.
Note: The numbers for 2016 are not strictly comparable. The Gini coefficient is shown with transfers.

Figure 54. Contribution of household income sources to changes in poverty, 2004–14, $4/day (2011 PPP)



Source: Tabulations of Equity Lab, Team for Statistical Development, World Bank, Washington, DC, based on data in SEDLAC (Socio-Economic Database for Latin America and the Caribbean).
Note: PPP = purchasing power parity.

(Figure 53).[91] In 2016, the richest 10 percent of households received 50.2 percent of the incomes, while the bottom 60 percent received 17.2 percent.[92] The persistence of income inequality in Mexico is largely explained by the persistence in labor income inequality, which in turn reflects an unequal distribution of skills: over 46 percent of individuals from the bottom quintile are unskilled (those that have less than primary education) relative to only 15.5 percent in the top quintile. In 2016, the poorest quintile had only 5 percent of total labor income whereas the richest quintile had 51 percent.[93]

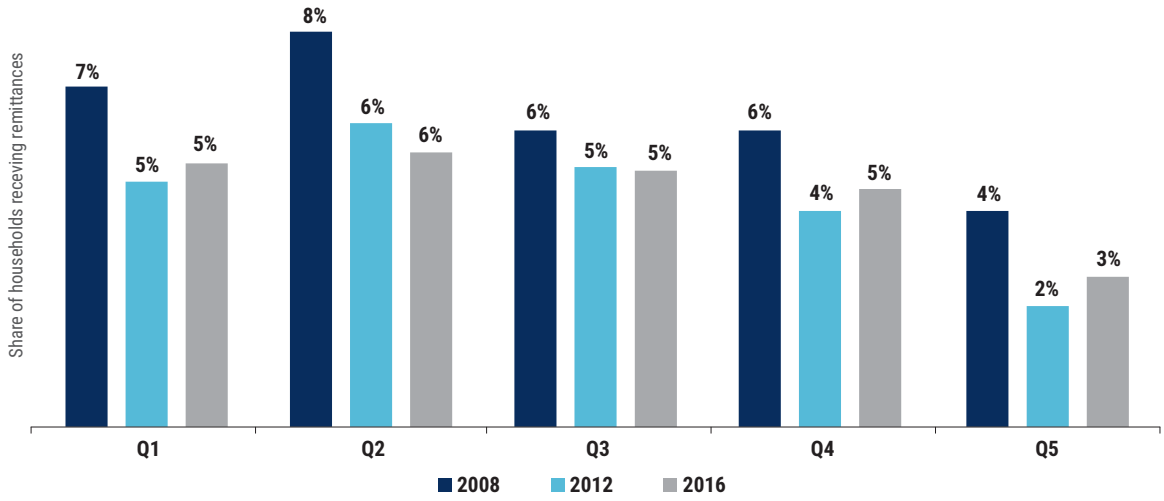
97. **Public transfers have played a role in reducing poverty and inequality over the last decade, but they were not able to compensate for the negative effect of falling labor income.** Between 2004 and 2014, labor income in Mexico fell, explaining 10.6 percent of the increase in poverty (Figure 54). Social programs, including Prospera, Seguro Popular, and Programa de Acceso al Financiamiento para Soluciones Habitacionales have expanded throughout the years, significantly contributing to improved access to health care, affordable housing and education for the poor, and providing financial support through cash trans-

91 National Institute of Statistics and Geography data. The Gini value for 2016 equivalent to 44.8 is not strictly comparable with the historical series because of a methodological change in the household survey of 2016. In 1996 the average income of the richest quintile was 30.3 times that of the lowest quintile before transfers; by 2014, the difference had dropped to 14.4 times. When taking transfers into account, the 5th quintile took home 12.3 times the income of the poorest quintile in 2014, in comparison with 20.3 times in 1996. This reflects positively on the progressive impact that cash transfers have had in slightly decreasing inequality since the early 2000s.
92 See INEGI (2016a).
93 2014 data from tabulations of Equity Lab, Team for Statistical Development, World Bank, Washington, DC, based on data in SEDLAC (Socio-Economic Database for Latin America and the Caribbean).

Figure 55. Annual growth of remittances in Mexico, 2000-17

Source: Banco de Mexico 2017.

Figure 56. Share of households receiving remittances by quintile, 2008-16



Source: World Bank calculations using data of INEGI.

fers. They have played a mitigating role, driving most of the poverty reduction (63.3 percent of the reduction). An increase of the proportion of households with members in the working age population, and a lower dependency ratio have also contributed to a decrease in poverty.

98. **Remittances played an important role in poverty reduction during previous decades, however, their importance has diminished since the global crisis in 2009.** The flow of remittances in Mexico is strongly associated to the economic performance of the U.S economy. Until 2007 remittances rose significantly, but with the global financial crisis the annual growth rate of remittances fell sharply -reaching negative levels- and it is only after 2013 that they have experienced sustained recovery. Even then, they are far from the growth experienced in the early 2000s (Figure 55.). The share of households receiving remittances dropped between 2008 and 2016 for every income quintile. In particular, households in the bottom 40 experienced the largest reduction (Figure 56). For households receiving remittances in the bottom 40, this flow of income represented 35 percent of their total income in 2008, but in 2016 this share was reduced to 27 percent. This had negative repercussions in terms of poverty reduction.

99. **There is evidence of intergenerational mobility in education and occupational status, although with unequal patterns by geographic region.** A recent study using data of the ESRU Social Mobility Survey (EMOVI) shows that 48 percent of the children of parents in the lowest quintile, do not move to the next quintile when they grow up. There is also a regional pattern: the degree of social mobility is higher than the national average in the North and North-Central regions of Mexico, similar to the national average in the Central region, and lower than average in the South. The children of poor parents (i.e. parents in the 25th percentile rank in the national distribution of wealth of their generation) achieved greater than average progress if they grew up in the North region, and smaller than average progress if they grew up in the South region. Relative intergenerational social mobility

in education is somewhat larger than that estimated for the case of wealth, but it shows the same regional pattern. The same results are found for the case of occupational status.

100. **Intergenerational mobility processes are unequal for men and women, and for rural and urban population as well.** For example, parents' education and occupation, as well as living in rural areas are the circumstances that explain most of the inequality in access to quality education in Mexico, suggesting that important barriers remain for intergenerational mobility. In terms of quality of education, Mexico is among the lowest ranking OECD countries, especially in math and science with large differences in performance based on gender and socio-economic status. In terms of the wealth dimension, women have a greater probability of remaining in lower strata when they originate from that strata and have fewer options than men for remaining in higher strata, even when those women are born in the upper strata. Unlike men, the participation of women in the labor market seems to be conditioned by the socioeconomic conditions of their households or origin. In particular, a higher educational attainment of a woman's father is correlated with a greater likelihood of her participation in the labor market.

3.2 Trends in productive inclusion

3.2.1. Human capital: access to education is near universal but student performance lags behind

101. **Mexico is close to achieving universal enrolment in primary and lower secondary education, however, enrolment rates in upper secondary education remain low.** During the transition from lower to upper secondary, the enrolment rate of the population between 15 and 19 years old falls to 55.6 percent – the lowest among OECD countries, at almost 30 percentage points below the OECD average[94]. About 55 percent of dropouts are male, and dropout rates are larger in urban areas at 15.2 percent (while in rural areas it is 11.9 percent).[95] A potential explanatory factor behind the fall in enrolment and drop-out rates has been pointed out as the limited ability of the basic education system to develop minimum cognitive skills, which, at some point, make advancing throughout the system progressively challenging.[96] A reduction of a standard variation in test scores in the sixth grade reduces the probability of graduating from upper secondary by 5.5 percentage points; while higher test scores have a large relationship with student's likelihood to finish secondary school on time. In addition, pressure to generate income soon and a relative high demand for low-skilled labor in the informal sector, raises the opportunity cost of remaining in school. As a result, tertiary education participation rates remain low (only 16 percent of the population between 25 and 64 years) and concentrated in the households at the top of the distribution. While 44 percent of the children in the top income quintile of the distribution are enrolled in tertiary education, only 15 percent of the children in the bottom 40 are enrolled. Mexico has one of the lowest completion rates in higher education of the OECD countries, with only 25 percent of the population obtaining a degree.

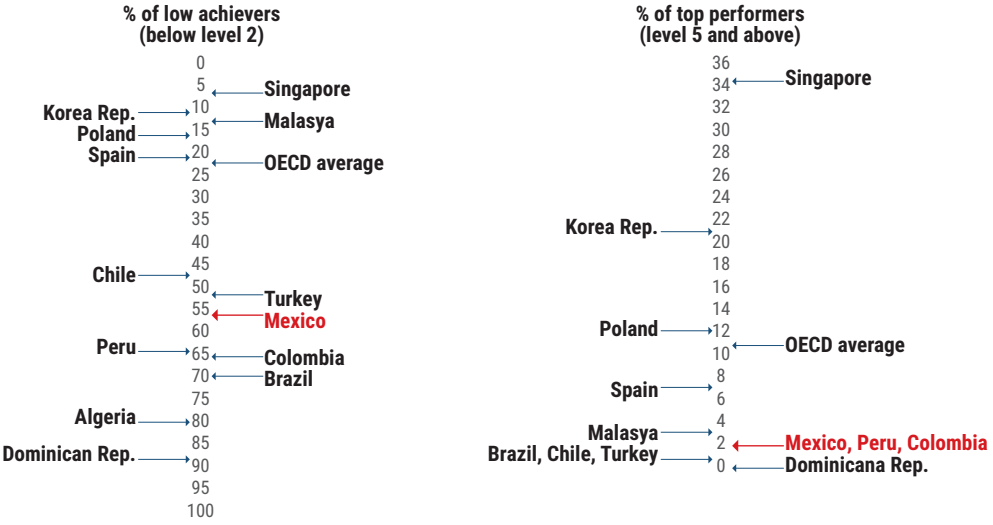
102. **Low and highly unequal outcomes in learning at all levels of the system are key challenges ahead.** Approximately half of the students graduating from primary education have insufficient proficiency in math and language/communication as measured by the national PLANEA-ELSEN test. Differences in learning outcomes by type of school are stark: the proportion of insufficient proficiency among private schools is 13 percent, among general public school it is 51 percent, among community schools it is 70 percent, and among indigenous schools it is 80 percent.[97] The education sector remains characterized by disparities between students from households at different income levels.[98]

103. **The results from PISA 2015 show that only half of the 15-year olds in Mexico obtain the necessary skills to participate effectively and roductively in society and in the labor market.** Although the large majority of the 15 year olds in Mexico are enrolled in the education system, Mexico performs below the OECD average in science, reading, and mathematics.[99] Mexico has a larger male-female score gap than the OECD average: boys outperformed girls in science by 8 score points compared with 4 points in the OECD average[100]; while similar percentages of boys and girls are low and top performers in science. In all three domains, less than 1 percent of students in Mexico are top performers while around 8 percent of students across OECD countries are top performers in science, 10.7 percent in math and 8.3 in reading (Figure 57). Educational outcome also varies substantially across regions, e.g. the populations of Mexico City and Nuevo León have an average of 10.5 and 9.8 years of education respectively, while the average for Chiapas is just 6.3 years. Children in southern Mexico not only spend fewer years in school, they also learn less than their peers. In the 2017 PLANEA test, roughly three-quarters of students finishing lower secondary (grade 9) in Guerrero and Tabasco were not adequately proficient in math, compared with about half in Puebla and Mexico City.

104. **Improvements in early childhood education access and quality will also be critical.** Mexico shows one of the highest average ratio of pupils to teaching staff and to all contact staff (teachers and teaching aides) in pre-primary

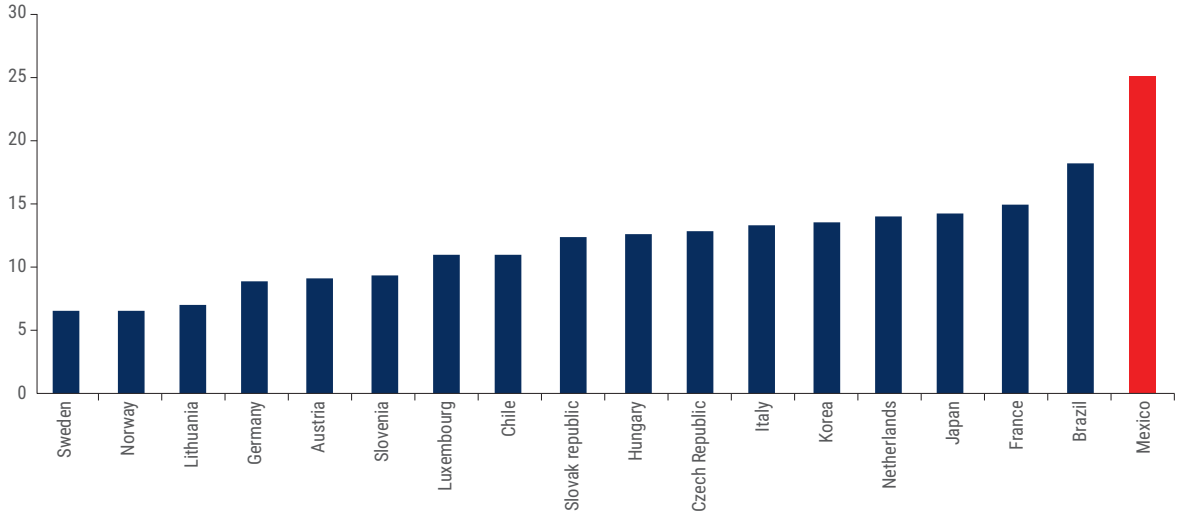
94 OECD (2017).
95 National Survey about Dropouts in Upper Secondary Education 2010–11, *Encuesta Nacional de Deserción en la Educación Media Superior.*
96 de Hoyos et al. (2018).
97 Educational indicators Bank (*Banco de Indicadores Educativos*), RE01a. Share of students that obtain the educational achievement level (*insufficient)* in the areas evaluated in the PLANEA-ELSEN (2015) tests.
98 World Bank (2016).
99 In science, Mexico scores 416 points, compared with the OECD average of 493; in reading the country scores 423 points, below the OECD average of 493; while in mathematics Mexico's score is 408, below the OECD average of 490.
100 Refers to scores of 15-year-old female and male students on the PISA 2015 science literacy scale.

Figure 57. Percentage of students in the bottom and top levels of performance in math, PISA 2015



Source: World Bank calculations based on PISA 2015.

Figure 58. Children-to-contact staff (teachers and teachers' aides) ratios in pre-primary education services, 2015



Source: Education at a Glance 2017, OECD.

education services (public and private) among OECD and peer countries (Figure 58). Moreover, the child-to-contact staff ratio in early childhood educational development services is 25, while the average among OECD countries is around 14.[101] Although imperfect and restricted to only one single aspect of quality, the child-to-staff ratio gives at least some quantitative indication of the frequency of contact between staff and children. Quality provision of early childhood education and care is fundamental to reduce the impact of family background on an individual's life chances to break the cycle of transmission of disadvantages from one generation to the next.

105. **Despite low unemployment rates in Mexico, there is a considerable group of the population that remains available but discouraged to search for a job.** The working population (ages 15 to 65 years old) is composed roughly of 82 million people, of which 63.2 percent (52 million) participate in the labor market, while the remaining 36.8 percent (30 million) does not participate. Unemployment in Mexico only reaches 3.6 percent (1.8 million) of the labor force. However, 16.1 percent (5 million) of those who are outside the labor force, showed their discouragement in the search for employment in the same period. The employed population in the country is around 50 million, comprised mostly by salaried workers (35 million) and self-employed workers (10 million). The remaining 9.1 percent is made up by employers and unpaid family workers, who share this rate in equal proportions (Figure 59).

106. **Seven out of ten Mexicans who migrate abroad report doing so because of work reasons.** The strength of the U.S

101 https://www.oecd.org/els/soc/PF4-2-Quality-childcare-early-education-services.pdf.

Box 5. The high and rising incidence of noncommunicable diseases in Mexico is associated with substantial economic costs and particularly pernicious effects on the poor

An aging population and changing lifestyle factors are driving an increase in chronic noncommunicable diseases and degenerative conditions, which account for more than 75 percent of total mortality in Mexico. Diabetes and cardiovascular disease alone are responsible for more the 33.4 percent of mortality in adult population. In 2015, the prevalence of diabetes among the population ages 20–79 years was 15.8 percent, which is the highest rate in the OECD and more than twice the OECD average (7 percent). The north and central regions, along with urban areas, have the highest prevalence of diabetes. Under current trends, the population ages 50 and older diagnosed with diabetes is expected to increase from 19.3 percent to 34.0 percent by 2050.

A risk factor associated with diabetes and cardiovascular disease is excessive weight. Mexico has one of the highest overweight rates and the largest proportion of obese children in the world. Estimates from the 2016 National Health and Nutrition Survey reveal that 72.5 percent of the population older than 20 and 33.2 percent of children ages 5–11 are overweight. Sedentary behavior and physical inactivity have grown among adults. And in 2016, 83 percent of children and adolescents (10-14 years) did not fulfill the weekly amount of physical activity recommended by the World Health Organization. In addition, evidence suggests that hypertension, a significant risk factor for cardiovascular disease, is increasing, in parallel with obesity among children and adolescents. Children and adolescents ages 12–18 show higher prevalence rates of hypertension (14.1 percent) compared with their counterparts in China and India (5.2 percent and 10.1 percent, respectively).

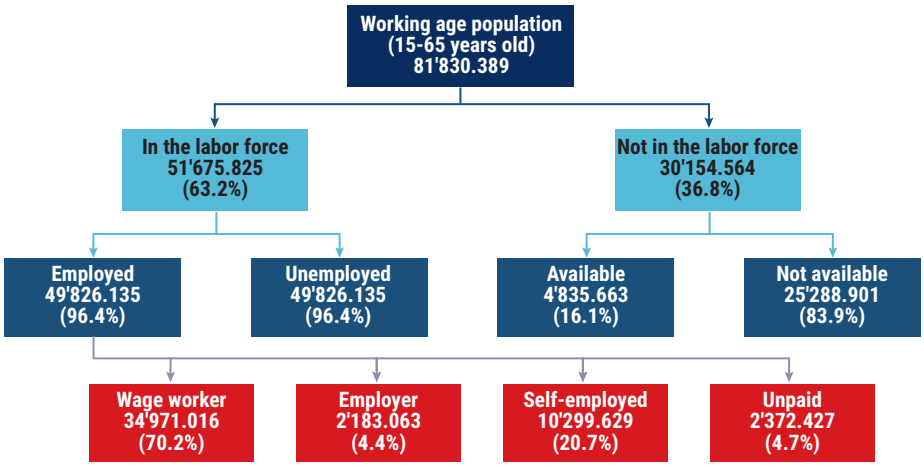
The costs associated with primary obesity–related diseases are projected to increase from US$880 million in 2013 to US$1.2 billion by 2030, with intensifying pressure on the health care system. The direct and indirect costs of diabetes and its complications have been estimated to account for 2.3 percent of GDP. A related study projects the annual costs of diabetes to the Mexican economy (including direct and indirect costs) at 2.6 percent of GDP in 2018.

The rising incidence of noncommunicable disease also represents a risk for human capital formation. Noncommunicable diseases have direct and indirect costs in time, productivity, and income loss by patients and caregivers, as well as negative impacts on household members, such as diminished food consumption, increases in school absenteeism, and decreased expenditures on education, which can have long-lasting impacts on human capital formation.

People with diabetes are prone to additional health complications and loss in productivity and earnings. In Mexico, diabetes is the leading cause of premature retirement, blindness, and renal failure, while mortality rates tend to be higher among women.a Among the poor, diabetes and cardiovascular disease represent a particularly acute employment constraint. Men blue-collar workers who suffer from cardiovascular disease experience an average 1.17 sick days more per month. Not only is the prevalence of diabetes greater in low-income groups, but it affects their labor market outcomes more negatively. Self-reported diabetes is associated with a lower probability of employment, and the association is stronger among the poor, particularly among poor men.b In addition, the negative impact of diabetes on the probability of employment is stronger within the agricultural sector and self-employment, where the poor are concentrated.

Sources: González-Pier et al. (2016); OECD (2015); González-González et al. (2016); Medina et al. (2018); Dyson et al. (2013); Barraza-Lloréns et al. (2013); Arrossi et al. (2007); Rull et al. (2005).
a. The leading cause of mortality in Mexico in 2005–09 was diabetes mellitus (PAHO 2012; data from Secretaría de Salud, Mexico). The leading cause of death among women is diabetes; among men, it is cirrhosis and other chronic liver diseases (INEGI 2010). While the mortality rate tends to be higher among women, rates were higher among men in Baja California Sur, Colima, Mexico City, Michoacán, and Quintana Roo (Secretaría de Salud 2010).
b. Seuring et al. (2016) find that diabetes in Mexico decreases employment probabilities by 10.0 percentage points among men and 4.5 percentage points among women.

Figure 59. Composition of the workforce, 2017



Source: ENOE 2017-II.
Note: The working-age population is defined as the population ages 15–64.

Box 6. Potential distributional effects of automation in Mexico

Mexico, among a few other countries, did not experience real wage growth associated with increased use of robots. Automatization in Mexico has been linked with a drop in unit labor costs and a more rapid decline in activities relying relatively more on robotic automation than in industries with low robot density. In consequence, the automatization phenomenon has mostly rewarded capital and contributed to the downward trend in the share of labor income in the country.[a] Moreover, real wages in the highly automated automotive sector dropped by 1.6 percent between 2011 and 2015, while real wages expanded by 1.5 percent in manufacturing as a whole. These findings suggest that the overall distributional impact of robots may be adverse.[b]

Significant output effects because of technological adoption can lead to an overall positive expansion in employment among both lower-skilled and higher-skilled workers in Mexico.c These output effects are greater in more highly tradable sectors that provide larger output expansion opportunities.[d] However, sectoral effects determine the degree of inclusiveness of technological adoption by Mexican firms on wages. Wages increased in manufacturing.[e] Wages in the service industry declined among both white-collar and blue-collar workers, but especially among white-collar workers.[c] These differences can be explained by the higher risks of the automation of jobs in the service sector relative to the manufacturing sector.[f] Through the continued use of technology by firms, wage inequality was reduced in both sectors as low-skilled workers, rather than being replaced by technology, have become stronger complements of technological adoption.

a. ILO and OECD (2015). b. UNCTAD (2017). c. World Bank (2018). d. For example, in the manufacturing sector, a 10 percentage-point increase in the share of labor using the Internet led to a 11 percent increase in white-collar workers and a 6 percent increase in blue-collar workers relative to a 7 percent increase in white-collar workers and an 11 percent increase in blue-collar workers in the service sector. e. A 10 percentage point increase in Internet use in manufacturing was associated with a 14 percent increase in white-collar wages versus a 16 percent increase in blue-collar wages. f. World Bank (2016).

economy in the 1990s provided an escape valve for workers who could not find a job in Mexico, and the remittances generated by this outflow also supported the local economy. But after the global economic crisis of 2008 and its aftermath -combined with stricter enforcement of U.S immigration laws- a significant decline in net migration flows occurred. Although net migration is expected to increase over the coming years, the flows are unlikely to reach the levels registered during the 1990s.[102]The estimates of international migration show a declining trend in the past decade; while an average of 140 migrants per 10 thousand residents was registered in 2006, for 2010 the number dropped to around 35. The main reason to migrate abroad is to search for a job or because of having already found a job in a foreign country (68 percent), followed by those who report family reunion motives (14.4 percent) or study (12.4 percent).[103]

Financial capital: absence of service and high costs for poor households

107. **The poor and vulnerable in Mexico have limited access to financial services compared with the same economic groups in OECD and Latin American countries.** In the context of the financial sector reform significant progress has been made over the last four years. Credit (as a share of GDP) to the private sector increased and people with bank account increased by more than 10 percentage points due to the reforms. Yet further and more accelerated progress would be needed. As of 2017 in OECD countries, close to 92 percent of adults had an account at a bank, credit union or other type of financial institution. In Mexico, only 35 percent of adults had an account at a formal financial institution in 2017, placing the county toward the lower end in this metric compared with the OECD average, as well as with respect to Latin America and the Caribbean and upper-middle-income countries (on average standing at 54 percent and 73 percent, respectively). The share of adults with an account at a formal institution in fact decreased in recent years, from 39 percent in 2014 to 35 percent in 2017. The disaggregation by gender reflects growing exclusion: while the percentage of adults without a bank account remained constant for men between 2014 and 2017 (at 39 percent), it decreased for women during the same period: from 39 percent to 33 percent. Moreover, differences in participation rates by people in the top 60 percent income bracket and the bottom 40 percent are relatively small in OECD countries (5 percent points of difference; 93.7 percent versus 88.6 percent respectively). In Mexico, on the other hand, there is a significant gap in access between the poorest 40 percent and the richest 60 percent of the population—about a difference of 18 percentage points.[104]

108. **The cost of being excluded from the traditional financial system is high for the poor and vulnerable households as they rely on informal institutions and pay higher interest rates.** Access to financial services in formal banks tends to be low in countries with a high level of informality, among other factors, because of lack of formal documentation. The poor rely on informal money lenders or pawn shops to obtain loans, which charge higher interest rates. Recent reforms in Mexico increased the availability of access to credit. However, the cost of borrowing remains substantially higher in the retail banks targeting low income consumers. For instance, across the main traditional banks, the total annual cost of personal loans[105] in 2017 ranged between 30 and

102 Chiquiar and Salcedo (2017).
103 Based on information from the Encuesta Nacional de la Dinámica Demográfica.
104 Global Findex (Global Financial Inclusion Database), World Bank, Washington, DC, https://globalfindex.worldbank.org/.
105 The Bank of Mexico's total annual cost (Costo Anual Total, CAT) indicator, which must be disclosed by banks, was established as a measure to facilitate the comparison of financial products. The indicator provides the total financing cost of a loan, integrating not only the interest rate but all the elements the consumer will be charged such as annual fees and commissions, among others (Banxico, n.d.)

60 percent; whereas in the largest retail banks, the rate was significantly higher, ranging from 80 to 120 percent.[106]

3.2.2. Natural capital: uneven development in agriculture and forestry

109. **A large share of land in Mexico is highly fragmented, with implications for agricultural productivity.** As classified by the National Institute of Statistics and Geography (INEGI), about 17 percent of total land (32.7 million hectares) in Mexico is agricultural land.[107] A large share of this land is still used for traditional low-value commodities (maize, wheat, beans, etc.). Less than half (43.6 percent) of the agricultural land is privately owned, almost 9 percent is communally owned, and the remaining 47.3 percent is under ejidos.[108] The agricultural sector in Mexico shows a dualistic structure.[109] On one hand is the numerous, low-productivity, small-holder and subsistence sector. According to the 2007 INEGI agricultural census, 63 percent of agricultural employment is on farms of less than 5 hectares.[110] More recently, the 2016 INEGI agricultural census update shows that 51.9 percent of agricultural land holdings are small (0–2 hectares).[111] Land fragmentation has been associated with inefficiencies in crop productivity due to factors associated with inefficient resource allocation, lack of economies of scale, among other issues (see also Box 7).

110. **On the remaining land, there is high concentration.** In 2007, the largest one percent of farms occupied over half (56 percent) of the agricultural land.[112] This was the fifth largest land concentration in the region after Peru (77 percent), Chile (75 percent), Paraguay (71 percent), and Bolivia (66 percent). According to the 2016 "marco censal" update, 2.4 percent of the large producers own 15 percent of the land in Mexico. Large-scale producers, vertically integrated in agribusiness supply chains, are mainly located in the northern states.[113] In the middle of the spectrum are the small to middle-sized producers (5–20+ ha.). Earlier research has argued that this middle group could benefit the most from agricultural subsidies,

Box 7. Agribusiness as an opportunity for productive inclusion

Agribusiness represents approximately 7.5 percent of Mexico's GDP, considering the contribution of primary agriculture, and the food and beverages industries (the agriculture sector alone accounted for 3.2 percent of GDP). In the third quarter of 2017, it employed 9.3 million people with a mean monthly labor income of $4,285 current pesos.a Agriculture and agri-food exports have been a very important source of growth in Mexico, as a result of export expansion and increased domestic commercial production (grains and oil-seeds). Mexico's main agricultural trading partner is the US, receiving almost 80 percent of agricultural exports. Due to its diverse geographic, varied climate, strategic geographic location and labor availability. Mexico is highly competitive in the production of fruits and vegetables and has become the largest exporter of beer worldwide.

Despite its competitive advantages, several impediments constrain growth of the agriculture and agri-food business sector. One of the main structural constraints is the issue of land fragmentation. Although highly competitive farms and agribusiness companies drive sectoral growth, 81.3 percent of the agricultural units (economic rural units) in Mexico are actually equal/smaller than 5 hectares.b Many of these units are worked by semi-subsistence farming households, employing traditional, rainfed production practices, particularly in the central and southern parts of the country. The small size of plots prevents the formation of economies of scale and limits market integration, except in cases where effective farmer organizations are in place. Technological factors also play a major role in determining large differences in agriculture productivity among producers and geographical regions. Furthermore, land under communal ownership (*ejido)* has encouraged conservation of forest but has been less successful on driving higher levels of entrepreneurship around the sustainable use of forest and agriculture land. Increased crime rates in some states, with effects on increasing operational costs, are discouraging investment or even displacing production. Geographic differences in infrastructure, such as between northern and southern states, limit access to markets and reduce competitiveness. Agriculture is highly vulnerable to weather extremes, such as water scarcity in the north, or tropical storms in the southern parts of the country, which can cause extensive damage to crop and livestock production. Overcoming these set of challenges is critical given the importance of the sector for productive inclusion in the country.

a. ENOE (2017). Based on the (NAICS), Agribusiness includes: Agriculture, Forestry, Fishing and Hunting (Sector 11); Food Manufacturing (Sector 311); and Beverage and Tobacco Product Manufacturing (Sector 321). b. SAGARPA/FAO (2013).

106 As of June 2017, the average total annual cost in the following banks was: Scotiabank (32.8 percent), HSBC (34.4 percent), Santander (55.5 percent), and Banamex (56.5 percent), while in the retail banks it was: Bancoppel (80.9 percent), Banco Azteca (104.3 percent), and Banco Famsa (119.3 percent) (CONDUSEF 2017). These rates are, however, lower than those charged by money lenders or pawn shops; e.g. the CAT for a valuation of a piece of gold (4 gr) in Prendamex, a large national pawn shop chain, was 249.8 percent in 2009 (PROFECO 2009).

107 Under the FAO global definition, 53 percent of land in Mexico (106 million hectares) is agricultural land. This definition, however, is less accurate for the country given its type of vegetation and crops; in addition to the fact that the FAO definition groups pastures, crops, and other vegetation together, making its interpretation less straightforward. The SCD thus uses the national official numbers based on the land use and vegetation maps, that is, the INEGI series (see, for example, INEGI 2008, 2016b). The INEGI definition includes the different types of agriculture developed in Mexico, organizing the information under three criteria: land occupation (permanent or nomadic agriculture), temporality of crop, and water supply. The use of the INEGI definition is also consistent with the objective of alignment with national priorities.

108 The *ejido* is an association of peasant farmers, who are owners of common property assigned to them by the State. This form of collective land ownership is recognized by the Political Constitution of the United Mexican States and by the Agrarian Law. The communal land is used for agriculture, where community members individually farm designated parcels and collectively maintain communal holdings.

109 Scott (2010).

110 INEGI (2008).

111 INEGI (2016b).

112 OXFAM (2010).

113 Fox and Haigh (2010).

Box 8. The timber sector: incentives to balance conservation and economic objectives?

Mexico faces the challenge of conserving and sustainably managing its forests while also meeting a growing demand for timber products, which currently exceeds production by a factor of three. Forestry production in Mexico accounted for 0.6 percent of GDP in 2015.a Timber is produced in Mexico from managed natural forests (93.2 percent of the total value), and, to a lesser extent, from commercial forest plantations (6.8 percent). Forest management is an important activity carried out primarily by the owners and holders of forest lands. An estimated 61 percent of Mexico's 66 million hectares of temperate and tropical forests are owned by *núcleos agrarios* (agrarian forest communities). Approximately 53 percent of forest lands with a high productivity potential and 52 percent of forests with average productive potential are found within *núcleos agrarios.* Mexico's system of collective production is unique in scope, maturity, and the impact on local communities. In 2015, approximately 992 community-based forest enterprises (CFEs) were active in the country. Many were located in highly marginalized areas. Over the last two decades, CFEs have flourished. Studies have found that well-run CFEs contribute substantially to local development by creating jobs and economic opportunities, while CFE earnings are reinvested in public services and infrastructure. The success of CFEs reflects the soundness of the legal framework for local ownership and the strong social capital of rural communities, although various obstacles can limit the domestic and international competitiveness of these communities.

Mexico has the capacity to more than double the current production of standing timber (in cubic meters). The rising number of CFEs has not yet been matched by a commensurate increase in timber production. Instead, legal timber production fell from 9.4 million cubic meters in 2000 to 6.1 million cubic meters in 2015, even as domestic demand for timber rose. This trend derives in part from the failure of sectoral incentives to balance conservation and economic objectives. In 2015, with almost 1,500 harvesting permits granted for forest exploitation in the country, extraction occurred in only 46 percent of the approved forest land area. Pinewood accounts for 74.8 percent of the total volume of timber produced in natural forests. In the areas that are most accessible, Mexico has the potential to produce 60 million cubic meters of roundwood at the national level, while the priority areas identified by CONAFOR (watersheds, as well as the states of Campeche and Quintana Roo), could produce up to 16 million cubic meters of roundwood.a

CFE production costs in Mexico have been too high compared with other countries, especially low-cost producers, such as Brazil and Chile, or even small private landowners in the U.S. south and Pacific Northwest. Mexican timber exports have potential competitors in these three countries, as the types of timber production they have are comparable to Mexico's.b Chile and the United States have coniferous forests, while Brazil has tropical forests as well as extensive, high yield plantations.c Table 3 presents the macroeconomic data of the forestry sector in the four countries.

Table 3. International comparison of the forestry sector: Employment, GDP, and balance of trade

Indicator	Mexico[d]	Brazil[e]	Chile[f]	United States[g]
Forest GDP, US$, million, 2012 prices	6,135	22,938	5,553	102,600
Trade balance, US$, million, 2012 prices	−5,973	5,520	3,138.52	−14,041
Employment in the sector, total	373,873 (2015)	508,084 (2012)	78,668 (2014)	802,050 (2015)
Productivity per worker (US$/worker)	16,409	45,146	70,587	127,920
Exploitation costs, US$ per cubic meter	39 (max. 119, min. 9)	7–15 (South America)	7–15 (South America)	12 (south)
Forest area, 1,000 hectares	65,205	543,905	15,536	225,993
Wood volume from forests, million cubic metersh	2,871	71,252	2,486	30,838
Total forest productivity, US$, hectare	570.23	359.65	941.18	1,123.28

Sources: World Bank data; IMCO 2015.
a. IMCO (2015) and World Bank (forthcoming).
b. Cubbage et al. (2015).
c. IMCO (2015); World Bank (forthcoming).
d. INEGI.
e. ABRAF (2013);
f. Forestry Institute, Chile (2015).
g. US Bureau of Economic Analysis, and US Bureau of Labor Statistics.
h. Total amount of wood in each country according to the density of forests, that is, the total stock of wood in cubic meters.

often unable to benefit from programs such as Progresa, while not being large enough to attract the larger agricultural subsidies.[114] These producers receive some support from programs such as PROAGRO[115] but often lack the complementary inputs, which tend to be received by larger producers.[116]

111. **The disparities in agricultural development between the North and the South are increasing; while gender inequality remains.** The contribution of primary agriculture to total GDP was 3.2 percent in 2017, but the national average conceals tremendous regional disparities. In 2015, five states in the North/Center (Jalisco, Michoacán, Sinaloa, Chihuahua and Sonora) contributed 50 percent of Mexico's agricultural GDP, while states in the South, which are home to a large proportion of traditional agriculture producers (in number) contribute minimally to total agricultural GDP. In Oaxaca, for example, agriculture (primary sector) has relatively little participation in state GDP (6 percent) and little contribution to the national agriculture GDP (2.7 percent). Yet, 32 percent of employment in Oaxaca falls within the primary sector. This signals the importance of agriculture to livelihoods, but also the challenge of enhancing the value added generated by the sector. Moreover, women farmers own only 10 percent of the land that they work and are subject to higher productive exclusion.[117] Indeed, an important factor affecting rural women is their disadvantage in land tenure, inheritance rights, limited access to decision making processes, and use and control over natural resources. Although inheritance laws in Mexico treat men and women equally, land inheritance in 2011 was about four times higher among sons than among daughters.[118]

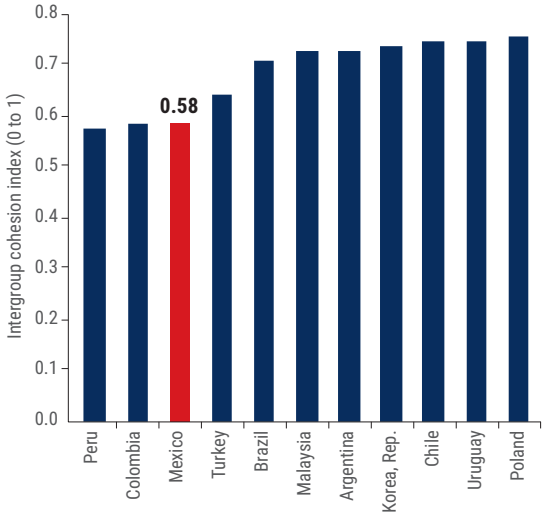
112. **Renewable natural resources, such as forests, provide a particularly important source of income for the poorest population.** Due to its geographical location and topography, Mexico has a great variety of ecosystems and biological diversity. Mexico's forests contribute to the overall economy through the provision of critical ecosystem services that sustain key sectors and rural and urban areas, such as mitigating soil erosion, maintaining soil fertility, supporting the infiltration of water, and providing raw material for productive sectors and natural habitats for biodiversity. The country's forests are also an important sink for carbon dioxide. Forests cover around 45 percent of the national territory—around 88 million hectares.[119] About 60 percent of forests belong to rural communities. About 12 million people live in forest areas; of this population, 88 percent live in highly marginalized localities, and 62 percent live in poverty.[120] More than half of forest dwellers live in conditions of extreme poverty, with limited access to health services, education, and accessible forest tracks. In 2010, the percentage of inhabited private dwellings without sewage systems was four times higher in forested areas than in the rest of the country.[121] Areas with high poverty and marginalization also show high rates of deforestation and, at the same time, dependency on natural resources. In 2008, 57 percent of the rural household in the poorest quintile obtained income from extracting natural resources. However, deforestation has reduced the extension of forest over the past five decades, which together with degradation has been driven by proximity to cities and rural population centers; topography and soils appropriate for agriculture are the main correlates. Especially in southern Mexico, where poverty levels are highest, the highest rates of forest loss (tropical dry and tropical rain forest) can be observed (with 32 percent of deforestation of the total of 9.5 million hectares lost between 1993 and 2012).[122]

3.2.3. Social capital: low civil engagement and social cohesion prevents productive inclusion

113. **In Mexico's society, civic engagement, trust, social network support and other measures typically used to approximate social capital[123] are comparatively low.** Based on different measures used in the literature, it is often argued that social capital is weak in Mexico. According to an OECD report, social support has fallen in Mexico over the past decade. While 88 percent of people reported having a friend or relative whom they could count on in 2005-07, by 2014-16 this share had dropped to 80 percent -which is considerable below the OECD average of 89 percent. Moreover, voter's turnout, a measure of citizens' participation, was 63 percent in the recent election. Based on the Indices of Social Development[124], Mexico lags behind in terms of group cohesion, and measures of safety and trust. Intergroup cohesion, which measures ethnic tensions and discrimination, puts Mexico among the worst rankings compared with its peers (Figure 60). In terms of civic activism, measuring the use of media and protest

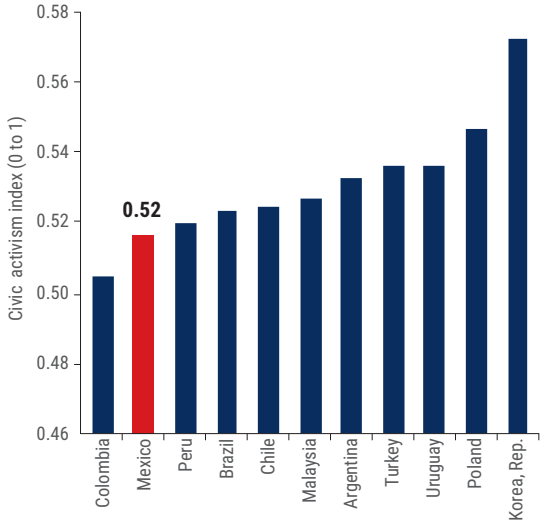
114 Scott, 2010
115 In 2014, the Productive PROAGRO program succeeded PROCAMPO, maintaining the beneficiaries who were registered in PROCAMPO but re-coupling payments to production (payments are to be used to cover production expenses). PROAGRO payments are differentiated by producer type, with subsistence farmers receiving a higher payment compared to transitional and commercial farmers (OECD, 2017). For example, in the Yucatan Peninsula as a whole, 87 percent of the agricultural producers who benefited from PROAGRO cultivate 5 hectares or less (Mardero et al. 2018).
116 ASERCA, for example, promotes the commercialization of crops through contract farming, production guarantees, risk coverage and incentives for storage. The agency has a budget of about MX$10 billion per year, and reaches around 260,000 beneficiaries yearly, many of whom are large farmers. The poorer regions in the South often have operated at scales too small to participate in ASERCA's incentive programs. A recent World Bank initiative is looking to expand ASERCA's role in providing support for the productive and financial inclusion of small and medium farmers (World Bank, 2016).
117 World Bank (forthcoming)
118 World Bank (2011).
119 This definition of forests covers low dry deciduous forests, as well as coniferous forests and some types of xeric shrublands
120 World Bank (forthcoming).
121 World Bank (forthcoming).
122 World Bank (forthcoming).
123 Built by the combination of formal and informal social engagement and exchange, social capital is frequently conceptualized as a mechanism that "gives rise to stocks on which people can draw" (Rakodi 2002).
124 The International Institute of Social Studies produces the Indices of Social Development (ISD), which brings together measures of 200 indicators synthetizing them along 6 dimensions of development: (i) civic activism, (ii) clubs and associations, (iii) intergroup cohesion, (iv) interpersonal safety and trust, (v) gender equality, and (vi) inclusion of minorities. The indices are produces for 193 countries from 1990 to 2010 and uses a method of 'matching percentiles' to aggregate the indices.

Figure 60. Intergroup cohesion index, 2010



Source: International Instituto of Social Studies, Indices of Social Development, 2010, http://www.indsocdev.org/data-access.html.

Figure 61. Civic activism index, 2010



Source: International Instituto of Social Studies, Indices of Social Development, 2010, http://www.indsocdev.org/data-access.html.

behavior, Mexico ranks much below its aspirational peers (Figure 61).

114. **Low levels of social capital accumulation affect the poor disproportionately, as they rely more on informal networks.** The implications of having relative low levels of social capital affects the whole population but especially the poor as networks and social relationships could serve as mechanisms to reduce uncertainty in the presence of market failures. For example, under asymmetries of information people resort to their network to access job opportunities, credit and financial resources and so on. For instance, there is evidence that poor farmers in peri-urban areas in Mexico, expand their chances to improve their poverty status as social capital increases[125].

