Organisation for Economic Co-operation and Development

ECO/WKP(2022)18

Unclassified

English - Or. English

21 June 2022

ECONOMICS DEPARTMENT

EXPANDING ACCESS TO FINANCE TO BOOST GROWTH AND REDUCE INEQUALITIES IN MEXICO

ECONOMICS DEPARTMENT WORKING PAPERS No. 1717

By Alessandro Maravalle and Alberto Gonzalez Pandiella

All Economics Department Working Papers are available at www.oecd.org/eco/workingpapers.

JT03498212

ABSTRACT/RÉSUMÉ

Expanding access to finance to boost growth and reduce inequalities in Mexico

The access to formal financial services in Mexico is particularly low. Access is also significantly unequal across income levels, gender, between rural and urban areas and across regions. SMEs access to bank credit is low, hampering firms' ability to grow and innovate. The use of cash and informal credit is still widespread, especially in rural areas, where financial infrastructure is underdeveloped. The diffusion of digital financial services is slowly advancing but remains low, hindered by a relatively low level of financial literacy and a digital divide. Expanding access to finance would enable Mexican households to invest in education and health, and better manage income shocks and smooth consumption. It would also enable Mexican firms to invest more, increase productivity and create formal jobs. Low-income households, small firms and more disadvantaged regions would particularly benefit, as it would unlock new economic opportunities for them. Boosting competition in the banking sector would facilitate SMEs access to credit by lowering interest rate margins. Upgrading the regulatory framework of the financial system would help increase competition and quality of financial services. The potential of the fintech sector is yet to be materialised, which would further increase competition and bring financial services to wider segments of the population. Strengthening financial education and digital literacy would facilitate a larger and better use of traditional and digital financial services.

Key words: financial inclusion / SMEs / credit / digital / competition/ FinTech / financial education.
JEL codes: D18, G2, G41, G51, G52, G53, O32.
This Working Paper relates to the 2022 Economic Survey of México
https://www.oecd.org/economy/mexico-economic-snapshot/.

****

Élargir l'accès au financement pour stimuler la croissance et réduire les inégalités au Mexique

L'accès aux services financiers formels est particulièrement faible au Mexique. L'accès est également très inégal selon le niveau de revenu, le sexe, entre les zones rurales et urbaines et entre les régions. L'accès des PME au crédit bancaire est faible, ce qui entrave la capacité des entreprises à se développer et à innover. Le recours à l'argent liquide et au crédit informel est encore très répandu, en particulier dans les zones rurales, où les infrastructures financières sont peu développées. La diffusion des services financiers numériques progresse lentement mais reste faible, entravée par un niveau relativement bas d'éducation financière et une fracture numérique. L'élargissement de l'accès à la finance permettrait aux ménages mexicains d'investir dans l'éducation et la santé, de mieux gérer les chocs de revenus et de lisser la consommation. Il permettrait également aux entreprises mexicaines d'investir davantage, d'accroître leur productivité et de créer des emplois formels. Les ménages à faible revenu, les petites entreprises et les régions les plus défavorisées en bénéficieraient tout particulièrement, car cela leur ouvrirait de nouvelles perspectives économiques. La stimulation de la concurrence dans le secteur bancaire faciliterait l'accès des PME au crédit en réduisant les marges de taux d'intérêt. La mise à niveau du cadre réglementaire du système financier contribuerait à accroître la concurrence et la qualité des services financiers. Le potentiel du secteur fintech doit encore être concrétisé, ce qui permettrait d'accroître encore la concurrence et de mettre les services financiers à la portée de segments plus larges de la population. Le renforcement de l'éducation financière et de la culture numérique faciliterait une plus grande et meilleure utilisation des services financiers traditionnels et numériques.

Mots clés: inclusion financière / PME / crédit / numérique / concurrence/ FinTech / éducation financière.
Codes: D18, G2, G41, G51, G52, G53, O32.
Ce document de travail est lié à l'Étude économique de l'OCDE de 2022 consacrée au Mexique
https://www.oecd.org/fr/economie/mexique-en-un-coup-d-oeil/.

Table of contents

Tables

Figures

Boxes

Expanding access to finance to boost growth and reduce inequalities in Mexico

By Alessandro Maravalle and Alberto Gonzalez Pandiella[1]

Mexico has large room for improving financial depth and increasing access to finance. Despite recent improvements, it suffers from structural issues that have historically delayed its financial development, including low levels of financial literacy, a large informal sector, a costly enforcement of collateral repossession and mistrust in the banking sector. Access to financial services is significantly unequal across income levels, gender, between rural and urban areas and across states. Around one-eighth of Mexico's municipalities does not have even one financial access point, though most of them are located in rural areas not densely inhabited. Even if 92% of the adult population has access to a bank branch, in some states this share is significantly lower and reaches 56% in Oaxaca, 62% in Tlaxcala and 77% in Puebla. Regional disparities are reduced but remain when considering the access to any financial point. While around 98% of the population has access to one financial point, the share is as low as 81% in Oaxaca, 93% in Chiapas and 94% in Yucatan. The gender gap remains significant in the access to some financial services such as retirement savings.

Improving access to financial services and deepening financial markets can help boost growth, promote employment creation and reduce inequalities (OECD, 2017[1]; OECD, 2019[2]). Increasing depth (e.g. the size of bank credit to the private sector and of the stock and the bond markets) and access to financial products is positively correlated to economic growth (OECD/The World Bank, 2012[3]; Sahay et al., 2015[4]; Dabla-Norris et al., 2015[5]). Financial inclusion can be especially beneficial for emerging economies because an increase in its level appears to be linearly and positively related to growth (Sahay et al., 2015[4]). It is also associated to sharp declines in income inequality and poverty rates in countries at intermediate and advanced stages of financial development, provided that the pace of credit expansion does not lead to financial instability (Rajan, 2005[6]) because of poor regulation and supervision (Mehrotra and Yetman, 2015[7]).

As the access to financial services extends to a larger part of the population, and is no longer limited to the wealthy, it tends to benefit more lower-income households (Greenwood and Jovanovic, 1990[8]; Clarke, Xu and Zou, 2006[9]; Jahan and McDonald, 2011[10]), allowing them to invest in education, health and business opportunities, and manage income shocks as to smooth consumption, thus helping them to avoid poverty. With the vast majority of poor households working in the large informal sector, extending financial inclusion is a component of the comprehensive strategy required to reduce informality in Mexico.

[1]Alessandro Maravalle and Alberto Gonzalez Pandiella are members of the OECD Economics Department. The authors would like to thank Alvaro Pereira, Isabell Koske, Aida Caldera Sánchez, Enes Sunel (from the OECD Economics Department) and Baxter Roberts and Iota Nassr (from the OECD DAF Department) for useful comments and suggestions. The paper has also benefited from comments by members of the OECD Economic Development Review Committee. The authors are also grateful to Roland Tusz and Véronique Gindrey for statistical assistance, and Karimatou Diallo for editorial assistance.

Expanding access to finance also offers significant synergies with other policy objectives. It can support the transition to a lower carbon economy by providing the private sector with better financing opportunities to invest in green technologies that can help to respond to climate change mitigation and adaptation challenges. Boosting financial inclusion can also support social protection policies by providing access to financial products that are attuned to the possibilities and needs of the more vulnerable population. Better access to finance can also help to reduce gender inequalities in wage and labour participation rate, which are large in Mexico. Wider access to digital financial services can foster women entrepreneurship, particularly in digital activities.