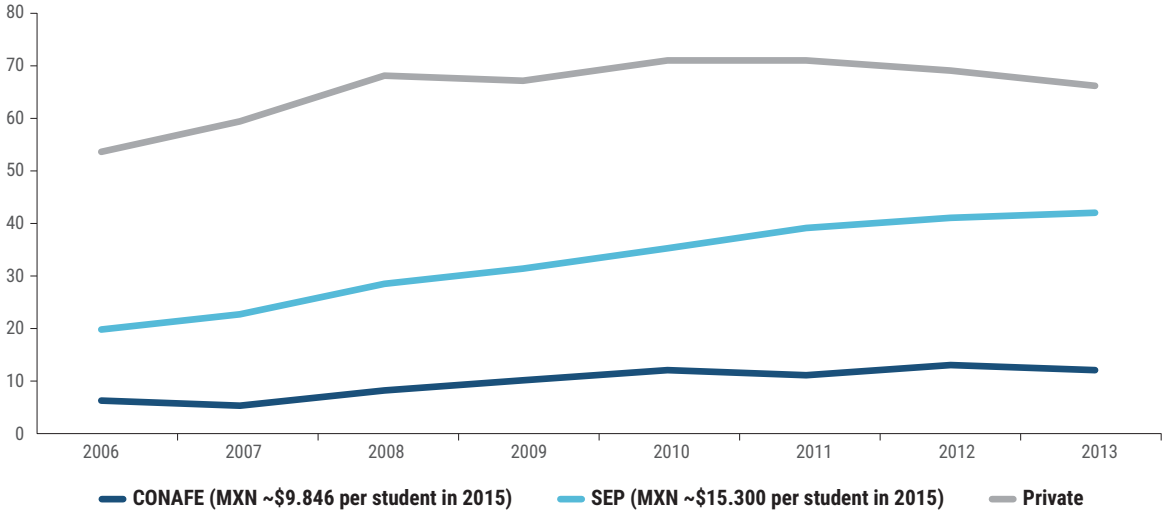
3.3 Unequal service delivery amplifies inequalities

115. **Mexico's current education and health spending patterns exacerbate existing socioeconomic inequalities.** Beginning with the former, richer and larger states in terms of population and number of students tend to have higher public education spending.[126] Spending is also largely directed toward urban centers and subsystems, where urban schools exhibit significantly better outcomes than their rural peers (Figure 62). Results from the 2017 Planea test show that upper secondary students in urban areas score significantly higher than students in rural areas in math and language.[127] These disparities widen the economic gap between Mexico's urban and rural areas. Moreover, the allocation of investment in school facilities, teacher training and educational supplies across states compounds Mexico's already substantial regional inequalities. States efforts to channel their own resources to education are an important component in actual spending that gives them the ability to increase the expenditure by pupil. This has contributed to polarize public spending in education among states.[128] A regressive distribution of financial resources contributes to the positive correlation between school quality and household income level. In relatively affluent areas such as Mexico City and Nuevo León, investment per student at the basic education level is above the national average (MX$20,000 per year), whereas in Guerrero, Chiapas, and Oaxaca, investment per student is significantly below the national average (Figure 63).

116. **Low efficiency and limited coverage of secondary education contributes to the uneven distribution of education services, perpetuating socioeconomic inequalities.** Although the primary and lower secondary enrollment rates have improved over the last 30 years, retention rates at the upper secondary level and overall educational attainment indicators continue to lag those of comparator countries.[129] Spending in primary education represents the greatest proportion of public spending in education across states. In contrast, total expenditure and per-pupil expenditure in secondary and tertiary levels is low compared with the needs and coverage goals set for coming years.[130] Moreover, while tertiary education is intrinsically expensive, and its distribution is almost always regressive,

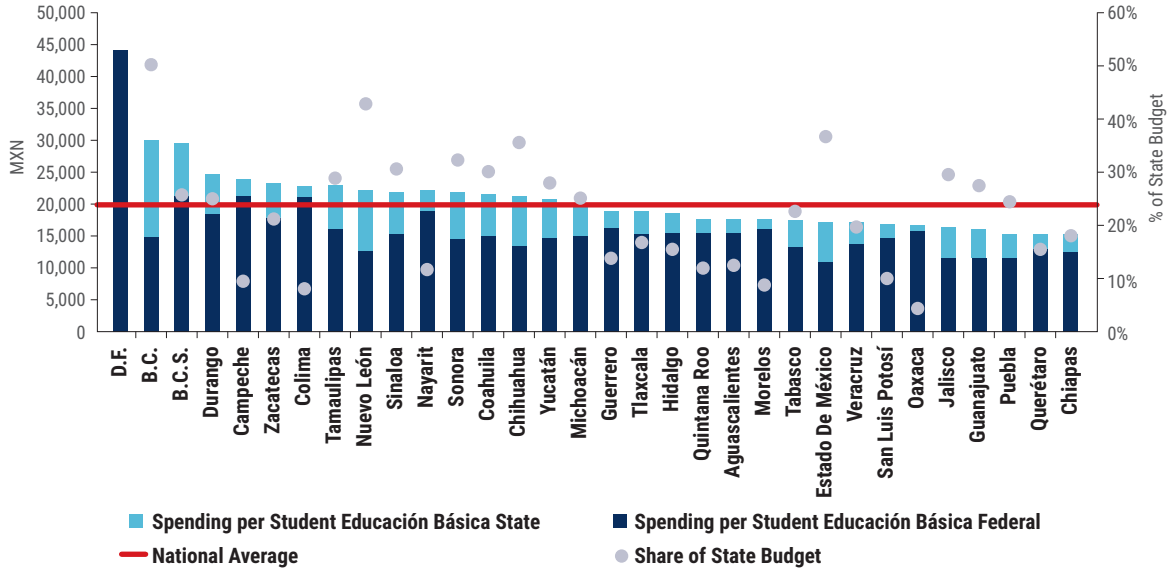
125 Méndez-Lemus and Vieyra (2017).
126 CIEP (2016).
127 Students in the third year of secondary school in urban areas scored on average 507 in language and communication and 503 in math, compared with students in rural areas, who scored 452 and 475, respectively. INEE, PLANEA 2017.
128 Students in the third year of secondary school in urban areas scored on average 507 in language and communication and 503 in math, compared with students in rural areas, who scored 452 and 475, respectively. INEE, PLANEA 2017.
129 Only 6 out of 10 students who enroll in upper secondary ultimately graduate, and graduation rates are even lower among students from poor and vulnerable households.
130 World Bank (2016).

Figure 62. Percentage of students with sufficient reading skills (ENLACE), by spending source, 2006–13



Source: World Bank calculations using ENLACE.
Note: SEP (*Secretaría de Educación Pública*) refers to Mexico's Secretariat of Public Education, CONAFE (National Council for Education Development) is a division of SEP which provides educational services to rural, small and indigenous areas.

Figure 63. Spending per student at the basic education level by state, 2013



Source: World Bank 2016b.

it appears that tertiary spending is becoming increasingly regressive over time.[131]

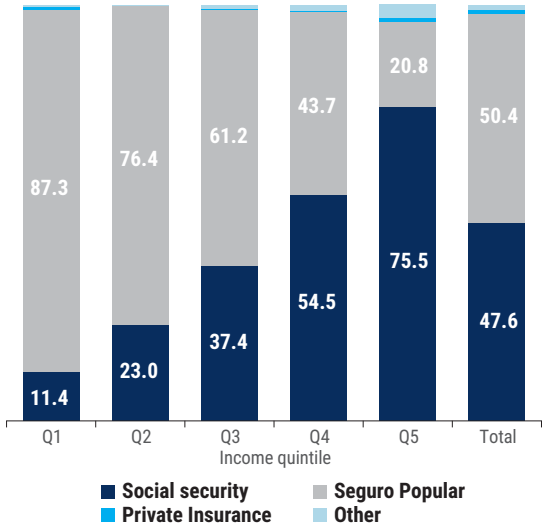
117. **The gross enrollment rate in tertiary education in Mexico is one of the lowest among relevant comparators.** Estimated at 30 percent in 2014, gross enrollment rate in tertiary education is significantly lower than Argentina (70 percent) and Chile (83 percent). Among the many reasons of why about half of the students completing upper-secondary education enroll into tertiary education is the fact that good quality public universities, which are typically tuition free, are close to saturation, while a significant percentage of the students face liquidity constraints to enroll into private universities. There are more than 5,000 post-secondary institutions in Mexico, of which around 3,000 are privately operated.[132] Student lending (currently with a penetration rate of around 1 percent of the total market), has potential to reduce liquidity constraints for middle-class students willing to enroll into private universities. Given the limited role of the government in student lending and if enrollment in tertiary education were to continue its historical trend of around 5 percent per year, the student lending market would be insufficient to increase enrollment into private tertiary education in the margin. Mexico has been classified, along with countries such as South Africa, in the middle rung in terms of the student loan market maturity, with growing awareness and uptake/utilization, but behind mature markets."[133]

131 Scott (2010).
132 Parthenon Consulting based on National Sources; IFC analysis.
133 IFC (2015).

118. **Access to health services has expanded, although Mexico's health sector remains under-resourced.** Between 2004 and 2014, public health spending as a share of GDP rose by approximately 43 percent, including in terms of catastrophic expenditure. This contributed to a reduction in out-of-pocket spending, which fell from 55 to 44 percent of total spending between 2003 and 2014—although it remains a source of inefficiency and barrier to health among poor households. Notwithstanding its expansion, health spending in Mexico is still low by international standards. Despite reaching 6.3 percent in 2014 (up from 4.9 percent in 2000), total health expenditure in Mexico lies at half of the OECD average, and below the Latin American average of 7.2 percent. Public sector health spending accounted for 52 percent of total health spending, versus the OECD average of 70 percent and below most regional comparators. Also, as a result of reforms, insurance coverage expanded substantially. By 2012, *Seguro Popular* (which was established in 2003) covered 52.6 million Mexicans previously lacking health insurance (Figure 64). The trend in increased access has continued since then. The share of population without access to health care was halved in less than a decade, from 38.4 to 15.5 percent between 2008 in 2016, according to national statistics.[134] Since 2000, maternal mortality has fallen by 50 percent, and infant mortality by over 40 percent. Moreover, between 2004 and 2014, catastrophic health spending by households in the poorest income quintile declined by 11 percent, and impoverishing health spending fell by 54 percent.[135]

119. **Yet, the available resources for health are not spent efficiently.** The impact of the budget tends to be weakened by a combination of allocative and technical inefficiencies, often resulting in disparity in health outcomes. The fragmentation of the health care system is a key issue, limiting the ability of providers to exploit economies of scale, and contributing to an unequal service delivery, expenditure inefficiencies and the suboptimal use of sectoral assets. The quality of service of the different public health insurance scheme varies, offering different entitlements to their beneficiaries, which results in highly uneven access to care that often exacerbates underlying socioeconomic inequalities. Differences in health outcomes are reflected, for instance, in the gaps in the quality of care for myocardial infarction mortality.[136] Moreover, the resources that finance each insurance scheme are pooled separately, limiting the possibilities of distributing risks between the rich and the poor. A significant proportion of resources in the health sector goes to administrative and insurance costs (around 9 percent, the largest proportion in the OECD countries). Additionally, Mexico has one of the highest out-of-pocket (OOP) share of total health care spending among OECD countries (41 percent versus the OECD average of 20.3 percent), which may signal a failure of the system to provide

Figure 64. Insurance coverage, by income quintile, 2016



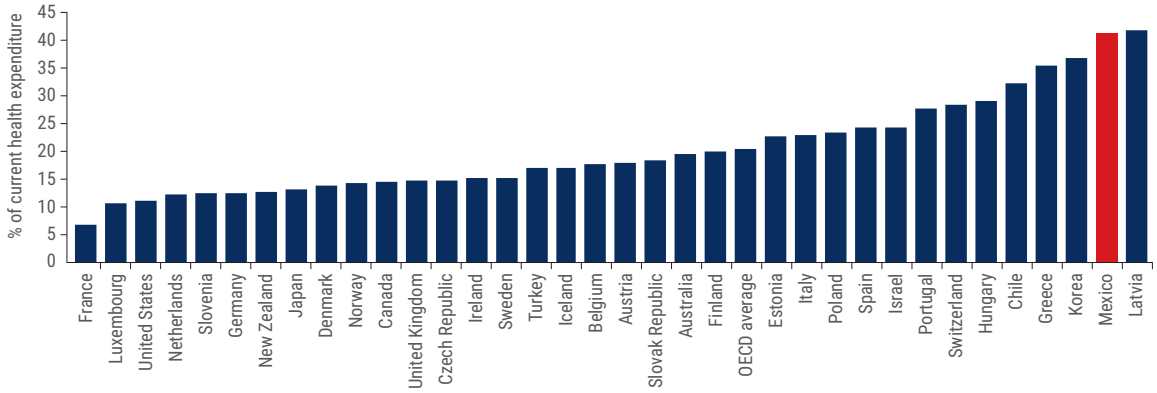
Source: World Bank.

effective insurance and high-quality care (Figure 65). This is a regressive outcome that poses an obstacle to care, especially among lower-income households. About 45 percent of total ambulatory OOP health costs are borne by households in the first three income quintiles, and 28 percent are borne by noninsured households across all income quintiles, especially noninsured households in quintile four.[137] Also, the poorer quartile of the population spends a significantly higher (37 percent) proportion of their income on health than the richest quartile. As a large share of total health spending is financed OOP, the need for expanded risk pooling becomes even more critical to improve the distributional equity of the health care system.[138] In addition, a more efficient use of resources is made even more urgent by the fact that expenditures are expected to grow organically in the country due to factors such as population ageing and epidemiological transition.

120. **Regional disparities in health continue to exist in Mexico, including in the private health sector.** The density of doctors is 3.9 per 1,000 in Mexico City, but just 1.3 in Chiapas. Mexico City has a ratio of over 11 health care workers, physicians and paramedics per 1,000 people, compared with less than 4 per 1,000 in Chiapas. Only 10 of 31 states in 2015 had a nursing density above the national average. Regarding private health care, the sector is small but increasing. Although it still shows low penetration, the expenditure on private health insurance is rising, at around 6-7 percent of the population. The private sector accounts for two-thirds of hospitals but only one-third of all beds (just 6 percent of private hospitals have more than 25 beds). Private hospitals are concentrated in larger cities, and wealthier areas, which

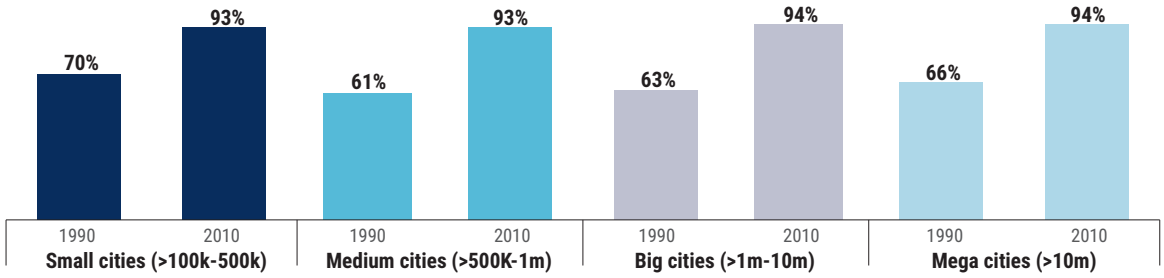
134 See "Medición de la Pobreza: Evolución de las Dimensiones de la Pobreza, 1990-2016," Consejo Nacional de Evaluación de la Política de Desarrollo Social (National Council for the Evaluation of Social Development Policy), Mexico City, https://www.coneval.org.mx/Medicion/Paginas/Evolucion-de-las-dimensiones-de-pobreza.aspx; "Medición de la Pobreza: Evolución de las Carencias Sociales 2015 y su Comparativo con la Serie 2010-2014," Consejo Nacional de Evaluación de la Política de Desarrollo Social (National Council for the Evaluation of Social Development Policy), Mexico City, https://www.coneval.org.mx/Medicion/EDP/Paginas/Datos-del-Modulo-de-Condiciones-Socioeconomicas.aspx.
135 González Block and Martínez (2015).
136 Mortality rates within 30 days of hospitalization for cardiac infarction vary from 3 percent among high-income, mostly privately insured patients with access to private care to 6.5 percent among IMSS-insured patients but reach 59 percent among patients cared for elsewhere. This disparity is due largely to the fact that *Seguro Popular* only covers cardiac infarction cases in patients under age 60. Hospitals are often unwilling to devote substantial resources to treating uninsured patients, as they are unlikely to be reimbursed (World Bank 2013).
137 González Block (2015).
138 Mexico has the highest out-of-pocket share of total health care spending among OECD countries, which can be explained partially by the relatively low levels of government health spending (about 3 percent of GDP).

Figure 65. Out-of-pocket share of total current spending on health, circa 2015



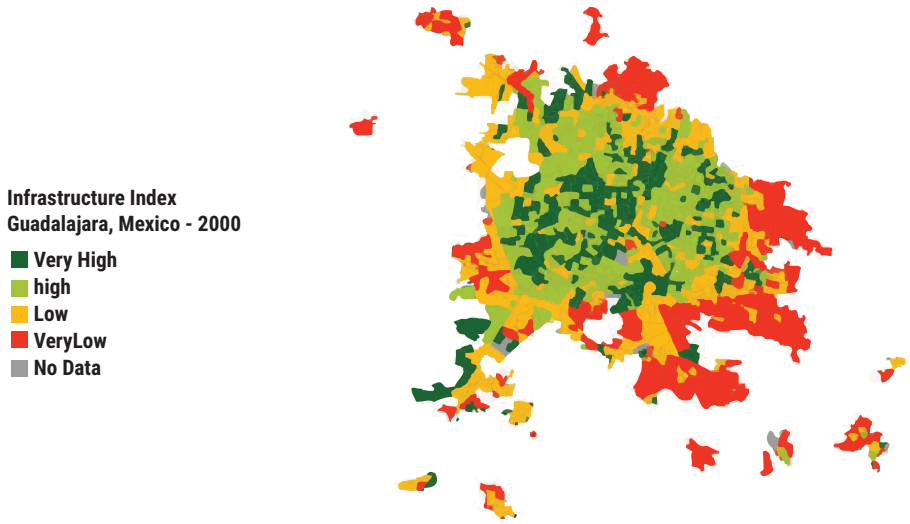
Source: OECD Health Statistics 2017 (database), Organisation for Economic Co-operation and Development, Paris, http://www.oecd.org/els/health-systems/health-data.htm.

Figure 66. Properties with sewerage service, by city size and type, 1990 and 2010



Source: Kim and Zangerling 2016.

Figure 67. Infrastructure access in the Guadalajara Metropolitan Area, 2000



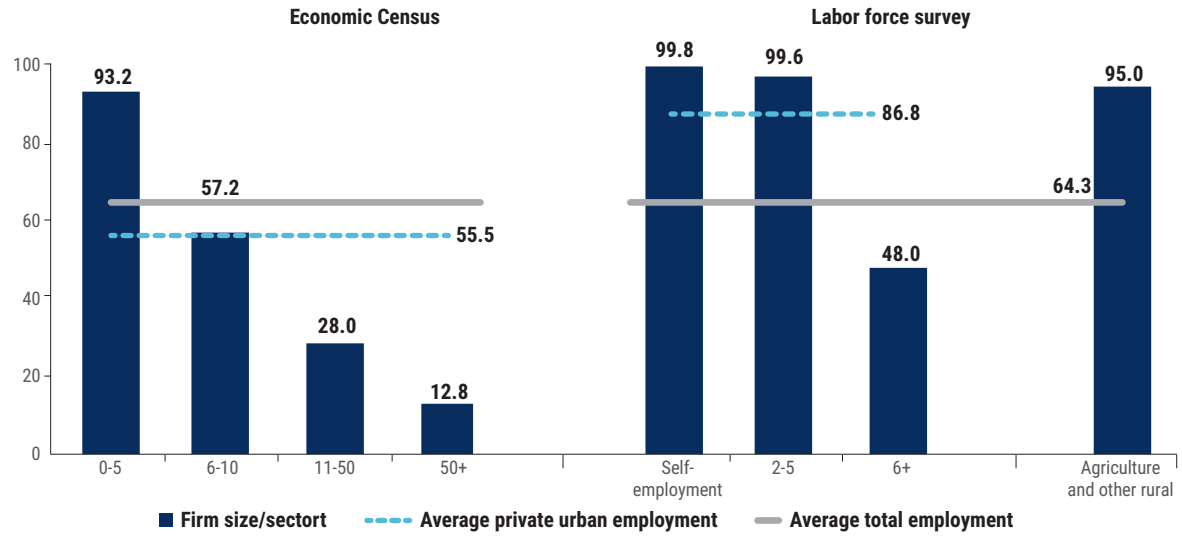
Sources: Kim and Zangerling 2016; data of National Institute of Statistics and Geography.

tend to have a health status and profile closer to OECD averages.

121. **Even though cities have reached near universal access to municipal services, issues in quality in the provision of basic services persist.** Between 1990 and 2010, there has been a substantial expansion of basic services including access to water and sewerage in cities of more than 100,000 inhabitants (Figure 66). In addition, heterogeneity within cities in access to services such as water and sewage limits social and productive inclusion. The coverage of public services can vary greatly within cities, particularly as they continue to sprawl without corresponding extension of infrastructure and service networks, with serious implications for the most vulnerable in the periphery (Figure 67). For instance, it has been shown that the adaptation actions that households in marginal areas of Mexico City implement to deal with water scarcity, low quality, and flooding imply high financial and opportunity costs, with further consequences on poverty.[139]

139 Eakin et al. (2016).

Figure 68. Percentage of workers that is informal by firm size, 2008



Source: Levy et at (2012), based in Economic Census of 2008, and ENOE

3.4 Decreasing labor productivity across the skills distribution

122. **Low productivity of microenterprises poses concerns for formal employment growth, more acutely in the south.** Although microenterprises are the most common firm category and source of employment, their productivity is low and their contribution to the GDP is shrinking. The contribution of microenterprises with premises to GDP fell from 15 percent of GDP in 2008 to 9.8 percent in 2014.[140] Lagged regions are particularly vulnerable. Labor productivity in the Southern states is about 53 percent of the national average, while the economic base is dominated by micro enterprises, in low productivity activities.[141] Low skill levels and less skill upgrading opportunities further reduce the Southern firms' performance. Women in Mexico, on average, are about 56 percent less likely to be entrepreneurs in the formal sector and 63 percent more likely to be entrepreneurs in the informal sector, compared with men.[142] Most of the workers in micro-firms are informal (93.2 percent economic census, and 96.6 percent from the labor force survey) (Figure 68).

123. **Factor misallocation helps to explain why increases in human capital over the past two decades have not necessarily translated into higher wages.** Resources are being pushed toward firms that hire workers through non-salaried contracts or with illegal salaried contracts (informal). Even though workers are coming into the labor market with more years of schooling, the workplace is not fully valuing their additional education.[143] There is evidence of declining earnings for workers with more schooling that have compressed the earnings' distribution and lowered returns to education. This is less due to a lack of firms than to the nature of the firms that are hiring, which are not demanding higher skilled workers. Indeed, the percentage of wage/salaried employees registered with the social security system decreased between 2000 and 2012, and labor earnings fell.[144] Earnings have declined since the Global Financial crisis especially for workers in low-skilled services sectors (Figure 69).

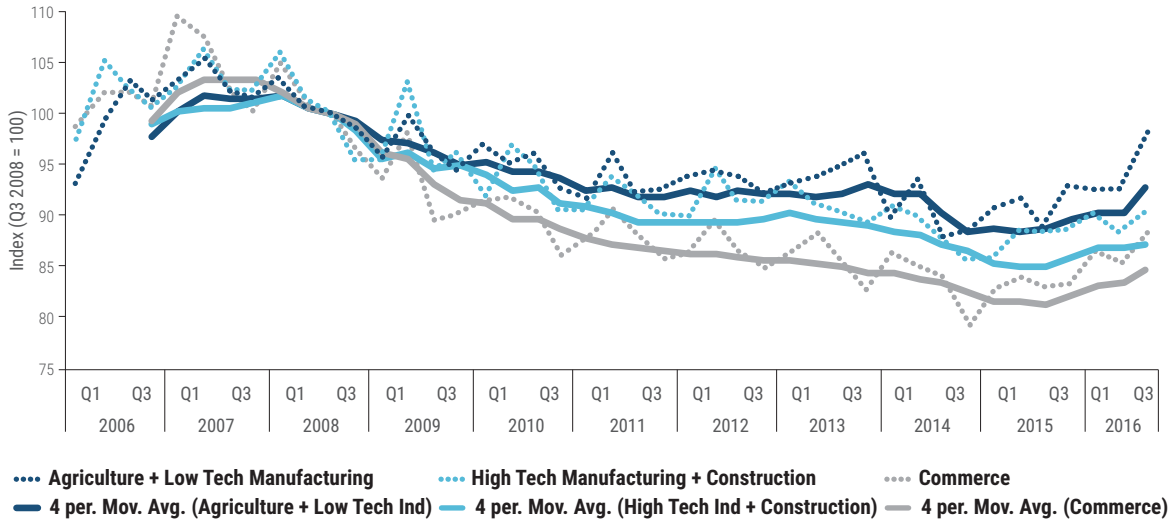
124. **The low productivity in agriculture remains a critical constraint to social and productive inclusion in Mexico.** Most agricultural producers in the country (over 75 percent) are smallholders, having less than five hectares each and semi-subsistent, employing traditional, rain-fed production practices, and concentrated in the Center and Southern parts of the country. These producers typically have no access to improved seeds, irrigation, access to credit, insurance, technology, or marketing infrastructure. About 70 percent of Mexican agriculture is still harvested through manual labor; while less than 20 percent of croplands are irrigated, leaving crops dependent on seasonal rains or irrigation through mobile water pumps.[145] There is an association, indeed, between poverty and worst inputs for agriculture (such as in terms of irrigation, credit) (Figure 70).

3.5 Low female and youth labor force participation

125. **Mexico still has one of the lowest rates of female labor participation among OECD and regional peers.** Only 45.5 percent of working age Mexican women are part of the labor force, compared with an average of 53 percent for

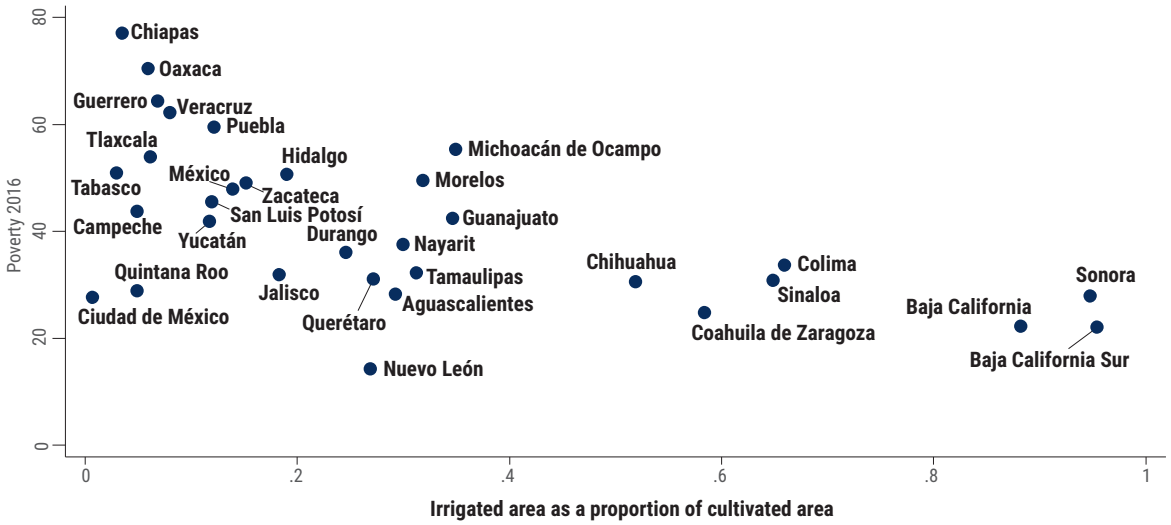
140 INEGI (2017a).
141 Deichmann et al. (2004).
142 Fareed et al. (2017).
143 Levy and López-Calva (2017)
144 Cruces et al. (2015).
145 ITA (2017).

Figure 69. Wage index for selected workers, 2006–16 (male age 15-yo-64)



Source: World Bank based in ENOE

Figure 70. Poverty rates and irrigation by state, 2016



Sources: INEGI 2016a, 2016b; 2016 data of CONEVAL.

Latin America and Caribbean countries, 51 percent for the OECD, and levels of around 58 percent in Colombia, and 52 percent in Chile – two regional peers whose levels of female labor force participation in the 1990s were similar or lower to those of Mexico (Figure 71).[146] A significant driver of female LFP is education; yet, in Mexico, there is still an important proportion of women with tertiary education who remain outside the labor market.

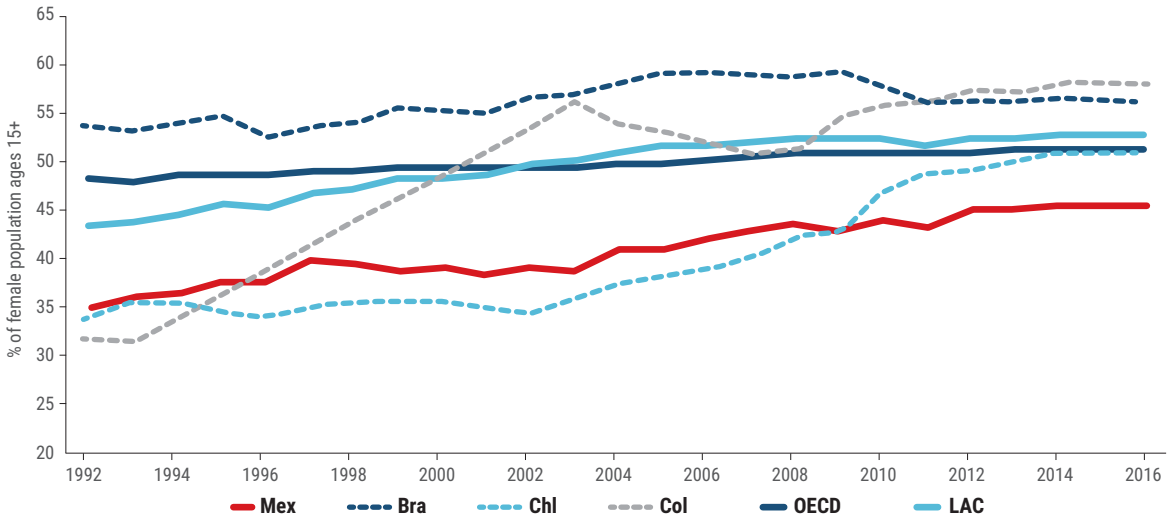
126. **On average, the loss associated with the gender gap in labor market participation for Mexico is around 25 percent of income per capita.** This inequality in labor participation comes at a high cost. A recent study has estimated a significant GDP per capita loss from existing gender gaps in the labor market: if working-age women that are not participating in the labor market were to do so at the same rates as their male counterparts there would be a gain of 25 percent of Mexico's GDP per capita.[147] This is one of the largest average total missed gains, comparable to 33 percent in Turkey and 21 percent in Italy.

127. **Multiple barriers hinder women's entry into the labor force.** In Mexico, women shoulder nearly 77 percent of all unpaid housework. The average woman spends six hours each day doing unpaid housework, compared with an average of two hours for men. A large household labor burden presents a serious challenge for women attempting to attend school or work a full- or even part-time job.

146 Notwithstanding that Mexico has one of the weakest female labor market performance in the region, the latest evidence shows signs of a positive trend. A recent study finds that the difference in labor force participation rates by gender are narrowing (from 38 percentage points before the global financial crisis of 2008 to 35 points in 2017), while the unemployment rate gender gap is closing. A higher propensity of women to be employed after the crisis is found to be partly related to an increase in the availability of daycare facilities (Cardozo et al. 2018).

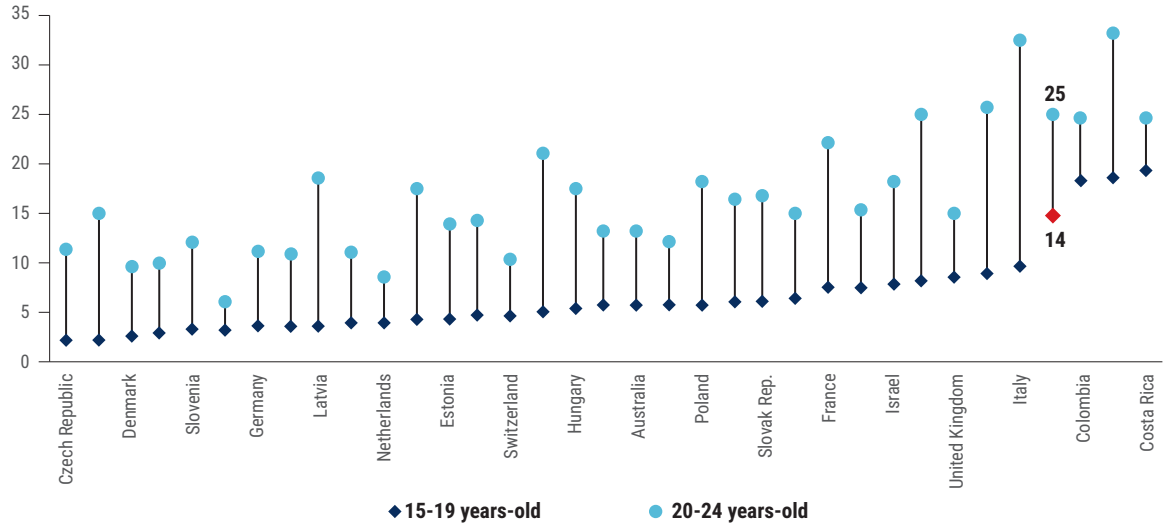
147 Cuberes and Tiegnier (2016).

Figure 71. Evolution of female labor force participation, 1992–2016



Source: 2017 data of WDI (World Development Indicators) (database), World Bank, Washington, DC, http://data.worldbank.org/products/wdi.

Figure 72. Gender participation gap across the life cycle, 2016



Source: World Bank calculations based on ILOSTAT and ENOE 2016.

Moreover, almost 30 percent of employees in Mexico work long hours (more than 40 hours in a usual week),[148] far above the OECD average of 13 percent, which compounds the challenge of balancing multiple obligations and acts as a barrier to women's entry in the labor market.[149]

128. **A large share of Mexico's youth is not in employment, education or training (NEET).** Twenty-five percent and 14 percent of the 20-24-year olds and the 15–19 year olds population are NEET (Figure 72). For any given cohort, a 1 percentage point increase in the proportion of youth NEET predicts a 7 percent reduction in earnings for that cohort 20 years later.[150] The negative income effect of not being engaged in education or work also harms equity since close to 60 percent of the population NEET in Mexico is in the bottom 40 percent of the income distribution. [151]

129. **Mexico also experiences one of the biggest gaps between male and female NEET, and has the highest adolescent pregnancy rate in the OECD.** The majority of youth NEET are urban women. Mothers in particular, face high barriers to paid work. This has implications not only for gender equality, but also for children. Maternal employment is strongly negatively correlated with child poverty across countries.[152]

148 According to OECD statistics, in Mexico the average usual weekly hours worked is 45.6, one of the highest among OCDE and Latin America and Caribbean countries.
149 OECD, Better Life Index, 2016.
150 De Hoyos et al. (2016).
151 De Hoyos et al. (2016).
152 OECD (2017)

4. Key sustainability challenges

130. **Sustainable growth requires balancing the needs of present and future generations.** Fiscal, environmental and social sustainability are central to maintain high and sustained rates of inclusive growth. This section identifies key constraints from this medium to long term perspective.

4.1 Fiscal sustainability

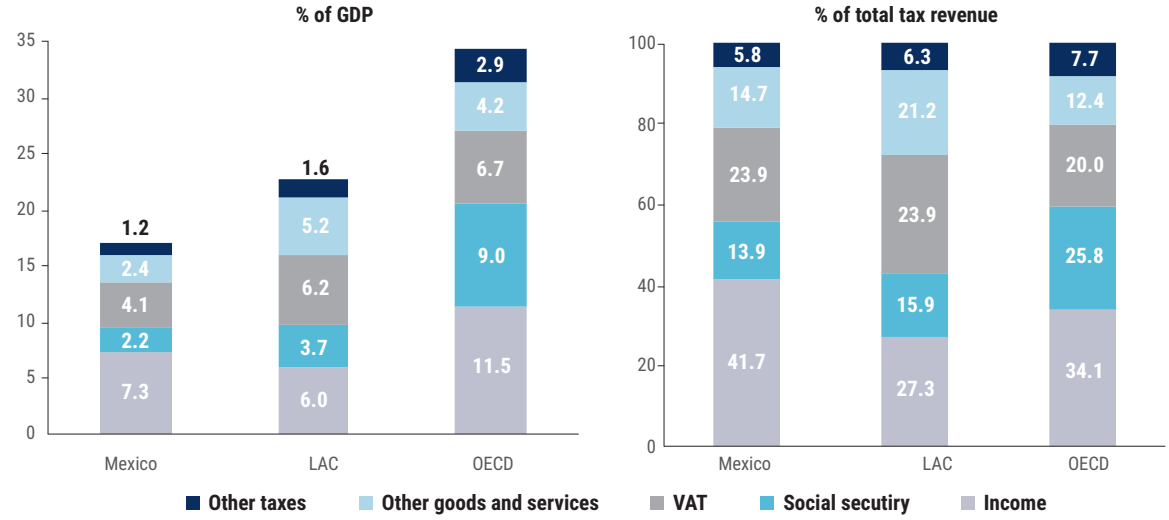
131. **In 2013, a comprehensive tax-reform program significantly increased nonoil tax revenue.** The reforms eliminated tax benefits and preferential tax regimes, limited tax deductions, introduced dividend and capital gains taxes, raised the top marginal income tax rate, and replaced the tax regime for small businesses. The reforms also eliminated a preferential VAT rate that had been applied in border regions. They introduced new excise taxes on carbon, sugar-based beverages and high-calorie foods. The negative excise tax on domestic fuel sales was phased out in the context of low international oil prices and energy-sector reforms. The federal government's non-oil tax revenue rose from 10 percent of GDP in 2013 to 13.1 percent in 2017. Rising income tax collection contributed 1.4 percentage points of GDP to the increase in non-oil tax revenue, fuel excise taxes contributed 1.0 percentage point, VAT contributed 0.3 percentage points, and other excise taxes contributed the remaining 0.2 percentage points. The total increase in non-oil tax revenue largely offset a decline in oil revenue equal to 4 percentage points of GDP.

132. **Nevertheless, tax collection in Mexico remains below the regional average and is the lowest among OECD countries.** International comparisons of tax collection employ a broad concept of tax revenue, which includes social security contributions and subnational taxes. Under this definition, Mexico's tax-to-GDP ratio increased from 13.4 percent in 2010 to 17.2 percent in 2016. However, during this period average tax-to-GDP ratios also increased among other countries in the region, and Mexico's tax burden remains below the Latin America and the Caribbean (LAC) regional average of 22.7 percent. Mexico's tax-to-GDP ratio is also the lowest among OECD countries, amounting to just half the OECD average of 34.3 percent (Figure 73).

133. **Even after the positive 2013 reforms, extensive tax expenditures continue to impose major fiscal costs.** Tax expenditures include exemptions, deductions, deferrals, and preferential rates applied to specific activities or types of taxpayers. Forgone revenue through tax expenditures is estimated at 3.7 percent of GDP. Tax expenditures are incurred, *inter alia*, through exemptions and zero-rating in the VAT regime (1.5 percent), since 2017, through a discount to the excise tax on fuel (0.7 percent), exemptions to wage income (0.4 percent of GDP) and pension income (0.2 percent), a negative income tax designed to encourage formal employment (0.2 percent).

134. **In addition, tax evasion continues to inflict significant revenue losses, although they have been declining in recent**

Figure 73: Tax structures in Mexico, Latin America and the Caribbean and the OECD (2016)



Source: OECD et al. (2018).

years. These losses were estimated to be close to 2.5 percent of GDP in 2016, of which income tax evasion amounted to 1.5 percent of GDP and VAT evasion amounted to 1.0 percent. However, tax evasion appears to have fallen significantly over the past few years, likely due to improvements in tax administration.

135. **Technological progress poses the new challenge of including a growing digital economy in the country's tax base.** Following global trends, Mexico's digital economy is growing rapidly, supporting economic development more broadly. Although from a low base, between 2010 and 2016, the share of the adult population that had ordered goods or services online increased by a factor of 4.5, the largest such increase of all OECD countries. Meanwhile, it has been estimated that Mexico's business-to-consumer (B2C) e-commerce market could grow to US$40.8 billion by 2019, of which nearly two-thirds would consist of digital services.[153] New market entrants armed with disruptive technologies can increase the choice, improve the quality, and reduce the price of inputs to firms and of goods and services to final consumers in Mexico. Coupled with rapid increases in fixed internet and mobile broadband penetration, these market dynamics mean that more and more consumers are in a position to reap the benefits of the digital economy. Typically, digital services consumed in Mexico are subject to VAT, whether provided by a foreign or domestic supplier, with the obligation to collect and remit the VAT on the seller or the resident importer in the case of purchases from abroad. Since in the case of digital services there may be no business need for foreign suppliers to establish a physical or legal presence in the country, there is not necessarily an entity that charges and remits the VAT owed on digital services imported by final consumers, and that revenue is effectively foregone by the Mexican authorities. Moreover, since Mexican-resident firms selling digital services in the domestic market are obliged to collect VAT on their sales, they may be at a pricing disadvantage vis-à-vis non-resident competitors.

136. **At the same time, Mexico's federal public sector expenditures have increased substantially over the years, and pressures will continue to mount.** The country experienced a secular increase in public spending driven by a combination of policy decisions, demographic trends, legacies, and other spending rigidities (Figure 74). This has resulted in a decade-long rise in health, education, social protection, and public security spending. The number of people aged 65 and older will more than double to 18.4 million over the next two decades and pension costs on the federal public-sector budget, due to this increase in the number of elderly combined with the favorable treatment of this cohort in past pension reform, is projected to increase by about 1 percent of GDP per decade before ultimately peaking between 2040 and 2050. Population aging is also intensifying pressure on Mexico's public healthcare system by shifting the disease burden to chronic degenerative diseases, with population aging accounting for nearly 60 percent of the increase in public health spending to 3.1 percent of GDP in 2015 and an increase by 0.5 percent of GDP over the previous decade. These long-term trends underscore the importance of improving the efficiency and effectiveness of public expenditures.

137. **Expenditure rationalization over the past few years took place across several categories, including public investment.** Subsidies, transfer programs and the public sector wage bill were all affected by spending containment and cuts. However, general government public investment (including federal investment projects and transfers for state and municipal investments) was affected significantly, dropping from 4.7 percent of GDP in 2014 to 2.6 percent in 2017 (Table 4). These cuts also included PEMEX capital expenditures, potentially affecting its future production capacity.

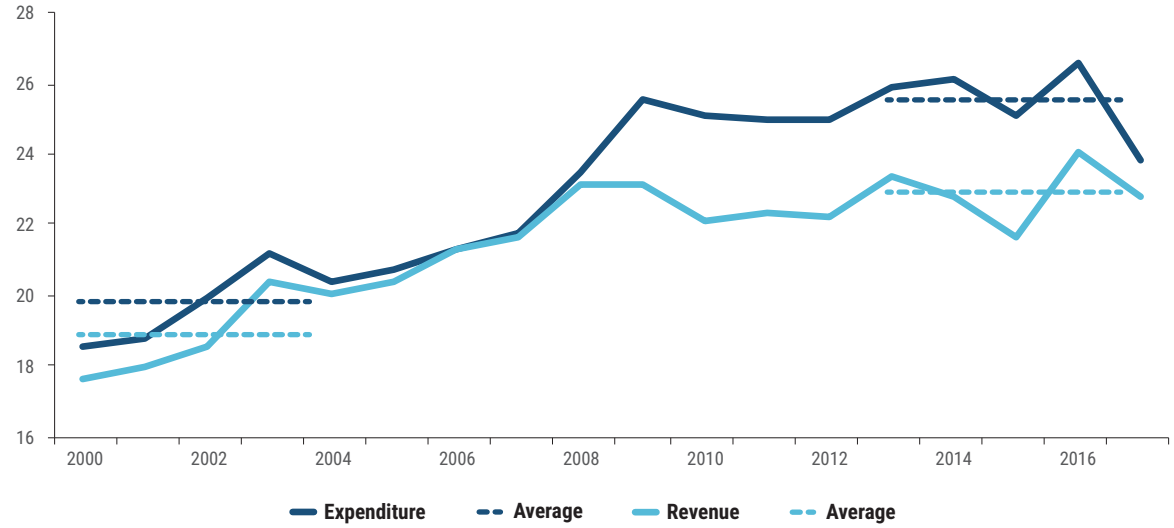
153 2016: The Tipping Point for E-Commerce in Mexico, A.T. Kearney, 2016.

Table 4: Public Expenditure, 2014-2017 (% of GDP)

	2014	2017	Change
Total	25.9%	23.8%	-2.1%
Wages and salaries	5.8%	5.3%	-0.6%
Other operating costs	5.8%	5.7%	-0.1%
Subsidy and transfer programs	3.8%	3.1%	-0.7%
Physical investment	4.7%	2.6%	-2.1%
Other capital expenditures	0.4%	1.0%	0.6%
Participaciones	3.3%	3.5%	0.2%
Interest payments	2.0%	2.5%	0.5%

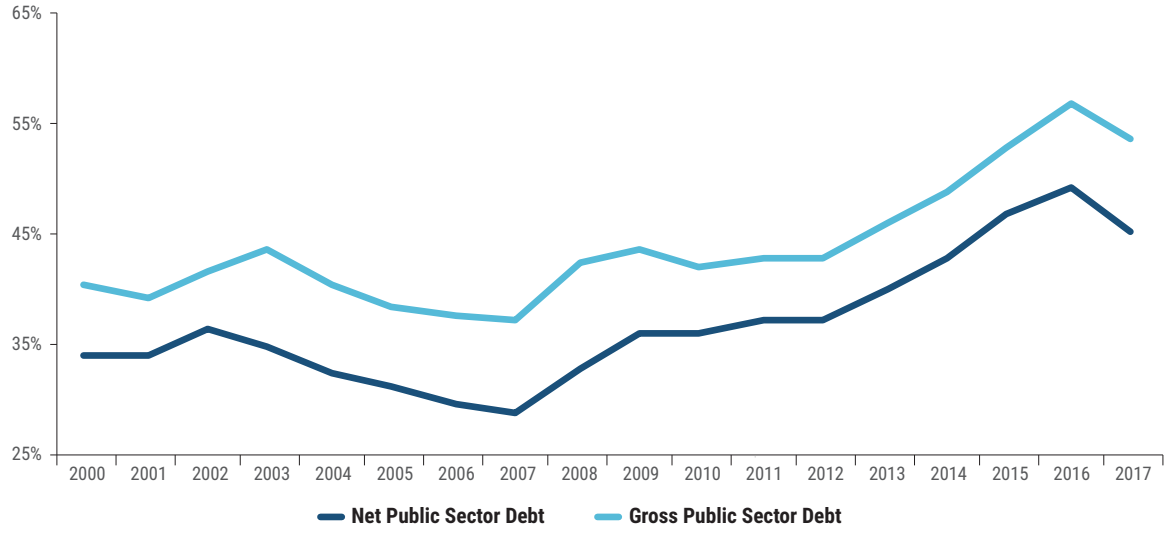
Source: Bank staff estimates based on SHCP and INEGI

Figure 74. Public sector revenue and expenditure, 2000–17 (percent of GDP)



Source: World Bank estimates based on data of the INEGI; SHCP.

Figure 75. Federal public sector debt, 2004–17 (percent of GDP)



Source: INEGI; WEO (World Economic Outlook Database), International Monetary Fund, Washington, DC, https://www.imf.org/external/pubs/ft/weo/2016/01/weodata/index.aspxn.

138. **Overall, fiscal policy in Mexico has been prudent and a gradual consolidation process has been underway with the aim of stabilizing and then reducing public debt levels.** The sustained increase in the public debt burden up to 2016 indicated the need for a gradual fiscal consolidation to stabilize debt and start downward-sloping path (Figure 75). Under certain assumption Mexico's current debt-stabilizing primary surplus would be equal to at least 0.5 percent

of GDP. In terms of the overall balance, assuming an average nominal GDP growth rate of 6 percent, the debt-stabilizing PSBR would equal 2.5 percent of GDP.

139. **Moreover, the country has established a solid fiscal framework, though some adjustments to the framework may signal a continued strong commitment to fiscal discipline.** The 2014 LFPRH called for an annual numerical target and an indicative multi-year path for the PSBR to complement the traditional budget balance. Without changing the current framework, a positive development would be to establish the fixed numerical cap of the PSBR (consistent with a downward-sloping debt path) in legislation, as a signal of a continued strong fiscal policy anchor moving forward. This will continue to be complemented with the existing escape clause, which could tighten its criteria. A deeper adjustment to the fiscal rule framework, with the aim to enhance its pro-cyclicality while preserving sustainability would be setting a combination of an adjusted expenditure rule (i.e, some adjustments to the existing expenditure rule) and an explicit ceiling on the public debt-to-GDP ratio. This could be complemented with corrective measures at certain thresholds of debt to GDP below the ceiling.

140. **Mexico's fiscal framework could be complemented by the establishment of an independent fiscal council that promotes sound fiscal policies through independent oversight.** Fiscal councils have been adopted by different countries around the world in addition to fiscal rules over the past few decades as an institutional device to strengthen the credibility of governments' commitment to sustainable public finances. Despite a diversity of institutional arrangements, a fiscal council is generally defined as a permanent agency with the mandate to monitor publicly and independently government's fiscal policies against macroeconomic objectives related to long-term fiscal sustainability and medium-term macroeconomic stability. The design features of these institutions are critical to ensure transparency, independence, and sharp focus on the objectives established, while avoiding policy-making interference.

4.2 Environmental sustainability

141. **Natural capital in Mexico includes agricultural soils and pastures; water; forests; fisheries; air; strong winds and solar potential; and subsoil assets (oil, gas, coal, and minerals).** Conservative estimates[154] suggest that renewable natural capital, captured in the value of agricultural land, forest land and protected areas (thus excluding, given lack of data, many other resources such as fisheries) represents about 14 percent of Mexico's total wealth. This puts Mexico on the top quartile of the list of regional and structural peers, following Turkey (26 percent), Peru (16 percent) and Brazil (15 percent). Of course, natural capital also includes non-renewable resources such as oil, gas, coal and minerals.

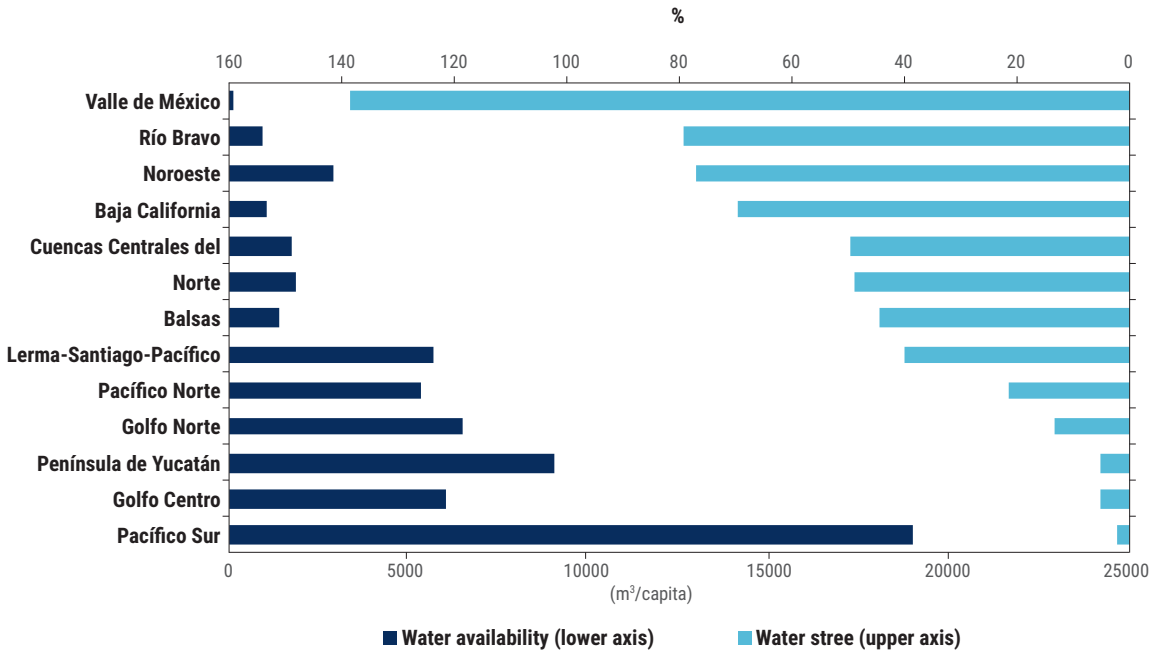
142. **Poorly managed natural capital can represent a social, environmental and economic liability.** Deforestation and forest degradation are among the principal drivers behind the loss of natural capital in Mexico, with agricultural expansion playing an important role. Mexico's forests represent an essential source of employment, income and livelihood for approximately 12 million people. Despite their strategic environmental and social role, forests in Mexico are subject to high degradation. Forest cover[155] has fallen by 5.4 percent in relation to 1990, with more than 3.7 million net hectares lost over that period. However, these figures mask the heterogeneous nature of deforestation and forest degradation patterns, as their incidence is significantly higher in some types of ecosystems, such as tropical dry forests and tropical rain forests.

143. **Mexico's forests represent an important natural asset for the country, particularly for rural communities.** Forests cover 45 percent of the national territory, and 61 percent of forests are the communal property of ejidos and communities. As discussed in Section 3, it is estimated that forests are home to more than 12 million people, 88 percent of whom live in highly marginalized localities[156], and directly depend on local natural resources. More than 1.5 million of this population is indigenous, 62 percent live in poverty, and more than half of all forest dwellers live in conditions of extreme poverty, with limited access to health services, education, and accessible forest tracks. In 2010, the percentage of inhabited private dwellings without sewage systems was four times higher in forested areas than in the rest of the country.[157]

144. **Mexico faces the challenge of conserving and sustainably managing its forests while also meeting a growing demand for timber products.** In 2015, forestry production in Mexico accounted for 0.6 percent of the GDP. The country has the capacity to more than double the current production of standing timber; in the areas that are most accessible, Mexico has the potential to produce about 60 million (in cubic meters) of roundwood. Yet, demand exceeds production by a factor of three. The increase in community-based forest enterprises (CFEs) has not been translated in an increase in timber production. Instead, legal timber production fell from 9.4 million cubic meters in 2000 to 6.1 million, even as domestic demand for timber increased. This trend is due in part to the failure of sectoral incentives to balance conservation and economic objectives. In 2015, with almost 1,500 harvesting permits granted for forest exploitation in the country, extraction occurred in only 46 percent of the approved forest land area. Mexico's

154 The Changing Wealth of Nations (2018).
155 This estimate is based on 2015 Forest Resource Assessment (FRA) data. FRA's forest definition: Land spanning more than 0.5 hectares with tree higher than 5 meters and a canopy cover of more than 10 percent, or trees able to reach these thresholds in situ. It does not include land that is predominantly under agricultural or urban land use.
156 World Bank (forthcoming).
157 World Bank (forthcoming).

Figure 76. Water stress and availability, by river basin, 2015



Source: Sistema Nacional de Información de Agua http://sina.conagua.gob.mx/

CFEs exploitation costs (US$39 per cubic meter) have been too high compared with other countries, especially low-cost producers like Chile and Brazil (US$7–US$15 per cubic meter), or even small private landowners in the U.S. south and Pacific northwest (US$12 per cubic meter).[158]

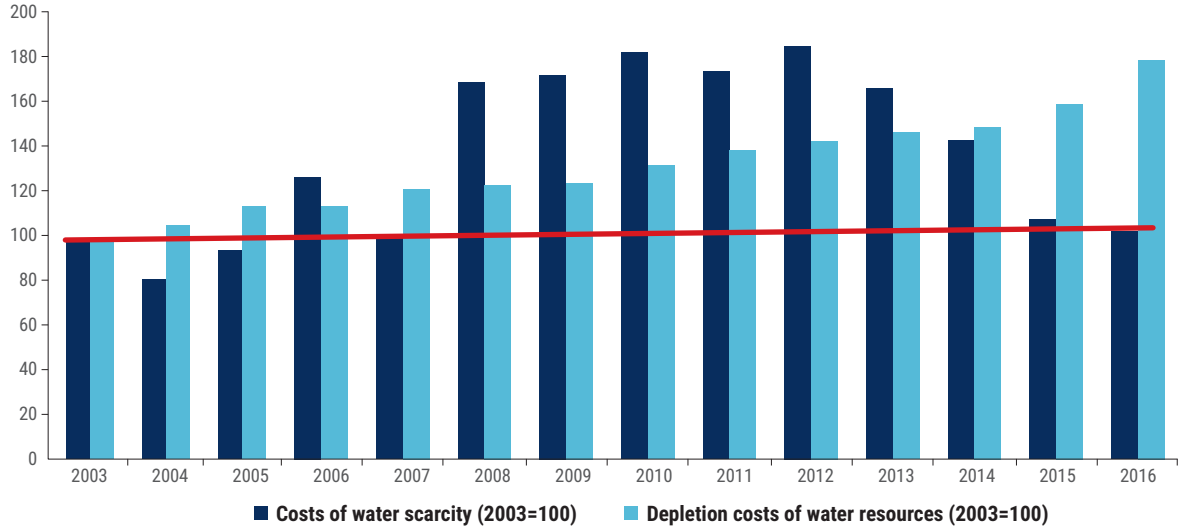
145. **Mexico's payments for conservation and environmental services, one of the largest national programs of its kind, has shown positive results in curbing deforestation and poverty alleviation.** Mexico's federal payments for hydrological services program (PSAH) began in 2003, paying landowners to maintain forest cover under five-year contracts.[159] Between 2003 and 2011, the Mexican National Forestry Commission (CONAFOR) allocated approximately US$450 million to enroll more than 2.6 million hectares of land in the program. By 2013, over 4.27 million hectares had been enrolled into the scheme, benefiting a total of 7,350 common- or private-property lands, and representing an investment of Mex$8,586 million.[160] Between 2013 and 2016, CONAFOR's payment for environmental services program destined Mex$3,355 million pesos for the conservation of 1.55 million hectares.[161] The financial incentives have been found to increase land cover management activities—such as patrolling, building fire breaks, or promoting soil conservation—by around 50 percent.[162] There is evidence that the PSAH program generated an approximate 20 percent reduction in expected forest cover loss at the locality level between 2000 and 2012, when controlling for characteristics affecting selection and deforestation risk; while creating a small impact on poverty alleviation.[163] As a comparison, traditional conservation policies, such as protected areas establishment led to a reduction of 24 percent of forest loss over the same period, with no effect on poverty alleviation.[164] Other studies have questioned whether having the double objective of deforestation and poverty has made the PSAH program less effective.[165]

146. **More than 35 million Mexicans have limited access to water or receive low-quality water services.** More than a hundred of the country's 731 watersheds face severe shortages (Figure 76), and the number of overexploited aquifers tripled between 1975 and 2013.[166] Overall, water availability per capita has reduced drastically, from 18,035 to 3,982 m3/inhabitant per year between 1950 and 2013. Groundwater provides more than 65 percent of all water used by Mexican cities. Pumping out underground water

158 Cubbage et al. (2015).
159 The PSAH, managed by CONAFOR, targets the peasant communities of *ejidos* in sites with hydrological importance. In 2006 the objectives of the program were modified to include poverty alleviation. To secure payments under the five-year contracts, landowners agree to carry out a series of conservation activities such as surveillance, fence establishment, or invasive species extraction (DOF 2013).
160 CONAFOR (2014).
161 CONAFOR (2016).
162 Alix-García et al. (2018). The study also finds that increases in paid activities do not lead to a decline in the contribution of households to unpaid land cover work, and that community social capital rose by 8 to 9 percent.
163 Sims and Alix-Garcia (2017). Using different metrics (unit of analysis, outcome variable, and time frame) Alix-Garcia et al. (2015) find that PSAH reduced the downward trend in forest cover by 40-50 percent, and small but positive effects on poverty. Less impacts on poverty have been found by other studies (Rico García-Amado, et al. 2011; Alix-Garcia, et al. 2012).
164 Sims and Alix-Garcia (2017).
165 Shapiro (2013) notes that the program has become hybridized, as the targeting has been weighed toward marginalized communities and away from risk of deforestation; while its evolution has also been influenced through contestation and engagement with social movements. Alatorre-Troncoso (2014) suggests that in the quest to target poverty alleviation and conservation, neither objective has been adequately fulfilled: implementing the programme in extreme biological importance locations would have achieved protection of the same area (4.3 million hectares) at a fraction of the cost (18.5 percent). The study also notes that most lands enrolled in 2010 were in municipalities with a Medium Human Development Index, while low HDI areas were only marginally represented, despite being the most extensive.
166 Overexploited aquifers (where groundwater provides more than 65 percent of the volume required by cities) increased from 32 in 1975 to 126 in 2013, out of a total of 653. See Sistema de Cuentas Nacionales de México: Cuentas Nacionales Ambientales (database), INEGI, Aguascalientes, Mexico, http://www.inegi.org.mx/geo/contenidos/recnat/default.aspx.

Figure 77. Trends in costs of water depletion and degradation in Mexico

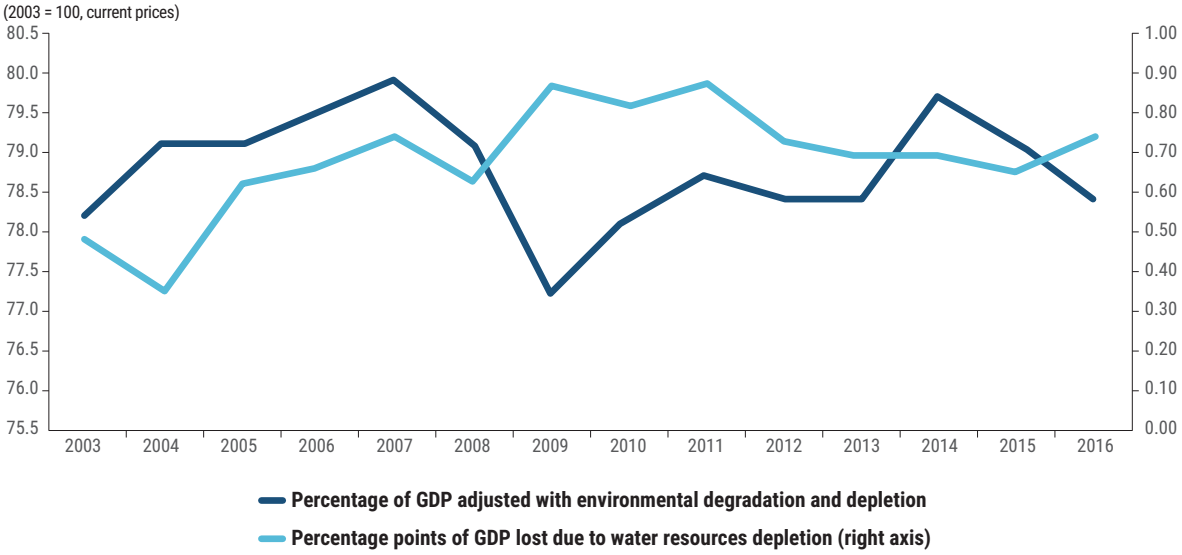
(2003 = 100, current prices)



Source: Sistema de Cuentas Nacionales de México: Cuentas Nacionales Ambientales (database), INEGI, Aguascalientes, Mexico, http://www.inegi.org.mx/geo/contenidos/recnat/default.aspx.

Figure 78. GDP adjusted to environmental and water resources

(2003 = 100, current prices)



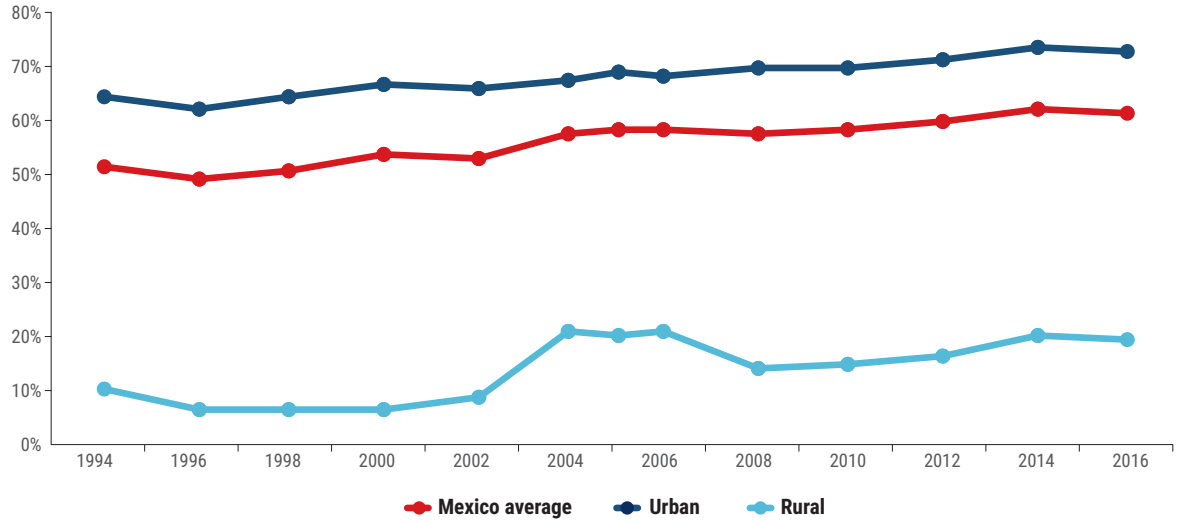
Source: Sistema de Cuentas Nacionales de México: Cuentas Nacionales Ambientales (database), INEGI, Aguascalientes, Mexico, http://www.inegi.org.mx/geo/contenidos/recnat/default.aspx.

causes land subsidence (or sinking), which makes flooding worse and significant structural damages to urban infrastructures. Subsidence levels in Mexico City are observed over 30 cm/yr.[167]

147. **The costs of water depletion and degradation have increased over the last 15 years.** Between 2003 and 2015, water depletion and degradation costs increased by 60 percent, from 0.5 to almost 0.8 percent of GDP (Figure 77 and Figure 78). In addition to these costs, the value of assets lost due to soil and water contamination has increased 10-fold over the last 15 years.[168] At the same time, Mexico is endowed with only a fifth of fresh water resources per capita compared with the average endowment in Latin America—i.e. the lowest availability among all mainland countries in the region. Given the relatively limited volume of renewable water, highly populated regions (like Mexico's City Valley) must increase efficiency and resilience of current water exploitation and distribution infrastructures. Yet, inefficiencies in water resource management such as overexploitation, pollution, leakages, lack of (or inefficient) infrastructure, unfulfilled legal and institutional reforms, and insufficient investments, have put additional pressure on water resources, already under stress from rapid urbanization, population and economic growth. Furthermore, water scarcity and climate uncertainty combined with generally poor water services represent a serious threat to green growth prospects in Mexico.

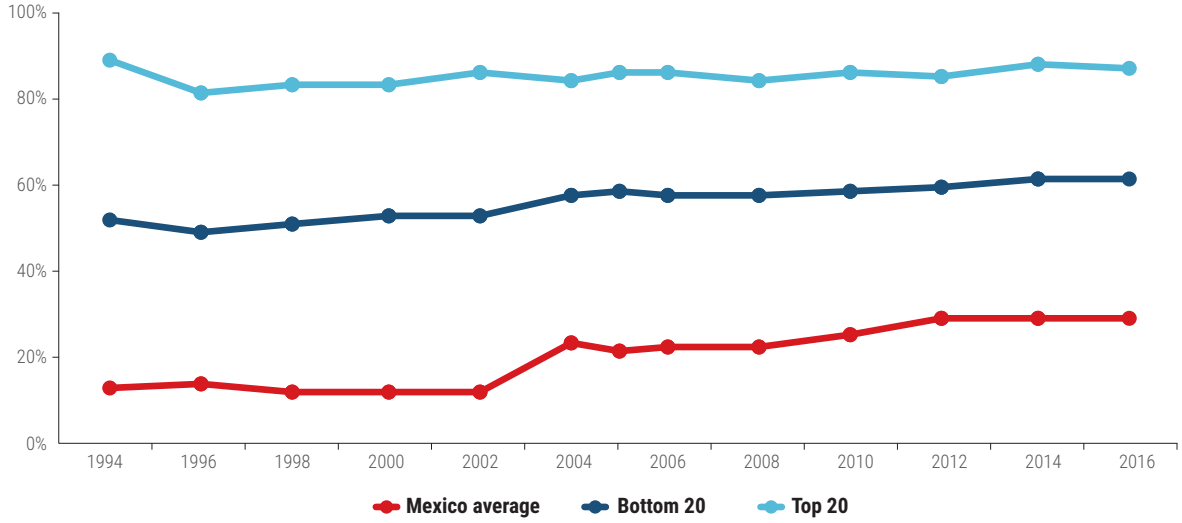
167 Chaussard et al. (2014).
168 Sistema de Cuentas Nacionales de México: Cuentas Nacionales Ambientales (database), INEGI, Aguascalientes, Mexico, http://www.inegi.org.mx/geo/contenidos/recnat/default.aspx.

Figure 79. Proportion of households with access to sewerage



Source: Elaborated based on 2018 data of SEDLAC (Socio-Economic Database for Latin America and the Caribbean), Center for Distributive, Labor, and Social Studies, Facultad de Ciencias Económicas, Universidad Nacional de La Plata, La Plata, Argentina, and Equity Lab, Team for Statistical Development, World Bank, Washington, DC, http://sedlac.econo.unlp.edu.ar/wp/en/estadisticas/sedlac/estadisticas/.

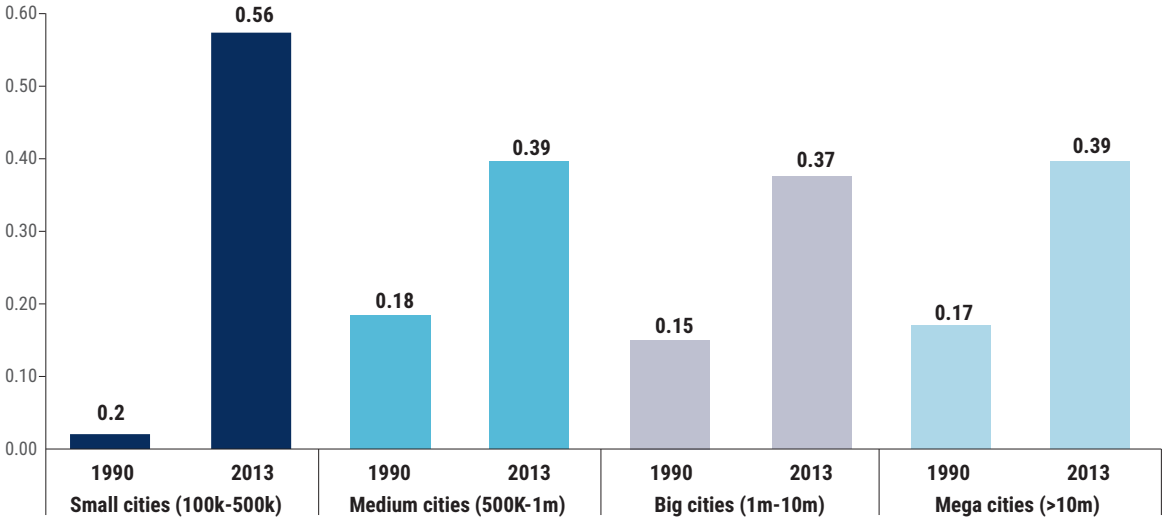
Figure 80. Proportion of households with access to piped water. Lowest and highest quantiles of income



Source: Elaborated based on 2018 data of SEDLAC (Socio-Economic Database for Latin America and the Caribbean), Center for Distributive, Labor, and Social Studies, Facultad de Ciencias Económicas, Universidad Nacional de La Plata, La Plata, Argentina, and Equity Lab, Team for Statistical Development, World Bank, Washington, DC, http://sedlac.econo.unlp.edu.ar/wp/en/estadisticas/sedlac/estadisticas/.

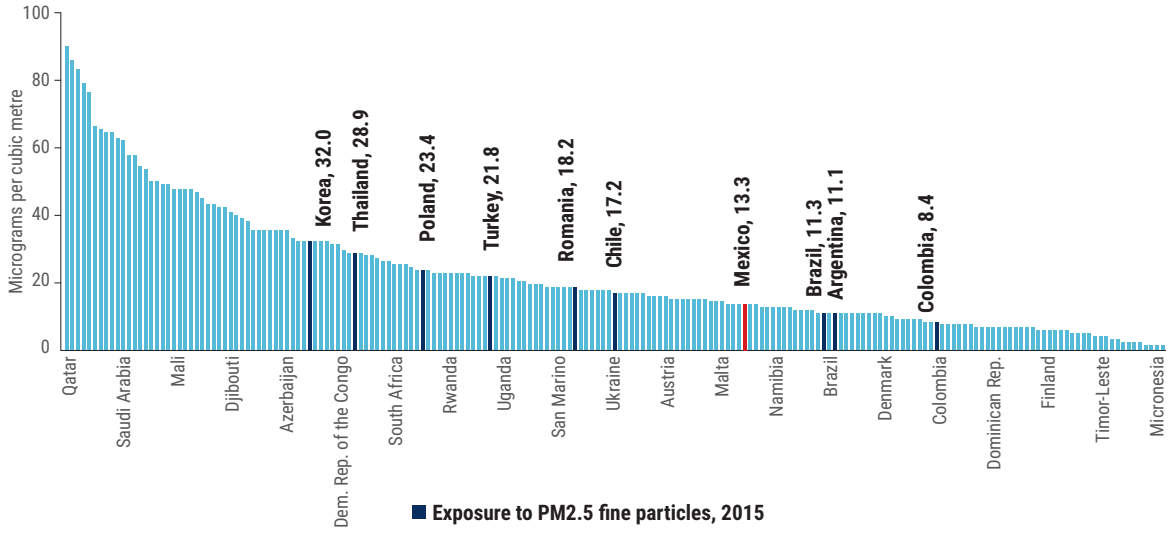
148. **The uneven spatial distribution of water and the associated availability in terms of both quantity and quality impacts Mexico's potential for growth and inclusion, with a strong connotation of regional, and urban/rural inequality.** In 2014, 73 percent of households in urban settlements had access to sewerage services, compared with 21 percent of rural ones (Figure 79). Due to subsidized tariffs, water payments in urban areas range from 0.25 to 2.19 percent of household's income, while in rural areas, the poorest are paying a higher proportion of their income for water services. And despite improvements in recent years, disparity in coverage access across income groups remain: 98 percent of households in the top quintile had access to piped water compared with 86 percent of households in the poorest quintile (Figure 80). The Government's incentive schemes, such as *Apoyos Compensatorios* and *PROAGRO*, tend to favor agricultural interests over those of the urban population, and are partly to blame for environmental challenges such as water pollution and overexploited aquifers. The north-center region of the country, with only 32 percent of the water resources, houses 77 percent of the Mexican population and contributes to over 80 percent of its GDP. In contrast, the south and south-east region has 68 percent of the water resources but only 33 percent of Mexico's population, contributing about 21 percent of GDP. The north-center region, despite its low natural water endowment, provides most of its inhabitants with water and sanitation services, while also being responsible of a thriving agricultural sector—partly resulting from both a largely inefficient irrigation sector (which consumes almost 70 percent of water available), and the overexploitation of underground water sources (with limited fines to polluting industries). Conversely, the south region, rich in natural and hydric resources, fails at

Figure 81. Number of cars per capita by city size, 1990–2013



Source: Kim and Zangerling 2016.

Figure 82. Air pollution – micrograms per cubic meter



Source: OECD 2018, "Air quality and health: Exposure to PM2.5 fine particles - countries and regions"

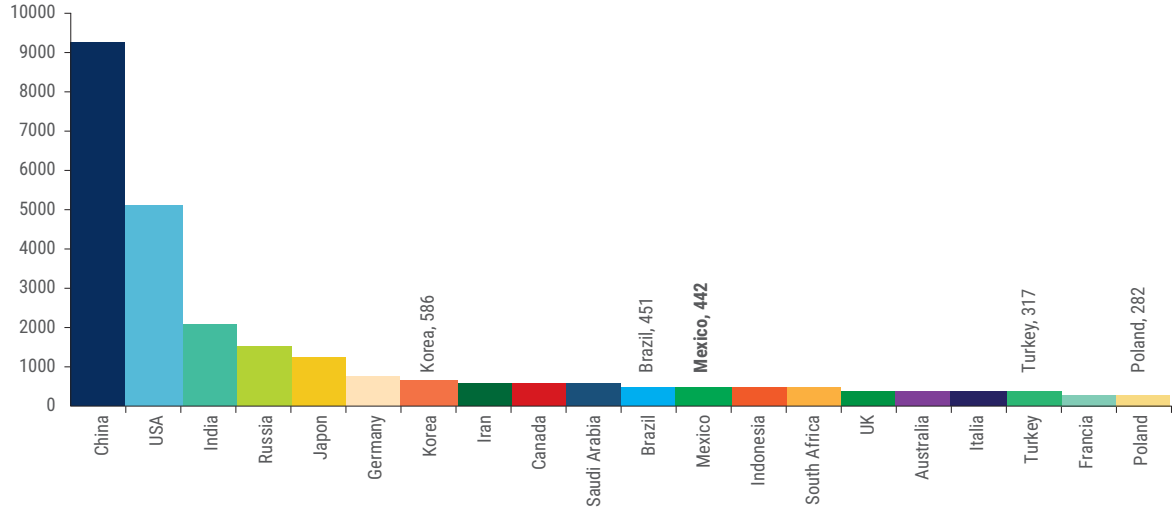
providing piped water and sewerage to about 15 percent of its population, despite large government investments in the sector and water distribution capabilities to semi-urban and rural areas.

149. **Environmental degradation in urban areas has direct impacts on the economy due to the loss of productivity associated with health costs.** The main contributors to environmental degradation include: outdoor and indoor air pollution; water pollution; soil degradation; and inadequate hazardous and solid waste management.[169] Between 2003 and 2016, environmental investment and expenditures increased from 0.5 percent to 0.7 percent of GDP. Despite these positive trends, environmental degradation and natural resources depletion continue to grow, resulting in increased losses of productivity as well as higher premature mortality and morbidity. These trends are in line with those found by other international studies. Recent estimates suggest that 39,000 people died in Mexico in 2013 of diseases associated with environmental degradation; while environmental health risks represented 2.5 – 3.6 percent of Mexico's GDP in 2013.[170] Around 83 of the deaths recorded were associated with outdoor and household air pollution.

150. **Urbanization combined with a weak delivery of urban environmental services (water supply, sanitation, solid waste management among others) can reduce human and natural capital.** Approximately 80.2 percent of Mexico's population lives in urban areas[171] which produce more than 84 percent of the GDP, as well as an estimated 75 percent of GHG

169 Some estimations of the costs of environmental degradation and depletion of natural resources amounted to 4.7 percent of GDP in 2016. See Sistema de Cuentas Nacionales de México: Cuentas Nacionales Ambientales (database), INEGI, Aguascalientes, Mexico, http://www.inegi.org.mx/geo/contenidos/recnat/default.aspx.
170 World Bank (2015).
171 World Urbanization Prospects: The 2018 Revision (database), Population Division, Department of Economic and Social Affairs, United Nations, New York, https://esa.un.org/unpd/wup/.

Figure 83. Top 20 economies according to their carbon dioxide emissions, tons, millions, 2015



Source: OECD 2018a.

emissions. Environmental issues are largely related to the challenges of rapid urbanization processes, including the accelerated growth of a vehicle fleet that disproportionately contributes to air pollution; insufficient wastewater treatment; and inadequate disposal of solid waste (Figure 81). Solid waste collection is deficient in Mexican cities: only 83 percent of the solid waste produced is collected as compared with the OECD standard of 98 percent. The urban poor, on the other hand, are disproportionately affected by exposure to air, water, soil and chemical pollution. As discussed above, air pollution continues to be a major environmental concern of the population and imposes significant costs on the economy (Figure 82).

151. **The land use and transport model in Mexican cities is increasingly dependent on cars, with implications on the environment and equitable access.** While public transit remains the main mode of transport in Mexico's urban areas, with an average of 60 percent of total trips, 90 percent still use conventional low-quality bus service. The mass-transit systems (i.e., Bus Rapid Transit - BRT, metros and Light Rail Transit - LRT) implemented or upgraded recently in large cities still represent less than eight percent of the total transit modal share. A factor behind the increasing dependency on cars is related to the expansion of new real-estate developments that are disconnected from urban centers, resulting in low transport accessibility to opportunities for new low-income dwellers.[172] The strategies behind urban road and parking infrastructure further reinforce the trend through high implicit subsidies for private car users and a regressive policy in terms of budget and public-space allocation in cities.

152. **Regarding the efficiency of domestic logistics and competitiveness, most products (56 percent of domestic cargo)[173] are carried by road-based freight transport, also known as auto-transport.** Freight transport is one of the least-efficient freight transport modes in terms of energy use and emissions (accounting for over 90 percent of total freight-related emissions in the country).[174] Moreover, diesel-fueled heavy-load vehicles account for 51 percent of PM10 emissions, PM2.5 emissions, and NOx emissions.[175] These emissions have impacts on public health, especially among the most vulnerable groups (children, the sick and the elderly). However, freight transport is a strategic sub-sector of Mexico's economic activity: it represents 4.9 percent of the national gross domestic product (GDP) and generates more than 2 million direct jobs.[176] Since 2010, SEMARNAT and the Ministry of Communications and Transportation (SCT) has supported a Clean Transport Program to reduce these air-quality externalities in the freight transport sector. Despite a low level of participation (375 participating companies[177] corresponding to roughly 7 percent of the entire fleet – baseline 2017)[178][179], official figures show a potential reduction of more than 7 MtCO2 since the program's inception in 2010.[180] There is great potential to improve awareness of the program, provide more incentives for adhesion and build capacity for monitoring and evaluation to attain greater emission reductions in the sector.

153. **Mexico is highly vulnerable to climate change, which can exacerbate the country's development challenges.** While Mexico is a global climate change leader and has assigned a political priority to tackling emissions, it is the world's

172 See further details in Section 4: *Coordination failures and limited local capacity for long-term planning*.
173 Secretaría de Comunicaciones y Transporte (2016).
174 Solís Ávila y Sheinbaum Pardo (2016).
175 INECC (2017).
176 Secretaría de Comunicaciones y Transporte (2016).
177 Secretaría de Medio Ambiente y Recursos Naturales (2017).
178 https://canacar.com.mx/stat/parque-vehicular-clase-vehiculo/
179 Secretaría de Medio Ambiente y Recursos Naturales (2017).
180 Ibid.

12 highest emitter of greenhouse gases (Figure 83). This large share of GHG emissions stem from the energy sector, which correlate with both the sector's size and its reliance on fossil fuels (a total share of 67 percent in 2010), followed by transport and agriculture. Mexico also remains highly vulnerable to extreme weather events.

154. **Extreme weather events have adverse effects on poverty.**[181] Research using the Human Development Index indicates that weather events could reduce up to two-year achievements in the HDI index for affected municipalities in Mexico.[182] Further, floods impacts are long lasting, while current social protection strategies often fail to mitigate their negative effects. Evidence shows that El Niño Southern Oscillation (ENSO) had important negative impact on the development of Mexican children, including on their cognitive functions.[183] Additionally, children affected during their early life stages exhibit lower height (0.42 to 0.71 inches), higher likelihood of stunting (11 to 14 percentage points), and lower weight (0.84 pounds) than same-aged children who were not affected by the flood shocks. Forecasts indicate that the consequences of climate change are likely to increase, with more frequent and severe extreme weather events, with further impacts on poverty. In the case of extreme dry events, for example, it is expected that climate change will generate an additional share of the population in Mexico to be impoverished in the amount of 1.76 percentage points, that is, 1.78 additional millions of poor people.[184] Extreme weather events and other impacts of a changing climate are expected to lead to an increase in climate migrants. Recent analysis suggests that in an extreme case, Mexico could have 1.7 million climate migrants – or 11 percent of all internal migrants – by 2050. Most of these people will be migrating to the central plateau around Mexico City, placing increased demand on the city's resources and institutions.[185] Other research finds that, by 2030, nearly 3 million people will remain in poverty as a result of climate change.[186] The rise in the sea level is particularly worrisome in the coastal states of Quintana Roo, Tabasco, Campeche and Sinaloa. Agriculture is highly vulnerable to climate change, directly affecting food security and the livelihoods of rural and urban populations.

155. **Mexico has been at the forefront of using innovative instruments to reduce the financial risk associated with natural disasters.** In 1996, the country established the FONDEN, through which the federal government allocates budget ex-ante for post-disaster response and reconstruction. Mexico also has access to catastrophe insurance and has issued Cat-bonds to transfer part of the natural disaster-related financial risk to the private sector. Use of these instruments is based on solid risk assessments, including the National Atlas of Risk and modelling of catastrophic events.