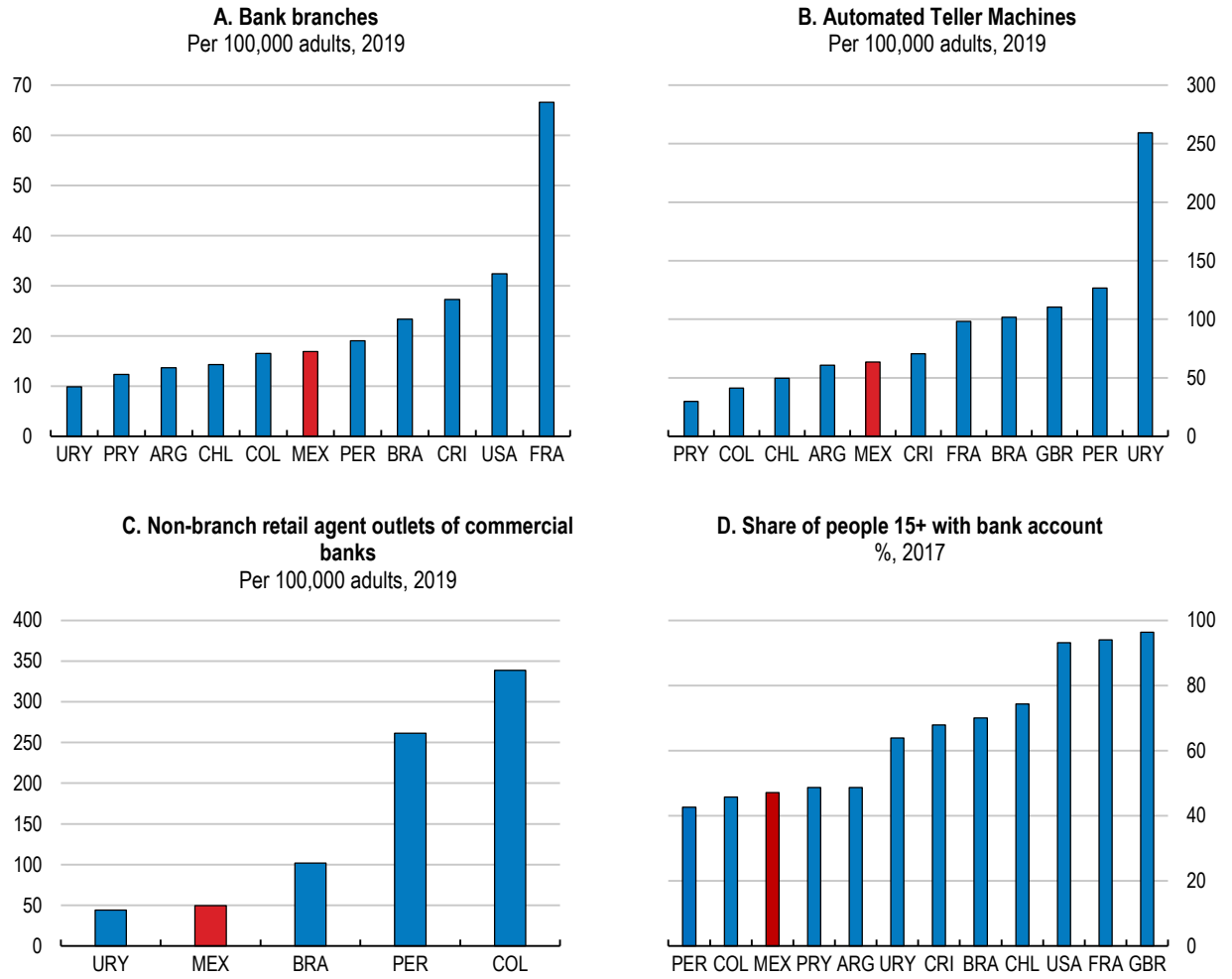
This paper describes the main barriers to the development of financial markets in Mexico and discusses available policy options to tackle them. It also discusses complementary factors for financial development, such as reforms to improve competition among financial institutions as well as other economic reforms. For example, extending internet coverage would support mobile banking and help reduce regional inequalities. Expanding financial inclusion also requires a balance between public policy and private sector initiative. The government's role is also to provide a supportive regulatory environment that fosters competition and growth, as well as strong independent supervisory institutions that maintain financial risks in check. It is crucial to balance financial deepening with financial stability and consumer protection controls. The private sector on the other hand, can harness technological innovation and develop new products and business models to support financial inclusion.

Firms' and individuals' access to finance is low

Mexico ranks low in key financial inclusion indicators compared to both advanced economies and regional peers (Figure 1). For example, the share of adults with a bank account is low and so is the number of bank branches per 100 thousand adults. Only around 47% of the population aged between 18 and 79years of age held a bank account in Mexico in 2018, less than in other OECD members in the region such as Costa Rica (68%) and Chile (74%).

Indicators of financial depth, such as bank loans to households and bank deposits as a share of GDP, provide a similar picture (Figure 2). The size of domestic bank credit to the private sector is also low, at around 31.4% of GDP in Mexico in 2021, less than in Brazil (38%), Colombia (45%), Costa Rica (55%) and Chile (100%), and below what it would be expected on the basis of Mexican's economic fundamentals (Herman and Klemm, 2019[11]).

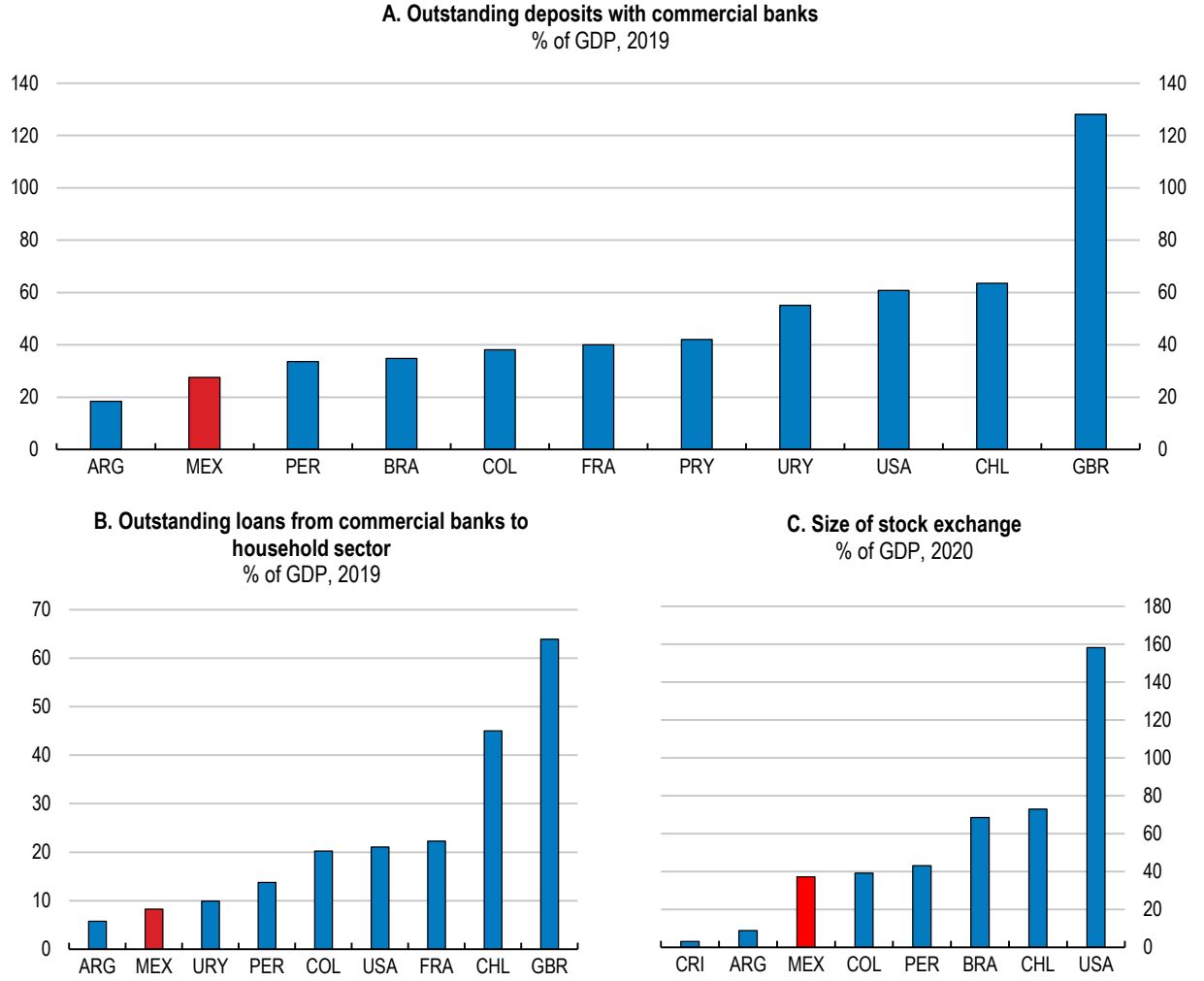
Figure 1. Mexico ranks low in access to formal financial services