156. **Mexico also has a comprehensive and evolving institutional framework to address climate change.** Key instruments include: (i) the 2012 General Law on Climate Change (LGCC), which established a series of non-binding, aspirational goals and defined the scope of Mexico's national climate change actions, the responsibilities of federal, state and local governments, and the institutional arrangements to meet the law's objectives[187]; (ii) the 2013 National Climate Change Strategy, which provided guidance to achieve México's climate change objectives for 10-, 20-, and 40-year periods[188]; (iii) the Special Climate Change Program (PECC) 2014-18, in which the national government established priority climate change mitigation actions for its term of office[189]; (iv) policy instruments developed under the global climate change regime, such as Nationally Appropriate Mitigation Actions (NAMAs); (v) the Nationally Determined Contributions (NDC), adopted under the framework of the Paris Agreement, that include Mexico's conditional and unconditional climate change goals[190]; and (vi) the Mid-Century Climate Change Strategy.[191]

157. **Mexico's legal and policy framework recognizes the essential role of market instruments in achieving mitigation goals cost-effectively.** The LGCC provides the legal basis for market-based instruments, such as emissions trading and carbon taxes. It also creates the Climate Change Fund with the purpose of attracting and channeling public, and private, national, and international financial resources to support the implementation of actions to combat climate change.[192] At the international level, and in alignment with the LGCC provisions on market-based instruments, Mexico acknowledges the role of a robust global carbon market to achieve rapid and cost-efficient mitigation.[193]

158. **In 2013 Mexico established an excise tax based on the carbon content of fossil fuels.** As a component of the 2013 fiscal reform, this environmental tax aims to send a price signal towards a lower-carbon economy and obtaining revenues from externalities.[194] In this context, it complements the effect of fossil fuel subsidies reductions that started in previous years as well as the effect of fuel

181 Rodríguez-Oreggia et al. (2013) find that the occurrence of natural disasters during 2000-05 increased food poverty, or extreme poverty, by about 3.7 percent; capacities poverty by 3 percent and assets poverty by 1.5 percent.
182 Rodríguez-Oreggia et al. (2013).
183 Aguilar and Vicarelli (2011).
184 Ahmed et al. (2009).
185 Rigaud et al. (2018).
186 De la Fuente et al. (2013).
187 GoM (2012).
188 GoM (2013).
189 GoM (2014).
190 GoM (2015). As the first country to submit its NDCs to the UNFCCC, Mexico committed to unconditionally reduce its greenhouse gases and Short-Lived Climate Pollutants (SLCPs) emissions by 25 percent below business-as-usual (BAU) by 2030.
191 GoM (2016).
192 GoM (2012).
193 SEMARNAT (2017b).
194 Muñoz-Piña (n.d.).

excise tax increases.[195] As with all taxes in Mexico, carbon tax revenues cannot be earmarked towards a specific purpose. Instead, the carbon tax has contributed to the general expenditure of the federal government. In addition to the carbon tax, Mexico is exploring the development of a cap and trade system that would provide the means for cost-effective emission reductions in certain economic activities. The development of the technical and regulatory components of such a system is under way.[196] In addition, in collaboration with the Mexican stock exchange, Mexico is implementing a voluntary web-based simulation of an emissions trading scheme (ETS) with the objective of providing companies with insights about how the ETS operates and of building their capacity to participate in it.[197] Mexico has also been collaborating with other governments for the development of an offsets generation and validation system particularly for those activities or sectors that may not be incorporated into a cap and trade system but that may equally contribute to mitigation actions that also support adaptation to climate change.[198]

159. **To achieve its ambitious climate change goals, as described in its Nationally Determined Contribution, Mexico will have to overcome several challenges.** While the NDC states the country's overall goals and there are preliminary estimates of sectoral contributions needed to achieve them, robust analytical tools to estimate the feasibility and cost-effectiveness of alternative interventions have yet to be developed. Mexico has phased out government subsidies to gasoline and diesel between 2010 and 2015, and implemented a carbon tax.[199] However, challenges remain regarding the establishment of an Emission Trading System (ETS), such as building consensus among stakeholders and ensuring consistency of Mexico's markets with those of other jurisdictions. Also, energy subsidies are still significant (e.g. in the electricity sector) and the present carbon tax is too low to motivate de-carbonization at scale.[200] There is also recognition of the need to leverage private, public, and international financial resources to achieve the national mitigation goals.[201] Linking these goals with other development challenges such as health co-benefits (as the LGCC mandates) is another hard task, as is the goal to align national and sub-national climate change actions.

4.3 Social sustainability

160. **The social sustainability dimension of Mexico's development is defined by two interrelated challenges: lack of social mobility and inequality of opportunity, often stemming from gender and ethnicity, among other factors.** Reducing social sustainability risks requires promoting social and economic inclusion of traditionally excluded groups. Inequality of opportunity based on gender, race and ethnicity is an important determinant of the observed inequality in the distribution of wealth and educational outcomes in Mexico. Empirical evidence shows, for instance, that stratification by skin color persists in Mexico. People with lighter skin show more upward social mobility, independent of their starting wealth. Individuals with darker skin rank 20 percentiles lower in the current wealth distribution than their lighter-skinned counterparts—even when having the same level of parents' wealth—, and also show higher downward mobility than other groups.[202]

161. **The social and economic integration of millions of young people who lack opportunities is one of the highest priorities.** The NEETs phenomenon is one element in a chain of subsequent long-term consequences given its several intergenerational dimensions. By definition, it implies that a sizeable part of today's youth population is not accumulating the human capital necessary to effectively contribute to and benefit from labor and economic opportunities. At the same time, there is the concern that the incidence of NEETs is higher among youth coming from households in the lowest quintiles of the income distribution, perpetuating thus inequality in the long-run. Moreover, NEETs are associated with other social problems that increase the probabilities of poverty traps, for example deficiencies in the quality and relevance of education that may lead to early dropout, high incidence of teen childbearing, high levels of youth unemployment, crime and violence.[203]

162. **Exclusion and youth disenfranchisement present distinctive correlation patterns with crime and violence.** Crime and violence tend to be higher in poorer and more unequal areas; and have a strong gender, age and income dimensions, whereby young, male NEETs are disproportionately affected. Homicide rate among young boys (ages 10-14, 15–19 and 20-24) are significantly higher than those of the general population (2.1, 28.0, and 58.6 per 100,000 for boys in the respective age groups compared with 1.7, 16.4, and 32.5 for the general population). A positive and significant correlation between exclusion (incidence of NEETs) and crime approximated by homicide rates has been found in states along the border with the United States—a region afflicted by organized crime and the economic crisis of 2008–09.[204] Changes in international migration dynamics in recent years are affecting the probabilities and mechanisms for a significant proportion of youth—particularly boys and young men—to fulfill as-

195 Montes de Oca and Muñoz-Piña (2016).
196 Prieto (2017).
197 SEMARNAT et al. (2018).
198 SEMARNAT et al. (2018).
199 Enríquez et al. (2018).
200 Montes de Oca and Muñoz-Piña (2016).
201 GoM, 2015; 2016.
202 Campos-Vázquez and Medina-Cortina (2017).
203 For example, as discussed in Section 4: *Crime and Violence*, early labor experiences away from formal employment can have damaging effects over adult life employability and wages. The limited ability of youth to acquire and use human capital thus constitute an exclusionary force to productive activities, leading to misallocation, and perpetuating the negative feedback loop.
204 De Hoyos et al. (2015).

pirations of higher socioeconomic status, which may also be contributing to their increased participation in drug related crimes and violence.[205] Moreover, 66 percent of women in Mexico aged 15 and older have experienced some gender violence, which includes physical, sexual, economic, emotional or psychological violence. Leveling the playing field might have a positive impact in terms of growth and social cohesion, providing returns for society as a whole.

163. **Inclusive violence prevention, effective implementation of the law and a shift of social norms are central to overcoming the current challenges that Mexico is facing, and mitigating risk factors.** Addressing a 'continuum' of violence that ranges from homicides, to Gender Based Violence, to gang activity requires a multifold policy approach, which combines social and situational prevention with effective implementation of criminal justice. This approach should account not just for the existing risk factors behind crime and violence in Mexico, but also look to mitigate risk associated with mega-trends that are likely to create additional stresses such as growing regional gang activity, or climate change-related migration and forced displacement, among others.

164. **Low trust in institutions is associated with weaker incentives for cooperation and coordination creating a dynamic of low compliance with norms and free-riding problems.** Levels of indicators such as civic engagement, trust in institutions and confidence in the government are low in Mexico compared with its peers. For instance, only 8 percent of the population believes that the country is 'governed for the good of all'; in contrast with 32 percent in Uruguay, 23 percent in Argentina, 17 percent in Peru, and 14 percent in Chile. Moreover, Brazil and Mexico have experienced eroding indicators of trust reaching the lowest levels in the region.[206] Ensuring access to efficient and effective implementation of the law is crucial not only to improve outcomes but also to increase compliance: believing that processes follow the rules leads to higher compliance with the law, even if the outcomes do not always favor individuals.[207]

205 Meza González and Ramírez García (2012).
206 Latinobarometer 2006–17.
207 WDR 2017.

5. Unlocking Mexico's inclusive growth potential

5.1 Structural impediments to inclusive growth

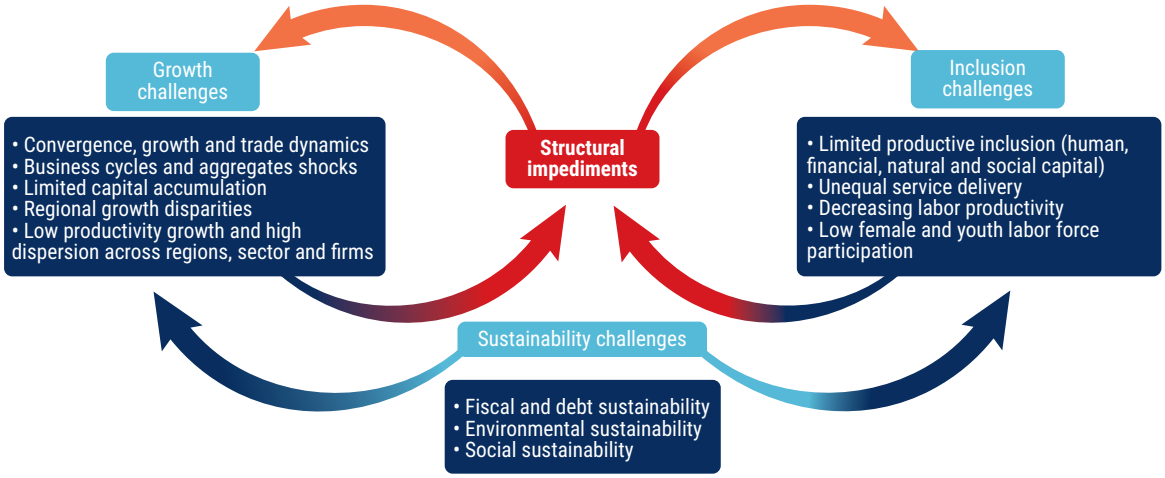
165. **Chapters 2–4 highlight the growth, inclusion, and sustainability dynamics and challenges faced by Mexico.** On the economic growth side, limited growth dynamics seem linked to limited capital accumulation over time, deep regional growth disparities with limited regional convergence, low productivity growth also with significant dispersion across regions, sectors and firms, and several successive external and domestic shocks that resulted in large downswings in economic output. On the inclusion side, we observed that progress may have been slowed by low quality of inputs for human capital formation, insufficient access to basic services for the poor and vulnerable, decreasing labor productivity in the bottom of the skills distribution, and low female labor force participation and high proportion of youth neither on school or in the labor market. But what are the root factors linked to Mexico's growth and inclusion dynamics? Consolidating the significant body of research in Mexico from different sources, past work of the World Bank, and work under this report, this section argues that structural/microeconomic impediments could be hindering growth and inclusion.

166. **The persistence of well-known structural impediments seems to have hampered the long-term path of growth, inclusion and sustainability.** At the same time, low growth and high economic disparities seem to reinforce and perpetuate structural impediments. A key argument in this report is that a misallocation of resources is taking place, within and across sectors in the economy, across regions, firms and individuals, and that it is harming productivity, growth and even inclusion.[208] [209] High-performing market economies exhibit a high degree of allocative efficiency. In this context, this report looks to identify the most critical

208 See Chiquiar and Ramos Francia (2006), Levy and Walton (2009), Hanson (2011) and McKinsey (2013).

209 Separating misallocation between and within sectors can help identify improvements in intersectoral allocative efficiency—such as the movement of labor across sectors—as well as changes in within-industry productivity, e.g., as a result of specific investments (Mc Millan et al. 2018; Herrendorf et al. 2013). A better understanding of the role of structural impediments is useful to explain the ambiguous effect of structural transformation on productivity; what factors are contributing to the low productivity of sectors, and the incentives/disincentives to the movement of labor across them (Duarte and Restuccia 2009). Allocative efficiency—both within and between sectors—interacts with the role of the law and the general political economy. E.g., a source of disparity *within* sectors—even in narrowly defined industries—could be due to misallocation of resources across firms (Bartelsman et al. 2013). This, in turn, may be explained by a differential implementation of rules due to privileged relationships with the authorities, among other distortions. Externalities, public goods, market power, or other factors associated with inefficient equilibrium outcomes also shape the process of structural change.

Figure 84. Structural impediments and growth



impediments that prevent the assignment of resources to their highest-valued use.[210] Lifting these impediments or bottlenecks would help support an accelerated and more broad-based, inclusive growth. Moreover, it also argues that key aspects of fiscal, environmental and social sustainability are critical to consider in order to achieve sustained growth and poverty reduction over the medium and long term (Figure 84). Addressing these structural constraints and sustainability challenges would help Mexico realize its growth potential more fully and catch up with US per capita income levels.

167. **These structural impediments appear to be associated with unfinished or incomplete reforms, as well as policies and programs that could be adjusted.** Recent evidence from Mexico shows that main distortions in the economy result from the interaction of policies related to taxation, credit, labor and social insurance regulations; the absence of policies to correct for market failures; artificial barriers to entry or subsidies; as well as from registration or transactions costs.[211] Another recent study suggests that Mexican states with better business regulations (less impediments) lost fewer formal jobs during the 2008 financial crisis and created more formal jobs in its aftermath, than states facing worse business regulations.[212] Drawing on an extensive literature, and consultation with external and World Bank experts, this diagnostic has identified three sets of structural impediments, which, if addressed, could have the highest potential to break the vicious cycle or negative dynamics taking place between these impediments and moderate growth and inclusion in the economy. The first refers to distortions in selected product and factor markets, which deter entry of new firms into certain economic subsectors, increase costs of operation, delay exit of nonperforming economic agents, raise consumer and financing prices and costs, create a less competitive business environment for the private sector, and encourages informality. The second refers to the role of the Rule of Law in leveling the playing field for private individuals, households and firms, including on issues related to uneven access to justice and impunity, crime, violence, and corruption. The third set of structural impediments refers to the allocation and utilization of public resources, particularly as regards to its impact on economic efficiency, the redistributive capacity of the fiscal system, quality and equity of service delivery, and long-term planning of investments.

168. **The three sets of structural impediments are linked with each other and to the issues of horizontal and regional disparities in income, income growth, and productivity in the private sector.** They are also linked to below-potential levels of investment and growth as well as to economic vulnerability to external shocks. Moreover, they are also connected to the suboptimal provision of quality inputs for human capital accumulation and to low levels of labor force participation, particularly for women and youth. The impediments have also been associated with factor misallocation, which has driven decreasing productivity at the bottom of the skills distribution, as well as systematic exclusion of vulnerable groups from productive activities.

169. **It is important to highlight at the outset that significant progress has been made in these three areas.** As highlighted in the overview chapter, the past decade has seen important and positive reforms across a number of policy areas, including those where impediments continue to exist. Box 9 provides a brief summary of these reforms. Thus, the rest of the section focuses only on the pending issues ahead.

210 For more detail on economic theory of allocative efficiency based on firm dynamics, see Lucas (1978), Hopenhayn (1992), Caballero and Hammour (2001), Haltiwanger (2011), and Bartelsman, Haltiwanger and Scarpetta (2013), among others.
211 Levy and López-Calva (2017).
212 Specifically, better employment performance was driven by regulations that facilitated access to credit and simplified the process of starting a business (Iacovone et al. 2018).

Box 9. Structural reforms 2012-2017

As part of the *Pacto por México*, a political agreement across the main parties, the government started rolling out major structural reforms in 2012. This process entailed approving legislation and regulation aiming to boost productivity, strengthen rights and support the democratic system. Some reforms have been fully enacted, while others remain to be completed (Table 5).

Table 5. Progress in the implementation of the structural reforms

Well-advanced implementation	Gaps in implementation	Insufficient progress
• Tax policy reform • Financial sector liberalization • Telecom deregulation • Election system reform • Competition policy and regulatory reform • Energy market openness	• Labor market reform and tackling informality • Education quality reform • Anti-corruption and transparency reform • Judicial process reform • Innovation system reform • Fiscal federalism	• Agricultural transformation • Unemployment insurance, pensions and social benefits • Health system reform

Source: OECD 2018.

Overall, the growth impact of the reforms has not yet matched expectations, which range from an additional 0.75 to 1 percent a year (IMF estimates) to 4–5 percent (government estimates). It has been argued that part of the observed gap is due to a lag, where reforms take a delayed time to yield results, and have short-term costs.a OECD calculations suggest that a subset of the reforms in Mexico could add one percentage point to GDP growth after five years.b Reforms, in this sense, would begin to show results about now, as most legislation was approved by 2013–14. The main achievements of these reforms so far are listed in the Table 6 below.

Political economy factors may have contributed to the lack of results to date. According to this perspective, the reforms have not been able to shift the political economy equilibrium (and associated incentives structure), making legislative changes largely ineffectual. This could be reflecting that, in the absence of a systematic implementation of the rule of law, changing laws is insufficient. It has been argued that as long as corruption, insecurity or extortion practices continue to influence production processes and competitiveness, the potential impact of reforms will remain incomplete.c The present diagnostic accounts for both the time lag and the political economy factors.

a. Evidence suggests that the growth impact of product market reforms in OECD countries becomes statistically significant after three years and does not fully materializes until after seven years (raising GDP on average by a cumulative 1.5 percent (Duval and Furceri 2016; IMF 2016). b. OECD (2015). c. Rios and Wood (2018).

Table 6. Main results of the structural reforms (2012-2017)

Labor market reform (2012)
• More than 3 percentage points of GDP in additional tax revenues • Informality dropped from 59.5 percent in 2012 to 56.9 percent in 2017
Tax policy reform (2013)
• More than 3 percentage points of GDP in additional tax revenues • Oil revenues as share of total tax revenues from 39 to 17 percent • Tax base increased from 38 to 66 million taxpayers
Education quality reform (2013)
• Scholarships from 3 out of 10 students in public schools
Energy market reform (2013)
• Expected investment between 160 and 200 US$ bn • More than 70 new energy firms
Competition policy and regulatory reform (2013)
• Double in fines for monopolistic practices
Financial sector liberalization (2014)
• 13 million people gained access to financial services
Telecommunication reform (2014)
• 50 million additional people subscribed to mobile broadband • 24 percent reduction in telecommunication prices between 2013 and 2017
Fiscal responsibility Law for subnational discipline (2016)
• States' debt to non-earmarked transfer ratio reduced from 88 to 80 percent in 2017

5.1.1. Product and factor markets

170. **Product and factor inefficiencies affect private sector growth.** As discussed in Chapter 2, there are weak links between the NAFTA export-oriented firms in the northern and central states of the country, and the large share of low-productivity firms not linked to those global value chains. In that context, it is of critical importance to reduce any hurdles to entry, competition, exit, efficient costs of operation and flow of labor to productive and formal activities, as well as to their access to finance. Further implementation and reforms in these areas can support the strengthening of those linkages. While progress has been made, there is significant room to improve across the

Map 4. Variation in resource misallocation across states

Source: IMF (2017).

board on these issues at the federal and especially at the subnational levels.

171. **Reducing barriers to doing business can also bring substantial welfare gains to households and boost the private sector in the poorest states, especially in the south of Mexico.** There is evidence that the benefits of alleviating distortions, which prevent the allocation of capital and labor to their most productive use, are higher in Mexico than in other peer countries.[213] Recent evidence shows that improving the efficiency of factor allocation by a quarter could increase the annual growth of the output of manufacturing and services by 1.4 percentage points over 20 years.[214] The greatest potential gains are found in some of the poorest, southern states (Map 4).[215] Factor misallocation is correlated with sectors with high entry barriers, low access to financial services and informality.

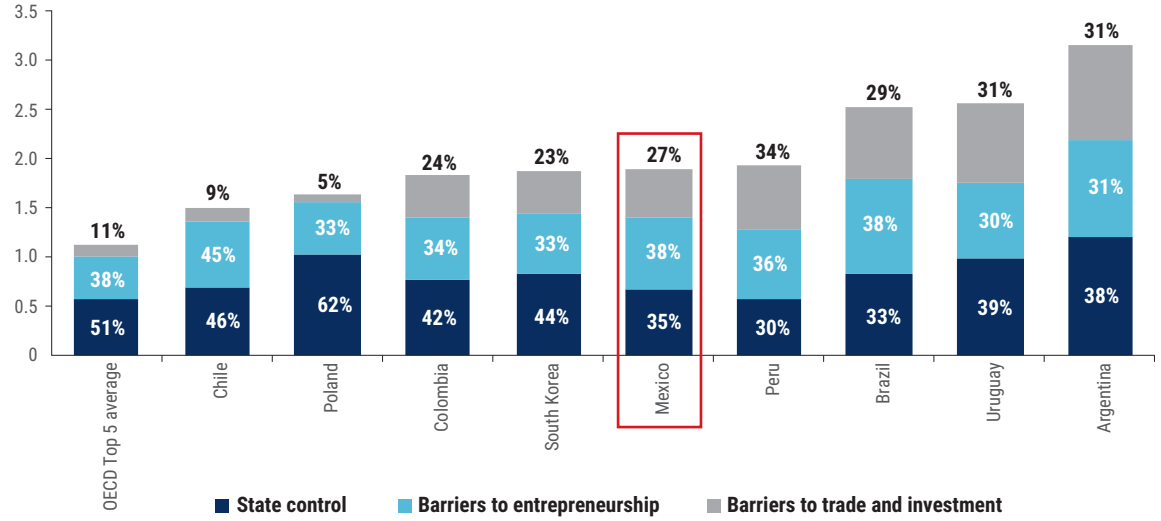
Concentration in critical input markets and barriers to entry at the local level

172. **There are significant obstacles to competition, although major federal-level reforms have begun to reduce these barriers in key industries.** As of 2013, product market regulations were relatively restrictive in Mexico compared with other OECD countries (Figure 85). Such barriers, coupled with other noncompetitive arrangements, protect incumbent firms and prevent the entry of newcomers. The extent of regulatory protection to incumbents was higher than in other OECD member countries. Within regulatory barriers, those related to entrepreneurship—including license and permit systems and administrative procedures for start-ups—represented the largest share in Mexico. Barriers to trade and investment, which refer to barriers to FDI, tariff barriers and differential treatment of foreign suppliers, were also relatively high in Mexico. Initial results from an analysis of changes in profits in response to changes in costs (as a proxy measure of competition) suggest that the services sector is characterized by a significantly lower degree of competition, and that competition has actually decreased in the sector between 1999 and 2014, driving an overall decrease in competition in the economy during that period.[216] Lack of competition is estimated to cost Mexico 1 percent of GDP each year and disproportionally affects households in the lowest income decile.[217] The recent reforms in energy, telecommunications and financial services[218], as well as those to the competition law itself, have started having some positive effects, including lower prices in telecommunications and increased entry of foreign competitors (energy). In the energy sector, concessions of US$80 billion had been awarded as of August 2017, bringing in 66 private market entrants.[219] Mobile broadband prices, which were comparatively high before the reform, are now among the lowest in the OECD.[220]

173. **The inefficiencies resulting from market concentration and obstacles to competition are well-documented, especially at the local level.** A growing body of evidence shows that subnational regulations often limit entry, reinforce dominance, facilitate collusive outcomes or distort the level playing field, thus leading to anti-competitive behavior.[221] For example, while private competitors to PEMEX may reduce upstream gasoline prices, subnational regulations that establish minimum distances—such

213 Busso, Fazio, and Levy (2012) find TFP gains of 95 percent from eliminating resource misallocation in Mexico (more than that of other Latin America and Caribbean countries considered).
214 Using World Bank Enterprise Survey data for the manufacturing sector, IMF (2017) reports that TFP gains in Mexico could be between 93 - 130 percent for 2010 and 2006.
215 Using World Bank Enterprise Survey data for the manufacturing sector, IMF (2017) reports that TFP gains in Mexico could be between 93 - 130 percent for 2010 and 2006. The gains are 25 percentage points in the Southern and South-Eastern states than in the rest of Mexico.
216 Background paper produced for the SCD. The analysis follows the methodology proposed by Boone (2008).
217 OECD Economic Survey (2015); Chiquiar and Ramos-Francia (2009).
218 A comprehensive financial reform was approved in 2014 with the objective of increasing the sector's contribution to economic growth, promoting development opportunities in strategic sectors including through development banks; increasing competition; improving legal certainty for private sector actors in order to expand credit and make it more affordable; and maintaining a solid and stable financial system (Gobierno de México, 2014).
219 Agencia EFE (2017).
220 OECD (2017).
221 Licetti et al. (2016).

Figure 85. Product market regulation indicator



Source: World Bank calculations based on OECD data.

as more than 1km—between gas stations may annul the benefits, granting significant local market/pricing power to the incumbent. In the telecoms sector, the dominant operator, Telcel, still held 71 percent of subscriptions in the mobile broadband market as of end-2016. In Tabasco, recent evidence suggests that unions have a monopoly in the transport of construction materials, which lead to road works that are 15 percent more expensive as a result of overcharges.[222] In the State of Mexico, stringent limits to market entry are associated with fewer competing supermarket chains and higher prices for consumers.[223] Since 2005, the Federal Commission for Economic Competition (COFECE) has uncovered at least six tortilla cartel agreements, which can have a significant impact on households' expenditures considering the average household spending on this product.[224] Market concentration and lack of competition is reflected throughout the value chain. In the production of hybrid seeds for corn, for instance, fertilizers and access to warehouse and storage facilities are only available to large producers, which further limits competition in the agricultural value chain, and which can impact the consumer price burden.[225]

174. **Regulatory barriers to competition at the local level tend to be dispersed across legal instruments, sectors and jurisdictions.** Their potential negative impact depends on how these barriers are applied and on the features of the market that are affected, some of which are linked to strong local vested interests. Results from a recent study[226] corroborate the proliferation of anti-competitive regulations that limit competition in key sectors in Oaxaca, Tabasco, and the State of Mexico, in addition to 17 other states. Of the 520 restrictive regulatory provisions identified, most of them are in the retail, construction and manufacturing sectors.

175. **Evidence shows significant and regressive social welfare losses in Mexico due to the exercise of monopoly and oligopoly power.**[227] Increased market concentration usually raises consumer prices, and can lead to lower employment and wages, creating an economy-wide welfare loss, and reducing the relative incomes of households, particularly of the poor. Concentration in input markets often prices out the poorest and vulnerable or implies higher relative out of pocket costs. Until recent years, the regulatory bodies of key sectors such as finance and telecommunications have struggled to connect the efficiency gains of banks and telecommunication firms into improved access and better services for households and enterprises.[228] Even though recent reforms have helped address concentration, telecommunication and digital services markets remain concentrated, margins are high, and access is unevenly distributed across the country.[229] Similar situation with banks which benefit of high profitability partially due to high commissions compared with peer countries.[230] Recent evidence shows the welfare-enhancing effects of market competition. Increased competition through retail globalization in Mexico in the 2000s had positive net effect on average household welfare —even though the richest households experienced higher relative gains.[231]

222 Based on surveys conducted with market actors during implementation of reforms proposed in Licetti et al. (2016).
223 Licetti et al. (2016).
224 Gobierno de México (2016)
225 UNCTAD (2014)
226 Subnational application of the World Bank's Markets and Competition Policy Tool, in partnership with COFEMER. (World Bank 2017).
227 Urzua (2008).
228 Levy and Walton (2009).
229 For instance, while in Baja California Sur and Sonora, Internet access reached over 70 percent of households in 2016, in Chiapas and Oaxaca, only 13.3 percent and 20.6 percent of households had Internet access (INEGI 2017b).
230 It has been argued that during the 2000s, credit and debit cards were used relatively less in Mexico compared with other countries due to the high consumer fees—where fees for the use of electronic methods were greater than for using checks, while the costs of the latter were higher than those in developed countries (Castellanos, Garrido and Mendoza (2008). The Law to Promote Transparent Financial Services was enacted in 2004, and revised in 2007, to promote transparency and to protect the interests of consumers.
231 Atkin et al. (2015), on the welfare effects of the entry of Walmart stores in Mexico.

Analogously, higher local concentration in the retail sector has been found to raise the poverty headcount at the municipal level, also via higher prices.[232] A recent study also provides evidence that markets for common, well-defined products in Mexico do not function like a well-integrated market, namely, while there is heterogeneity across products, locations matter greatly.[233]

176. **High intermediation in the agribusiness chain is associated with consumer loss and reduced benefits for producers.** Waste, intermediation and inefficiencies have implications for both producers and consumers. There is indication that the level of intermediation in Mexico, on average, increases the price of food by 400 percent.[234] Part of the price differential is explained by food losses. Evidence points to a 20 percent of food loss and waste alongside the agribusiness chain (over 20 million tons[235]), most of which ends up being transferred to the consumer.[236] A lag in the availability of storage centers to collect grain, fruits and vegetables has been pointed at one of the impediments to achieve a better regulation of prices.[237] Another factor behind the high intermediation in the country is the highly polarized structure of the final sales market for food, which ranges from large retail and supermarket chains to an extensive number of small stores and informal markets.[238] Some early reports have argued that NAFTA has contributed to market concentration in the food and agriculture sector by incentivizing fewer and larger farms in monocultural systems and increased export dumping by agribusiness firms, where overproduction often resulted in downward pressure on prices.[239]

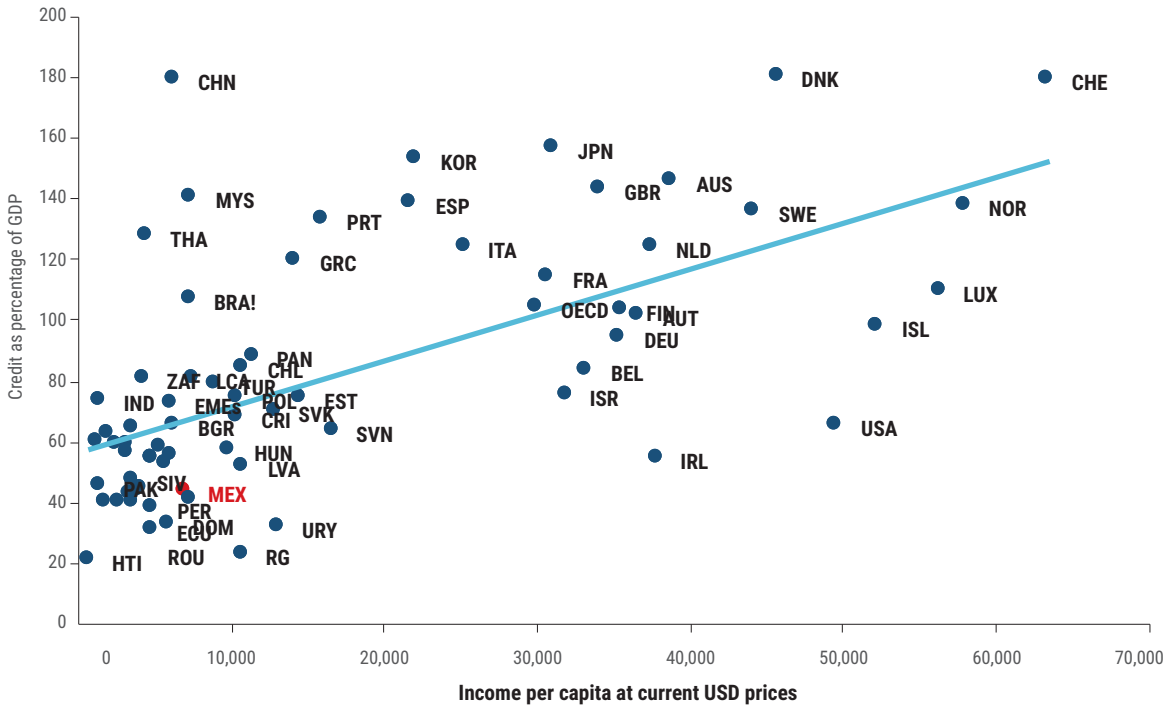
177. **The agricultural and food sector is marked by varying degrees of market concentration.** Some evidence suggests that some economic agents may be benefiting without a strong rationale from agricultural subsidies. Several market value chains in the agrifood sector Mexico are concentrated among a handful of medium- to large-scale private firms. These firms often display oligopolistic behavior, with impacts on the price-taking producers and small-to-medium-scale agritrade entrepreneurs.[240] It has also been argued that some of these firms receive a large share of the agricultural subsidy programs. One example of a sector with a high concentration is the subsector of corn flour milling. This product is of particular relevance for final consumption in Mexico, especially for the lowest income segment of the population.[241] Two companies accounted for 90 percent of the total production volume of corn flour in Mexico in 2010. While lack of data precludes more recent analysis, historical data show that large companies in this supply chain appear to be benefiting directly and indirectly from subsidies. Concentration is not exclusive to the marketing and processing of grains but also exists in the sale of inputs and seeds to farmers: in 2009, 95 percent of planted hybrid seeds were produced only by two corporations.[242]

Access to finance

178. **Mexico has one of the lowest credit-to-GDP ratios among peers (including countries at similar levels of income), suggesting obstacles in the efficient allocation of financial capital (Figure 86).** In the context of the financial sector reform, significant progress has been made over the last four years. For example, Mexico's position in the World Economic Forum's Global Competitiveness Report improved from 63 in 2013 to 36 in 2017. Credit (as a share of GDP) to the private sector increased and more than 13 million people gained access to financial services due to the reforms. Yet, further progress is needed. Credit to the private sector and deposits remain low, not just when compared to peers at the same level of income, but within the Latin America region as well. Just one third of SMEs have access to loans, and only 37 percent of adults had access to services in a financial institution in 2017 (Map 5, Global Global Financial Inclusion Database- Findex) or 44 percent as per the forthcoming Mexico's *Encuesta Nacional de Inclusión Financiera* (ENIF 2018).[243] The scarcity of long-term financial resources hinders the development of housing and infrastructure finance. The credit to the private sector and deposits for Mexico is 25.6 percent, compared with the Latin America and Caribbean median of 45 percent, and the income group median of 47.2 percent.[244] Domestic bank credit to the private sector contracted considerably following the 1995 crisis.[245] Although its growth finally resumed in 2006, the current penetration of bank credit to the private sector remains low by regional standards. The ratio is low even when considering nonbank financing sources, which have been institutionalized, such as housing credit through public housing institutes—Infonavit and Fovissste—, financing to companies from banks abroad, and financing from local financial markets.[246]

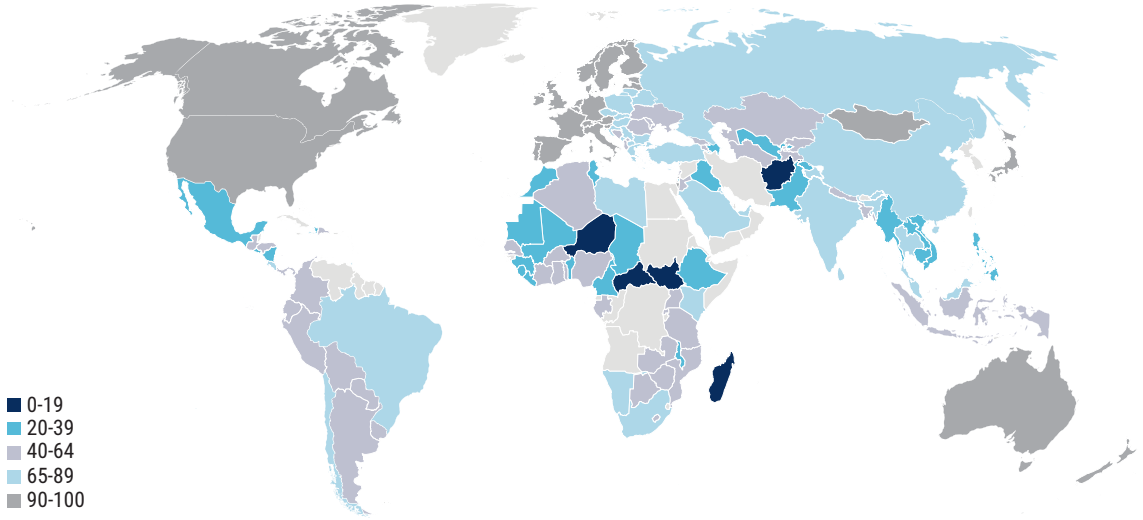
232 Rodríguez-Castelán and Rodríguez-Chamussy (2015).
233 Sánchez et al. (2018).
234 IPD (2014); Chávez (2014). The increase is higher in some products, including staple crops, e.g., the price of lemons increases from Mex$1.10 a kilogram, as bought from the producer, to Mex$8 to the consumer, where the producer only receives 14 percent of the final price.
235 Approximately 20.4 million tons of food are lost and wasted, 72 percent during the first stages of production and 28 percent in the retail selling and consumption stages.
236 IPD (2014).
237 As pointed out by Emilio Romero Polanco, specialist at the Instituto de Investigaciones Económicas de la UNAM, in Chávez (2014).
238 As pointed out by Emilio Romero Polanco, specialist at the Instituto de Investigaciones Económicas de la UNAM, in Chávez (2014).
239 IATP (2010).
240 UNCTAD (2014).
241 In 2010, households in lowest income decile devoted about 10 per cent of their total food and beverages expenditures to tortilla, compared with only 3.1 per cent among households in the highest income decile. Also, tortilla consumption is significantly higher in rural areas (Secretaría de Economía, 2012).
242 Namely, Monsanto and Pioneer. See Luna et al. (2012).
243 Global Findex (Global Financial Inclusion Database), World Bank, Washington, DC, https://globalfindex.worldbank.org/. The Global Findex is based on demand-side data and measures people's perception about ownership and use of financial services. The margin of error for Mexico is 3.7. The methodology used for Findex may differ from country-based surveys. For instance, Mexico's *Encuesta Nacional de Inclusión Financiera* (ENIF) suggests that from 2012-2015, the share of adults who own a transaction account ("*cuenta de depósito*" or "*cuenta de ahorro*") with a regulated financial service provider increased from 35.5 to 44.1 percent. Results from the ENIF 2018 will be published in November 2018.
244 2018 data of FinStats (internal database), World Bank, Washington, DC.
245 Domestic bank credit to the private sector fell from 35.2 of GDP in 1995 to 12 in 2000, and 9.8 in 2005, only showing signs of recovery in 2006 (Albo and Morales 2012).
246 Accounted under II. Non-Bank Entities of the Private Sector (NBEPS or ENBSP in Spanish) in Table 4

Figure 86. Credit to GDP vs. per capita income



Source: FinStats (internal database), World Bank, Washington, DC.

Map 5. Share of adult population with an account (%)



Source: Findex database.

179. **An important fraction of total financing in Mexico goes to the public sector (federal, state or municipal government, or public agencies).** In 2017, the public sector accounting for roughly 54 percent of total private credit to the economy (Table 7). Under some circumstances, the large share of resources destined for the public sector may inhibit the expansion of credit and financing to the private sector, as domestically, both sectors compete for the same savings pool. Mexican banks may have little incentive to lend to riskier borrowers when they can, instead, lend to the government. The share of credit and financing to the public sector in Mexico is lower than in Brazil but considerably higher than in Chile, Argentina, and Peru and slightly higher than in Colombia.[247]

180. **Mexico's financial sector is concentrated, and stronger competition may lead to more efficient intermediation.** The financial sector includes a diverse range of financial intermediaries and many small institutions, but assets remain concentrated in large banks and financial conglomerates, and intermediation margins have been rising. The five largest banks account for about 70 percent of total bank assets (Figure 87), and the sector is more concentrated relative to Latin American peers. With economies of scale,

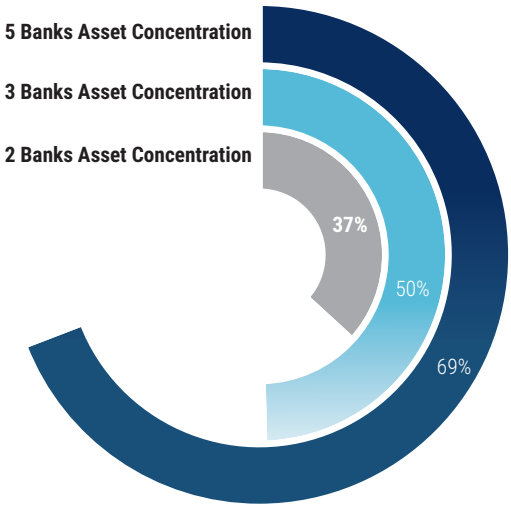
247 Based on 2011 data, Albo and Morales (2012).

Table 7. Credit to the private and public sector, selected countries, 2017

Credit to the Private and Public Sectors	Argentina	Brazil	Chile	Colombia	Mexico	Turkey	Russia	South Africa
Domestic Bank Credit to the Private Sector	13.60%	60.10%	77.70%	47.80%	25.70%	63.60%	52.10%	64.40%
Total Credit to the Private Sector	20.70%	63.00%	141.70%	64.70%	41.60%	84.70%	66.10%	72.50%
Domestic Bank Credit to the Public Sector	7.60%	1.90%	4.20%	5.80%	15.00%	11.50%	6.30%	12.20%
Total Credit to the General Government	52.60%	84.00%	23.60%	49.40%	54.20%	28.50%	17.40%	52.70%
Total	73.30%	147.00%	165.30%	114.10%	95.80%	113.20%	83.50%	125.20%

Sources: BIS (Total Credit, Q3 2017), IFS (Domestic Bank Credit, Q3 2017).

Figure 87. Commercial bank asset concentration (2017)



Source: Estimated with end of year data from CNBV, R0.

more concentration does not necessarily lead to less efficient outcomes, and various measures of competition estimated over 2012-15 illustrate the level of competition in the sector. A Lerner index higher than in other major Latin American countries suggests that mark ups are high. The Boone indicator, a measure of profit elasticity with respect to marginal costs, is not as strong as in the peer countries suggesting that competition can improve. The country has liberalized entry both by allowing foreign banks into the market, allowing small non-bank intermediaries to operate, and by introducing niche bank licenses that allow for the entry of less complex banks with commensurately lighter regulatory burdens. These reforms may render more competition over the medium term.

181. **Sectors with high levels of concentration appear to obtain a relatively high proportion of financial resources.** Recent evidence shows that sectors with high levels of concentration in Mexico tend to obtain a high share of credit from banks, relative to firms in less concentrated sectors, with little regard to productivity growth.[248] Banks appear to allocate credit more based on features such as strong balance sheets and stable profits, common in firms with market power, and less so on characteristics such as productivity growth, output, or wage growth rates. This means that more credit may be being allocated to less productive sectors, limiting the growth of the less concentrated sectors; while more concentrated sectors could be producing less than the socially optimal. The misallocation of resources due to credit constraints is estimated to lead to a loss in TFP of 10 percent.[249] Moreover, smaller SMEs (those with fewer employees and with lower overall debt levels)—and those in the initial stages of development—face significantly less favorable conditions than relatively larger SMEs.[250] The prevailing high levels of informality in smaller companies further hinder access to finance.