Note: Panel A, B and C: data for Mexico refer to 2021. Panel D: data for Mexico refer to 2018 and refer to adult population between 18 and 79 years of age; data for the other countries refer to adult population aged 15 years or above.
Source: IMF Financial Access Survey; World Bank Global Findex 2017; Encuesta Nacional de Inclusión Financiera (ENIF) 2018; Comisión Nacional Bancaria y de Valores (CNBV) 2021.

StatLink https://stat.link/vp87rk

Figure 2. Financial depth is low



Note: Panel A: data for Mexico refer to 2021.
Source: IMF Financial Access Survey; Comisión Nacional Bolsa y Valor (CNBV).

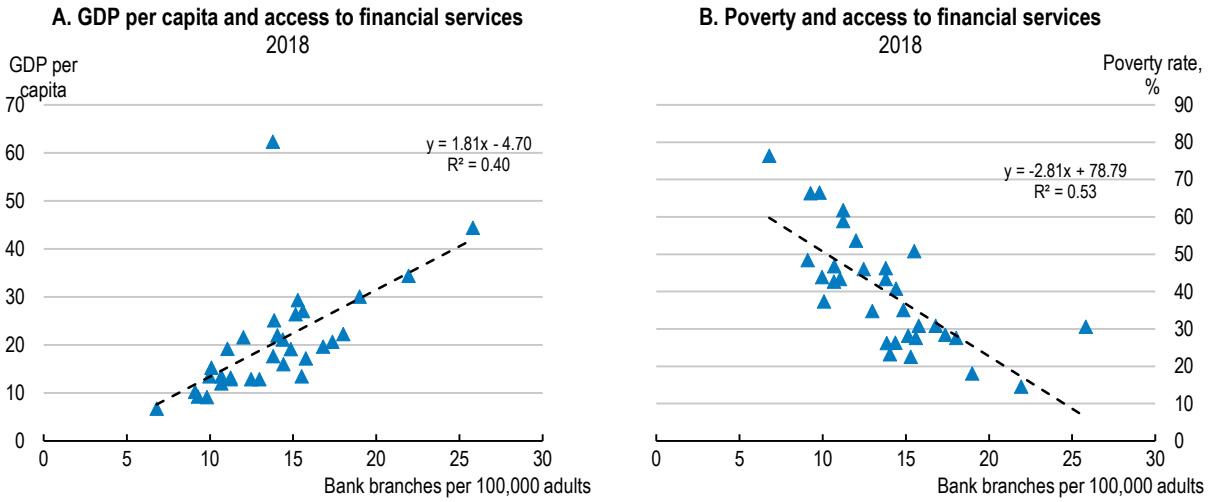
StatLink https://stat.link/a4iv0u

Financial inclusion may promote diversification of regional economies (Acemoglu and Zilibotti, 1997[12]), which is conducive to higher regional growth and regional economic convergence (Porter, 2003[13]; Hausmann et al., 2014[14]; BANXICO, 2015[15]; BANXICO, 2018[16]). Access to financial services at the regional level in Mexico is positively correlated to growth (Figure 3, Panel A) and inversely related to poverty (Figure 3, Panel B). Increasing financial inclusion could then help reduce regional disparities across Mexican states, which are large and persistent (Box 2). However, establishing causality between financial inclusion, growth and inequality is challenging because of limited data availability and because policies aimed at promoting financial inclusion are very recent (Demirguc-Kunt, Klapper and Singer, 2017[17]).

Mexico established in 2011 the National Council for Financial Inclusion (*Consejo Nacional de Inclusión Financiera*), and in 2016 the National Policy for Financial Inclusion (*Política Nacional de Inclusión Financiera),* then updated in 2020, that sets objectives and policy actions to increase the access to financial services (banking account, credit, insurance and retirement savings), especially to low-income households, promote financial literacy, improve financial health and the effective use of financial services, boost competition in financial markets and improve protection of consumers of financial products. Several actions

have been taken to expand the supply of financial services to a higher number of Mexican firms and households as well as their quality, such as the creation of around 10 million of bank accounts for beneficiaries of government transfers, the establishment of a digital payment platform *Cobro Digital* (CoDi) to facilitate digital payments and the creation of the Banco Bienestar within the National Development Plan 2020-24 (*Plan Nacional de Desarrollo*) (Box 1).

Figure 3. Higher regional access to financial services is associated with higher regional growth and lower poverty



Note: Panel A: GDP per capita are in constant PPP-adjusted 2015 USD.
Source: CNBV; OECD Regional Statistics; and CONEVAL.

StatLink https://stat.link/wize83

Box 1. Recent policy efforts to boost access to financial services

Financial inclusion

- People between 15 and 17 years of age can now open their first debit account and act as account holders. Young people can receive transfers from social programs through these accounts without the intervention of their representatives. As of September 2021, around 3.5 million bank accounts have been opened.
- As of 2020, a total of 10 million of bank accounts have been created for beneficiaries of government transfers, most of them between 2015 and 2020. Several government programs indirectly promote financial inclusion by creating bank accounts for the beneficiaries, among which “Jóvenes Construyendo el Futuro” and “Programas para el Bienestar de las Personas Mayores” stand out.
- 2,700 branches of the Banco del Bienestar are being constructed throughout the country to bring financial services to remote areas and working to bring connectivity to the smallest populations (less than 5,000 inhabitants). Banco del Bienestar aims at promoting financial inclusion by facilitating access to financial services especially among vulnerable groups. It also facilitates the access to several federal social programmes. Banco del Bienestar suspended lending in August 2021 following a sharp rise in the share of non-performing loans.
- Set up a banking Program for Migrants so that Mexicans living abroad can open a bank account remotely in Mexico (through Banco del Bienestar) and send money transfers to their families safely at reduced intermediation costs and fees.

- Incorporation of financial inclusion criteria, sustainable financing and with a gender perspective in the Performance Evaluation of Multiple Banking Institutions prepared every year by the Ministry of Finance.
- Cobro Digital (CoDi) platform to promote the use of digital payment services. As of October 2021, there are about 10.8 million accounts activated for the use of CoDi. To use CoDi is required to have a smartphone and a bank account.