182. **As a result, lending to segments, such as micro, small, and medium enterprises, is particularly scarce.** Only 12 percent of microenterprises received finance, while 32 percent of SMEs needed to invest but could not due to financial constraints.[251] Credit to micro, small, and medium enterprises, which account for 95 percent of all Mexican companies and employ 76 percent of Mexican labor (according to the 2014 Economic Census), represents only 11 percent of commercial banks' loan portfolio.[252] Even though there are high returns to capital in Mexican microenterprises, capital is not flowing to these firms.[253] This could bear relation to the cost of servicing small loans, lack of collateral, a weak contracting environment, and large information asymmetries.[254] State development banks have introduced significant guarantees (including loss coverage, lower capital requirements and loan loss provisions) to stimulate commercial credit to this segment. Commercial bank lending, on the other hand, tends to be short term, costly and increasingly focused on the more profitable consumer credit. Access to finance is the sixth

248 Ramos-Francia and García-Verdú (2017).
249 Lopez (2017).
250 "Reporte sobre las condiciones de competencia en el otorgamiento de crédito a las pequeñas y medianas empresas (PYME)", BANXICO, (2015).
251 According to data of ENAPROCE (2015).
252 From IFC.
253 McKenzie and Woodruff (2008).
254 Negrete (2017).

most important obstacle for companies (after corruption, crime, inefficient bureaucracy, tax rates and regulations), according to the World Economic Forum's global competitiveness index.[255] In addition, while Mexico ranks closer to the top in items such as the soundness of banks (in 47th place out of 137 countries), it scores substantially worse in availability and affordability of financial services and ease of access to loans (in 85, 75, and 78th place, respectively, among 137 countries).[256]

183. **A large proportion of the population—mainly lower middle- to lower-income individuals—still lack access to formal financial services.** Mexico's unbanked population is far larger than the country's level of economic and financial-sector development would predict. The share of adults with an account at a formal financial institution decreased from 39 percent in 2014 to 37 percent in 2017, far below the level of most comparator countries (80 percent of adults have a bank account in Brazil or China by comparison).[257] Some of the potential barriers to account ownership are: the lack of unique identification making complying with know-your-customer requirements costly (19 percent of adults), financial services are too expensive (37 percent of adults) and distance of point of service (21 percent of adults).[258] Agent networks have not significantly enhanced the coverage of banking infrastructure to underserved areas (agents cover 19 percent of rural areas). Mexico's agent-banking model remains focused on urban areas and relies heavily on large retail chains rather than small shops. Agent-banking services also tend to be limited to taking deposits and accepting loan repayments. There is also a large gap in coverage of agents between northern Mexico and the center and south of the country. Within the five states with the largest number of commission agents per adult, four are located in the north of the country. In contrast, the five states with the smallest number of agents per adult are located in the south and center of the country. Among the pitfalls of the Mexican model, agent banking relies to a great extent on large retailers rather than on small shop owners and the number of services offered is limited to mostly deposits and loan repayments.

184. **Increased access to financial services can lead to a significant increase in income, particularly among low-income individuals and those located in areas with lower preexisting bank penetration.**[259] Among households in the bottom 40 percent of the income distribution, 74 percent of adults remained unbanked in 2017.[260] Gender gaps also remain in terms of savings accounts, possession of assets, savings for retirement, insurance and credit for housing, despite efforts such as the Programa Integral de Inclusión Financiera.[261] The gender gap in account ownership in Mexico is 8 percentage points, while that between the rich and the poor is 18 percentage points; compared with 6 and 12 percentage points in Chile, respectively.[262] Collateral constraints among the poor, among other obstacles, limit access to capital. In lieu, the unbanked population often use stores and retailers as their primary source of credit.[263] When the unbanked are reached by formal credit institutions, interest rates are often higher than the average. [264] New technologies and their regulatory frameworks offer another option to expand access to credit while guarding for the needed prudency in credit growth (Box 10).

Labor market imperfections and informality

185. **Nearly two-thirds of the current employment in Mexico is informal.** The informal sector is comprised by the more usual categories of self-employed, agricultural workers and wage employees in unregistered (informal) firms, but also by an important share of workers not-covered by social insurance but employed in registered (formal) firms. Presence of restrictive labor legislation may be linked to segmentation between the formal and informal sectors; at the same time, there is evidence of voluntary (self-selected) informal employment reflected for example in high mobility between formal and informal employment and procyclical informal employment.[265] Recent evidence estimate that between 10 and 20 percent of informal workers would prefer to have a formal job, while an important proportion of workers in the informal sector self-select into it.[266]

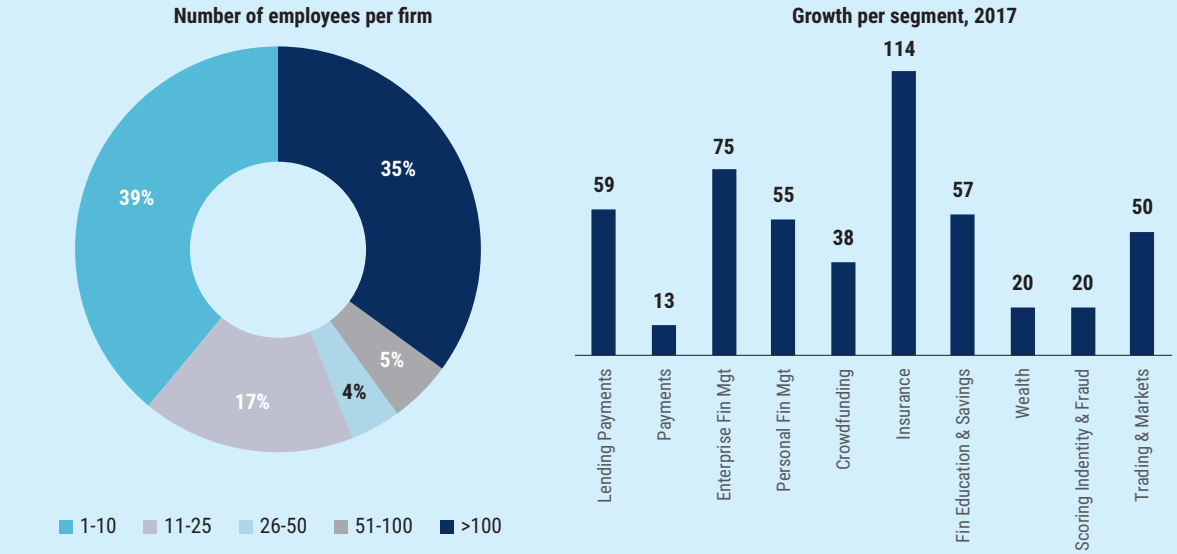
186. **Well-intentioned reforms to labor laws and social protection schemes aimed in principle to protect workers could be unintentionally contributing to foster informality.** The modifications to the Federal Labor Law, passed in September 2012, aimed at increasing flexibility to the labor market and facilitating the formalization of firms and jobs; however, it fell short of creating unemployment insurance, increasing the share of temporary workers and improving the quality of jobs.[267] [268] The reforms also increased enforcement by adding to the resources available to inspection of employers' fulfilment of the regulation, and increasing the penalties for noncompliance. Since 2014,

255 Schwab (2017).
256 Schwab (2017).
257 Global Findex (Global Financial Inclusion Database), World Bank, Washington, DC, https://globalfindex.worldbank.org/.
258 Global Findex (Global Financial Inclusion Database), World Bank, Washington, DC, https://globalfindex.worldbank.org/.
259 As shown by Bruhn and Love (2014), on the basis of a natural experiment—the opening of 800 branches of Banco Azteca. Ruíz (2010) suggests that informal households in municipalities with Banco Azteca were better able to smooth their consumption.
260 The provision of financial services is concentrated in urban areas, with only 26 percent of the poorest Mexican population having a bank account, compared with an average of 42 percent in Latin America. See Global Findex (Global Financial Inclusion Database), World Bank, Washington, DC, https://globalfindex.worldbank.org/.
261 Details in *Gobierno de la República* (2014) (OECD, 2017b).
262 Global Findex (Global Financial Inclusion Database), World Bank, Washington, DC, https://globalfindex.worldbank.org/.
263 See Skelton (2008).
264 See Ruíz (2010).
265 See for example Heckman and Pages (2004), Levy (2007), Maloney (1998).
266 Alcaraz, Chiquiar and Salcedo (2015).
267 Approval of the unemployment insurance element by the legislature is still pending.
268 The revisions to allow employers to hire workers for a three-month training period, could be contributing to lower-quality employment; while other provisions appear to be, in fact, introducing new barriers that hinder entrepreneurship.

Box 10. The Fintech (financial technology) sector in Mexico

The Fintech sector has the potential to contribute to close the gap in access to financial services in Mexico. Financial technology companies leverage online, mobile and information technologies to deliver financial services. According to Finnovista's Radar, Mexico ranked as the largest Fintech market in Latin America in 2017, surpassing Brazil for the second year in a row.[a] The August 2017 version of the Fintech Radar Mexico reports 238 fintech startups across 11 different segments—a growth of 50 percent in the last year. Startups in Mexico are concentrated in lending (23 percent of startups), payments and remittances (22 percent), enterprise and personal financial management (15 and 10 percent, respectively), crowdfunding (9 percent), and insurance (6 percent). The latter is on the rise, leading the highest growth segments in 2017 (Figure 88).

Figure 88. Fintech sector Mexico



Source: Finnovista 2017.

Particular features of the Mexican market that make it a fertile environment for Fintech include (a) a high Internet and smart mobile devices penetration; (b) a strong ecosystem of entrepreneurship and e-commerce; (c) a low banking penetration, and (d) an undeveloped consumer lending offer, according to the Finnovista report. In particular, Fintech startups in Mexico offer more efficient and less costly alternatives compared with traditional credit and remittances ser-

measures designed to reduce the cost of formalization, such as simplified tax procedures, have played a role in encouraging firms to join the formal sector. As part of the fiscal strategy "*Crezcamos juntos*", the efforts to increase the tax base have been successful in formalizing firms and their employees as well as increasing revenue. On the social security side, IMSS' strategy against informality implied a significant reduction of the administrative burden for enrollment, reaching 2.9 million additional formal jobs enrolled between 2012 and 2017.[269]

187. **A large body of research points to informality as the main encumbrance to labor productivity in Mexico.** Informality is a drag on growth as for firms of the same size, formal ones are 84 percent more productive than the informal.[270] State-level informality is highly correlated with labor productivity. Furthermore, informality reduces accumulation of human capital, which compounds the problems of inefficient inputs markets.[271] Besides self-selection into the informal market, the root cause behind informality is on one side burdensome and distortionary labor regulations[272] (including taxes, social security and firing costs) which, along with social programs, generate an implicit subsidy to informality and at the same time, an implicit tax on formal workers. This in turn slows down formal firms' growth, affecting the life-cycle of firms and their investment decisions about innovation, technology and labor training.

188. **Incentives to formalization of firms combined with access to credit is key to reduce labor market segmentation.** Research has found positive but modest effects of

269 IMSS 2017, *Estadísticas de asegurados*.
270 Busso, Fazio, and Levy (2012).
271 Hanson (2010), Bolio et al. (2014) and Arias et al. (2010).
272 Mexico ranks above comparator countries in the Employment Protection Legislation (EPL), which looks at the strictness of regulation of collective dismissals, ranging from 0 (very loose) to 5 (very strict): Mexico (2.6), Turkey (2.5), Poland (2.4), Colombia (2.3), South Korea (2.2), Uruguay (2), Chile (1.8) (OECD, 2015). Beyond this indicator, this SCD argues that distortions arise not only from labor regulations but also from inefficiencies in taxation, credit, and social insurance policies, and to the *interaction* between them, as well as from lack of policies correcting market failures; barriers to entry; and transactions costs. For instance, market distortions can deter firms' entry, increase operation costs, delay exit of nonperforming agents, raise prices and costs, create a less competitive environment, and encourage informality.

vices. Most Fintech startups are currently concentrated around Mexico City, Monterrey and Guadalajara. The majority are incorporated in Mexico City (71 percent) and operate domestically (90 percent).

Since 2010, venture capital funds have invested US$280 million in Mexican Fintech startups, which have provided over 10 million credit lines among private individuals. The total transaction value of Fintechs is estimated to reach US$36.4 million in 2018, with an annual growth rate of 17.3 percent up to 2022.[b] Interest in the financial services industry is growing. Optimism in the sector is reflected in the investment trend, where, beyond the seed-stage, venture capital investors are leading large rounds in the Series A stage.[c] Recently, Kueski, Konfio and PayClip have closed $10 million, $8 million and $8 million rounds, respectively.

Most Fintechs in Mexico are either small, or large: 39 percent are small firms (with less than 10 employees), and over a third are companies with over 100 employees; while the number of firms in the mid-size range is smaller. Most companies are young—69 percent were created over the last three years.

Digital innovation holds potential impact for financial inclusion in Mexico, particularly for bridging underserved and hard-to-reach communities. Technology can help improve authentication of user identity, a typical challenge faced by financial institutions, through blockchain, biometrics, behavioral data, or open networks. Innovations in credit scoring also have the potential to improve affordable access to credit. Fintechs in Mexico already appear to be tapping this sector, as a potential market opportunity. While in Brazil only 28 percent of Fintech startups are focusing on underbanked and unbanked consumers and SMEs, 46 percent of Fintech startups in Mexico are targeting this market. In addition to smartphone-enabled financing, cross-border credit history is one of the new business models that startups in other countries are putting forward.

A Fintech Law was approved in March 2018, placing Mexico among a small group of countries to establish regulation for the industry.[d] The law aims at regulating the activities of a number of disruptive financial service providers, focusing on nonbank e-money issuers and operators of peer-to-peer lending (that is, crowdfunding) platforms. The law also foresees adopting, through secondary/implementing regulations, a "regulatory sandbox" approach for other types of innovative entities. Moreover, the law includes a provision to recognize virtual assets and regulate their usage and operations in Mexico.

Open banking, one of the aspects of the law, also holds potential benefits for inclusion. The law introduces the concept of open data for nonconfidential aggregate data and for transactional data with consumers' consent through the Application Programming Interfaces (APIs). Recognizing that information collected and stored by financial institutions allows consumers choice and can help boost competition, as startups and small and medium-sized banks are able to use information from the clients of large banks.[e] Enhanced competition, in turn, can have implications for inclusion in terms of access and cost of services.

a. According to the Fintech Radars conducted by Finnovista in 2017, the main markets in terms of Latin Fintech startups are Mexico (238 startups), Brazil (219), Colombia (124), Chile (75), Argentina (60), Peru (47) and Ecuador (31). b. Statista (2017). c. Antoni (2016). d. Ley para Regular las Instituciones de Tecnología Financiera. e. Espejo (2018).

the SARE program—a reform to speed up firm registration—on the creation of new start-ups and the number of registered business owners in municipalities in Mexico.[273] However, if credit remains scarce for formal firms and the cost of enforcing contracts is high, the cost of paying taxes may outweigh the benefits of registering formally for companies. Indeed, modeling an economy resembling Mexico, research shows that the impact of completely eliminating registration is small, while improving access to credit for formal sector firms increases wages, TFP and output per worker while reducing the size of the informal sector.[274]

189. **Other sources of resource misallocation are connected to the interaction of policies related to labor and social insurance regulations.** There is evidence that the high share of informal employment in Mexico is a result of both labor market segmentation (preventing entry into formal employment) and of voluntary movement into and out of informality. To the degree that social security in Mexico is primarily financed by wage-based contributions, and not fully valued by affiliated workers, it acts as a tax on salaried employment.[275] This incentivizes firms to move toward non-salaried contracts, and the illegal evasion of social security, with consequences on productivity and growth. Settling labor disputes (based on formal employment contracts) is also a long and expensive process.

190. **The valuation of social security contributions by workers also affects the level of formalization.** Another source of labor market segmentation is related to ancillary benefits, currently financed by social security contributions and payroll taxes. Decisions on whether to seek a formal job depend on the extent to which workers value additional income more than the benefits provided by social secu-

273 See Kaplan et al. (2011) and Bruhn (2011). In addition, wage earner types are less likely to register their business (but more likely to become wage workers in the newly-created jobs) while those with characteristics similar to formal business owners are more likely to do so (Bruhn, 2013). Yet, most informal business owners remain informal after the reform, suggesting that deregulation is not enough. Aparicio (2014) finds larger impacts of the reform on formalization, in addition to increased profits for some firms, particularly in municipalities that adopted the reform early on.
274 López-Martín (2015).
275 Levy (2009).

rity contributions and payroll taxes. Research shows that low-income workers are especially likely to favor immediate income over long-term benefits.[276] Ensuring good quality of these services and aligning the services provided with their perceived cost can also help encouraging formality.

5.1.2. Rule of law institutions

191. **The persistence of factor misallocation in Mexico is closely linked with its poor performance in areas related to rule of law and access to justice, control of corruption, and crime and violence.** Distortions in allocative efficiency can result from the interaction of outcomes associated with weak institutions. Diverse indicators suggest that the governance environment in Mexico is worsening, even as it is improving in comparator countries.[277] Strengthening the rule of law, improving effectiveness and inclusiveness of the judicial system, and ensuring citizen security will be key to set the foundations to reduce misallocation and foster productive inclusion.

Access to justice

192. **Uneven access to justice and the application of the rule of law can have severe adverse effects on individuals and private sector development.** Mexico ranks low on international indicators for the rule of law: in the Rule of Law Index 2017–2018, for example, Mexico ranked in 92nd place out of 113 countries.[278] Mexico is at the bottom of the pack of upper middle-income countries (34 out of 36 countries), only above Turkey and Venezuela and below China, Russia, Colombia, and the DR. The country ranks particularly poorly in terms of absence of corruption (102/113), order and security (99/113), civil justice (100/113), and criminal justice (105/113).

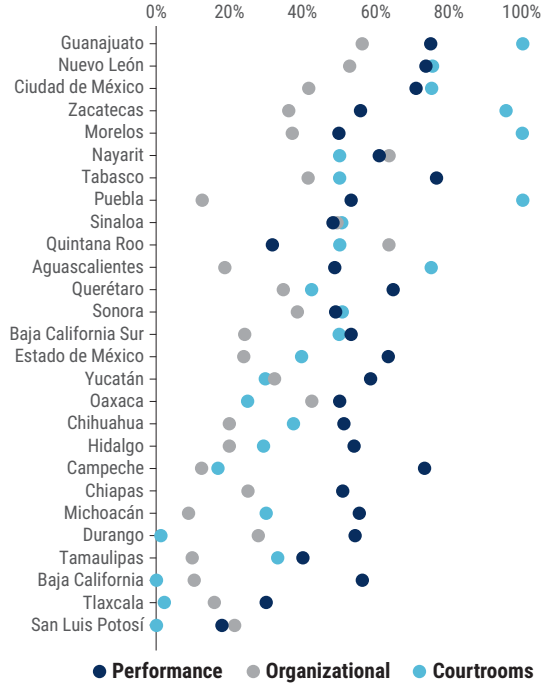
193. **Mexico performs better on the specific measure of contract enforcement than many peers, though within the country, subnational rates vary considerably.** A more effective judiciary system where disputes are resolved in shorter periods can have substantial economic benefits. Weak rule of law has consequences for productivity growth: uncertainty can lead to higher transaction costs, reduced competition and barriers to entry of new firms. In 2016, the average number of days required to enforce a contract in Mexico was 341, compared with 779 for Latin America, based on World Bank Doing Business Indicators. At the state level, contract enforcement ranges from 160 days in Campeche to 455 days in the case of Tlaxcala. According to a World Bank study, on average, it takes 209 days from the presentation of a commercial complaint to the final hearing, while commercial justice is not available outside of major urban areas.[279] A recent study finds that a 100-day decrease in the time it takes to resolve a commercial dispute is associated with an increase of 0.6 percent in the average GDP per capita growth rate in Mexican states.[280] While this calculation may be overestimated, the study provides evidence of the importance of further investigating the links between the efficiency of the judiciary system and growth and inclusion. The quality of the legal system has also been shown to have an impact on firm size in Mexico due to contractual uncertainty: in states with low quality legal systems, firms tend to be smaller, especially in capital intensive industries.[281] Lack of rule of law has also been associated with limiting business confidence, such as by inhibiting the definition of bankruptcy procedures in Mexico, with consequences on investment and growth.[282]

194. **A second wave of legal reform to civil and commercial justice could help significantly.** To incentivize a faster and more transparent resolution of lawsuits, an initiative approved by Congress in October 2017 increased the scope of oral procedures to resolve commercial disputes. Moving from written to oral trials can help improve the outcomes of economic disputes, e.g. those related to contract enforcement. Currently 26 states use oral trials for larger commercial cases, and four states use them in civil cases.[283] Nevertheless, most civil and commercial cases are still handled using the unreformed justice system. Clear differences, in addition, exist across states in the elements required for the implementation of the oral commercial lawsuit (Figure 89).[284] Evidence suggests, additionally, that the timeline for the resolution of cases by oral procedures remains much higher than that established under the law; and causes for the delays area similar to those under the written-based procedure.[285]

195. **Impunity is also a challenge.** Mexico ranked 58 of 59 countries in the Global Impunity Index (GII) published by UDLAP in 2015.[286] There is some regional variation in levels of impunity across states, though the high failure to report crime—an indirect measure of impunity—cuts across the country.[287] According to the MCCI, the probability of a crime being reported, investigated, prosecuted

276 Cunningham and Maloney (2001); Levy (2008); and, Antón, Hernández and Levy (2013).
277 "Governance constraints on Growth in Mexico" background paper to the SCD.
278 WJP (2018). Mexico scored 0.45 on the index, which measures adherence to the rule of law based on eight factors: constraints on government powers, absence of corruption, open government, fundamental rights, order and security, regulatory enforcement, civil justice and criminal justice.
279 Silva Méndez (2016).
280 Chávez et al. (2017).
281 Dougherty (2013); Laeven and Woodruff (2004).
282 Bergoeing et al. (2007).
283 OECD (2016).
284 World Bank in collaboration with COFEMER, based on a set of 18 indicators (grouped along three dimensions: court performance, courtroom design and technology, and organizational framework) to measure the degree of implementation of the oral commercial lawsuit. In addition to differences across states (especially when comparing the upper and lower echelon), important within state variation exists, e.g. Puebla, which scores at the top in courtroom conditions and equipment and near the bottom in organizational framework.
285 Silva Méndez (2016); similar results are found by Silva Méndez and Caballero (2012).
286 The index considers three components of impunity. A structural component captures the institutional capacities of the police and judicial systems; the functional one reflects de facto outcomes of the criminal justice system, while the human rights component assesses the protection of physical integrity.
287 In 2014, the GII ranged from 47.2 in the case of Campeche to 76.5 in Quintana Roo (with higher scores indicating greater impunity). The failure to report a crime ranged from a low of 82.6 percent in Coahuila to 94.2 in Guerrero.

Figure 89. States' implementation of oral commercial lawsuit



Source: World Bank – COFEMER, 2017. *Note*: Graph shows distance to the reference.

and resolved in the Mexican criminal system is only 2.95 percent. Sixty-nine percent of young people aged 12 to 29 who were witness to, victim of or involved in an act of gun violence reported that neither their community members or local police did anything in response to the incident.[288] Some raw data suggest that 99 percent of crimes in the country do not lead to a criminal sentence.[289] Insecurity and lack of accountability lead to citizens' dissatisfaction, who, in turn, do not report crimes, leading to a vicious cycle. Over one-third (38 percent) of individuals surveyed in urban areas in 2017 by the World Justice Project reported experiencing a legal problem in the last two years; yet only 11 percent turned to an authority or third party to seek help resolving the issue, while 89 percent did not take any action.[290] As perceptions of corruption in the judicial and law enforcement agencies increase, trust in these intuitions declines: 90 percent of Mexicans believe that the police is highly corrupt. The public's trust in judges has been associated with the rise and fall in violence in the country.[291]

196. **Beyond criminal offences, impunity in Mexico extends to civil and administrative crime.** Mexico ranks 127 out of 137 countries in diversion of public funds under the institutions pillar of the World Economic Forum's global competitiveness Index (2017–18).[292] Less than 2 percent of the denunciations of improper diversion of public funds issued by Mexico's government auditing agency, the Supreme Federal Auditor (ASF), led to a conviction between 1998 and 2012, despite the fact that the number of cases referred by the auditor to the federal prosecutors office jumped from 2 to 134 a year during the period.[293] Mexico also scores well below its peers in terms of the constraints on government power.[294] Between 2000 and 2013, 41 Mexican governors faced 71 corruption scandals; of these, 16 were investigated and only four were properly prosecuted. In contrast, all nine U.S. state governors accused of corruption during the same period were prosecuted.[295]

197. **Mexico performs worse than its peers in the extent to which access to justice is differential (rather than universal).**[296] Unequal application of justice benefits those connected, typically at the top of the income distribution, further perpetuating inequality. In a field experiment conducted in Mexico City it was shown that officers requiring a bribe are more likely to target lower income individuals, letting off more affluent drivers off with just warnings.[297] This is likely the result of the association of wealth with the capacity to exert revenge on the officers, explaining why officers are more likely to demand bribes from poorer individuals. In terms of guaranteeing fundamental rights, the Rule of Law Index 2017–18 ranks Mexico 24 out of 30 countries in the region.[298] A key aspect of the unequal application of justice refers to the enforcement of labor rights, where improving the provision of services provided by the labor courts is one of the main challenges faced by the 2016 labor justice reform.[299]

198. **Despite reforms, issues persist in the capacity of judicial institutions to ensure order and security.**[300] A recent assessment prepared by the *Procuraduría General de la República* (Office of the Attorney General) outlined some of the main challenges related to the design of a 'single

288 ECOPRED, 2014.
289 "Governance constraints on Growth in Mexico" background paper to the SCD.
290 WJP General Population Poll 2017; survey conducted in Mexico City, Guadalajara, and Monterrey.
291 IEP (2018).
292 Schwab (2017).
293 Casar (2015). Between 1998 and 2012, only seven rulings were issued out of 444 criminal cases that were filed for corruption by the Supreme Federal Auditor to the Attorney General (PGR by its acronym in Spanish).
294 Mexico scores 0.47 on the constraints on government powers indicator of the WJP Rule of Law Index, lower than the regional average (0.55), and much behind the OECD (0.75).
295 Montes (2015).
296 "Governance constraints on Growth in Mexico" background paper to the SCD.
297 Fried et al. (2010).
298 Including the right to equal treatment and absence of discrimination, security, due process of the law, freedom of belief, right to privacy, freedom of assembly and association, and labor rights. *Global Insights on Access to Justice: Findings from the World Justice Project General Population Poll in 45 Countries* (WJP, 2018).
299 In 2016, as part of the *Justicia Cotidiana* initiative, Congress approved a presidential proposal to eliminate labor courts (the federal and state-level *Juntas de Conciliación y Arbitraje*) to let the judiciary at the state and federal level resolve labor issues. Following approval, a special unit was created to oversee the transition. The unit and CONATRIB are currently on the process of designing the institutional framework for implementing the reform.
300 Ríos and Wood (2018).

model of justice procurement'.[301] These include the need to improve the investigation stages of criminal procedures (where operators often fall back on outdated practices); the lack of coordination between different subsystems; pervasive corruption, irregularities and malpractices (such as from abuse of office, omission of due diligence and unlawful detention); and a lack of appropriate skills and capacities. A particular area of concern is the criminal justice system, where serious problems persist despite the recent reform process[302], including arbitrary arrests, forced confessions, falsification of evidence, wrongful conviction[303] and human rights abuses by police, prosecutors, and prison officials.[304]

199. **Unequal access to justice seems to be frequent in the criminal justice system, contributing to maintain the cycle between crime and poverty.** Research suggests that the system tends to over target the poor and vulnerable.[305] Evidence shows that individuals who pay bribes receive favors (even including release); while those who are able to pay legal representation obtain better treatment.[306] Long pretrial detention times are an example of how poverty is perpetuated in the criminal justice system. Close to half of all "suspects" in Mexico are incarcerated awaiting trial.[307] This number appears to be growing, possibly influenced by the pressure on the criminal justice system to show results in the fight against crime. Yet, in addition to being costly, evidence suggests that these incarcerations are disproportionately imposed on the most disadvantaged and are often unjust. A large share of those awaiting trials over long periods are acquitted of all charges, released without charges ever brought against them, or convicted for minor crimes (although detention is meant for suspects of grave crimes).[308]

Control of corruption

200. **Mexico performs weakly in control of corruption rankings.** Transparency International's Corruption Perceptions Index, placed Mexico in 123rd out of 176 countries, scoring last among OECD nations. Furthermore, Mexico's relative place in performance in control of corruption rankings is worsening over time compared with peers in the Latin America and Caribbean region. [309] The World Economic Forum's global competitiveness index (2017–18) ranks Mexico in 123rd place among 137 countries with a negative trend. Corruption is seen as the most problematic factor for doing business by the private sector.[310] While there are differences within states, high levels of corruptions appear to be widespread throughout the country.[311]

201. **Corruption increases the cost of doing business for the private sector and constraints productive investments.** Corruption is widely perceived to play a role in the daily conduct of business: 63 percent of business people "agree" or "totally agree" that corruption is part of the business culture in Mexico, while 54 percent affirm that corruption affects their daily business operations.[312] About 65 percent of entrepreneurs in Mexico report having missed a business opportunity due to undue competition, where competitors use political influence or handouts.[313] Fifty-seven percent of these same business people concede having employed go-betweens ("*gestores*") that have access to information or political connections, to intervene with authorities on their behalf. A recent national study on regulatory quality on enterprises shows that the number of firms perceiving that corruption acts performed by public servants in 2016 were frequent or very frequent range from a low of 62.2 percent in Colima to 92.7 in Tabasco. Of the corruption acts, 65 percent are realized to move bureaucratic processes along; 39 percent to avoid penalties or sanctions, and 31 percent to obtain licenses or permits.[314]

202. **Corruption and impunity affect the poorest the most through higher out-of-pocket expenses.** Between 2007 and 2010, the average cost of a bribe for Mexican households increased by nearly 20 percent (from Mex$138 to Mex$165).[315] Furthermore, while on average, Mexican households spent 14 percent of their income on bribes, for low-income households the expense represented 33 percent of their income.[316] The poor and vulnerable are also particularly susceptible to clientelism—the exchange of political support for typically short-term benefits—given

301 PGR (2017). The complete list of opportunity areas refers to: 1) improving the early stages of criminal procedure (whereby the system presents backlog partly related to unprecedented increases in the investigation files, and a lack of use of available tools); 2) lack of delegation of immediate attention units, such as toward (3) alternative mechanisms to resolve controversies; 4) human capital-related issues, including lack of appropriate skills and capacities; 5) normativity, including multiple layers of normativity leading to duplication and obstruction of the system, and incentives to continue operating under outdated rules; 6) dispersion and lack of coordination between subsystems, which often operate in silos; 7) high turnover in the position of attorney general; 8) corruption.
302 Starting in 2008, the transition to the New Criminal Justice System (*Nuevo Sistema de Justicia Penal*, NSJP) was due to be complete in all states by June 2016. The reform engages all aspect of the criminal justice system, from police to prisons; also affecting legal procedures in noncriminal cases (Ingram, 2018).
303 43 percent of judges surveyed indicate that prosecutorial police regularly engage in illegal arrests.
304 Cortés et al. (2017). See also Bergman et al. (2014) who find that about a third of prison inmates in Mexico City and the State of Mexico were solicited for bribes by the police; while 50 percent reported being struck or beaten physically to make a deposition or plead guilty (Bergman et al. 2014).
305 Azaola and Bergman (2009).
306 Bergman et al. (2014).
307 Zepeda (2005).
308 Zepeda (2005). Two thirds of all individuals convicted in 2002 received sentences associated with minor crimes. About 15 percent of criminal cases did not reach the verdict phase (due to reasons such as lack of evidence), and 14 percent were acquittals. Overall, 25 percent of people charged with a crime are acquitted by the courts and released. Moreover, five percent of individuals charged with misdemeanors—who have the right to be released on bail—remain in pretrial detention as they are too poor to pay for bail.
309 As measured by the Transparency International Corruption Perception Index 2016. At 23, Mexico lies far below the second lowest OECD country (Turkey, ranked 75) and far below its Latin America and Caribbean peers: Brazil, Chile and Uruguay.
310 Schwab (2017).
311 Perceptions of corruption range from a low of 69 percent of the population who believes that corrupt actions are frequent or very frequent in the government in Querétaro to 95 percent in Mexico City (IMCO 2016).
312 IMCO (2015).
313 IMCO (2015).
314 INEGI (2017a).
315 Transparencia Mexicana (2010).
316 Transparencia Mexicana (2010).

their liquidity constraints and higher time preference for the present.[317]

203. **Full implementation of transparency and accountability reforms can lead to better control of corruption.** The Freedom of Information Law, passed in 2002, was praised for its thoroughness. Yet, progress in terms of results has been slow, arguably because of the weakness in the judicial system and institutional development at the subnational level.[318] According to the IDAIM index, by 2015, only the federal government and one state had reached the optimal level of transparency established, while 14 states had reached only moderate performance, and 17 were rated deficient. Even though Mexico now ranks first among 133 countries on the Global Right to Information rating, 66 percent of citizens perceive transparency to be insufficient. In most cases, lack of effectiveness has been associated with a gradual recapture of new institutions by political interests or the bureaucracy, or because they were conceived as partial improvements without effective enforcement mechanisms. Public procurement and discretionary awarding for contracts at the local level appear to be at particular risk of capture. Most recently, and as a result of extensive social pressure, Congress has passed Constitutional reforms and legislation to create the National Anticorruption System (NAS). Sustained mobilization from civil society and the thorough prosecution of corruption cases, can help ensure that the anticorruption system follows a more effective than the transparency law.[319]

Crime and violence

204. **The lack of institutional effectiveness may also be reflected in the rise in crime and violence.** Increased crime and violence can affect the cost of doing business, presenting a threat to private property. The World Economic Forum's global competitiveness index (2017–18) ranks Mexico 131st among 137 countries in terms of the business cost of crime and violence and 131st both in terms of organized crime and the reliability of police services.[320] Insecurity and crime are consistently rated as the top problem by Mexican citizens, as well as the biggest obstacle cited by firms to operating in Mexico.[321]

205. **Crime and violence carry high social and economic costs.** The country has experienced increases in crime and violence over the last decades.[322] Extortion from criminal organizations affects the ability to conduct business, particularly for small and medium enterprises, less able to hire private security or get special treatment from authorities. The rate of extortion has grown monotonically every year since 2002.[323] Crime and violence have been reported to cost Mexico about $40 billion each year.[324] A recent estimate, taking into account the indirect costs of violence—in the form of productivity shortfalls, foregone earnings and distorted expenditure—and a multiplier effect, in addition to direct costs, puts the total economic loss from violence at about US$249 billion in 2017 alone.[325] According to some estimates, drug-related crime has negatively affected income growth across Mexican municipalities between 2005 and 2010.[326]

206. **The recent spike in drug-related homicides has been associated with inequality and poverty.** A recent study shows that an increase of one point in the Gini coefficient translates into an increase of more than 10 drug-related homicides per 100,000 inhabitants between 2006 and 2010.[327] This result is found in the period where Mexico launched its war on drugs, when the proliferation of gangs lowered the marginal cost of criminal behavior, and the expected pay-off of criminal activities increased. Evidence also supports the hypothesis that crime increases the likelihood of observing chronic poverty at the municipality level in Mexico.[328] Even violence that does not entail a loss in infrastructure, it is shown, has long-run effects on poverty incidence. The impact of crime on chronic poverty is nonlinear, and largest on the poorest municipalities.

207. **Gender-based violence is often prevalent in the intersection between poverty and inequality, and crime and violence.** Femicide in Mexico has increased significantly since 2007. As many as seven women are killed every day and 63 percent of them have experienced gender-based violence at some point in their lives. This increase has coincided with the expansion of drug cartels, and the rise in overall homicide rates in the country. In fact, femicides tend to be higher in states with high presence of drug cartels such as Guerrero and Chihuahua.[329] In addition to the direct loss of human lives, gender-based violence is associated with a loss of productivity.

208. **Increased crime and violence contribute to a worse allocation of productive assets, including notably through their effect on labor market outcomes, with implications for equity**

317 However, recent qualitative evidence from villages in Oaxaca suggest that some programs have become less susceptible to electoral effects; *Progresa-Prospera* appears to be more as an entitlement than a political favor shifting with the waves of elections (Díaz-Cayeros et al. 2016).
318 IMCO (2015).
319 "Governance constraints on Growth in Mexico" background paper to the SCD. Experience shows that institutional reforms, such as anticorruption agencies and transparency legislation, tend to be effective only when supported by an engaged civil society (Heilbrunn, 2004; Kocaoglu and Figari 2006).
320 Schwab (2017).
321 INEGI (2014); World Bank Enterprise Survey (2010).
322 After declining under the administration of presidents Zedillo (1994–2000) and Fox (2000–06), the number of intentional homicides rose sharply after 2007, the first year in office of President Calderón (2006–12). Throughout the Calderón administration, INEGI (2014) reported 121,669 homicides. Following a three-year decline in 2012–14, homicides began to rise again in 2015. According to the National Security System (SNSP), the number of intentional homicide victims was 17,324 in 2015, 22,571 in 2016, and 27,734 in 2017. Over the first five years of the Peña Nieto administration, it is estimated that approximately 116,000 people were murdered (Calderón et al. 2018). About a third to half of all homicides in Mexico are associated with organized crime (bearing signs such as the use of high-caliber automatic weapons, torture, dismemberment, and explicit messaging) (Calderón et al. 2018).
323 Ingram (2018).
324 Jaitman et al. (2017).
325 IEP (2018).
326 Enamorado, López-Calva, and Rodríguez-Castelán (2014).
327 Enamorado et al. (2016).
328 Martínez-Cruz and Rodríguez-Castelán (2016).
329 SEGOB, INMUJERES, ONU MUJERES (2016).

and growth. Crime and violence are affecting the accumulation and use of human capital, diverting away resources from their highest valued use, via an unskilled young labor force. Recent evidence has found a high correlation between the share of NEETs and murder rates between 2008 and 2013, a period when the murder rates in Mexico tripled.[330] The correlation is especially large in states bordering the United States, which were particularly impacted both by organized crime and the economic crisis of 2008–09 due to the destruction of job opportunities. By limiting the ability of youth to acquire and use human capital, crime and violence constitute an exclusionary force to productive activities. The opportunity cost, and feedback loop, of this foregone human capital in the long term, both at the individual and societal level, poses further concerns. Early labor experiences away from formal employment such as unemployment or an informal sector job, can have scarring effects over employability and wages in adult life. For instance, evidence suggests that while 85 percent of high school graduates in Mexico are able to stay in the formal sector once they are in, only 17.1 percent of high school graduates are able to find a formal job after having worked in the informal sector.[331]

5.1.3. Resource allocation and institutional policy coordination

209. **Inefficiencies in public resource allocation may result from tax and expenditure policy issues.** The structure of the tax system and tax expenditures contribute to low tax collections, limiting the overall amount of public resources. Inefficiencies may also be linked to labor and social insurance revenues or expenditure regulations and policies (and their enforcement), special subsidies, the distribution of resources to subnational governments through the intergovernmental transfers system, as well as technical and allocative efficiency across spending categories in the budget affecting public service delivery (including investments). This section discusses some potential sources of inefficiencies based on existing work of the World Bank and local researchers.

Tax structure and tax expenditures

210. **The tax structure is tilted toward direct taxes, partly reflecting significant tax expenditures in indirect taxes.** Income tax revenue makes up nearly 42 percent of Mexico's total tax revenue, well above the averages for both the Latin America and Caribbean region and the OECD. By contrast, Mexico derives less than 40 percent of its revenue from indirect taxes, whereas these taxes account for over half of revenues in Latin America and Caribbean countries. Mexico's tax structure reflects differences in its revenue-generating capacity and has economic and distributional implications. For example, due to broad exemptions and zero-rating in the VAT regime, Mexico collects only 31.5 percent of the revenue that it could theoretically collect if VAT was applied at the standard rate to all goods and services. By contrast, this VAT revenue ratio is 42.6 percent in Colombia, 55.1 percent in Peru and 64.4 percent in Chile.

211. **Despite progress in streamlining tax expenditures, they remain high, affecting the availability of public resources.** As discussed in Chapter 4, Mexico's tax-to-GDP ratio is relatively low compared with regional and OECD peers. Tax expenditures, including exemptions, deductions, deferrals, and preferential rates applied to specific activities or types of taxpayers, are a key factor for low tax collections. SHCP estimates that tax expenditures cost the government 3.7 percent of GDP in foregone revenue in 2017 alone.[332] Tax expenditures are incurred, *inter alia*, through exemptions to wage income and pension income, a negative income tax designed to encourage formal employment, exemptions and zero-rating in the VAT regime and, since 2017, through a discount to the excise tax on fuel.

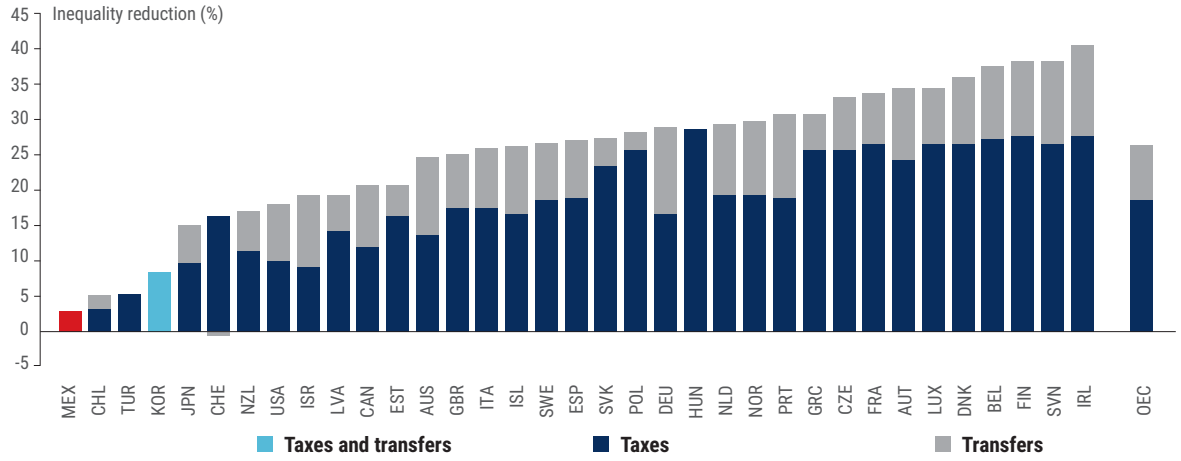
212. **Tax expenditures not only reduce public resources, they can also have broader distributional and economic effects.** Though often justified by worthwhile objectives, such as supporting the poor, creating employment or encouraging the growth of specific sectors or regions, tax expenditures reduce the resources available for budgetary expenditures. Mexico's tax expenditures in indirect taxes (including the zero-rated VAT on food and medicine) may make the tax system more progressive – but this effect comes at the expense of the redistributive capacity of public expenditure.[333] In countries with a progressive income tax system, many income tax expenditures can act as "upside-down subsidies", benefiting the richer income groups (in the highest tax bracket) more than the poorer (many of which are not taxable).[334] On the other hand, tax credits designed to incentivize formal employment and targeted to low-wage and part-time earners could increase the demand for low-skilled formal labor, under certain conditions.[335] In Mexico, the employment subsidy reduces the tax wedge for low-salary workers, offsetting some of the negative effects of regressive social security contributions. The effect on formal employment, however, has not yet been evaluated. Overall, by introducing differential treatment of taxpayers, tax expenditures make tax systems more complex and less productive.

Public spending: rigidities, inefficiencies, and distributional issues

213. **A large portion of public spending is rigid, limiting future flexibility and policy choices.** By some measures, rigid spending represents 80 percent of total spending. This reduces the capacity of authorities to react to economic shocks and changing country priorities through fiscal pol-

330 De Hoyos et al. (2015).
331 Calderón (2015).
332 SHCP (2017).
333 Scott (2014).
334 OECD (2010).
335 OECD (2015, 2016). However, the probability of positive effects is higher under certain conditions, including when the minimum wage is a binding constraint to formal employment (Pages, 2017).

Figure 90. The role of taxes and transfers on redistribution in OECD countries, latest available year



Source: OECD 2017.

icy. It also reduces the fiscal space for investments over time. For example, during the needed fiscal consolidation of the last years, capital investment was squeezed by lower public investment, given the inflexibility of other spending categories. Reducing fiscal space for investments to historically low levels may affect medium-term growth.

214. **Public spending inefficiencies have been reduced in recent years, but much work remains ahead.** Reducing inefficiencies is particularly important as social spending pressures are likely to continue to grow. Mexico has a reasonable platform for providing social protection, and social assistance programs are generally well-targeted. However, Mexico's large number of social assistance programs has resulted in some degree of duplication, overlaps and fragmentation, reducing the effectiveness and efficiency of the system. There are at least 5,491 social development programs across government levels. This complexity is heightened by the lack of a robust social programs census with unique identification number, as well as the absence of a fully operating integrated social information system to date. Federal and state social programs often have overlapping beneficiaries. For example, 23 state-level cash transfer programs focus on the elderly alone. Many of these programs overlap with the recently expanded federal noncontributory pension program (Pensión para Adultos Mayores). As highlighted in section 4.1, there are a number of other areas where expenditure efficiencies can be achieved including in public procurement, the wage bill and several public sector programs.

215. **One of the main obstacles to enhancing spending efficiency and equity is the strong fragmentation in the health sector.** The national health system is composed of a series of clearly differentiated institutions according to the segment of the population they serve, which is determined by the beneficiary's employment status. Private sector workers (and their families) are affiliated to the Mexican Institute of Social Security (IMSS). Federal government employees are affiliated to the Institute for Social Security and Services for State Employees (ISSSTE). The poor and unemployed are enrolled in *Seguro Popular*. There are more than 15 million people with two or more health services.[336] The subsystems are fundamentally disconnected, offering different plans and unable to take advantage of economies of scale, which results in unequal access to services and significant beneficiary overlaps and inconsistencies across insurance schemes.

216. **Overall, Mexico's system of social provisioning can be characterized as 'dualistic'.**[337] Individuals in formal jobs have better access to non-salary benefits—pensions, health, housing—than informal workers. Though social programs for the latter have increased —notably regarding *Seguro Popular*, as discussed—the dualistic structure of social programs for formal and informal workers and unequal access remain. There are indications that current spending in pensions in Mexico may be reinforcing inequality. Of all pension spending in 2016, 95.3 percent is destined for 5.1 million contributive pensioners—40 percent of whom are less than 65 years of age, and the majority are men—and 4.7 percent goes to the 5.4 million noncontributive pensioners through the *Programa de Adultos Mayores*—where 60 percent are women over 65 years.[338]

217. **Mexico's overall fiscal system (taxes and transfers) shows limited redistributive capacity and ranks at the bottom of OECD countries.** Fiscal incidence analysis suggests that some social programs and targeted direct cash transfers indeed have contributed to progressivity in the fiscal system, though their potential is hindered by the tax system, and the relatively large share of resources allocated to low-redistribution instruments—such as subsidies to contributory social security systems, energy, and public tertiary edu-

336 Ministry of Health (2016).
337 Levy (2008).
338 Macias Sánchez (2017); Viesti (2015).

Box 11. Fragmentation and duality in Mexico's health system

Widespread poverty, a fragmented health system, and an inadequate and inequitable distribution of financial, physical and human resources inhibit access to quality health services, despite efforts to achieve universal health coverage.

The impact of the health budget tends to be weakened by allocative and technical inefficiencies. High administrative costs (over 9 percent of total health spending in 2014, one of the highest in the OECD) limit the health sector's investment budget, resulting in a low rate of gross fixed capital formation—just 0.1 of GDP percent in 2015. This, in turn, reduces the availability of beds and infrastructure and contributes to an inadequate number of nurses, physicians, and health professionals.a The lack of coherent prioritization criteria within and across subsystems is also a cause of inefficiencies and inequities. As discussed in prior sections, out-of-pocket (OOP) spending remains high—likely reflecting dissatisfaction with the quality or accessibility of services provided by health insurance—and disproportionately impacts the poorest households. Even though health access has expanded, insurance coverage is unequal and often insufficient. E.g., an estimated 13.4 percent of the population lacks health insurance, though *Seguro Popular* still covers adverse health events.b And, notwithstanding the expansion in insurance coverage, income levels are closely correlated with health outcomes: e.g. infant mortality rates are 20 times higher in the poorer municipalities than in the least marginalized ones.

The fragmentation of Mexico's healthcare system appears as the critical obstacle to accessing care. Several disconnected sub-systemsc provide healthcare, where employment status determines insurance coverage and access to provider networks.d Types of benefits and quality of care provided varies substantially, as do the level and composition of financing. Multiple public sources of funds finance care for the same person, which translates into an inefficient use of resources and high administrative costs for the system as a whole.e Vertically integrated insurance programs limit patient choice and weaken efficiency incentives. It also inhibits access to care, as patients can only use healthcare providers within their insurer's network, regardless of geographic location, service availability or medical condition, and is a key determinant of the high administrative costs. Fragmentation issues are compounded by differences in resource allocation and socioeconomic conditions across states.f Furthermore, the use of parallel, inconsistent data-collection and information systems complicates sectoral monitoring, oversight, and policymaking.

The absence of system-wide planning produces an inefficient allocation of facilities and resources. Insurers continue to maintain their own pharmaceutical and medical-device supply chains and develop their own standards of care, which can vary substantially. Efforts to harmonize the activities of insurance providers have been only partially effective. Savings have been achieved through the consolidated purchasing of pharmaceuticals and the role of the General Health Council (*Consejo General de Salud*), established to coordinate the adoption of new pharmaceuticals and medical devices for six insurers.g Yet, the council's effectiveness has been limited because, in practice, insurers still conduct internal reviews of medical products and make independent decisions regarding the definition of their prioritization criteria, benefit packages and use of medical devices and pharmaceutical—often based on budgetary constraints. The system has not been able to incorporate funds specialized in strategic purchasing, to shift away from historical budgets, partly because of coordination issues.h To achieve a separation of provider and purchaser function, necessary for the effectiveness of the system, purchasers must be independent from local political pressure, and have the ability to make contracting choices.i Despite being one of the objectives of the 2003 reform, there appear to be no clear incentives for the states or providers to improve health care performance.j

Reallocating the public health budget to increase pro-poor expenditures, narrow or close gaps in coverage, and remove obstacles to access could boost the efficiency of health spending. Harmonizing benefit packages across insurance systems could reduce disparities in the quality and comprehensiveness of care. Consolidating the affiliation processes across insurance systems could close the coverage gap for individuals moving between systems. The authorities could also strengthen, integrate, and expand the various databases used by different elements of the health sector.

a. Mexico has 2.2 practicing doctors, 2.6 practicing nurses, and 1.6 beds per 1,000 people, well below the OECD averages of 3.3, 9.1, and 4.8, respectively. OECD (2016). b. ENSANUT, 2016. c. IMSS (Instituto Mexicano del Seguro Social) covers private-sector workers and their families. ISSSTE (Instituto de Seguridad y Servicios Sociales de los Trabajadores del Estado) covers federal government employees. Self-employed, non-salaried, and informal workers are covered by one of several federal programs managed by the Secretariat of Health, including Seguro Popular and the conditional cash-transfer program IMSS-Prospera. d. OECD (2016). e. López et al. (2015). f. The geographic distribution of public health resources does not reflect the needs of the population, as budgeting does not follow a fixed schedule, and high transaction costs reduce the bargaining power of regional providers and undermine service quality. Financial management capacity varies across states and is especially low in the poorest regions, contributing to the overall inefficiency of the sector (Knaul et al. 2012). h. González-Block et al. (2015). i. Lakin (2010). j. Kurowski and Villar-Uribe (2012).

cation.[339] When compared with peers in terms of the distributive capacity of its fiscal system, Mexico (3 percent) ranks in the bottom among OECD countries (25 percent OECD average) (Figure 90). Following the Commitment to Equity (CEQ) Methodology, the fiscal system reduces inequality in Mexico less than in Argentina, Brazil, and Uruguay: from a Gini coefficient of market income of 51.1 to a final income of 42.9 (compared with Brazil, where the Gini falls from 57.4 to 43.8 post-fiscal income, plus in-kind transfers).[340]

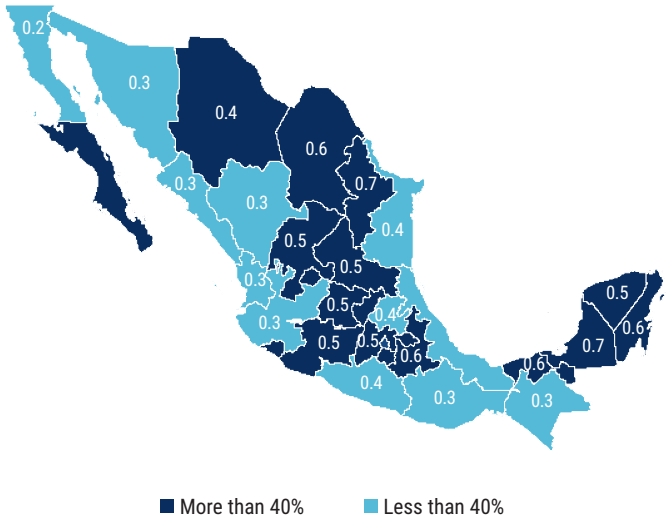
218. **Regional disparities in per capita spending are substantial and linked to the level and quality of public goods and services.** Per capita accumulated spending of state and local governments in the Northeast states is more than 20

339 Scott (2013).
340 Lustig et al. (2013).

Map 6. Government expenditure per capita, accumulated 10 years, 2006–16

Source: World Bank calculations based on data of the National Institute of Statistics and Geography.

Map 7. Share of paved roads in total road network, 2015

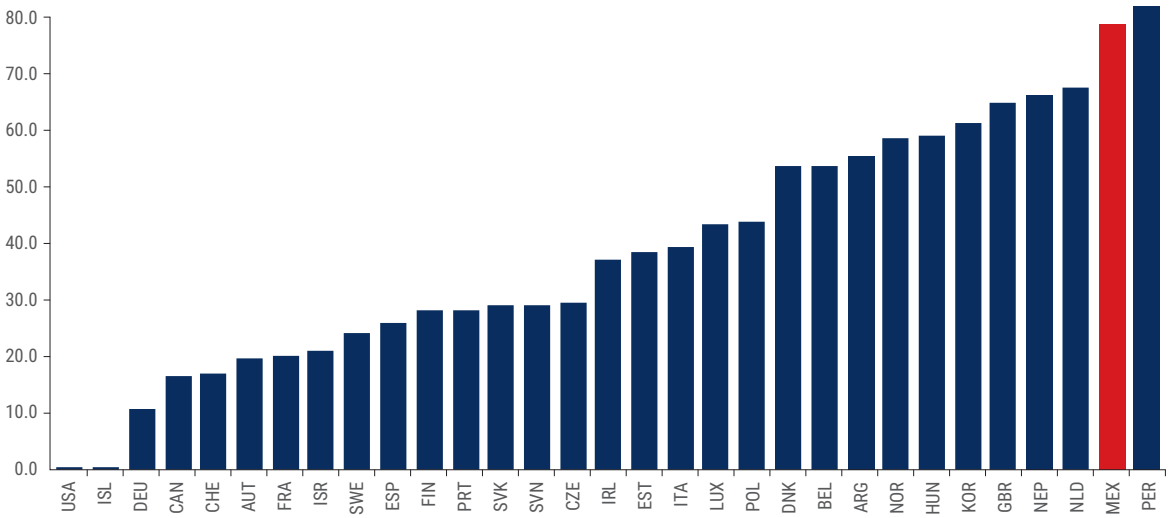


Source: World Bank calculations based on data of the National Institute of Statistics and Geography.

percent higher than in the Southwest. Public spending in Mexico City is 35 percent higher than in Michoacán and Guerrero (Map 6). A similar pattern is reflected in infrastructure investment spending, with more developed regions in the Northeast investing more than lagged states in the South. Disparities in per capita spending are reflected in infrastructure services. The percentage of houses with access to running water in Guerrero and Chiapas is 46 and 50 percent, respectively, while in Mexico City and Nuevo León it is 90 and 96 percent, respectively. Differences in the quality of the states' road network, measured as the percentage of paved roads, also show similar regional patterns (Map 7).

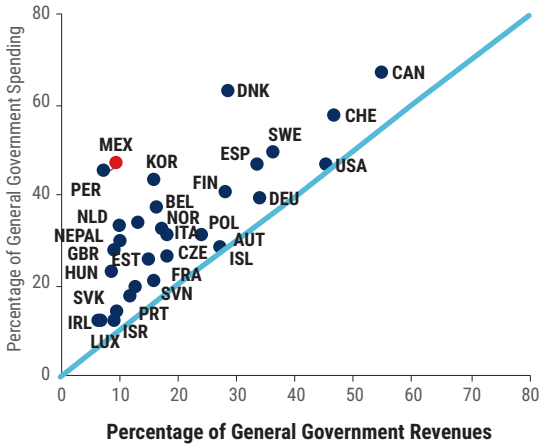
219. **While significantly improved through the reforms of 2007 and 2015, the intergovernmental fiscal framework continues to show significant vertical imbalances that affect public service provision and accountability at the local level.** Fiscal federalism arrangements in Mexico are characterized by a large vertical imbalance that has dampened the efficiency of public spending. Over the last two decades, Mexico has followed an asymmetric fiscal decentralization, with a deeper decentralization of spending and service delivery responsibilities than tax assignments, which have remained highly concentrated at the federal level (Figure 92). In Mexico, the share of total spending of subnational governments (around 50 percent) is much higher than their share of total tax revenues (around 10 percent), resulting in the largest vertical fiscal gap among OECD countries (Figure 91). The reliance of subnational governments on transfers from the federal government has negatively affected accountability and efficiency of subnational service delivery. In addition, the dependence on intergovernmental transfers does not create incentives to enhance subnational governments' efforts in collecting own revenues, which account for only 1 percent of GDP. Mexico's property tax (*Predial*) revenues are low compared to those of other regional and OECD countries. Revenue collected from these taxes amount to 0.3 percent of GDP, below the 0.5 percent level observed in Argentina, Colombia, and Chile and far below the OECD average of 1.9 percent.

Figure 91. Vertical fiscal gap, OECD and selected countries, 2016



Source: OECD 2016.
Note: Vertical fiscal gap is defined as the percent of total decentralized expenditures that are financed with transfers different to local taxation.

Figure 92. Revenue and expenditure decentralization, OECD and selected federations



Source: World Bank Mexico Public Expenditure Review 2016.

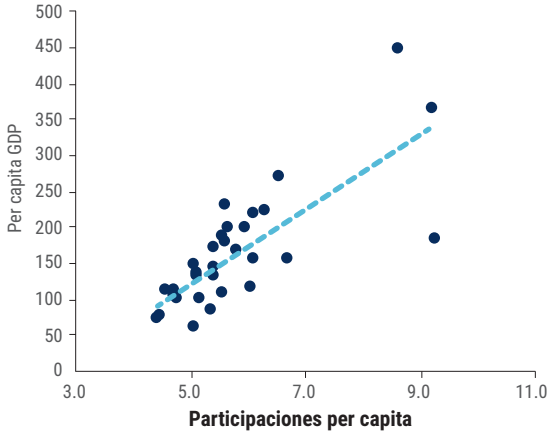
220. **The intergovernmental transfer system has a weak equalization power to reduce horizontal disparities in terms of fiscal capacity, and the higher needs for services across states.** The spatial concentration of tax bases associated with socioeconomic regional disparities results in horizontal fiscal imbalances and fosters further regional inequalities in service delivery.[341] This is not compensated for by the transfer system. *Participaciones* (unconditional federal transfers to states and municipalities) are the main revenue-sharing transfer mechanism intended to reduce the vertical and horizontal imbalances in Mexico. In 2007, the government changed the assignment of tax bases and adjusted the distribution criteria for *Participaciones*. The positive changes to the distribution formula for *Participaciones* favored regional fiscal equalization and introduced incentives to improve SNG tax collection. The equalization effect of *Participaciones,* however, is still limited as it does not give higher per capita transfers to less developed regions with lower fiscal capacity or higher expenditure needs.[342] Currently, *Participaciones* still maintain a strong devolutionary nature as evidenced by the direct relation between per capita transfers and per capita GDP (Figure 93). The amount of *Participaciones* per capita received by Mexico City, and the oil-producing states Campeche, is two times higher than that received by Chiapas, Guerrero and Oaxaca.

221. **Recognizing these original limitations of the "Aportaciones" transfers, the distribution formulas for several sectors were improved.** The distribution criteria for the Earmarked Transfer Fund for the Education Payroll and Operating Expenses (*Fondo de Aportaciones para la Nómi-*

341 State and municipal tax collections per inhabitant in the northeast and center north regions is 4.5 times the collection of state and local governments in the southwest. Mexico City collects 15 times more state and municipal revenues per capita than Chiapas, Oaxaca and Tlaxcala and more than 10 times than in Guerrero and Zacatecas, the states with the lowest subnational tax collections.

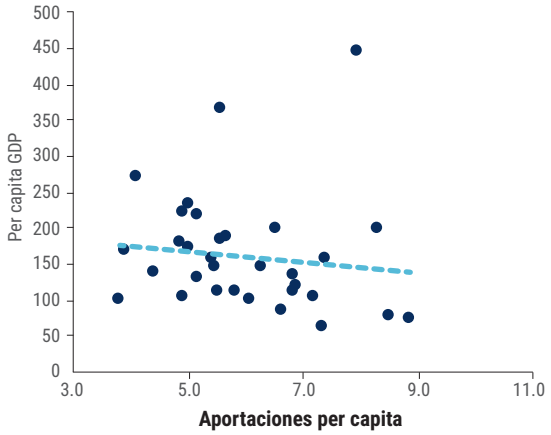
342 Since 2007, transfers have been distributed using a formula based on population, state GDP, and the state's own tax collection effort, introduced gradually. As population becomes a dominant factor in the distribution formula, it is expected that *Participaciones* will favor some regional redistribution: taxes that are largely collected in the most developed regions of the country will be distributed on an equal per capita transfer basis.

Figure 93. Participaciones and GDP, by state



Source: World Bank calculations. Data correspond to 2016.

Figure 94. Aportaciones and GDP, by state



Source: World Bank calculations. Data correspond to 2016.

na Educativa y Gasto Operativo, FONE)[343] were modified in 2007 to introduce some demand-side considerations. The new FONE distribution formula included the number of students enrolled in basic education, as well as indicators of education quality. A compensatory component was also added to the formula to provide additional funds to states with per-student transfers below the national average, and the new formula included a factor designed to encourage SNGs to invest their own resources in education. In 2014, under pressure from states that had had their transfers reduced by the new formula and recognizing that the reforms had failed to eliminate perverse incentives, the government modified the FONE distribution formula to include both a supply-side component (the teacher payroll and school operating costs) and a demand-side component (the number of students in each state). Much like FONE prior to the 2007 reforms, the distribution formula for the Earmarked Transfer Fund for Health Services (*Fondo de Aportaciones para los Servicios de Salud*, FASSA) is driven by supply-side factors, including the number of decentralized federal health workers and the operating costs of federal health facilities in each state. While FASSA also incorporates equalization criteria, the distribution of resources is largely defined by historical budget allocations, which in turn reflect the supply-side conditions that prevailed when health services were decentralized. Because wealthier regions tend to have larger numbers of federal health workers, more-qualified health workers, and better health facilities, FASSA may have exacerbated regional disparities in health services.[344] However, FASSA's equalizing effects should be assessed within the context of other sources of health financing that interact with FASSA, such as the universal health program, *Seguro Popular*. *Seguro Popular* distributes an amount equal to 0.4 percent of GDP among states based on the size of their uninsured populations. The establishment of *Seguro Popular* and its rapid expansion is gradually correcting the unequal and inertial regional distribution of FASSA transfers.

222. **While some Aportaciones have clear equalizing effects, the overall system of aportaciones does little to correct horizontal fiscal imbalances (Figure 94).** The Earmarked Transfer Fund for Social Infrastructure (*Fondo de Aportaciones para la Infraestructura Social*, FAIS) finances investment in social infrastructure by state and local governments via the Social Infrastructure Fund of the States (*Fondo para la Infraestructura Social de Estados*, FISE) and the Social Infrastructure Fund of Municipalities (*Fondo para la Infraestructura Social de Municipios*, FISM). FISM represents about 88 percent of FAIS. FAIS distributes 2.5 percent of federal taxes (equivalent to 0.3 percent of GDP) to the states through a formula based on poverty indicators and unmet basic needs. State governments then distribute funds to municipalities according to a similar formula. However, while FAIS clearly favors less-developed states, it does not necessarily favor less-developed municipalities, as a relatively poor municipality in a relatively wealthy state could receive less than a relatively wealthy municipality in a relatively poor state. Moreover, the loose definition of "investment in social infrastructure" and the fragmentation of resources reduce the efficiency of FAIS transfers, and a World Bank evaluation of FAIS found that it has had a limited impact on monetary and nonmonetary poverty indicators.[345] In addition, the Earmarked Transfer Fund for Strengthening Federative Entities (*Fondo de Aportaciones para el Fortalecimiento de Entidades Federativas*, FAFEF) distributes 1.4 percent of federal taxes (or 0.2 percent of GDP) to the states according to the inverse of their average per capita economic output. However, because FAFEF resources finance SNG debt obligations, pension liabilities, and institutional and technical capacity-building, the fund has no direct impact on regional fiscal disparities.

223. **The discretionary use of federal transfers (e.g., Ramo 23) may help undermine the credibility of the subnational fiscal-discipline framework.** Registered under *Ramo* 23, extraordinary federal transfers managed through agreements between the federal and state governments ac-

343 FONE was previously known as the Earmarked Transfer Fund for Basic Education (*Fondo de Aportaciones para la Educación Básica*, FAEB).
344 For more details on *Seguro Popular*, see Policy Note X on the health sector.
345 World Bank, (2017). *El Efecto del Fondo de aportaciones para la Infraestructura Social FAIS* en el Desarrollo Regional de México. Mimeo. Washington DC: The World Bank.

count for only 6.7 percent of transfers, but they create an ad hoc system, with limited efficiency and transparency in the intergovernmental transfer system. They also intensify budgetary unpredictability and may foster soft budget constraints.

Institutional coordination and investment planning failures

224. **Lack of coordination between the public and private sector, and between government levels led to negative effects on the process of urbanization, although this is changing.** Lack of coordination between developers and authorities to guide and regulate affordable housing projects and investments has led to poorly planned housing developments with low-quality services, often located far from job opportunities. Over the past 30 years, the built-up areas of Mexican cities expanded sevenfold and the urbanized areas of the 11 biggest metropolitan cities, ninefold. This horizontal expansion has been driven mainly by large single-use housing developments on the outskirts of cities. The supply of low-cost housing increased by about one million units each year between 2006 and 2011. However, as housing developers sought to produce more housing units while keeping land costs low, they increasingly built on rural tracts far from city centers. These areas were subsequently rezoned as urban land on a plot-by-plot basis. But limited attention to the overall functionality and accessibility of new developments on the outskirts of cities to basic services, including education, health, water, transportation, energy, among other. These also resulted in higher costs for these services for poorer households and a large disconnect from most job opportunities. New approaches to public housing inside urban areas, supported by government agencies, are helping, though they will only gradually change this trend.

225. **The uncoordinated urban growth of Mexican cities has implications for employment dynamics, administrative fragmentation, and productivity.** Urban growth has widened the distance between jobs and housing, undermining cities' ability to match skills to jobs. Between 2000 and 2010, population density dynamics within Mexican cities shifted. Most cities experienced a significant drop in the number of people living in central areas, accompanied by increasing population densities in urban peripheries. Eighteen of Mexico's largest cities lost more than 20 percent of their central city population during the period. The lack of mixed-use development and diversified employment subcenters also affected the cities' ability to sort economic activities in space. This kind of growth has led to sprawl and high levels of administrative fragmentation. Using the urban extents to assess fragmentation of cities in Latin America and the Caribbean, recent research finds that among the top 15 fragmented Latin America and Caribbean cities, three are in Mexico.[346] There is also recent evidence that fragmentation of urban areas in Mexico affects the productivity of cities. The administrative fragmentation of urban areas negatively affects the economic productivity for a sample of OECD countries (including Mexico) by between 5 to 8 percent.[347] However, that impact is reduced by about 40-60 percent when a metropolitan governance body is present. Earlier research had also suggested a positive association between income growth and the presence of an overarching decision-making mechanism, such as multijurisdictional, multipurpose regional governments.[348] Improved market access can also help raise city productivity. Mexico's road investment over recent decades are associated with local job growth and output, and with increasing specialization among manufacturing firms.[349]

226. **Limited coordination among public entities (including among levels of government) and between public and private sector, constraint the strategic planning of investments and contribute to suboptimal outcomes.** The planning and prioritization of investments across the country is an area where improved coordination could make a big difference. Strategic investments to support growth and inclusion could be better set, building long-term pipelines of projects and bringing private sector resources, under a strategic plan that could go beyond administration periods. This would also help to the maximization of private sector financing of infrastructure in the country, while guarding for fiscal risks. Problems of coordinated policies can be observed among federal entities as well as between federal and sub-national entities (where there is the highest need for investments). This also applies to the system of public procurement that could be more coordinated and streamlined to save resources.

227. **Ensuring coordination, transparency and accountability is critical for the efficient functioning of PPPs.** Mexico has a Law on Public-Private Partnerships (*Ley de Asociaciones Público Privadas*) that was approved in 2012 and applies to the federal, state and municipal level. The country scores well on international assessments of the institutional and legal framework for PPPs.[350] However, there is no agency at the federal or subnational level that has exclusive responsibility for PPPs, which makes long-term planning difficult.[351] Furthermore, a recent stakeholder survey[352] identified the lack of standardized contracts and risk matrices, and - despite the existence of a multi-year National Infrastructure Plan - the lack of a long-term vision of PPPs as areas for improvement. This long-term vision also needs to take into account the fiscal implication/risks of PPPs. In

346 Mexico City, as the most fragmented city in Latin America and the Caribbean, spans over 76 administrative units; Puebla, in third place, spans over 38 units, while Oaxaca de Juárez and Joinville in Brazil occupy the 14th and 15th place with 20 administrative units (Duque et al. 2017).
347 Ahrend et al. (2014).
348 For example, Foster (1993), and Nelson and Foster (1999).
349 Blankespoor et al. (2017).
350 See, for example, World Bank (2018).
351 Economist Intelligence Unit (2017).
352 World Bank (2018), Policy Note.

Box 12. A tale of two Mexican states

The success of productivity-enhancing policies often depends on deeper underlying determinants related to the process in which state and nonstate actors interact to design and implement policies—and in the institutions they establish to help coordinate expectations, improve cooperation, and enable commitment.a Regional disparities can thus be traced back to differences in the capacity of actors and groups to influence the allocation of resources and the design of policies.

Focusing on these interactions between influential groups, Kahn (2017) explains the divergence in economic performance in the Mexican states of Querétaro and Puebla. Located in the central region of the country, both states underwent a process of structural transformation in the 1960s, as industry decentralized from the capital; reaching similar levels of economic development by the 1980s. Over the last decades, however, Querétaro has enjoyed sustained economic growth and increasing productivity, while growth has remained volatile in Puebla, following stagnation in the 1980s. Additionally, whereas the economy in Querétaro has moved toward higher value added activities—including a leading aerospace sector—in Puebla the economy remains highly concentrated, specifically around auto assembly, which represents over 26 percent of the state's GDP in 2008. In contrast, the top four industries in Querétaro together accounted for less than 25 percent of state GPD.

Kahn argues that politicians and policymakers in the two states implemented different development strategies—and institutions—reflecting differences in the organization and characteristics of actors, particularly chambers of business. In Querétaro, the government strategy followed a model of cooperation and coordination with private sector actors, while in Puebla, where the business sector was viewed more as a rival for influence, the dynamic between public and private sector actors was more insular, tending toward cooptation and capture.

The nature of alliances between private sector, labor and the government differed in both states. Querétaro established institutions, such as the tripartite commission, that facilitated cooperation between government, the private sector, and labor elites, in a de facto 'developmental coalition' on issues ranging from labor bargaining agreements to taxation and investment promotion strategies. Conversely, in Puebla, the association between business owners and the government tended to be politicized—subject to the electoral cycle—and strained, with actors from both sectors alternatively confronting or coopting certain factions, engaging in short-term alliances and exchange of favors. Attempts to establish a tripartite consultative body were unsuccessful for the most part.

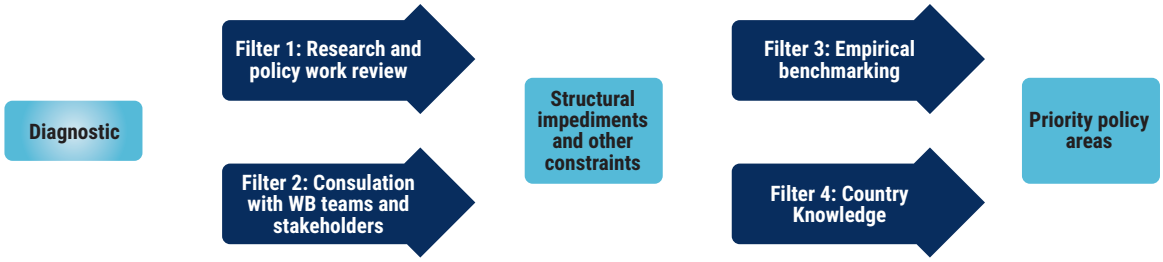
Another factor refers to the way in which modern large companies engaged with local business groups in both states. Major national and multinational enterprises arrived in both states during the 1960s. In Querétaro, the top executives of these firms integrated into the local business chambers, bringing along a culture of entrepreneurship, quality and innovation into the local associations. In addition, their participation increased the bargaining power of these chambers in negotiations, forming a worthy counterpart to the government. In Puebla, on the other hand, the new large firms seldom participated in business associations, which remained largely under the control of a few influential families, with a strong, conservative political identity. The lack of a variety of large firms in Puebla, especially multinational enterprises (with the exception of a single large automotive manufacturer) meant that local business associations remained largely undeveloped. In contrast, the diversity of economic activity in Querétaro implied that companies had to organize to engage with the government, providing incentives for cooperation. The differences in business chambers between states also affected their stance toward the reforms of the time. Business associations in Querétaro tended to be more supportive of free trade, foreign investment and productivity-enhancing policies, while in Puebla associations had a more protectionist outlook, calling for policies to ameliorate the effects of reforms.

The elite agreements that took place thus were structurally different. Broad public-private cooperation in Querétaro allowed implementing coordinated, longer-term strategies toward investment, infrastructure, and human capital; and to manage labor relations, including in the aftermath of crises, with the help of informal norms of conciliation and compromise. Conversely, the relationship between government and business in Puebla was less cooperative—where attempts at economy-wide coordination often resulted in partisan fighting-- and were more narrowly concentrated on a handful of firms.

Source: Based on Kahn 2017.
a. World Development Report 2017 (World Bank 2017).

the face of pressing near-term budget constraints, PPPs can seem attracted for delivering infrastructure up-front while postponing payment by spreading it over the length of a long-term concession. At present, the authorities are obliged under the PPP Law to prepare a comparative assessment of financing a project via PPP vis-a-vis financing it through public procurement. To improve transparency and accountability, consideration should be given to publishing these assessments alongside the cost-benefit analyses already made available on the *Obra Pública Abierta* database. In addition, systematic reporting on longer-term budget commitments, terms in the contracts that could impact future payments or revenues, and other contingent liabilities should be part of the periodic budget documentation and accountability on the totality of the public-sector PPP portfolio.

Figure 95. Prioritization process



228. **Differences in institutional effectiveness across states may have contributed to the large disparities in growth rates.** Case studies show that the process through which actors and groups interact to influence the allocation of resources and the design of policies is an important factor that contributes to this divergence.[353] For example, the divergence in economic performance between the states of Querétaro and Puebla may at least be partly linked to the interaction between policymakers, chambers of business and politicians, which led to different institutional arrangements and business development in each state. In this context, limited local capacity for planning may exacerbate the challenges of coordination. Municipalities often lack planning capacity, or a strategic vision that considers a territorial planning approach, and instead focus on sectoral, frequently siloed, programs (Box 12).

5.2 Prioritization process: From structural impediments to priority policy areas

229. **The SCD applied two first filters to identify the main structural impediments (discussed in section 5.1) and other key constraints (that also arise from chapters 2,3, and 4) that are holding back faster growth and inclusion with sustainability in Mexico.** The *first filter,* used a research and policy review of the extensive work done on Mexico by local and international scholars and practitioners, analytical work that has been conducted by the World Bank and other international organizations, and research papers and policy reviews published in peer-reviewed journals and academic and policy outlets. The *second filter* relied on several rounds of consultations with international scholars in academia and experts on Mexico, practitioners, government authorities in various sectors, private sector representatives, civil society, development partners, the World Bank, and other external experts (Figure 95).[354] Additionally, two broad rounds of consultations with stakeholders were held in-country, in October 2017 and April 2018, including field visits to several states.[355]

230. **After applying these two initial filters for prioritization, twelve structural impediments were selected to conduct the second stage of the prioritization process.** These twelve structural impediments are organized into four categories: (1) product and factor market issues, (2) rule of law, (3) resource allocation and policy coordination, and (4) other structural constraints to growth inclusion and sustainability. The first three categories are described in section 5.1. The fourth category consists of other relevant structural impediments to sustainable inclusive growth that, given their nature, could not be classified into any of the other categories discussed in chapters 2–4. Table 8 presents the list of these 12 structural impediments organized into four categories.

231. **To identify the highest priorities among the structural impediments over the medium term, the SCD used the results of a data-driven benchmarking exercise as a *third filter*.** This benchmarking exercise is designed to measure Mexico's performance in comparison to the world and selected structural peer groups of countries; the comparators include (1) the world, (2) the Latin America and Caribbean region, (3) upper-middle-income countries, (4) OECD countries, and (5) selected (structural) peers.[356] The indicators of this benchmarking exercise were selected for each of the four categories and policy areas of structural impediments discussed in the previous section (5.1) and,

353 World Bank (2017).
354 Teams also provided written inputs, focusing on (i) the most important analytical pieces and sources of their sector, (ii) the key development challenges for sustainable, inclusive growth, and (iii) the main challenges in their sectors. Consulted Global Practice teams included: Agriculture; Education; Energy Extractives; Environmental and Natural Resources; Finance, Competitiveness and Innovation; Governance; Health, Nutrition and Population; International Finance Corporation; Macroeconomic, Trade and Investment; Poverty and Equity; Social Development; Social Protection and Labor; Transport and ICT's; Urban and Disaster Risk Management; Water; Gender CCSA; Jobs CCSA; and Climate Change CCSA.
355 During the first round of external consultations, 51 experts were asked to provide feedback during meetings organized by type of entity. In particular, 19 experts from the private sector (including industries such as banking, pharmaceutical and energy), 11 experts from the academia, 6 experts from think tanks, 8 participants from NGOs and other development partners, and 7 experts from the government provided feedback. Consultations in Tuxtla Gutiérrez, Chiapas, included the participation from local secretaries from the economic and labor ministries, other government officials from the Ministry of Finance and Tourism, private sector representatives (agricultural, tourism, manufacturing and construction) and local business organizations (COPARMEX, CNIC). In Querétaro, consultations focused around the aerospace and automotive industrial clusters and several local Ministries including: Ministry of Sustainable Development, Ministry of Education, Ministry of Labor, Ministry of Social Development, Ministry of Infrastructure, Ministry of Finance, and the State Water Commission. Full list of participants in Annex 4.
356 Peer countries were selected based on similar characteristics and under three groups: regional, aspirational and structural peers. Within the region, peer countries were selected based on their per capita GDP and population. Regional peers include: Chile, Peru, Colombia, Brazil, Argentina, and Uruguay. Worldwide, aspirational peers were defined as countries that had similar populations and per capita GDP in the 1990s but then experienced high economic growth, reaching levels 20 percent higher than Mexico. Aspirational peers include: Korea, Malaysia, Poland and Chile. Finally, structural peers were selected for sharing unique elements with Mexico: upper-middle income countries, with a comparable GDP per capita (average between 2010-16), proximity to least to one large economy, similar performance in the logistic performance index, a similar percentage of manufactured exports and similar market size. These countries were Turkey, Thailand, Romania, and Argentina (for more details, see annex 1).

Table 8. Main structural impediments to achieve sustainable inclusive growth in Mexico

Policy areas	Structural impediments
Product and factor market issues	Concentration (and market power) in critical input markets and barriers to entry at the local level
	Access to finance
	Labor market rigidities and informality
Rule of law institutions	Access to justice
	Control of corruption
	Crime and violence
Resource allocation and institutional policy coordination	Tax structure and tax expenditures
	Public spending: rigidities, inefficiencies and distributional issues
	Institutional coordination and investment planning shortcomings
Structural constraints to growth, inclusion and sustainability	Investment in infrastructure
	Quality and utilization of human capital
	Management of natural capital

Table 9. Summary table of selected indicators (distance to top performers by structural impediment)

	Peers	OECD	Income Group	Region	World
1. Concentration (and market power) in critical input markets and barriers to entry at the local level	71%	88%	50%	42%	55%
2. Access to finance	83%	89%	74%	68%	72%
3. Labor market imperfectios and informality	55%	72%	47%	45%	61%
4. Access to justice	78%	83%	62%	53%	66%
5. Control of corruption	70%	91%	64%	65%	73%
6. Crime and violence	90%	100%	84%	73%	88%
7. Tax structure and tax expenditures	52%	72%	63%	58%	59%
8. Public spending: rigidities, inefficiencies and distributional issues	72%	93%	59%	56%	50%
9. Institucional coordination and investment planing failures	85%	90%	72%	84%	75%
10. Investment in infrastructure	74%	93%	60%	60%	67%
11. Quality and utilization of human capital	73%	91%	62%	59%	62%
12. Management of natural capital	73%	62%	72%	67%	69%

for other key constraints to growth and inclusion identified in chapters above that are not tackled directly in section 5.1. The benchmarking exercise did not include other sectors/policy areas that may be important for the country but do not represent binding constraints at the moment according to the diagnostic and the process undertaken under filters 1 and 2; and does not include either items that might be critical, but knowledge gaps impeded further analysis.

232. **For each structural impediment or constraint, comparable indicators worldwide were selected to measure Mexico against different benchmark groups.** An initial inventory of 80 indicators was constructed and shared for internal consultations, to reach a final list of 178 indicators that were organized under each one of the 12 impediments (the full list of indicators included under each structural impediment is available in annex 6).[357] The analytical exercise then calculates the (normalized) distance in percentage terms

357 After consultations with teams a total pool of more than 450 indicators were assembled. Based on the consultations with World Bank experts, a pool of indicators related to each of the structural impediments was gathered, allowing to compare Mexico's position vis-à-vis the defined benchmark groups. The sources of the selected indicators include the Global Findex (Global Financial Inclusion Database), World Bank, Washington, DC, https://globalfindex.worldbank.org/; Doing Business 2018; Global Competitiveness Report 2017–18 (Schwab 2017); World Justice Project rule of law Index; CPI unhabitat; human development data; Yale's environmental performance index 2017; Transparency International 2017.

between Mexico and the best performer for each indicator. Then, the analysis calculates an unweighted average of the indicators grouped within each of the twelve structural impediments to obtain a mean distance to the frontier for each category. These mean distances are calculated for the latest year available and for all benchmark groups. A larger mean distance for any given structural impediment implies a larger performance gap between Mexico and the top performer of a specific benchmark group (Table 9).[358]

233. **Additionally, the SCD used the World Bank country and global experts' knowledge to calibrate the prioritization of policy areas as the *fourth filter*.** For example, while the quantitative benchmarking exercise suggests that labor market imperfections and informality is only of moderate priority when measured relative to comparators, the qualitative evidence and recommendations by experts consulted suggests that this is a high-priority area for Mexico. Similar case for public spending issues which may appear to be moderate but when compared with OECD countries the distance to the frontier is quite significant. Experts also suggested significant territorial and horizontal inequalities of public spending as high priority. Table 10 highlights the results of the final prioritization results following the application of this fourth filter. It is important to point out that this list of priorities does not mean that other issues, excluded from the list, are not important. Rather, the aim is to provide a sense of priorities and policy directions, based on existing knowledge and the filters discussed in this section derived from the diagnostic undertaken for this report.

234. **Moreover, the priority policy areas do not include strictly macroeconomic stability policies, given the excellent track record of Mexico in this area.** However, the diagnostic assumes and sets prudent and sustainable fiscal and monetary policies as a critical pre-condition for growth, inclusion, and sustainability.

5.3 Knowledge gaps and data limitations[359]

235. **A number of knowledge gaps have been identified in the process of preparation of this SCD, including the following:**

- Identifying and analyzing the structural obstacles that contribute to the low productivity in the agricultural sector and how to overcome them. Currently, the agricultural sector—particularly in southern states—contributes little to aggregate productivity in Mexico.
- Conducting additional quantitative work to understand the potential economic gains of closing the gender gaps in the labor market. Assessing the segmentation of female labor force participation and its implications for productivity would allow a deeper understanding of the barriers that women face in the labor market.
- Corruption is closely associated with resource misallocation and appears to disproportionately affect the lowest income groups. Gaining a better understanding of the economic and distributive costs of corruption, using more rigorous methodologies, can help generate better evidence to design and support policies towards strengthening the rule of law.
- Assessing the distributive impacts of the current degree of access to the judiciary system in Mexico. There are no rigorous estimates of the welfare loss due to justice inaccessibility, though those at the low end of the income bracket often suffer from limited access to justice, where this unequal access to the judiciary system in Mexico appears to be perpetuating inequality.
- Carrying out profile analysis of crime victims and the geographic distribution of crime, including within-cities violence. Future analytical efforts should also look deeper into gender-based violence, the impact of crime on productivity, and inequality in the penitentiary system.
- Analyzing internal migration trends, the profile of migrants, and the push-pull factors of migration within Mexico. This is particularly important given the relevance of internal mobility to reduce misallocation, as well as in relation to risk diversification and crisis response.
- Gaining a more thorough understanding of the degree of inefficient spending due to duplicity and overlaps of programs, and the fragmentation of the social protection system. The need for a more precise understanding is clear considering that there are at least 5,491 social development programs across government levels in Mexico.
- Carrying out additional analyses on groundwater (or lack thereof) and its impacts on health outcomes. Current empirical research on groundwater and its relationship with health outcomes is scarce, but increasingly required considering the growing stress on Mexico's water resources.
- Analyzing the impact of electricity subsidies on groundwater extraction/exploitation. It is particularly important to investigate and understand the degree to which these subsidies might create unintended long-term environmental consequences.
- Conducting a rigorous assessment of the consequences of tourism and environmental degradation; particularly the growth in beach tourism and the increasing forest cover loss in years to come.

358 The distance is defined as a range between 0 and 100; where 0 denotes that Mexico is part of the top 5 percent best achievers, and 100 implies that Mexico is part of the bottom 5 percent worst performance. Any value between 0 and 100 indicates Mexico's position somewhere between the best and weakest achievers. The 5th and 95th percentile were used to define the threshold for the top and bottom performance, with the objective to reduce possible distortions caused by outliers. The performance of Mexico for each indicator and the benchmarking group was classified as high (red), medium-high (yellow), medium-low (grey) and low (green). High indicated that the difference between Mexico and the best performer in the group was 75 percent or more of the gap between the top and lowest performers. Medium-high indicated that Mexico's difference with the top performer was between 50 and 75 percent of the gap with the lowest performer. Medium-low indicated that the difference was between 25 and 50 percent, and Low indicated that the difference was less than 25 percent of the gap with the lowest performer. The overall score of each impediment is equal to the unweighted average of Mexico's performance in the selected indicators for each benchmark group. In general, Mexico has on average a medium performance in comparison the world and upper-middle income countries but presents low performance in comparison of the selected peers and OECD countries.