Financial deepening

- Since 2019 it is possible to open credits associated with payroll with any bank. This scheme allows workers to use their payroll bank accounts as a source of payment for all types of credits and with any financial institution, under an open architecture. The objective of this measure is to expand access to the supply of loans under better conditions.
- Greater flexibility in the investment regime of the Retirement Fund Administrators (Afores). This measure seeks to facilitate that Afores can better diversify their investments and invest in productive infrastructure projects.
- Strengthening of incentives for the incorporation of companies to the Mexican stock market. This includes a lower income tax rate on profit returns where there was an initial public offering or harmonizing the tax treatment for national investors who buy corporate bonds with the one international investors have.
- Financial institutions, including Afores, are authorized to give and receive on loan the securities issued by companies.

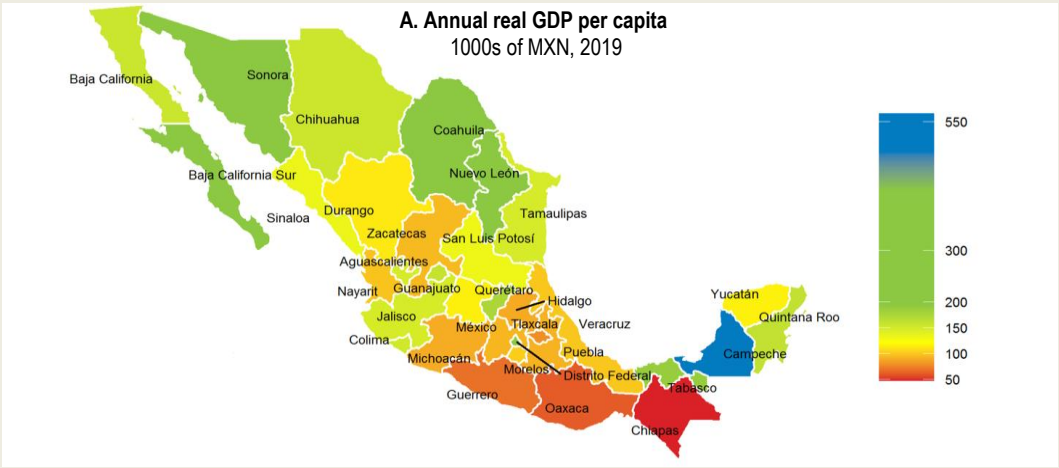
2021 Financial reform

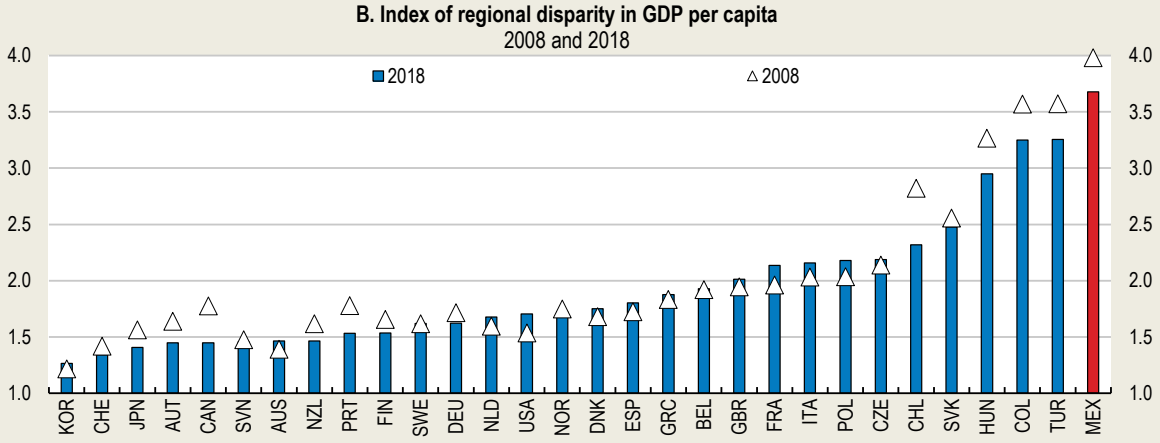
- In September 2021 the authorization process for non-branch retail agent outlet of commercial bank (corresponsales bancarios) was simplified to promote the coverage of financial infrastructure.
- In July 2021 the weights to determine the capital requirements for credit risk for SMEs and other companies, consumer portfolio, and mortgage loans have been reduced to promote credit and economic reactivation.
- In July 2021 a new regulation to promote women's access to credit was issued. Based on delinquency rates statistics, women have a better performance when paying a loan. The change in regulation is an adjustment to the calculation of loan reserves granted to them.

Box 2. Regional economic disparities in Mexico are large and persistent

Regional economic gaps in Mexico are the largest among OECD countries (Figure 4 Panel B). The average real GDP per capita of the top three non-oil regions (Ciudad de Mexico, Nuevo León and Baja California Sur) is more than four times as high as that of the last three regions (Chiapas, Oaxaca and Guerrero) (Figure 4 Panel A).

Figure 4. Regional gaps in Mexico are the largest among OECD countries





Note: Panel B - The GDP per capita of the top and bottom 20% regions are defined as those with the highest/lowest GDP per capita until the equivalent of 20% of national population is reached. Based on GDP per capita values expressed at 2015 constant prices, using OECD country deflators and converted into constant USD purchasing power parities (PPPs), 2015 reference year. 2008-2018, except last available year for COL, LVA, LTU, NZL and CHE: 2017; JPN: 2016. Countries are ranked in ascending order of the 2018 ratio.
Source: INEGI and OECD Regional Statistics.

StatLink https://stat.link/w7o3id

Though Mexico has significantly increased its integration into the world economy over the last two decades, thanks to a robust macroeconomic framework that provided macroeconomic stability, not all regions have benefited equally. The North and Centre-North regions have significantly benefitted from foreign direct investment and trade integration and now host competitive manufacturing centres. For example, manufacturing exports from these regions are larger than the manufacturing exports from the rest of Latin America combined. Mexico also hosts relatively well-off oil regions, like Campeche and Tabasco in the South East, and vibrant technological hubs in Guadalajara (Jalisco), known as the Latin American Silicon Valley, and Tijuana (Baja California). At the same time, the Southern-West regions display weaker economic development and extremely high poverty rates (above 60%).