359 More detail on data sources and data limitations in Annex 5.

Table 10. Priority policy areas

Policy areas	Structural impediments
Product and factor markets	**1. Concentration (and market power) in critical input markets and barriers to entry at the local level** • Promote (and strengthen) regulation and supervision to curb concentration (and market power) in critical input markets and complete implementation of product market reforms. • Address regulatory failures particularly at the local level (reducing the costs of firm establishment and operation), reduce protection for incumbents, remove preferential treatment for politically-connected firms, improve business environment (including protecting SMEs from crime and extortion, removing informal fees). • Strengthen SME capabilities to link with large companies that work within GVCs.
	2. Access to finance • Incentivize lending to MSMEs, including by establishing the legal framework for instruments such as Asset-Based Lending. • Strengthen mechanisms to foster financial inclusion, including through new technologies (e.g., fintech) and with emphasis in rural areas. • Promote the development of the domestic capital market (expanding to a broader set of firms) by fostering competition. • Reform state banks to provide them more developmental oriented goals.
	3. Labor market rigidities and informality • Reduce the costs of formalization for firms and workers, gradually severing the link between payroll taxes and social insurance programs, cutting the costs for hiring and firing, and reducing the length of legal procedures in labor courts. • Strengthen programs targeted at firms to improve formalization and entrepreneurship. • Strengthen the relationship between the education system and the private sector to equip workers with the skills demanded by employers.
Rule of law institutions	**4. Access to justice** • Increase access to justice for vulnerable populations. • Improve litigation times of most frequent cases, such as debt cases, wrongful dismissals, non-violent drug-related offences. • Accelerate the implementation of reforms to enhance commercial justice. • Improve contract enforcement and enforcement of property rights.
	5. Control of corruption • Implement aggressive legislation to fight corruption (e.g., public-private contracts, public procurement, reduce cash transactions between citizens and public servants). • Fully implement the National Anti-Corruption System and extend reforms to the subnational level. • Fully apply OECD's anti-corruption convention.
	6. Crime and violence • Implement programs to promote social cohesion and support youth-at-risk, including youth employment programs. • Strengthen and hold accountable institutions in charge of providing public safety and preventing crime.
Resource allocation and institutional policy coordination	**7. Tax structure and tax expenditures** Gradually increase revenue mobilization through: base broadening, tax rates where needed, and tapping undertaxed bases (digital economy and subnational), while considering distributional impacts. Adjust the tax structure and reduce tax expenditures to gradually increase the share of indirect taxes (while reducing payroll taxes). Reduce collection gaps, through the modernization of tax administration tools and stronger voluntary compliance measures.
	8. Public spending: rigidities, inefficiencies and distributional issues • Reduce public spending inefficiencies to create fiscal space for infrastructure (e.g., room for efficiencies could be found in public procurement, wage bill, consolidation of public sector programs; reducing fragmentation in the health system). • Reduce existing spending rigidities (pensions, wages, other entitlements). • Reduce dependency of payroll taxes for social insurance programs. • Reform the current pension systems to ensure sustainability and promote adequacy and equity. • Explore ways to reduce overlaps and expand reach of the social protection system to the poorest and most marginalized. • Reduce vertical and horizontal fiscal gaps in subnational governments. • Strengthen equalization capacity of the intergovernmental transfer system (while applying stronger incentives for fiscal effort and curtailing ad hoc transfers) to reduce regional inequalities in service delivery and outcomes. • Build larger fiscal buffers to use during difficult times.

Policy areas	Structural impediments
Resource allocation and institutional policy coordination	**9. Institutional coordination and investment planning shortcomings** • Enhance coordination between the public and private sector, especially at the subnational level, with emphasis on productive investment. • Enhance public investment management process, starting with long term strategic planning (beyond a government period), the development a solid pipeline of projects with an enhanced feasibility analysis process and cross-institutional coordination. • Promote integrated multisector urban planning and service provision.
Other structural constraints to growth, inclusion and sustainability	**10. Investment in infrastructure** • Raise investment in infrastructure, including through private sector participation. • Further strengthen and streamline the PPP framework, while managing fiscal risks. • Invest in transport, logistics and trade facilitation to strengthen the Pacific side export corridors (including gulf to pacific corridors), as well as to achieve higher efficiencies domestically. • Reduce vulnerability of existing infrastructure and integrate concept of resilience into new investments. • Expand access to services in lagged regions. • Invest in water infrastructure modernization and electricity transmission capacity.
	11. Quality and utilization of human capital • -Support youth in making effective school-to-work transitions. • Ensuring basic learning with a particular focus on closing gaps in attainment outcomes. • Promote universal health care reform based on a standard benefit package that promotes horizontal and vertical integration of services. • Strengthen the primary health care system with a focus on prevention and promotion. • Eliminate barriers that hinder participation of women in the labor market focusing on access to quality childcare and promoting gender-neutral flexible work arrangements.
	12. Management of natural capital • Adopt long-term planning and prioritization of investments in water security. • Strengthen effectiveness of current support to agriculture, forestry and other productive, resource-based sectors by focusing on long-term productivity and competitiveness. • Build resilience to deal with climate change and extreme events and foster climate-smart growth.

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Annex 1. Identification of comparators/peer countries

This SCD benchmarks Mexico vis-à-vis i) OECD countries; ii) regional peers; iii) a set of countries which started in the 1990s at a similar position than Mexico, but have had a successful path over the past decades and reached higher levels than Mexico ("aspirational peers"); and, iv) a set of structurally similar countries ("structural peers").

- Regional peers: Chile, Peru, Colombia, Brazil, Argentina, Uruguay.
- Aspirational peers: Chile, Poland, South Korea, Malaysia.
- Structural peers: Turkey, Thailand, Romania, Argentina.

Aspirational countries are countries anywhere in the world that starting from similar GDP per capita levels to Mexico in the 1990s, had a successful path in economic growth (i.e. increasing GDP per capita) and productive inclusion (i.e. expanding the rate of female labor force participation). To increase comparability with Mexico's case, we have limited the set of countries to those having a total population that is within the same of tier in the world ranking.

Detailed definitions of data-driven 'aspirational peers'			
	Description	**Countries**	**Intersection**
Aspirational peers **Definition:** countries with successful path BOTH in GDP per capita and female labor force participation over the past decade and starting from similar initial conditions to those in Mexico (in the 1990s)	Countries with • Successful path in terms of growth in GDP per capita, and • Total population in the comparable range.	Korea, Rep. Malaysia Poland Chile	Korea, Rep. Malaysia Poland Chile
	Countries with • Successful path in expanding female labor force participation rate, and • Comparable population size, and • Comparable GDP per capita.	Chile Spain	

Definition of the successful path:

- GDP per capita (aspirational): countries that had similar levels of GDP per capita to Mexico in 1990 (average of 1990, 1991 and 1992) and increased reaching levels 20% or higher than Mexico's in 2015.
- Female labor force participation rate (aspirational): countries that had similar levels to Mexico -- in 1990 (average of 1990,1991 and 1992) and increased FLFP rate to reach levels at least 20% higher than Mexico's in 2015.

Structural peers are countries anywhere in the world that meet the following criteria in terms of characteristics of its economy:

Detailed definitions of data-driven 'structural peers'		
	Description	**Countries**
Structural peers	Countries with: • Classified as upper-middle income. • Comparable level of GDP per capita. • Near at least to one big market • Comparable score in the logistics performance index. • Comparable percentage of manufactures exports (% of merchandise exports). • Similar market size.	Turkey Thailand Romania Argentina

Definition of countries with similar levels to Mexico's in each indicator:

- Comparable countries in the GDP per capita (Constant US 2010), logistic performance index, manufactures exports and market size, are defined as the group of countries for which the simple average between 2010 and the last available year (circa 2016) is within the same percentile as that of Mexico or ten percentiles above/below. We excluded countries in this range, for which the average was higher or lower than 50% of Mexico.
- Distance to a big market is defined as the linear distance between the frontier of each country and the frontier of any of top ten countries with highest GDP per capita between 2010 and 2016 (big market). Countries with a distance within 650 km in this indicator are categorized in the set of 'near to a one big market'.

Data Sources:

Indicator	Data source
GDP per capita	World Development Indicators 2017
Female labor force participation rate	World Development Indicators 2017
Manufactures exports (% of merchandise exports)	World Development Indicators 2017
WBG - Logistics Performance Index	TCdata 360 at World Bank
Market size index	World Economic Forum Global Competitiveness Index

Annex 2. Official poverty methodology in Mexico

The official multidimensional poverty measurement combines income poverty with six indicators of social deprivation. In 2008, Mexico adopted an official multidimensional poverty measurement that combines income-based monetary poverty with non-monetary dimensions of wellbeing, called social deprivations. Based on social rights defined in the Constitution Law, these are: education, health, food, social security, quality and space of the dwelling, and basic services in the dwelling. According to Mexico's methodology, an individual is considered poor if living below the wellbeing line and with at least one social deprivation. An individual is considered extreme poor if living below the minimum wellbeing line and three or more social deprivations. The monetary component of poverty uses current income per adult equivalent which includes; labor income, public and private transfers, and capital rents. It excludes dwelling imputed rent, self-consumption, and temporal transfers. The well-being line is different in urban and rural areas, defined as localities with a population above/ below 2,500 inhabitants.

Official poverty estimates are released to the public every two years based on data from the household survey. CONEVAL (Consejo Nacional de Evaluación de la Política de Desarrollo Social) is the designated office to calculate the official poverty rate based on the household survey (Modulo de Condiciones Socioeconómicas Encuesta Nacional Encuesta Nacional de Ingreso y Gasto de los Hogares, MCS-ENIGH), produced by INEGI (Instituto Nacional de Estadística y Geografía). Since 2008, poverty estimates are also available at the state level biannually, and municipal poverty estimates are produced every five years. Given recent improvements to the household survey, values of income and expenditures produced in 2016 are not directly comparable with the historical series. Comparisons are only possible using a statistical model developed by CONEVAL and INEGI. Moreover, monetary poverty rates using international poverty lines from the 2016 data should not be compared with pre-2016 numbers.

Cross-country comparisons across the Latin American region are based on the data harmonization effort known as the Socio-economic Database for Latin America and the Caribbean (SEDLAC) – a joint effort of the World Bank and CEDLAS from the National University of La Plata (Argentina). SEDLAC includes 18 countries and more than 300 household surveys since the 80s. Since income-based welfare aggregate is widely used in the region for official poverty estimates, income-based microdata is used for global and regional poverty monitoring. It is important to highlight that the SEDLAC harmonized data set differs in the calculation of the income aggregate from the official national estimation. For the SEDLAC per capita income variable: labor income includes salaries for wage earners, income for self-employed (including self-consumption) and other labor incomes, non-labor income includes: public and private transfers and others and imputed rent is included. In addition, income is calculated over the previous month, while the official calculation uses a sex-month average.

Annex 3. Jobs diagnostic[1]

This annex provides complementary description on current conditions in labor supply in Mexico and the related prevailing economic returns in wages and labor incomes. It presents stylized facts on the main characteristics of the workforce and the quality of the jobs that labor market participants are obtaining. A diagnostic of the current supply of skills and the returns to human capital is also presented, together with an analysis of the evolution of real wages in the most recent decade.[2]

Characterizing Mexico's workforce

There is a clear gender gap in labor force participation: while 8 men in 10 participate in the labor market, in the case of women only 4 in 10 do so. Participation in the labor market[3] is clearly dominated by men. This pattern persists over time, despite the fact that in the last 13 years, there has been a slight increase in female participation. According to Rendón (2003), the increase in the participation of women in the labor market is explained as much by the decrease in the female mortality rate as by the reduction in fertility, which has resulted in greater prospects of entering the labor market.[4] Likewise, Arteconna and Cunningham (2002) and Bruhn and Love (2011) show that both the process of trade liberalization and the increase in access to the financial system have had positive effects on the employment and wages of Mexican women.

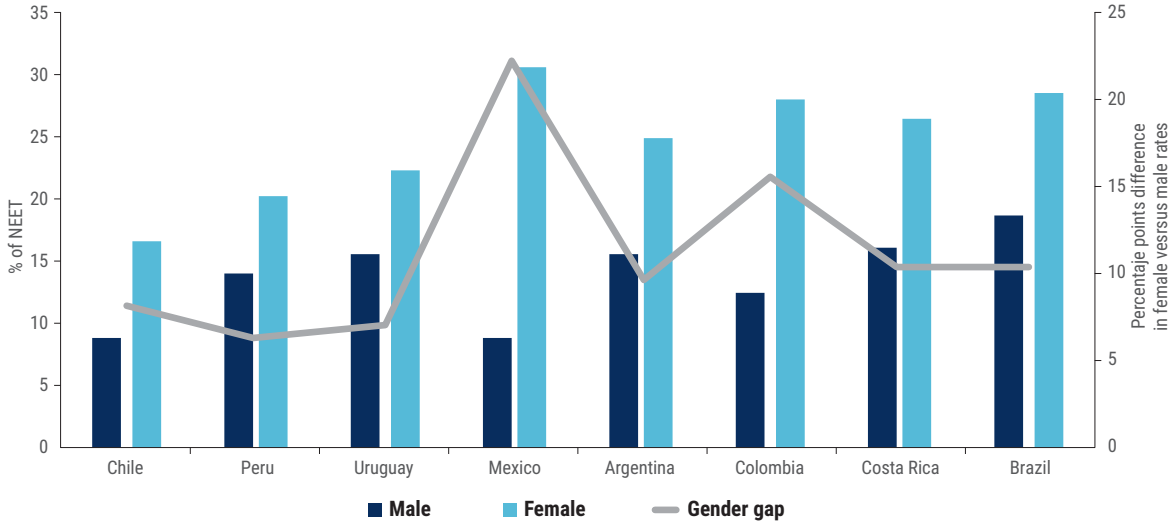
Participation in the labor market has increased over time, but gender disparities remain throughout the life cycle. Participation in the labor force presents a clear pattern by gender and age. Participation has shifted toward the 25–34 and older age ranges. In the case of men, between 2005 and 2017, the proportion of 40-year-olds and above who participated in the labor market has increased consistently, while the opposite effect is observed among younger men, particularly, those 15 to 24 years of age. Although the highest participation rates are among the 30–34 age-group, this rate has been declining in the period under study. In the case of women, although participation shows a behavior similar to that of men in favor of greater labor participation in older ages, even the 30–34 age-group exhibits the highest participation. These results indicate a delay in entering the labor market in the first years, which would be partly offset by a longer stay at later ages. A greater demand for qualified personnel may be in part responsible for the observed evolution: young people facing incentives to delay their entry into the labor market in favor of a higher educational level. In turn, the longer time engaged in labor activity shows signs of weakness in retirement coverage.

A significant driver of female LFP is education; yet, in Mexico, there is still an important proportion of women with tertiary education who remain outside the labor market. To better understand the drivers of labor force participation and their heterogeneity by gender, a logistic probability regression on sociodemographic characteristics is estimated. Results show that higher educational attainment is associated with higher female LFP in Mexico as in many other countries. However, the proportion of women with higher education levels who are not participating in the labor market is high in comparison with peer countries. Married women and, particularly, women with young children are more likely to remain out of the labor force.

1 The authors of this annex are Roy Nuñez and Lourdes Rodríguez-Chamussy.
2 The current version of this note focuses on stylized facts based on data of the National Labor Survey (ENOE).
3 Participation in the labor market is defined as the quotient between the economically active population with respect to the population of working age.
4 Rendón (2003). Empleo, Segregación y salarios por género. La situación del trabajo en México, 129-150.

Among the 30 million people outside the labor force, there is a significant proportion of youth not in employment, education, or training (NEET). The phenomenon in Mexico is largely related to the low participation of women in the labor market. Young women are nearly four times more likely than young men to be NEETs in Mexico. Motherhood is a key driver of NEET status and overall low participation among women (in the extensive and intensive margins).[5]

Figure A.3.1. Share of youth not in employment, education or training (NEET) by gender, selected LAC countries



Source: ILOSTAT, 2017.

Among the many determinants of labor force participation, environmental conditions and health may exert an important influence. Recent findings in the literature point to a short-run relationship between pollution and work hours. Moderate effects of pollution on health seem to have an important impact on work. The estimations of the effect of a large refinery closing in Mexico City show that a 19.7 percent decline in pollution led to an increase by 1.3 hours in the hours worked per week, a 3.5 percent increase from the baseline.[6]

Migration dynamics and the labor market

Among Mexicans, 7 in 10 who migrate abroad report doing so for work-related reasons. According to the Encuesta Nacional de Dinámica Demográfica 2014, the main reason to migrate abroad is to search for jobs or because jobs have already been found in a foreign country (68 percent), followed by those who report family reunion (14.4 percent) or study motivations (12.4 percent). Although this information is provided by a relative in the country (and not by the migrant), it shows the clear relationship between migration and work.[7]

Between 2005 and 2010, the foreign population in Mexico went from 0.5 percent to 0.9 percent of the total population. However, between 2010 and 2015, the immigration numbers seem to have remained stable. Although these figures are small compared with the entire population, they do not allow the number to be identified of those who are in Mexico in transit toward the United States or those who, in their migratory process toward the north, have ended up becoming established in Mexico.

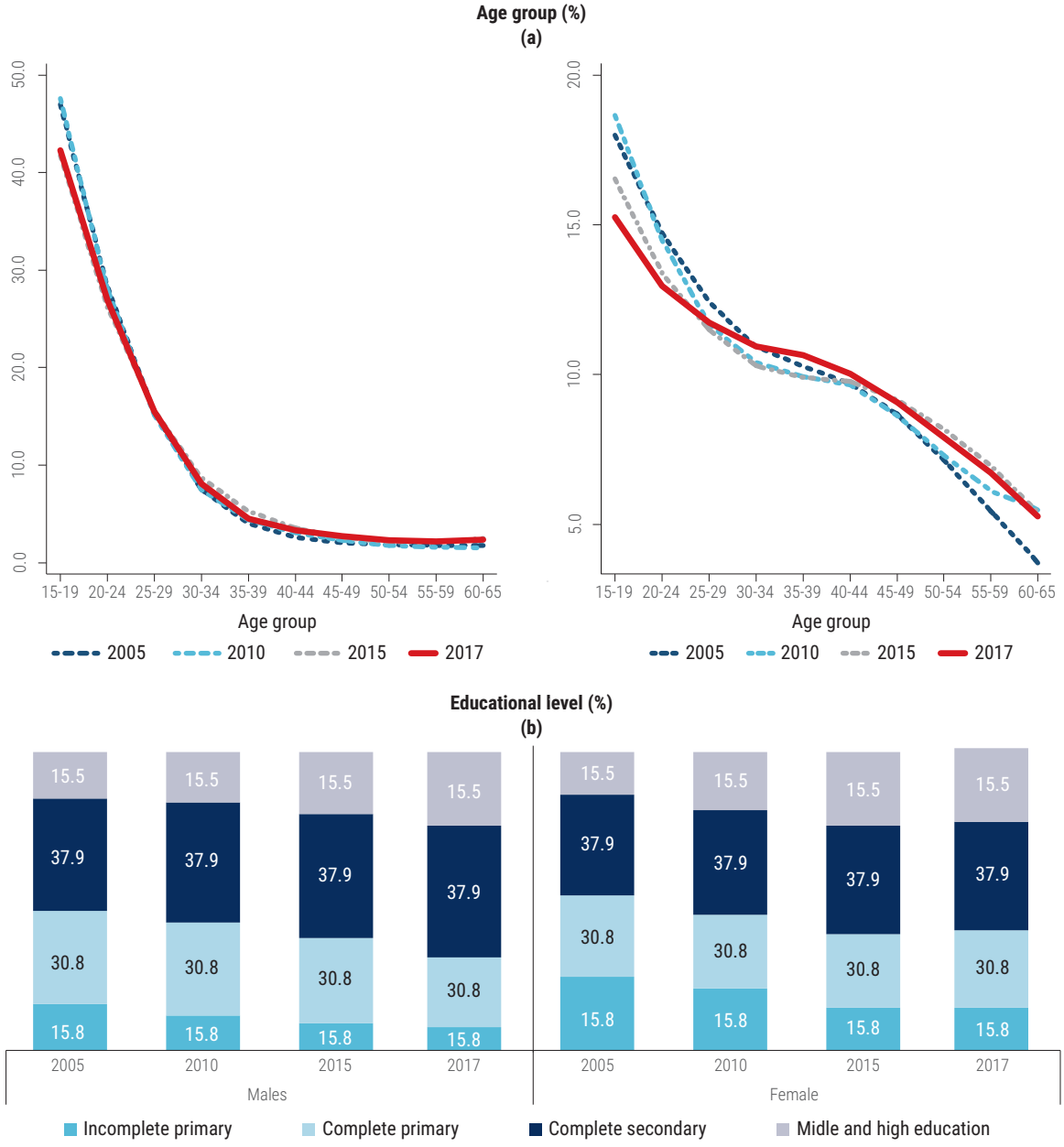
Where are the jobs and who gets the jobs?

Employment is concentrated in nonagricultural activities and in the private sector. The nonagricultural sector has the bulk of the employment. Men participate more in agricultural work, at around 19 percent, in contrast to 7 percent among women. Over the 13 years, there was a reduction in the number of workers in agricultural activities, with mostly men leaving the sector. This result is a reflection of the considerable wage gap between agricultural and nonagricultural sectors as well as the greater demand for labor in sectors such as trade, services, and construction in response to growth and development in urban areas. In terms of participation in the public or private sector, about 95 percent of the working population is in the private sector.

5 OECD (2017)
6 Hanna and Oliva (2015)
7

Wage employees and the self-employed account for almost 90 percent of the total number of workers with a slight increase in the proportion of wage employment taking place in the last 13 years. The remaining 10 percent is made up of those who work as employers or unpaid workers. However, there are important gender differences. The participation of men as employers is considerably greater (5.6 percent for men versus 2.4 percent for women in 2017), and a higher participation of women in unpaid work (6.8 percent for women versus 3.5 percent for men in 2017). According to Bruhn and Love (2011), the greater access of men and women to the low-income financial system in Mexico has had a positive impact on employment, but in a differentiated way. Thus, while, for women, it has increased the opportunities for salaried employment, it has encouraged the creation among men of new businesses, mostly of an informal nature.

Figure A.3.2: Unpaid workers

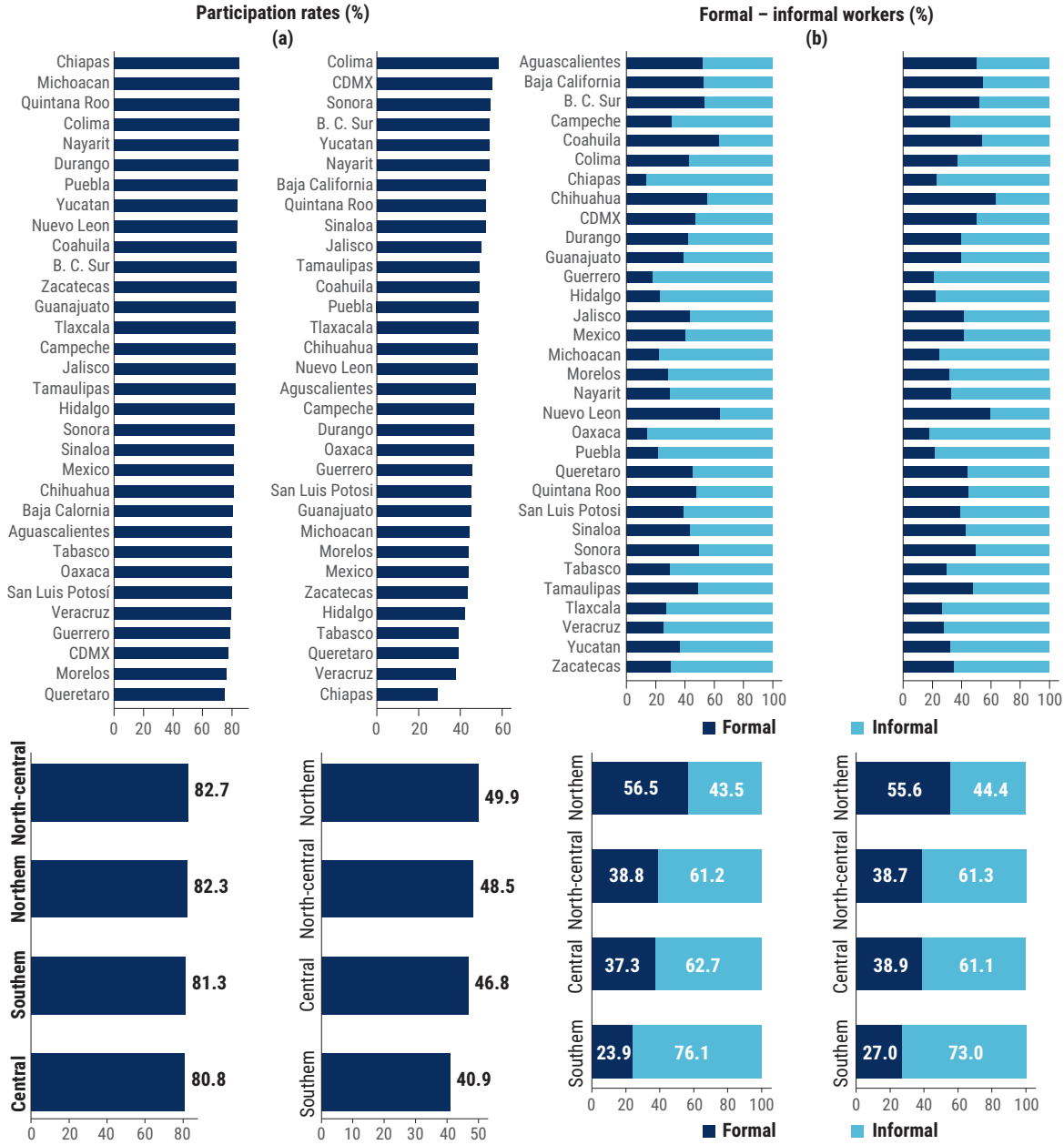


Note: ENOE 2005-2017. We only consider the second quarter of each year. Figure (a): left-hand graph shows males whereas the right-hand graph shows females. Figure (b): left-hand graph shows males whereas the right-hand graph shows females.

In the case of women, the gain in expected work experience as age increases does not translate into a reduction in participation in unpaid work. In contrast, for men, the proportion of unpaid workers decreases considerably as they grow older. This could be explained by a lower accumulation of work experience among women (for example, the exit from the labor market at the time of pregnancy or maternity) as well as by the intrahousehold distribution of activities and compensation (for example, the unpaid work of small family businesses, mostly informal). Figure A.3.2b shows how unpaid workers are distributed according to educational level and gender. It is interesting to note that, for both men and women, the highest proportion of unpaid workers have full primary or full secondary education. However, there was an increase in the proportion of workers with medium and higher education in this condition during the period under study.

There are clear disparities in participation in formal employment, with the highest levels among men, in urban areas, and in the northern part of the country. Nuevo León, Coahuila, and Chihuahua have the highest rates of formal employment in the country, while Chiapas and Oaxaca have the lowest levels.

Figure A.3.3: Employment by states and regions (percentage)



Note: ENOE 2017. We only consider the second quarter in the graph. The left-hand graph shows males whereas the right-hand graph shows females. Formal work is defined as work with access to social security. Regions were considered according to Chiquiar, D., et al. (2017). Northern region includes: Baja California, Chihuahua, Coahuila, Nuevo León, Sonora and Tamaulipas. North-central region: Aguascalientes, Baja California Sur, Colima, Durango, Jalisco, Michoacán, Nayarit, San Luis Potosí, Sinaloa and Zacatecas. Central region: Mexico City (CDMX), Mexico State, Guanajuato, Hidalgo, Morelos, Puebla, Querétaro and Tlaxcala. Southern region: Campeche, Chiapas, Guerrero, Oaxaca, Quintana Roo, Tabasco, Veracruz and Yucatán.

Almost the totality of formal employment in the southern region is in the public sector. About 95 percent of the country's work is generated by the private sector. However, as we move toward the southern region of the country, the share of public employment increases both in the case of men and women (6.7 percent and 4.7 percent, respectively) and represents almost the totality of formal employment.

The agricultural sector concentrates a higher share of labor in the south and north-central regions of the country. Men's participation in agricultural activities is 15 percent on average, with the southern zone of the country having the highest rate (27.3 percent) and the northern zone with the lowest rate (8.1 percent). In the case of women, participation in agricultural activities does not exceed 3 percent in any region.

Wage jobs are more prevalent in the north, and self-employment in the south. In the case of men, it is clear that salaried employment increases as we go towards the northern region of the country, while the opposite holds true for self-em-

ployment, which represents 28.3 percent of total employment among men in the southern region. Likewise, unpaid work is considerably higher in the southern part of the country (7 percent) compared with the rest of the regions. In the case of women, the structure is similar to men's. However, the proportion of women employers is minimum in all regions compared with the rates presented by their peers of the opposite sex.

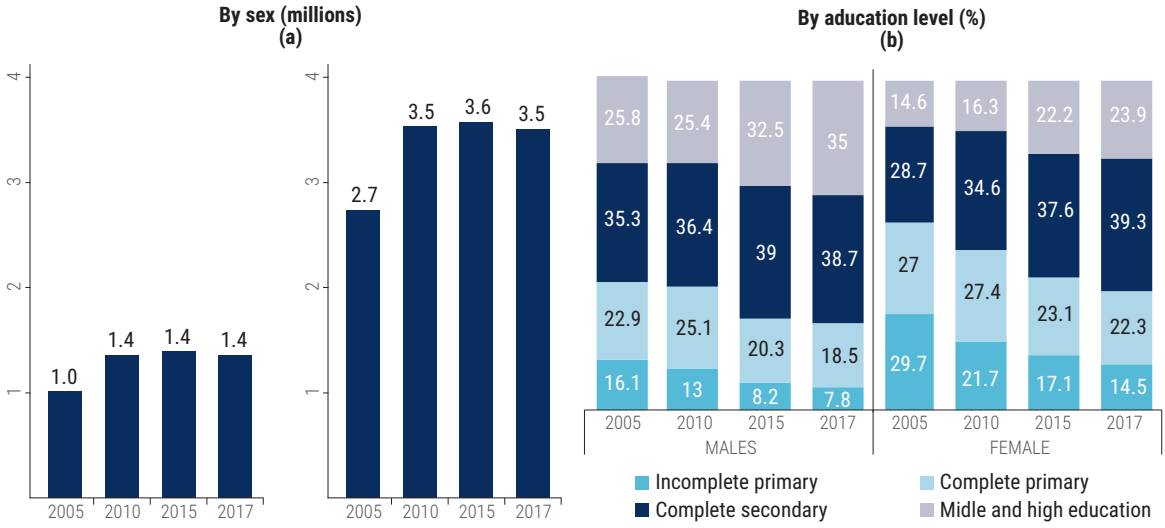
The labor market is dominated by manufacturing jobs, although the construction and manufacturing sectors concentrate the highest proportions of male labor, while manufacturing, services, and retail concentrate female labor. For men, employment by industry is led by construction and manufacturing activities (81 percent and 71 percent, respectively), while those with lower employment rates are agriculture (65 percent) and commerce (62 percent). In the case of women, manufacturing and services are the sectors that absorb the largest amount of labor (73 percent and 68 percent, respectively), while the activities with less female labor are construction and agriculture (58 percent and 48 percent, respectively). The employment rate according to formality reveals that the sector that generates the greatest amount of formal work is manufacturing. Thus, 62 percent of men who work in this sector do it formally, while the corresponding rate is 55 percent among women. In the case of men, after manufacturing, the sectors that generate more formal employment are services and commerce, while 70 percent of women who work in the construction sector do so formally. Informal employment is concentrated in activities linked to agriculture in both sexes (91 percent men and 82 percent women).

Inclusion in the labor market: Youth and women

Female population out of the labor market but willing to work duplicates that of men. Figure A.3.4 presents information about the working-age population that is currently not working, but is available for work. This category includes those people who, for some reason, have become discouraged in their job search. Although both for women and men there was a slight increase between 2005 and 2010 and a stabilization for the rest of the period, the proportion of women in this condition is more than double that of men. Characteristics of the pool of available workers differ by gender, with men showing higher education levels on average. Also, social norms affecting the work search affect men and women differently, and this may explain in part the asymmetry (see Hicks, Santacreu-Vasut, and Shoham 2015).

There is a greater proportion of discouraged workers in the central zone of the country, showing some correlation with urbanization. Both in the case of men and women, the proportion of people outside the labor market who are willing to work is concentrated in the central region of the country (42 percent in the case of men and 40 percent in the women´s case). Next in importance are the north-central and southern parts of the country, while the lowest percentage is the northern region.

Figure A.3.4: Available population



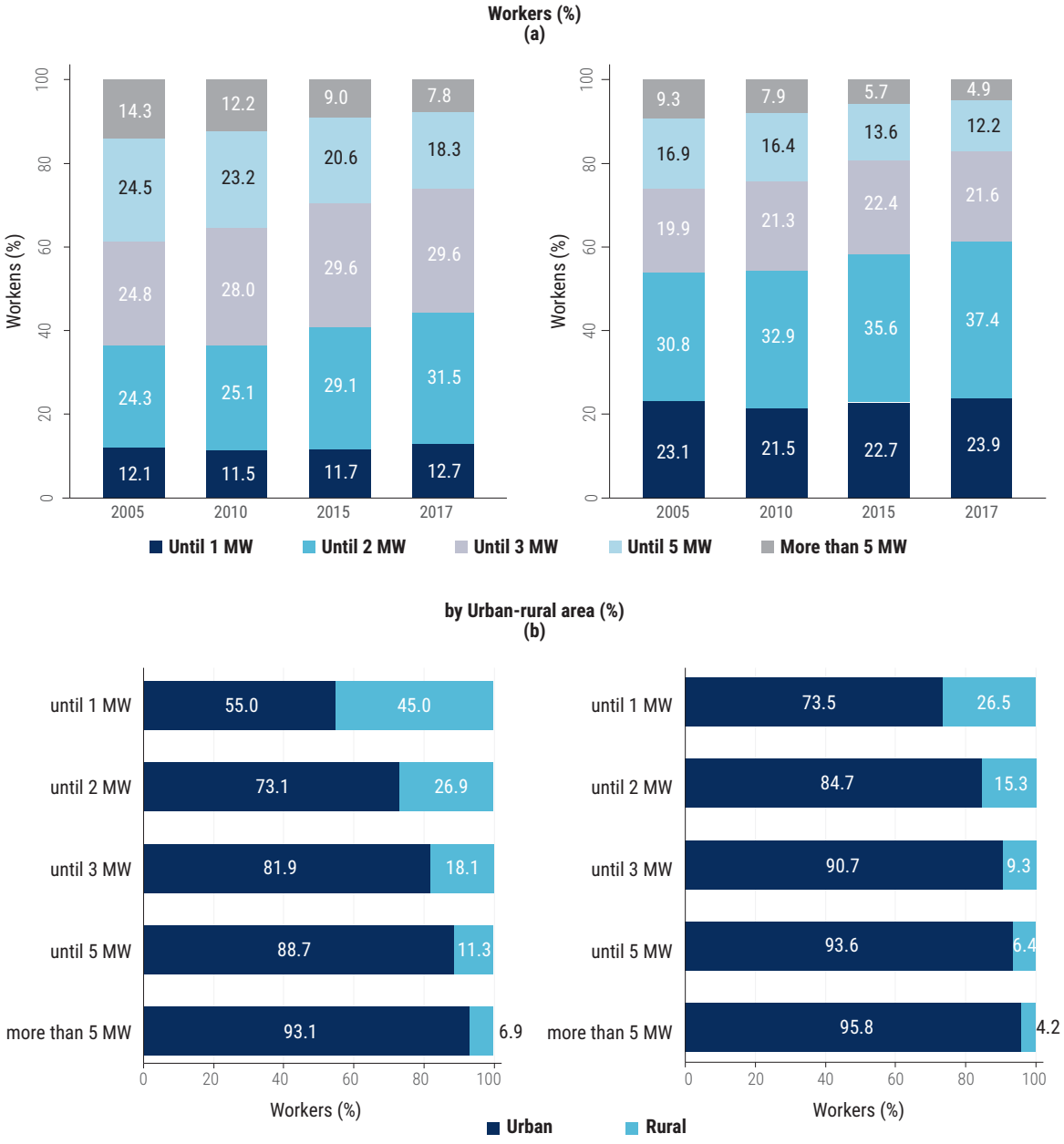
Note: ENOE 2005-2017. We only consider the second quarter of each year. The left-hand graph shows males whereas the right-hand graph shows females.

Wages, returns to skills/characteristics and labor cost

There has been wage compression to the bottom over the past decade in Mexico. Between 2005 and 2017, the proportion of those earning up to 1 minimum wage remained close to 12 percent, while the proportion of those earning between 2 and 3 minimum wages increased. At the same time, the percentage of men who earned 5 of more minimum wages was considerably reduced in that period. The dynamics for women are similar however, the proportion earning up to 1 minimum wage is almost double relative to men. Although there is an increase in the number of women who earn up to 3 minimum wages, this advance is lower relative to that registered by men.

An important proportion of low-wage earners are in rural areas. Both for men and women, there is a slim proportion of people in the rural area making more than two minimum wages (Figure A.3.5).

Figure A.3.5: Workers and minimum wage ranges



Note: ENOE 2005-2017. We only consider the second quarter of each year. The left-hand graph shows males whereas the right-hand graph shows females. The rural area is defined as localities of less than 2,500 inhabitants.

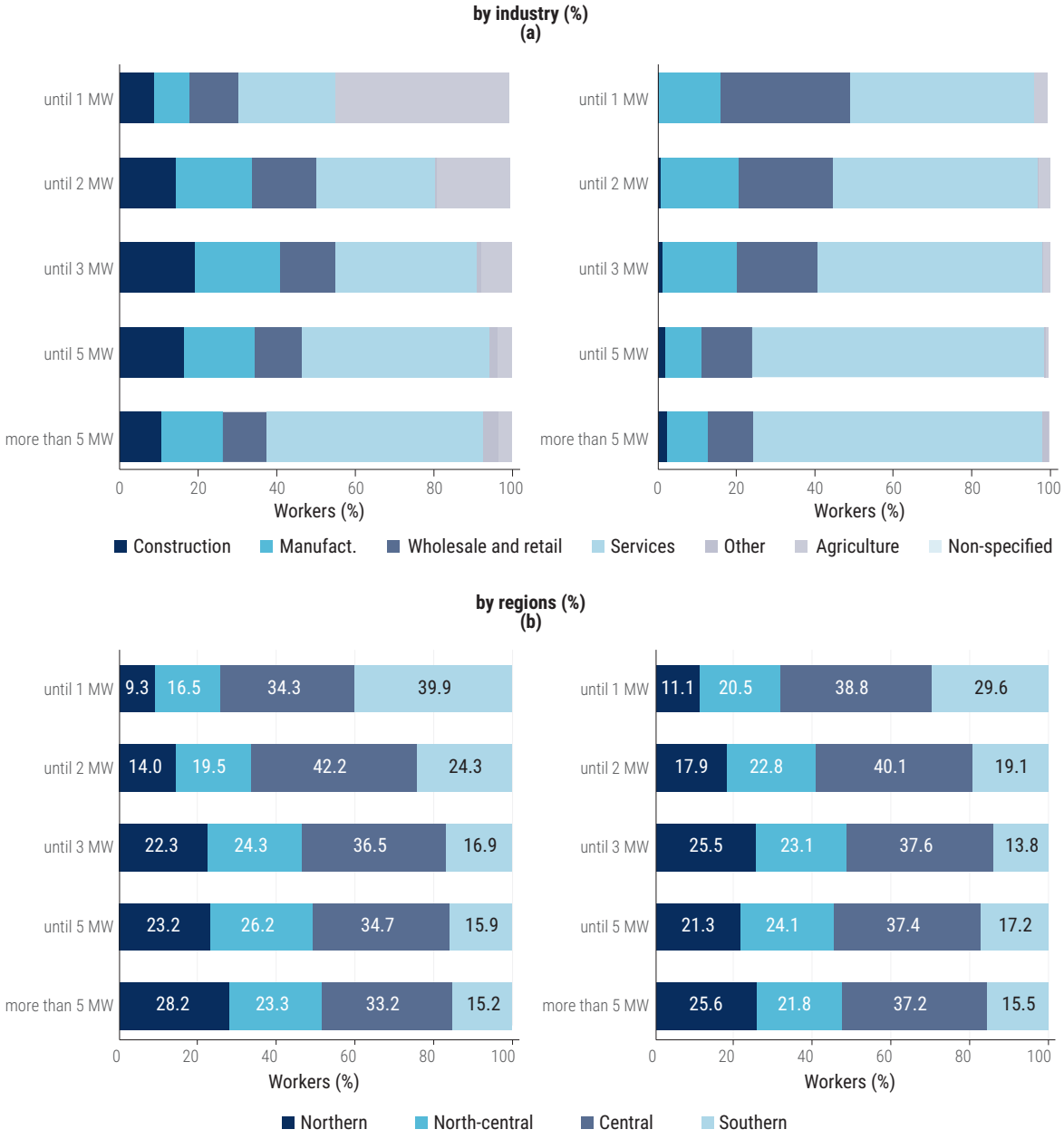
Low-paid jobs are mostly informal; however, even among higher-paying jobs, the rate of informality is high, particularly for men. As one moves toward a better paid category of jobs, the percentage of workers with informal jobs is reduced in favor

of formal employment. However, there is a high proportion of those who earn more than 5 minimum wages and are in a situation of informality, both in the case of men and women (41 percent and 27 percent, respectively).

There is a positive correlation between better paid jobs and workers education, much stronger among women than among men. The data for 2017 show that the participation of workers with secondary and higher education increases in better paid jobs. The correlation is much higher in the case of women, with nearly 85 percent among those earning more than 5 times the minimum wage having tertiary education, compared with 71 percent among men.

Low-paid jobs are related to agricultural activities more prevalent in the southern region of the country. In contrast, for better paid jobs, the distribution of workers becomes more homogeneous in both genders between the northern and central regions of the country, with a clear lag in the southern zone (Figure A.3.6).

Figure A.3.6: Workers and minimum wage ranges



Note: ENOE 2017. We only consider the second quarter of each year. The left-hand graph shows males whereas the right-hand graph shows females.

On average, real labor income has been decreasing in Mexico over the past decade, and the trend is consistent across occupation, gender, and age-group. Real labor income showed a declining trend between 2005 and 2017. The trend is more pronounced in the case of employers. In terms of gender, both women and men experienced declining labor income, with the stronger gradient among men. In particular, the labor income among women over 45 years of age showed a slight increase during the period, offsetting losses experienced by younger cohorts.

Returns to tertiary education in Mexico are high, but skill premium is decreasing. According to the OECD, the earnings of a person with tertiary education in Mexico must increase 22 percent to break even the cost of the investment. But in fact, earnings rise by almost 100 percent with respect to those without tertiary education. About 70 percent of the men and 85 percent of the women that earn more than 5 minimum wages, have middle school or higher education. Although the skill premium is still high, it is starting to subside. Over the last decade, hourly median wages among the bottom 40 percent have been stagnant at $1.4 USD (2011 PPP) while and the median for the top 60 has contracted about 15 percent.