Boosting firms' access to finance

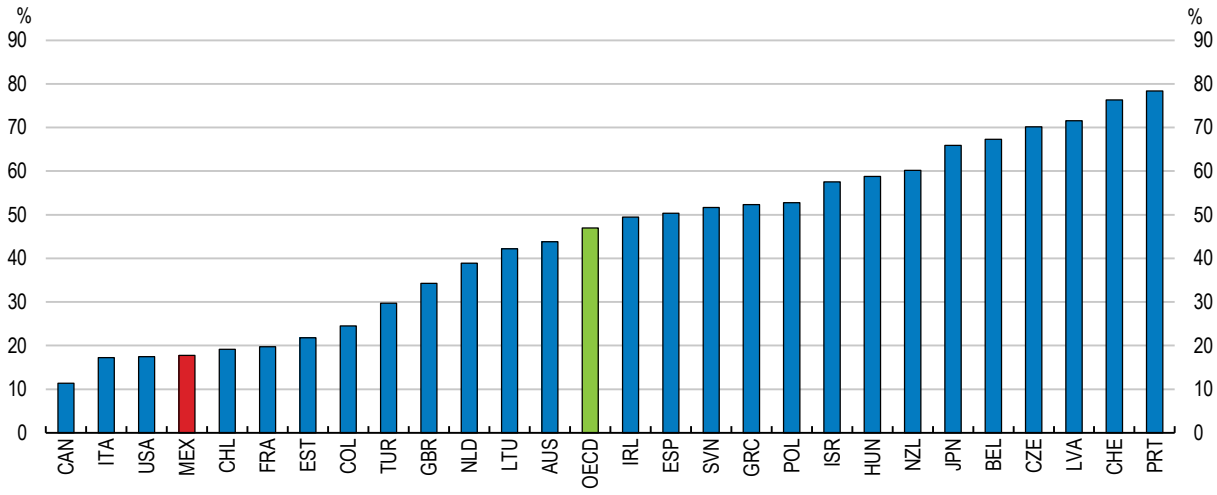
Improving access to bank credit

SMEs in Mexico account for 99.7% of all enterprises, 62.6% of private-sector employment and 35.2% of national gross production (OECD, 2018[18]). Credit guarantee programs facilitate credit access to SMEs in Mexico. Around 45% of all commercial bank credit to SMEs in 2020 was covered by credit guarantees provided by the development bank Nacional Financiera and, for export oriented firms, by the Banco Nacional de Comercio Exterior Credit. However, SMEs' access to bank credit is lower than in the average OECD country and regional peers such as Colombia and Chile (Figure 5). Improving access to financial services would intensify firm creation and growth, benefitting particularly small firms and start-ups (Guiso, Sapienza and Zingales, 2004[19]). Deeper and more inclusive financial markets, by easing financing constraints, tend to help especially SMEs grow more (Rajan and Zingales, 1998[20]). In underdeveloped financial systems, increasing the access of SMEs to finance also contributes to reduce inequality (Banerjee and Duflo, 2005[21]), as unequal access to credit is a barrier to economic opportunities and entrepreneurial activity. Financial development, by helping poor entrepreneurs without collateral to access credit supports their formalisation.

A high interest rate margin (Figure 6, Panel A), well above what is observed in Chile or other OECD countries, is one of the principal barriers to credit for SMEs. The spread between SMEs and large firms' loan rates is also relatively high (Figure 6, Panel B). Financing constraints are a main barrier to growth of SMEs in underdeveloped financial systems (Beck and Maksimovic, 2005[22]), and hinder formalisation as entrepreneurs who fail to raise funding tend to operate in the informal sector (Banerjee and Duflo, 2005[21]). Access to bank credit can also be particularly challenging for young and innovative firms that do not have collateral or a credit track record. Increasing financial inclusion of SMEs would be especially relevant in the Southern states, where it would help to curb poverty and provide new economic opportunities.

Figure 5. SMEs access to bank lending is relatively low

% of total business lending, 2019

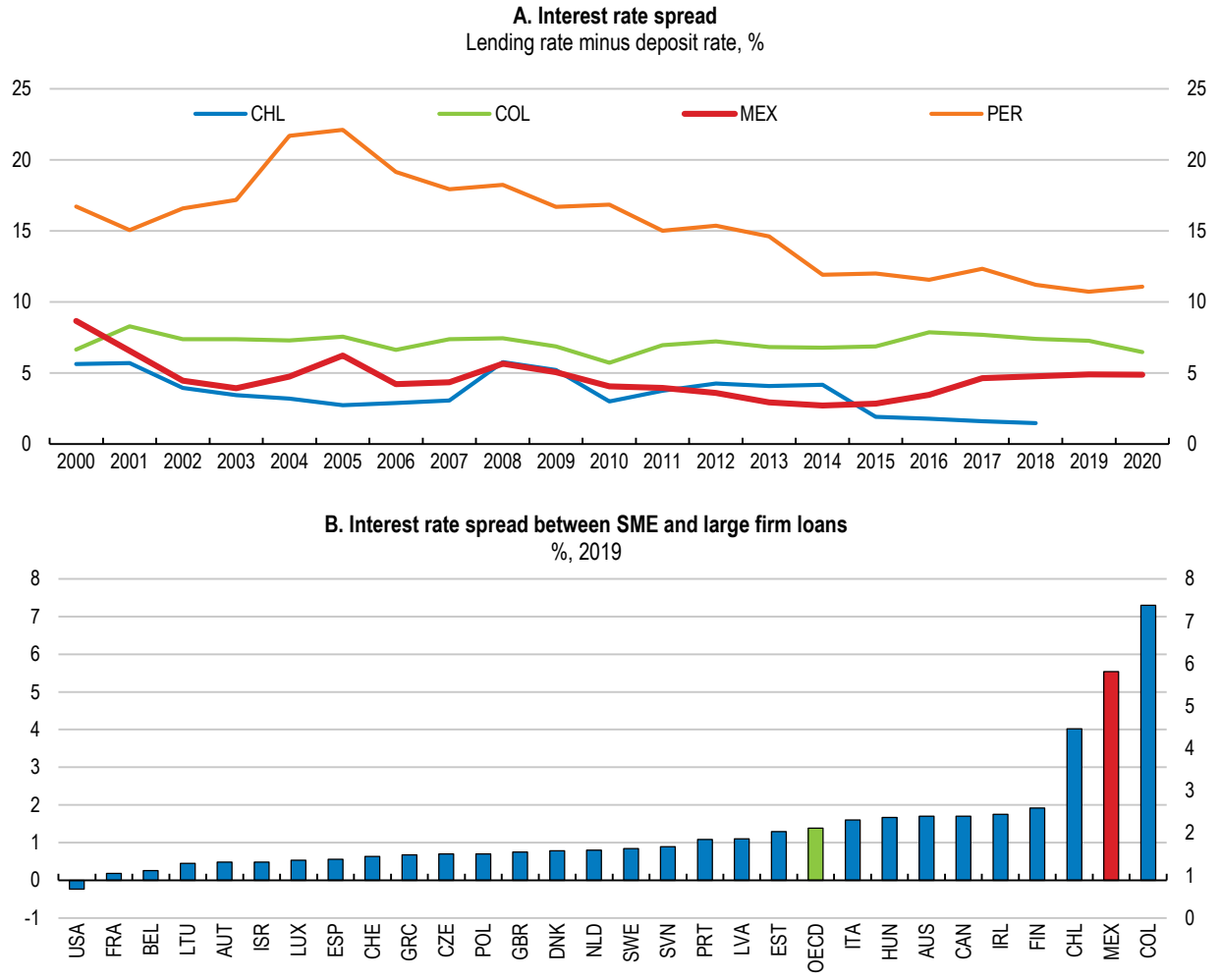


Source: OECD, Financing SMEs and Entrepreneurs: An OECD Scoreboard database.

StatLink https://stat.link/0jqowg

The high interest rate margin may signal low competition in banking lending. The three largest banks hold more than 50% of total bank assets (OECD, 2019[2]) and in the banking sector market concentration, which tends to be inversely related to the degree of market competition, has been flat since 2016 (Figure 7). A financial reform in 2014 improved the overall degree of competition in the Mexican banking sector for a few years, but some large banks have increased their market power since (Bátiz-Zuk and Lara Sánchez, 2021[23]). Empirical evidence finds that banks with higher market power tend to lend at higher interest rates, especially if the loan is provided to microenterprises and small firms, and to firms located in central and Southern regions (Cañon, Cortes and Guerrero, 2020[24]). Market concentration is relatively high for consumer loan and mortgages, and low for the business loan market (Figure 7). Market concentration is also high in the credit card market (Téllez-León and Venegas-Martínez, 2019[25]). Fintechs have a great potential to promote more competition and access to credit to SMEs. (see section Accelerating the development of digital financial markets).

Figure 6. Interest rate spreads are high



Note: Panel.A: The interest rate margin is defined as the difference between the average loan rate and the bank deposit rate.
Source: World Bank and OECD (2017), Financing SMEs and Entrepreneurs 2017: An OECD Scoreboard, OECD Publishing.

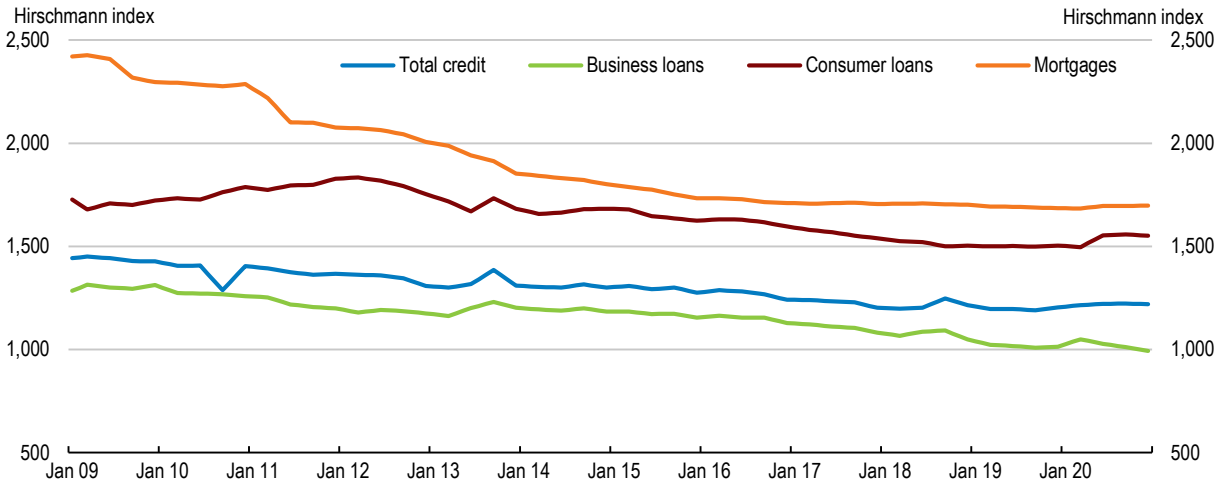
StatLink https://stat.link/7rqd1g

Information asymmetries between lenders and borrowers can also explain high interest rate spreads. Information infrastructures for credit risk assessment, such as credit bureaus, registries or data warehouses can reduce the perceived riskiness and help lenders identify investment opportunities. In Mexico there are three companies in charge of collecting credit history information for firms and individuals (credit bureau), two of them belonging to the same economic group. The Competition authority has found anticompetitive practices among these companies. By law these companies are obliged to share the credit history information they compile with the other credit registry companies but the companies belonging to the same group have not done so to protect their monopolistic position (COFECE, 2019[26]). Ensuring that all lenders are able to access credit history information in a comprehensive manner and under equitable conditions, can reduce information asymmetries and interest spreads. Experience in the United States, Argentina and Brazil (OECD, 2019[27]) attests that, when more information is exchanged and made available to lenders, default rates fall and lower spreads are charged to borrowers. Implementing the 2019 proposal by the Central Bank of Mexico to amend regulatory provisions so that a larger set of information is shared with credit registry companies, currently under revision, would represent a significant improvement.

Promoting access to credit for informal firms or individuals is a key challenge, as they tend to lack credit history. Using non-traditional sources of information, such as payment history, usage and payment of utilities, online activities or mobile history, has the potential to include informal firms into credit registries and so increase their access to credit (WorldBank, 2011[28]). This could be a promising avenue for Mexico to bolster information about this large segment of potential borrowers. A first step could be to create credit information based on payments history from public utility companies' records, such as water or electricity. Enlarging the available data and facilitating the exchange of information by promoting the development and diffusion of digitalisation tools for credit risk analysis bears the potential of reducing information asymmetries in the credit market. Fintechs have a great potential to promote the development of innovative open banking approaches to lower the costs to reach new customers and evaluate their credit risk, including underserved micro and small firms, thus resulting in an increased access to finance.

Figure 7. Concentration in the banking sector has remained flat since 2016

Concentration in the banking sector by type of credit



Note: The Hefindhal-Hirschmann index (HHI) is an indicator of market concentration. The HHI ranges from 0 to 10000, with higher values signalling that the market is more concentrated. Mexican competition authorities deem a market as highly concentrated when it has a HHI above 2000.
Source: CNBV Boletines estadisticos; OECD calculations.

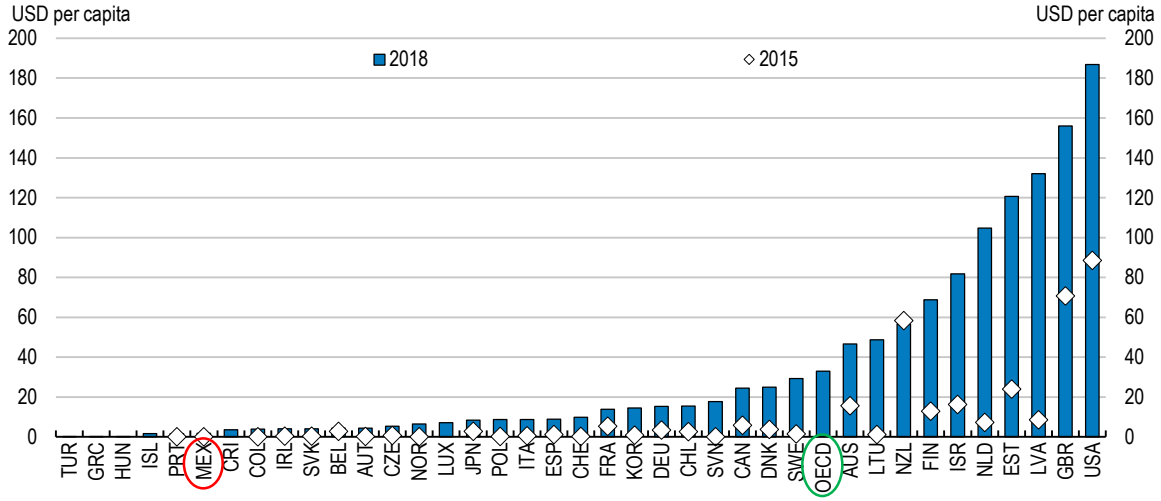
StatLink https://stat.link/nh5g81

Broadening sources of finance

Developing non-bank financing can also provide additional funding for firms and make the Mexican financial system more balanced and conducive to entrepreneurship. Crowdsourcing is a potential source of financing especially for start-ups. It is part of the fast-growing online alternative finance market (OECD, 2020[29]) that is still small in Mexico relative to other countries (Figure 8). Other alternative financing instruments may be suitable and of interest for specific firm segments, depending on their risk-return profile, stage in the business life-cycle, size and financial skills. Asset-based finance instruments (asset-based lending, factoring, purchase order finance, leasing), based on the liquidation value of the underlying asset rather than the creditworthiness of the business, may be an alternative for firms with limited credit history and lack of collateral, firms with a solid base of customer but high investment in intangibles or high-risk and informationally non-transparent firms. The development bank, *Nacional Financiera,* provides a factoring service through the programme Cadenas Productivas, which is designed to discount SMEs accounts receivable, and that involved operations amounting to around 0.8% of GDP in 2020.

Alternative debt instruments (corporate debt, covered bonds) could suit large to mid-sized firms with stable earnings and low cash-flow volatility that need undertaking investment and do not wish dilution of ownership and control. Business angel investments may be an alternative for innovative start-ups requiring investment and business-building skills. Maintaining a flexible regulatory stance to allow alternative sources of funding to match the needs of the market over time would help to increase their relevance. The choice of regulating crowfunding through secondary regulation, as established by the 2018 Fintech Law, goes into the right direction, provided that the institutions responsible for issuing regulations are adequately resourced to effectively and rapidly adapt it to the needs of the market.