The declining real labor income is mostly an urban phenomenon. In the span of 12 years, wages in urban areas showed a decreasing trend, while wages in rural areas of the country remained stable around their 2005 levels. A marked reduction in real wages between 2007 and 2017 correlated with a strong loss among those in the commerce sector.

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Annex 4. List of stakeholders that participated in consultations

Consultations
List of stakeholders consulted
Mexico City, October 23 to 27, 2017

Individual	Position	Entity
Private Sector		
Carlos Marmolejo	VP Operations	CONSAR
Alejandra Vargas	Director of Inclusion	CONSAR
Alejandro Murphy	CEO	Citla Energy
Gustavo Fernández	CEO	Grupo Torre Médica
Iñigo Gutiérrez	CEO	Laboratorios Polanco
Cecilia Sayeg	General Manager	Consejo Ejecutivo de Empresas Globales
César Fragozo	Head of the Sectoral Development Unit	Proméxico
Luis E. González	Coordinator	Proméxico
Jordi Valis	CEO	Suez -BU LATAM - México
Timothee Rossignol	DPN	ICA
Juan Pablo Cruz y Corro Sanchez	Treasurer	FIRA
Rebeka Azaola	Country Manager	Afluenta
Diego Armenta	Research Director	AMEXCAP
Alexis Milo Caraza	Chief Economist	HSBC
César A. Vargas	IO	IFC
Manuel Suárez Fernández	Analyst Jr	IFC
Otto Fritz	Analyst Jr	IFC
Paulina Nuñez	Analyst	IFC
Violeta Velázquez	SIO	IFC
Academia		
Rosario Cárdenas	Research Professor	UAM

Individual	Position	Entity
Raymundo Campos	Research Professor	COLMEX
Heidi Smith	Research Professor	Universidad Iberoamericana
Isidro Soloaga	Research Professor	Universidad Iberoamericana
Irving Rosales	Research Professor	Universidad Iberoamericana
Fernanda Márquez	Research Professor	CIDE
John Scott	Research Professor	CIDE
Gerardo Esquivel	Research Professor	COLMEX
Juan Belasteuguigoitia	Research Professor	ITAM
Guillermo Cejudo	Research Professor	CIDE
Fernando Nieto	Research Professor	COLMEX
Think-Tanks		
Rodolfo de la Torre	Director of Social development	CEEY
Roberto Velez Grajales	Executive Director	CEEY
Miguel Szekely	Managing Director	CEES
Luis Foncerrada	Managing Director	CEESP
Héctor Villareal	Managing Director	CIEP
Erandi Maria Lopez	Program Assistant	WeConnect Mexico
NGOs and International Development Partners		
Lucía Baltazar	Inv. Analyst	IFC
María Enriqueta Cepeda	Director	INCIDE Social
Leonor Calderón	Director	SEGIB
Patricia Fernández	Subdirector	CNDH
Roberto Martínez	Director	OCDE – Mexico
Carlos Cabrera	Coordinator	Fesmex
Diego Vázquez	Research Manager	Oxfam
Esperanza Delgado	Director of International Relations	MexFam
Government		
Lorenza Martínez Trigueros	Managing Director of Payment Systems and Corporate Services	Bank of Mexico
Carlos Márquez	Unit Chief of International Relations	SHCP
Luis Madrazo Lajous	Chief Economist	SHCP
Víctor Hugo Gómez Ayala	Head of Investor Relations Office	SHCP
Alejandra Palacios Prieto	President	COFECE
Amparo Martínez Arroyo	Managing Director	INEEC-SEMARNAT
Miguel Gerardo Breceda	General Coordinator of Green Growth	INEEC- SEMARNAT
Gonzalo Hernández	Secretary	CONEVAL

Consultations
List of stakeholders consulted
Mexico City, April 9 - 13, 2018

Individual	Position	Entity
SD Meeting		
Carlos Zedillo Velasco	Director	Centro de Investigación para el Desarrollo Sostenible (CIDS)
Luis Jeremías Diez-Canedo Jaime	General Coordinator of Biological Resources	Instituto del Fondo Nacional de la Vivienda para los Trabajadores (Infonavit).
Héctor Humberto Gutiérrez de la Garza	General Director	Instituto Nacional de la Infraestructura Física Educativa (INIFED)
Sandra Hernández Alvarado	Deputy Director of Concessions Assignments and Railway Statistics	Secretaría de Comunicaciones y Transportes
Carlos Mier y Terán Ordiales	Director of Mass Transportation	Banco Nacional de Obras y Servicios Públicos, S.N.C.
Felipe Arreguin Cortés	General Director	Instituto Mexicano de Tecnología del Agua IMTA.
Mario López	Hydrology coordinator	Instituto Mexicano de Tecnología del Agua IMTA.
Arnoldo Matus Kramer	Director	Oficina de Resiliencia de la Ciudad de México de la Secretaría del Medio Ambiente (SEDEMA).
Marcelino Madrigal	Commissioner	Comisión Reguladora de Energía (CRE).
Jorge David Fernández Medina	General Coordinator of Planning and Information	Comisión Nacional Forestal.
Griselda Medina Laguna	Deputy Manager of Project Management	Comisión Nacional del Agua.
Government and International Development Partners in MXCD		
Carlos Márquez Padilla	Unit Chief of International Relations	SHCP
Alejandrina Salcedo	Chief Economist	SHCP
Lorenza Martinez Trigueros	Managing Director of Payment Systems and Corporate Services	Banco de Mexico
Othón M. Moreno Gonzalez	Policy Manager of Payment Systems	Banco de Mexico
David Kaplan	Senior Economist	IDB
Government (Tuxtla Gutiérrez, Chiapas)		
Lic. Ovidio Cortázar Ramos	Secretary	Secretary of Economy
Lic. Ovidio Cortázar Ramos	Secretary	Secretary of Economy
Lic. Andrés Montesinos Ramírez	General Director of Investments	Secretary of Economy
Lic. Carlos Alberto Salazar Estrada	Undersecretary of promotion and development of competitiveness	Secretary of Economy
Ing. Miguel Ángel Vázquez Castañeda	Director of Investment Promotion and Strategic Projects	Secretary of Economy
Lic. Carlos Montezuma Trujillo	Director of Projects and management	Secretary of Economy
Lic. Manuel Alejandro Gallegos Cancino	Director of Entrepreneurship and Boosting Competitiveness	Secretary of Economy
M.B.A. Esperanza Zepeda Coutiño	Undersecretary of Commerce	Secretary of Economy
Mtro. Gabriel Jose Beltrán Rodríguez	Secretary	Subsecretaría de Desarrollo Industrial y Atracción de Inversiones
Lic. Laura Lorena Ponce Rocha	Director of Impulse to the Quality of Products and Services	
Mtro. Ernesto Gutiérrez Coello	Technical coordinator	

Individual	Position	Entity
Lic. Carlos Eduardo Suárez Argüello	Undersecretary of Tourism Development	Secretary of Tourism
Lic. Oscar Gerardo Ochoa Gallegos	Secretary	Secretary of Labor
Rosa L. Trujillo V.	Director of employment support	Secretary of Labor
Lic. Alejandro Bante Martinez	Adviser	Secretary of Labor
Lic. Saul O. Santiago	Adviser	Secretary of Labor
Private Sector and NGOs (Tuxtla Gutiérrez, Chiapas)		
Individual	Position	Entity
Dr. José Antonio Toriello	President	COPARMEX
Ing. Miguel Ángel Muñóz	President	Marcas Chiapas
Eduardo González Castañón	Manager	Fondo Chiapas
Gustavo González	General Director	Fondos Chiapas
Juan José Zepeda	President	Comisión Estatal de los Derechos Humanos
Government (Querétaro)		
Individual	Position	Entity
Lic. Marco Antonio del Prete	Secretary	SEDESU
Lic. Guillermo Lozano	Director of Industrial Promotion	SEDESU
Private Sector (Querétaro)		
Individual	Position	Entity
Lic. Miguel Ángel Castillero	Director	Grupo Brose
Ing. Jose Ant. Velázquez	General Director	Aeroclúster Querétaro
Lic. Ana Laura Gómez Medina	Manager	CANACINTRA
Academia (Querétaro)		
Individual	Position	Entity
Lic. Federico Pérez Fuentes	Planning Director	Universidad Aeronáutica Querétaro

Annex 5. Data sources

Country: MEXICO **Last reviewed: June, 2018**

Section 1: General Information about the Statistical System	
Legal status of NSO	Government agency of the Finance and Public Credit Ministry
Statistical Legislation (latest)	Law, 2008
NSDS/Statistical masterplan	National Statistic and Geography Program 2013-2018

Section 2: Micro data						
Type of Census/Survey	Latest (Year)	Second Latest (Year)	Representativeness (national, regional, urban/rural)	Data Accessibility (open access/ with permission/ no access)	Optional Disaggregation (Y/N)	
					Sex	Regional
Censuses						
Censo de Población y Vivienda	2010	10 years	• National • State • Municipality • Locality • AGEB	No Access	Y	Y
Conteo de Población y Vivienda	2005	10 years	• National • State • Municipality • Locality • AGEB	No access	Y	Y
Encuesta Intercensal	2015	TBD	• National • State • Municipality • Locality	No access	Y	Y
Actualización Marco Censal Agropecuario	2016	TBD		No access		
Censo Agrícola, Ganadero y Forestal	2007	1991	• Rural areas • Urban areas with livestock activities	No access		
Censo Ejidal	2007	Random	• Ejido	No access		

Section 2: Micro data						
Type of Census/Survey	Latest (Year)	Second Latest (Year)	Representativeness (national, regional, urban/rural)	Data Accessibility (open access/ with permission/ no access)	Optional Disaggregation (Y/N)	
					Sex	Regional
Censo Económico	2014	5 years	• National • State • Municipaliy • Locality	No access	Y	Y
Censo Nacional de Procuración de Justicia	2017	Annual	• National • State	Open access		
Censo Nacional de Impartición de Justicia	2017	Anual	• National • State	Open access		
Censo Nacional de Transparencia, Acceso a la Información y Protección de Datos Personales	2016	Anual	• National • State	Open access		
Censo Nacional de Gobierno, Seguridad Pública y Sistema Penitenciario Estatales	2016	Annual	• National • State	Open access	Y	Y
Censo Nacional de Gobiernos Municipales y Delegacionales	2015	2 years	• Municipality	Open access		
Surveys						
Household Surveys						
Encuesta Nacional de Ingresos y Gasto de los Hogares (ENIGH)	2016	2 years	• Urban/rural	Open access	Y	N
Módulo de Condiciones Socioeconómicas ENIGH (MCS-ENIGH)	2016	2 years	• Urban/rural • State	Open access	Y	Y
Encuesta Nacional de Calidad e Impacto Gubernamental (ENCIG)	2015	2 years	• Urban	Open access	N	Y
Encuesta Nacional de Gasto (ENGASTO)	2013	Random 2012	• Urban/rural • State	Open access	Y	Y
Encuesta Nacional de Hogares (ENH)	2017	Annual	• Urban/rural • State	Open access	Y	Y
Encuesta Nacional de Ocupación y Empleo (ENOE)	2018-QI	Quarterly	• State • 32 Cities • Locality size	Open access	Y	Y
Encuesta Nacional de Seguridad Pública (ENSU)	2018-QI	Quarterly	• Urban areas	Open access	Y	Y
Encuesta Nacional de Victimización y Percepción sobre Seguridad Pública (ENVIPE)	2017	Annual	• Urban/rural • State	Open access	Y	Y
Encuesta Sobre Confianza del Consumidor (ENCO)	2018-Abril	Monthly	• Urban areas	Open access	Y	N
Encuesta Nacional sobre Disponibilidad y Uso de Tecnologías de la Información en los Hogares (ENDUTIH)	2017	Annual	• State • Cities	Open access	Y	Y
Encuesta Nacional de Inclusión Financiera (ENIF)	2015	3 years	• Urban/rural	Open access	Y	N
Encuesta Nacional de la Dinámica Demográfica (ENADID)	2014	Random 2009	• Locality size	Open access	Y	Y
Encuesta Nacional sobre la Dinámica de las Relaciones en los Hogares (ENDIREH)	2016	Random 2011	• Urban/rural • State	Open access	Y	Y
Encuesta Nacional sobre Uso del Tiempo (ENUT)	2014	Random 2009	• Urban/rural	Open access		

Section 2: Micro data						
Type of Census/Survey	Latest (Year)	Second Latest (Year)	Representativeness (national, regional, urban/rural)	Data Accessibility (open access/ with permission/ no access)	Optional Disaggregation (Y/N)	
					Sex	Regional
Encuesta sobre la Percepción Pública de la Ciencia y la Tecnología (ENPECYT)	2015	2 years	• Urban	Open access		
Encuesta Nacional de Educación, Capacitación y Empleo (ENECE-ENOE)	2009	2 years	• Urban/rural • State	Open access	Y	Y
Encuesta Nacional de Empleo y Seguridad Social (ENESS-ENOE)	2013	4 years	• State	Open access	Y	Y
Encuesta Nacional de Micronegocios (ENAMIN)	2012	2 years	• National	Open access	Y	N
Módulo de Trabajo Infantil (MTI-ENOE)	2015	2 years	• Urban/rural • State	Open access	Y	Y
Módulo Trayectorias Laborales (MOTRAL)	2015	3 years	• Urban areas • 32 cities	Open access	Y	Y
Evaluación Nacional del Logro Académico en Centros Escolares (ENLACE)	2014	Annual	• State		N	Y
Encuesta Nacional de Salud y Nutrición (ENSANUT)	2016	6 years	• State	Open access	Y	Y
World Health Survey	2003		• National	Open access	Y	N
Mexican Family Life Survey (MXFLS)	2012-2009	2005-2006 2002	• National • Urban/Rural • Regional	Open access	Y	Y
Business/Establishment Survey						
Encuesta Anual de Empresas Constructoras (EAEC)	2015	Annual	• National • State	No access		
Encuesta Anual de la Industria Manufacturera (EAIM)	2015	Annual	• National	No access		
Encuesta Mensual de la Industria Manufacturera (EMIM)	2017-may	Monthy	• National	No access		
Encuesta Nacional de Empresas Constructoras (ENEC)	2017-may	Monthly	• National • State	No access		
Encuesta Anual de Servicios Privados no Financieros (EASPNF)	2015	Annual	• National	No access		
Encuesta Anual de Transportes (EAT)	2015	Annual	• National	No access		
Encuesta Anual del Comercio (EAC)	2015	Annual	• National • State	No access		
Encuesta Mensual de Servicios (EMS)	2017-may	Monthly	• National	No access		
Encuesta Mensual sobre Empresas Comerciales (EMEC)	2017-may	Monthly	• National • State	No access		
Encuesta Mensual de Opinión Empresarial (EMOE)	2017-may	Monthly	• National	No access		
Encuesta Nacional de Calidad Regulatoria e Impacto Gubernamental en Empresas (ENCRIGE) 2016	2016	TBD	• National • State • Some municipalities	No access		
Encuesta Nacional de Victimización de Empresas (ENVE)	2016	2 years	• National • State	With permission		

Section 2: Micro data						
Type of Census/Survey	Latest (Year)	Second Latest (Year)	Representativeness (national, regional, urban/rural)	Data Accessibility (open access/ with permission/ no access)	Optional Disaggregation (Y/N)	
					Sex	Regional
Encuesta Nacional sobre Productividad y Competitividad de las Micro, Pequeñas y Medianas Empresas (ENAPROCE)	2015	TBD	• National • State	No access		
Encuesta sobre Investigación y Desarrollo Tecnológico (ESIDET) 2014	2014	2 years	• National • State	No access		
Encuesta sobre Tecnologías de la Información y las Comunicaciones (ENTIC 2013)	2013	TBD	• National	No access		
Encuesta Nacional Agropecuaria (ENA)	2014	2012	• National (for 34 products) • State (relevant products)	No access		
Enterprise Survey	2010	2006	• National	Open access		
Other sources						
Global Financial Inclusion (Global Findex)	2017	2014, 2011	• National	Open access	Y	N
Doing Business, Measuring Business Regulations	2018	Annual	• Mexico City and Monterrey	Open access	N	N
Doing Business, Measuring Business Regulations - Subnational	2016	Random	• 32 States	Open access	N	Y
The World Justice Project. Rule of Law Index 2017-2018	2018	Annual	• National	Open access	N	N
UN-Habitat. Citi Prosperity Initiative	2016	NA	• 153 cities	Open access	Y	Y
Human Development Index HDI	2015	Annual	• National	Open access	Y	N
Environmental Performance Index-EPI YALE	2018	2 years	• National	Open access	N	N
Corruption perception index. Transparency International	2017	Annual	• National	Open access	N	N
Economic Complexity Ranking – ECI MIT	2016	Annual	• National	Open access	N	N

Section 3: Macro data				
Does the country subscribe to the IMF SDDS or participate in the eGDDS?	SDDS			
If eGDDS - eGDDS Data Category	Periodicity		Timeliness	
	SDDS	Country	SDDS	Country
National accounts: Gross Domestic Product by Production and Expenditure at Current and Constant Prices.	Q	Q	1Q	53D
Consumer price index	M	F	1M	10D
Central government operations	M	M	1M	30D
Balance of payments	Q	Q	1Q	10W
External debt	Q	Q	1Q	1Q
Merchandise trade	M	M	8W	25D
Production index	M	M	6W	NLT 42D
Employment	Q	M	1Q	NLT 25D
Unemployment	Q	M	1Q	NLT 25D
Producer Price Index	M	M	1M	NLT 10D
WHO Global Health Expenditure				
Mexico has National Health Account data following the SHA 2011 norm				

Section 4: Compliance with WBG's Core Data Standards			
	WBG Standard	Compliant (Y/N)	Actual yearly interval or %
Household survey of income or consumption	One every 3 years	Y	2 years
PPP price survey	One every three years	Y	3 years
CRVS	80% of births registered 60% of deaths registered with cause of death	Y	95% (2015) 99% (2015)

Section 5: Statistical Capacity Indicators	
Method	90
Source Data	100
Periodicity	90
Overall	93.3

Section 6: Data Openness Indicators	
Open Data Barometer Score	73 score/position 11 of 114
Open Data Index Score	65 score/position 11 of 94

Annex 6. Benchmarking and prioritization exercise

A prioritization of the impediments is supported by an analytical analysis benchmarking Mexico's performance against selected peers, OECD countries, upper middle-income countries, the region and the World in dimensions corresponding to the identified impediments (See Annex 1, identification of peers). A set of pre-selected indicators was used to assess the position of Mexico in relation of these impediments. The original set of indicators was complemented with those suggested by experts and using additional sources of information when the data were available for a large set of countries worldwide.

The comparison is based on the calculation of the distance between Mexico and the best performer in each specific indicator according to the following methodology:

$$distance_{(MEX,Best\ Performance)} = 100 * \frac{v_{Best\ Performance} - v_{MEX}}{v_{Best\ Performance} - v_{Low\ Performance}}$$

Where $v_{Best\ Performance}$ and $v_{Low\ Performance}$ correspond to the highest and lowest value respectively in the percentiles 95th and 5th and v_{MEX} denotes the value for Mexico. Information of the latest year available is used for each indicator, therefore the corresponding period of time may vary depending on the specific source of information and its latest availability. The percentile 5th and 95th are used to define the umbral for the top and bottom performers with the objective of reducing possible distortions caused by outliers.

The resulted distance is defined as a range between 0 and 100; where 0 denotes that Mexico is part of the top 5 percent best achievers, and 100 implies that Mexico is part of the bottom 5 percent worst performance.

The compiled dataset was validated with the teams within the World Bank, who were requested to contribute with advice regarding the selected indicators for each impediment and to complete with additional indicators for their sector or area. Among the consulted sources, selected indicators come from the Global Findex Database 2017[8], Doing Business 2018[9], The Global Competitiveness Report 2017-2018[10], The World Justice Project Rule of Law Index[11], CPI unhabitat[12], Human Development Data[13], Yale's Environmental Performance Index 2017[14], Transparency International 2017[15]. Finally, 178 indicators paired with one of the sub impediments.

The performance of Mexico for each indicator and the benchmarking group was classified as *high* (red), *medium-high* (yellow), *medium-low* (grey) and *low* (green). *High* indicated that the difference between Mexico and the best performance

8 World Bank. The global Findex Database 2017 https://globalfindex.worldbank.org/
9 World Bank. Doing Business, Measuring Business Regulations, 2018 http://www.doingbusiness.org/
10 World Economic Forum. https://www.weforum.org/reports/the-global-competitiveness-report-2017-2018
11 The World Justice Project. Rule of Law Index 2017-2018 https://worldjusticeproject.org/our-work/wjp-rule-law-index
12 UN-Habitat. Citi Prosperity Initiative. http://cpi.unhabitat.org/download-raw-data
13 United Nations Development Programme. Human Development Reports. http://hdr.undp.org/en/data
14 Yale's Environmental Performance Index. https://epi.envirocenter.yale.edu/.
15 Transparency International. https://www.transparency.org/

in the group is 75 percent or more the gap between the top and lowest performers. *Medium-high* indicated that Mexico difference with the top performer is between 50 and 75 percent the gap with the lowest performer. *Medium-low* indicated that the difference is between 25 and 50 percent the gap, and *Low* indicated that the difference between Mexico and the top performance is less than 25 percent the gap with the lowest performer.

Overall score in main impediments

In each sub-impediment, the results were aggregated using an un weighted average of the distance calculated for the subset of indicators. For the three main categories of impediments, an average of the corresponding sub impediments is calculated in the same fashion.

Distance between Mexico and best performer reference in each reference group

Indicator	Peers	OECD	Income Group	Region	World
Product and factor market issues	70%	83%	57%	52%	63%
The role of public sector institutions	79%	91%	70%	64%	75%
Allocation of public resources	69%	85%	64%	65%	60%
Structural constraints to growth, inclusion and sustainability	73%	82%	65%	62%	66%

Distance between Mexico and best performer reference in each reference group

Impediment/Indicator	Peers	OECD	Income Group	Region	World
1. Concentration (and market power) in critical input markets and barriers to entry at the local level	71%	88%	50%	42%	55%
2. Acces to finance	83%	89%	74%	68%	72
3. Labor markets and informality	55%	72%	47%	45%	61%
4. Access to justice	78%	83%	62%	53%	66%
5. Corruption	70%	91%	64%	65%	73%
6. Crime and violence	90%	100 %	84%	73%	88%
7. Taxs structure and tax expenditures	52%	72%	63%	58%	59%
8. Public spending: rigidities, inefficiencies and distributional issues	70%	93%	57%	53%	46%
9. Coordination inefficiencies and investment planning	85%	90%	72%	84%	75%
10 Investment infraestructure	74%	93%	60%	60%	67%
11. Quality and utilization of human capital	73%	91%	62%	59%	62%
12. Management of natural capital	73%	62%	72%	67%	69%

I. Product and factor market issues

Distance between Mexico and best performer reference in each reference group

Impediment/Indicator	Peers	OECD	Income Group	Region	World
1.Concentration (and market power) in critical input markets and barriers to entry at the local level	71%	88%	50%	42%	55%
2. Access to finance	83%	89%	74%	68%	72%
3. Labor markets and informality	55%	72%	47%	45%	61%

1. Concentration (and market power) in critical input markets and barriers to entry at the local level

Distance between Mexico and best performer reference in each reference group

Impediment/Indicator	Peers	OECD	Income Group	Region	World	Value Mex	Year	World P95
Availability of latest technologies	49%	91%	24%	22%	42%	5	2017	6
Effectiveness of antimonopoly policy	53%	91%	35%	21%	59%	4	2017	5
Extent of market dominance	83%	91%	56%	34%	65%	3	2017	5
Getting electricity (DB16-18 methodology	100%	81%	33%	29%	31%	69	2018	93
Individula using Internet %	70%	100%	48%	23%	41%	60	2017	94
Individula using Internet (% of population)	70%	100%	30%	37%	40%	60	2016	95
Intesity of local competition	49%	64%	29%	12%	38%	5	2017	6
Internet access in schools	89%	89%	68%	56%	60%	4	2017	6
Internet bandwidth	97%	100%	88%	84%	92%	38	2017	449
Mobile broadband subscriptions	80%	91%	59%	50%	59%	59	2017	129
Mobile telephone subscriptions	100%	100%	96%	82%	71%	88	2017	167
No days to start a business (reversed)	6%	32%	5%	2%	9%	8	2017	1
No procedures to star a business (reversed)	50%	100%	50%	33%	50%	8	2017	3
Production process sophistication, 1-7 (best)	48%	86%	18%	5%	49%	4	2017	6
Secure Internet servers (per 1 million people)	100%	100%	82%	94%	98%	41	2016	2075
Used the internet to buy something online in the past year (% age 15+)	96%	100%	86%	79%	92%	7	2017	69
Used the internet to pay bills or to buy something online in the past year (% age 15+)	91%	100%	81%	69%	87%	13	2017	80

2. Access to finance

Distance between Mexico and best performer reference in each reference group

Impediment/Indicator	Peers	OECD	Income Group	Region	World	Value Mex	Year	World P95
Account (% age 15+)	100%	100%	86%	87%	80%	37	2017	99
Affordability of financial services, 1-7 (best)	53%	82%	59%	52%	55%	4	2017	5
Coming up with emergency funds: possible (% age 15+)	100%	100%	100%	100%	100%	27	2017	81
Deposit in the past year (% with a financial institucion account, age 15+)	100%	100%	78%	65%	70%	59	2017	95
Domestic credit to private sector (% of GDP)	84%	100%	84%	77%	82%	35	2016	144
Getting credit (db15-18methodology)	10%	6%	5%	6%	10%	90	2018	100
Gross domestic savings (% of GDP)	72%	83%	61%	48%	44%	21	2016	46
No account because financial institucions are too far away (% without a financial institution account, age 15+) (reversed)	82%	100%	86%	76%	80%	29	2017	5
No account because of lack of necessary documentation (% age 15+) (reversed)	100%	100%	77%	72%	61%	19	2017	2
Paid utility bills: ussing mobile phone (% paying utility bills, age 15+)	91%	96%	89%	81%	89%	5	2017	41
Paid utility bills: ussing account (% paying utility bills, age 15+)	100%	100%	91%	100%	91%	12	2017	91
Real interest rate (%)	79%	32%	60%	56%	92%	0	2016	21
Received private sector wages: into a financial institucion account (%wave recipients, age 15+)	89%	100%	65%	54%	66%	41	2017	96
Received wages: into an account (% wage recipients, age 15+)	100%	100%	69%	59%	70%	45	2017	97
Received wages: through a mobile phone (% wage recipients, age 15+)	89%	88%	94%	84%	94%	2	2017	26

3. Labor markets and informality

Distance between Mexico and best performer reference in each reference group

Impediment/Indicator	Peers	OECD	Income Group	Region	World	Value Mex	Year	World P95
Cooperation in labor employer relations, 1-7 (best)	50%	73%	42%	40%	60%	4	2017	6
Country capacity to attract talent, 1-7 (best)	47%	66%	39%	35%	56%	4	2017	5
Country capacity to retain talent, 1-7 (best)	52%	69%	38%	42%	55%	3	2017	5
Fundamental labor rights are effectively guaranteed	56%	92%	44%	88%	65%	1	2017	1
Hiring and firing practices, 1-7 (best)	47%	67%	44%	28%	68%	3	2017	5
Labor Market Efficiency	66%	95%	65%	47%	78%	4	2017	5
Pay and productivity, 1-7 (best)	80%	90%	61%	36%	61%	4	2017	5
Redundancy costs, weeks of salary	44%	20%	41%	45%	44%	22	2017	37

II. The role of public sector institutions

Distance between Mexico and best performer reference in each reference group

Impediment/Indicator	Peers	OECD	Income Group	Region	World
Rule of law and unequal application of the law	78%	83%	62%	53%	66%
Corruption	70%	91%	64%	65%	73%
Crime and violence	90%	100%	84%	73%	88%

4. Access to justice

Distance between Mexico and best performer reference in each reference group

Impediment/Indicator	Peers	OECD	Income Group	Region	World	Value Mex	Year	World P95
Alternative dispute resolution mechanisms are accessible, impartial and effective	82%	100%	70%	74%	69%	1	2017	1
Civil justice is effectively enforced	100%	100%	91%	77%	90%	0	2017	1
Civil justice is free of discrimination	98%	100%	100%	100%	96%	0	2017	1
Civil justice is not subject to unreasonable delay	94%	100%	93%	71%	90%	0	2017	1
Complaint mechanisms	56%	74%	38%	51%	53%	1	2017	1
Enforcing contracts (DB17-18 methodology)	38%	55%	27%	6%	24%	65	2018	76
Intellectual property protection	66%	98%	40%	27%	66%	4	2017	6
Judicial independence (WEF)	100%	100%	66%	62%	84%	3	2017	6
Legal rights index, 0-10 (best)	20%	11%	18%	10%	10%	10	2017	11
People can access and afford civil justice	100%	100%	100%	100%	94%	0	2017	1
Property rights (WEF)	77%	97%	61%	38%	70%	4	2017	6
Strength of investor protection	100%	63%	43%	21%	39%	6	2017	8

5. Corruption

Distance between Mexico and best performer reference in each reference group

Impediment/Indicator	Peers	OECD	Income Group	Region	World	Value Mex	Year	World P95
Civil justice is free ofimproper government influence	39%	79%	43%	46%	56%	1	2017	1
Corruption Perceptions Index 2017-Transparency International	100%	100%	73%	85%	82%	29	2017	82
Criminal system is free ofimproper government influence	60%	100%	57%	56%	67%	0	2017	1
Due process is respected in administrative proceedings	69%	93%	62%	62%	74%	0	2017	1
Government officials are sanctioned for misconduct	100%	100%	100%	89%	100%	0	2017	1
Government officials in the exejutive branch do not use public office for private gain	100%	100%	100%	100%	95%	0	2017	1
Government officials in the judicele branch do not use public office for private gain	100%	100%	92%	79%	87%	0	2017	1
Government officials in the legislative branch do not use public office for private gain	78%	100%	78%	79%	88%	0	2017	1
Government officials in the police and the military do not use public office for private gain	100%	100%	100%	92%	92%	0	2017	1
Goverment powers are effectively limited by independent audating and review	81%	100%	76%	78%	89%	0	2017	1
Goverment powers are effectively limited by the judiciary	51%	94%	59%	59%	69%	0	2017	1
Goverment powers are effectively limited by the legislature	53%	66%	40%	46%	52%	1	2017	1
Goverment powers are subject to non-governmental checks	45%	94%	45%	80%	53%	1	2017	1
Goverment regulations are applied and enforced without improper influence	100%	100%	91%	100%	91%	0	2017	1
Goverment regulations are effectively enforced	67%	100%	50%	44%	66%	0	2017	1
Public trust in politicians	87%	100%	92%	87%	97%	2	2017	6
Publicized laws and government data	9%	63%	6%	8%	28%	1	2017	1
Right to information	35%	72%	19%	22%	35%	1	2017	1
Transparency of government policymaking	51%	67%	36%	30%	59%	4	2017	6

6. Crime and violence

Distance between Mexico and best performer reference in each reference group

Impediment/Indicator	Peers	OECD	Income Group	Region	World	Value Mex	Year	World P95
Correctional system es effective in reducing criminal behavior	99%	100%	91%	79%	94%	0	2017	1
Crime is effectively controlled	100%	100%	100%	81%	100%	0	2017	1
Criminal adjudication system is timely and effective	98%	100%	97%	71%	99%	0	2017	1
Criminal investigation system is effective	82%	100%	81%	74%	90%	0	2017	1
Criminal investigation is impartial	80%	100%	82%	80%	87%	0	2017	1
Intentional homicides (per 100,000 people)	60%	100%	36%	21%	51%	16	2017	1
Organized crime	100%	100%	100%	80%	100%	3	2017	6
People do not resort violence to redress personal grievances	96%	100%	80%	78%	87%	0	2017	1
Reability of police services	100%	100%	100%	89%	100%	2	2017	6
The right to life and security the person is effectively guaranteed	82%	100%	74%	80%	70%	0	2017	1

III. Allocation of public resources

Distance between Mexico and best performer reference in each reference group

Impediment/Indicator	Peers	OECD	Income Group	Region	World
7. tax structure tax expenditures	52%	72%	63%	58%	59%
8. Public spending: rigidities, inefficiencies and distributional issues	70%	93%	57%	53%	46%
9. Coordination inefficiencies and investment planning	85%	90%	72%	84%	75%

7. Tax structure and tax expenditures

Distance between Mexico and best performer reference in each reference group

Impediment/Indicator	Peers	OECD	Income Group	Region	World	Value Mex	Year	World P95
Direct taxes as % of GDP/Indirect taxes as a % of GDP	35%	67%	53%	11%	55%	1	2016	2
VAT tax rate		50%				16	2018	5 27
Tax revenue (% of GDP)	74%	83%	73%	89%	63%	14	2016	28
Taxes on good and services (%of GDP) (indirect taxes)	83%	64%	78%	87%	67%	0	2016	0
Taxes on income, profits and capital gains (% of GDP) (direct taxes)	15%	73%	46%	46%	50%	0	2016	0
Subnational government taxes as percentage of total subnational revenue		95%				7	2015	76

8. Public spending: rigidities, inefficiencies and distributional issues

Distance between Mexico and best performer reference in each reference group

Impediment/Indicator	Peers	OECD	Income Group	Region	World	Value Mex	Year	World P95
Equitable Seconadary School Enroliment girls ration in main cities	100%	100%	100%	100%	77%	1	2015	1
General government expediture as a percentage of GDP		82%				25	2015	58
Government expediture aper student, primary (% GDP per capital)	83%	98%	69%	79%	61%	15	###	29.64
Government expediture aper student, secondary (% GDP per capital)	71%	100%	65%	52%	66%	16	###	36.46
Improved sanitations facilities, rural (% of rural population with access)	53%	100%	43%	59%	27%	1490	2015	2000
Improved sanitations source, rural (% of rural population with access)	63%	100%	24%	16%	14%	1842	2015	2000
Improved sanitations source, urban (% of rural population with access)	33%	100%	18%	8%	10%	1944	2015	2000
Inequality-adjusted education index	98%	100%	67%	50%	50%	1	2015	1
Inequality-adjusted income index	78%	100%	52%	32%	53%	1	2015	1
Inequality-adjusted life expectancy index	78%	100%	24%	31%	27%	1	2015	1
Overall loss in HDI die to inequality (%) (reversed)	83%	100%	54%	52%	52%	23	2015	7
People practing open defecation, rural (% of rural population)	27%	100%	19%	16%	8%	6	2015	0
People using at least basic drinking water services, rural (%% of rural population)	23%	100%	15%	16%	9%	94	2015	100
People using safely managed drinking water services (%of population)	100%	100%	100%	100%	78%	43	2015	100

Impediment/Indicator	Peers	OECD	Income Group	Region	World	Value Mex	Year	World P95
Primary education enrollment net %	34%	70%	37%	31%	19%	95	2017	100
Received a public sector pension in the past year (% age 15+)	95%	100%	95%	83%	88%	5	2017	28
Rural poverty headcount ratio at national poverty lines (% of rural population) (reversed)	81%	100%	100%	77%	81%	62	2014	5
Secondary education enrollment gross %	75%	100%	56%	57%	42%	91	2017	130
Subnational government expediture as a percentage of GDP		68%				13	2015	35
Subnational government expediture as a percentage of general government expenditure		35%				52	2015	76
Subnational government revenue in property income as percentage of totral subnational revenue		100%				0	2015	9
Subnational government revenue in social contributions as percentage of totral subnational revenue		84%				1	2015	7
Subnational government revenue in tariffs & fees income as percentage of totral subnational revenue		100%				0	2015	27
Subnational government taxes as percentage of general government revenue in taxes		91%				7	2015	56
Tertiary education enrollment gross %	94%	100%	83%	88%	70%	30	2017	89

9. Coordination inefficiencies and investment planning

Distance between Mexico and best performer reference in each reference group

Impediment/Indicator	Peers	OECD	Income Group	Region	World	Value Mex	Year	World P95
Equitable Seconadary School Enroliment girls ration in main cities	100%	100%	100%	100%	77%	1	2015	1
DTF-Paying taxes (DB17-18 methodology)	37%	100%	32%	20%	33%	67	2018	91
Fiscal and Financial Management (InCiSe Index): economic evaluation, medium term budgeting, and performance budgeting		36%				1	2017	1
Human Rwaources (InCiSe Index): meritocratic recruitment, and retaining talent		87%				0	2017	1
Inclusiveness (InCiSe Index): proportion of women in civil service, and ethnic/religious minority representation		86%				0	2017	1
Integrity (InCiSe Index): corruption, adherence to rules, work ethics, impartiality, serving citizens, and processes to prevent conflict		100%				0	2017	1
Participation anbd Accountability Voter Turnout in main cities	88%	100%	42%	100%	64%	51	2015	93
Public private partnerships investment in energy (% of GDP)	100%	100%	90%	100%	97%	0	2016	0.02
Public private partnerships investment in transport (% of GDP)	100%	100%	96%	100%	96%	0	2016	0.04
Public private partnerships investment in water and sanitation (% of GDP)	100%	100%	100%	100%	86%	0	2015	0

IV. Structural constraints to growth, inclusion and sustainability

Distance between Mexico and best performer reference in each reference group

Impediment/Indicator	Peers	OECD	Income Group	Region	World
Investment in infrastructure	74%	93%	60%	60%	67%
Quality and utilization of human capital	73%	91%	62%	59%	62%
Management of natural capital	73%	62	72%	67%	69%

10. Investment in infrastructure

Distance between Mexico and best performer reference in each reference group

Impediment/Indicador	Peers	OECD	Income Group	Region	World	Value Mex	Year	World P95
Quality of air transport infraestruture 4.1	77%	97%	43%	42%	52%	4	2017	6
Quality of electricty supply	45%	100%	26%	28%	40%	5	2017	7
Quality of overall infraestructure	62%	100%	37%	26%	54%	4	2017	6
Quality of port infraestructure	46%	68%	39%	42%	44%	4	2017	6
Quality of roads	41%	81%	34%	26%	46%	4	2017	6
Foreing direct invesment, net (% of GDP)	52%	81%	14%	10%	23%	-0.02	2016	0.02
Foreing direct invesment, net inflows (% of GDP)	96%	100%	100%	100%	100%	0	2016	0
Investment in energy with private particpation (% of GDP)	100%	100%	85%	100%	100%	0	2016	0.02
Investment in telecoms with private particpation (% of GDP)	97%	100%	85%	88%	93%	0	2014	0.02
Investment in transport with private particpation (% of GDP)	100%	100%	96%	100%	96%	0	2016	0.04
Investment in water and sanitation with private particpation (% of GDP)	100%	100%	100%	100%	86%	0	2015	0

11. Quality and utilization of human capital

Distance between Mexico and best performer reference in each reference group

Impediment/Indicator	Peers	OECD	Income Group	Region	World	Value Mex	Year	World P95
Share of youth not in education, employment or training total (% of youth population)	57%	93%	33%	25%	46%	19	2017	4
Women in labor force, ratio to men	61%	100%	50%	85%	61%	1	2017	1
Pupil-teacher ratio in primary education (headcount basis)	100%	100%	83%	91%	44%	27	2016	10
Pupil-teacher ratio in secundary education (headcount basis)	37%	79%	45%	40%	34%	16	2016	8
Quality of management schools	53%	93%	54%	51%	58%	4	2017	6
Quality of math and science education	89%	100%	87%	77%	90%	3	2017	6
Quality of primary education	83%	100%	83%	71%	84%	3	2017	6
Quality of scientific research institutions	45%	83%	23%	16%	46%	4	2017	6
Quality of the education system	84%	100%	76%	64%	79%	3	2017	5
Availability of scientists and engineers	62%	73%	40%	26%	46%	4	2017	5
Educational attainment, at least completed short-cycle tertiary, population 25+, female (%) (cumulative)	93%	99%	78%	71%	68%	15	2015	46
Educational attainment, at least completed short-cycle tertiary, population 25+, male (%) (cumulative)	80%	88%	73%	50%	64%	17	2015	44
Educational attainment, at least completed short-cycle tertiary, population 25+, total (%) (cumulative)	86%	99%	76%	66%	65%	16	2015	43
Educational attainment, at least Massters or equivalent, population 25+, female (%) (cumulative)	96%	98%	87%	83%	89%	2	2015	16
Educational attainment, at least Massters or equivalent, population 25+, male (%) (cumulative)	92%	97%	83%	76%	86%	2	2015	16
Educational attainment, at least Massters or equivalent, population 25+, total (%) (cumulative)	94%	98%	85%	80%	87%	2	2015	15
GDP per person employed (constant 2011 PPP $)	65%	100%	53%	40%	66%	38M	2017	106210
Labor force with advanced education (% of total workin-age population with advanced education)	70%	93%	58%	81%	48%	71	2017	88
Unemployment with advanced education, female (% of female labor force with advanced education)	34%	38%	18%	36%	20%	4	2017	1

12. Management of natural capital

Distance between Mexico and best performer reference in each reference group

Impediment/Indicator	Peers	OECD	Icome Group	Region	World	Value Mex	Year	World P95
Methane emissions (kt of CO2 equivalent)	79%	7%	76%	0%	0%	116705	2012	113564
Nitrous oxide emissions (thousand and metricntons of CO2 equivalent)	83%	20%	33%	18%	18%	43436	2012	53101
Rtotal greenhouse gas emissions (kt of CO2 equivalkent)	80%	56%	76%	0%	15%	663425	2012	780551
Adjusted savings: energy depletion (% of GNI)	39%	0%	89%	46%	85%	1	2016	9
Adjusted savings: mineral depletion (% of GNI)	89%	67%	86%	93%	92%	1	2016	7
Adjusted savings: natural resources depletion (% of GNI)	61%	55%	88%	76%	88%	2	2016	17
Adjusted savings: netforest depletion (% of GNI)	82%	0%	82%	95%	99%	0	2016	11
Adjusted savings: netforest depletion (% of GNI)	82%	0%	82%	95%	99%	0	2016	11
Alternative and nuclear energy (% of total energy use)	71%	92%	81%	86%	86%	5	2015	38
CO2 emissions (metric tons per capital)	79%	100%	74	91%	77%	4	2014	16
CO2 intesity (kg per kg of oil equivalent energy use)	63%	77%	54%	63%	69%	3	2014	1
Electricity production from oil, gas and coal sources (% of total)	85%	94%	81%	82%	81%	81	2015	1
Energy use (kg of oil equivalent per capita)	83%	100%	77%	93%	82%	1488	2015	7604
Energy use (kg of oil equivalent) per $1,000 GDP (constant 2011 PPP)	67%	70%	78%	82%	84%	89	2015	298
Enviroment Performsmnr Index 2018	36%	92%	31%	39%	44%	60	2018	79
GDP per unit of energy use (ppp $ per kg of oil equivalent)	60%	65%	51%	51%	54%	11	2015	21
Level water stress: freshwater withdrawal as a propotion of available freshwater resources	44%	44%	28%	50%	17%	26	2015	0
Marine protected a reas (%of territoprial waters)	90%	95%	78%	82%	93%	2	2016	33
PM2.5 air pollution, population exposed to levels exceeding WHO guideline value (% of total)	100%	100%	100%	99%	100%	100	2016	0
Water productivity, total (constant 2010 us$ GDP per cubic meter of total freshwater withdrawal)	78%	100%	90%	90%	96%	14	2015	288