Figure 8. Online alternative financing is underdeveloped

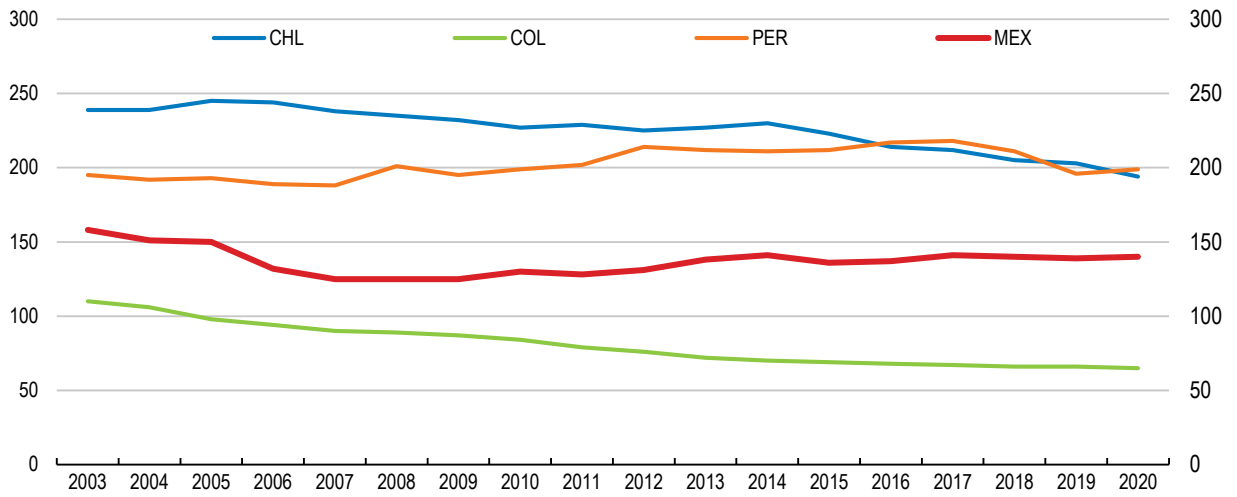


Source: Cambridge Centre for Alternative Finance (2020), The Global Alternative Finance Market Benchmarking Report; G. Cornelli et al. (2020), "Fintech and big tech credit: a new database", BIS Working Paper, No. 887.

StatLink https://stat.link/h8pevu

Mexico should also promote entry into the stock market and venture capital initiatives to broaden the funding market for enterprises. Developing further the stock market and venture capital can help the economy further develop, for example by helping manufacturing firms in the North and Centre-North maintain their international competitive advantages, move up in the global value chains and respond to the challenges raised by automation or digitalisation. The number of companies listed in the stock market is lower than in some peer countries such as Chile and Peru (Figure 9) in which, like Mexico, the role of SMEs in the economy is relevant in terms of the share in private-sector employment and output. Policy initiatives that facilitate the access of SMEs to the stock market by simplifying requirements and reducing costs may be particularly pertinent for Mexico. Ongoing initiatives aiming at lowering the tax burden for initial public offerings and harmonising the tax treatment for both domestic and international investors in corporate bonds are welcome. Several emerging economies, such as India, Thailand or Singapore, have successfully created specific stock market segments for SMEs, where listing and disclosure requirements are looser and costs are reduced (WEF, 2016[30]). For example, since the launch in 2012 of the Bombay Stock Exchange (BSE) for SME platform in India, the number of listed SMEs has rapidly increased as to achieve 362 in August 2021. Furthermore, SMEs are generally ill-equipped to deal with investor due diligence requirements. Training and tutoring can also help growth oriented-SMEs access the capital markets.

Figure 9. Few firms participate in the stock market



Source: World Bank, World Development Indicators database.

StatLink https://stat.link/d1hl48

Mexico has the potentiality to develop a successful venture capital ecosystem given its large domestic consumer market, closeness to the United States, and experienced entrepreneurs. It has positioned itself as the second-largest venture capital market in Latin America with 21 percent of the region's investments. However, over the past five years, local fundraising volumes have stagnated. This slowdown can be attributed to a variety of factors, including market maturity and structural challenges. In terms of market depth — stock market size, sophistication, initial public offering (IPO) volume, debt market size, and transaction volume — Mexico has consistently ranked lower than regional peers in recent years (Haneine, Zdravkvic and Vilá, 2021[31]). Only one IPO has taken place in the last three years, as companies have opted for non-traditional structures, including strategic trade sales, rather than Mexico's stock exchange. This contrasts with buoyant recent IPO activity in Brazil, with 26 IPOs registered in 2020 and another 28 only in the first semester of 2021. The reduction of IPO exit taxes from 30 percent to 10 percent in 2019 was a positive step to boost IPO activity, but the impact has been so far negligible.

Providing counselling and mentoring that enhance financial skills and planning would complement financial support for SMEs. These complementary services could be linked to providers of SME-targeted programmes, including governments, development banks and non-for profit organisations. Financial literacy programmes could be developed with a focus on SMEs entrepreneurs, whose needs go beyond those of the general population, following Portugal's example under its National Plan for Financial Education. Specific programmes could be tailored to improve the quality of start-ups business plans and SME investment projects using survey evidence on the level of financial literacy in micro and SMEs collected in 2021 following the methodological framework established by OECD/INFE 2020. In Italy a partnership between the government and the London Exchange Stock group aims to increase participation in a programme that offers training, tutoring and direct access to the financial community to SMEs. Developing the information infrastructure for credit risk assessment would help better assess SMEs credit risks and facilitate their access to credit. Japan established in 2001 the Credit Risk Database that provides credit risk scoring and related statistical service to facilitate the access of SMEs to bank credit. In France, the Euro-Secured Initiative uses the Central Bank credit assessment of non-financial companies and the internal rating from banks to overcome information asymmetries that limit the access of SMEs to capital markets.

Increasing individuals' financial inclusion

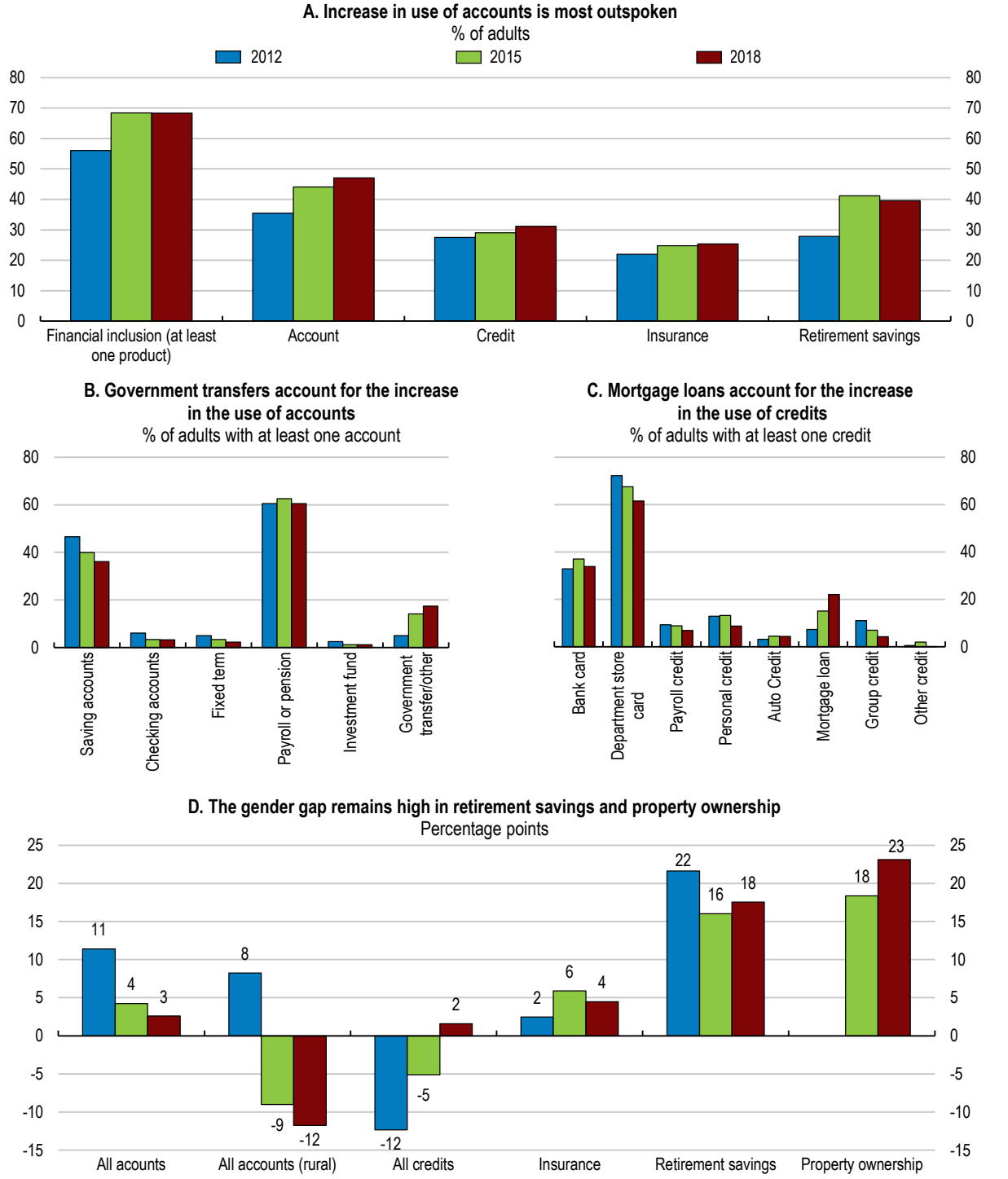
Increasing access to formal financial services

Individuals' financial inclusion has increased in recent years but there is significant room for further improvements. Less than 70% of adults had one financial product in 2018, with hardly any progress since 2015 (Figure 10, Panel A). However, there has been a significant increase in new bank accounts to receive government transfers (Figure 10, Panel B), notably among women in Southern states rural areas. This has contributed to reduce the gender gap in holding a bank account in rural areas (Figure 10, Panel D), and the overall gap in financial inclusion between rural and urban areas that fell by 4 percentage points between 2012 and 2018, despite remaining still high at 15 percentage points (CNBV, 2020[32]). The increase in access to bank accounts, however, does not appear to have been conducive to an equivalent increase in access to credit and insurance (ENIF, 2018[33]).

Mexico's positive experience with the creation of bank accounts for the beneficiaries of government transfers could be further extended following the example of other Latin American countries during the pandemic (see Box 1.9 in the 2022 Economic Survey of Mexico). Currently, six out of ten beneficiaries of federal social programmes receive transfers through their bank accounts. This strategy could be extended to all federal social programmes and those delivered by states and municipalities. This would also help reduce the scope for fraud or corruption associated with government transfers.

The gender gap in financial inclusion has significantly fallen between 2012 and 2018, but remains high in retirement savings and asset ownership (Figure 10, Panel D). The lower labour force participation of women compared to men may explain the gender gap in insurance and savings accounts, and represents a higher poverty risk for women (Fareed et al., 2017[34]). A recent reform modifying banking regulation to promote the access of women to financial instruments by lowering bank reserve requirements on bank loans to women is a promising initiative to close this gap. Promoting female education and access to formal jobs (see the 2022 OECD Economic Survey of Mexico) would also help closing the gender gap in retirement savings. As women have a lower level of property ownership, introducing mechanisms that promote the use of alternative forms of collaterals (Menkhoff, Neuberger and Rungruxsirivorn, 2012[35]), such as third-party guarantees, may also increase women's' access to finance.

Figure 10. Financial inclusion is slowly improving

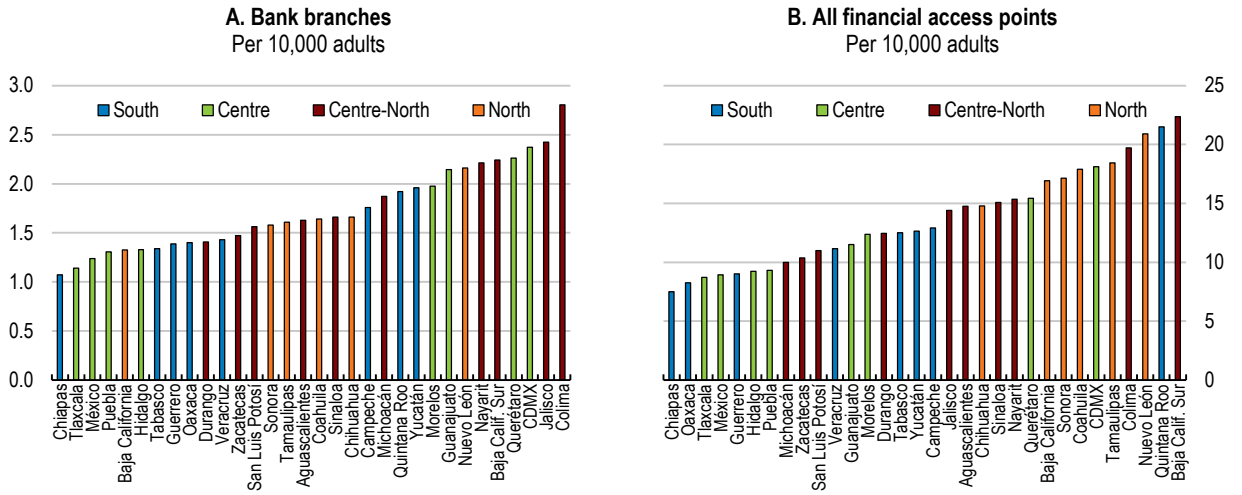


Note: Panel D: the gender gap is the difference between the share of men and the share of women having access to a financial product.
Source: ENIF 2012, 2015 and 2018.

StatLink https://stat.link/6afbdv

Further policy efforts to promote the increase in access points to financial services in underserved areas are warranted. The share of municipalities with financial access (Automated Teller Machines or ATMs, bank branches, non-branch retail agent outlets of commercial banks) went up from 68% to 77% between 2012 and 2018. However, regional gaps in financial infrastructure persist (Figure 11). While on average more than 90% of the population has access to financial infrastructure, in a few states an important share of the population lives in municipalities without a bank branch (Oaxaca, Puebla and Tlaxcala) (Figure 12, Panel A). Providing access to financial services by opening bank branches has proved especially beneficial to Mexico in the past. It promoted credit and increased income and employment, benefiting particularly informal low-income households, and reduced poverty (Bruhn and Love, 2014[36]). Recent government initiatives aiming at opening 2700 branches of the Development Bank (*Banco del Bienestar* in Spanish) in remote and rural areas (with less than 500 inhabitants) and the installation of 13500 ATMs across the country in *Centros Integradores de Desarrollo*, would contribute to close the regional and rural gap in financial inclusion. Recent regulatory changes to simplify the creation of non-branch outlets of financial services (*corresponsales bancarios* in Spanish) would also promote aggregate savings and financial inclusion as long as the new installations would cover municipalities previously underserved, inducing otherwise a substitution effect among formal savings instruments (Carabarín et al., 2018[37]). Fostering non-branch retail agents' outlets of commercial banks and point-of-sale terminals have been especially relevant to promote financial inclusion in Colombia for both individuals and SMEs.

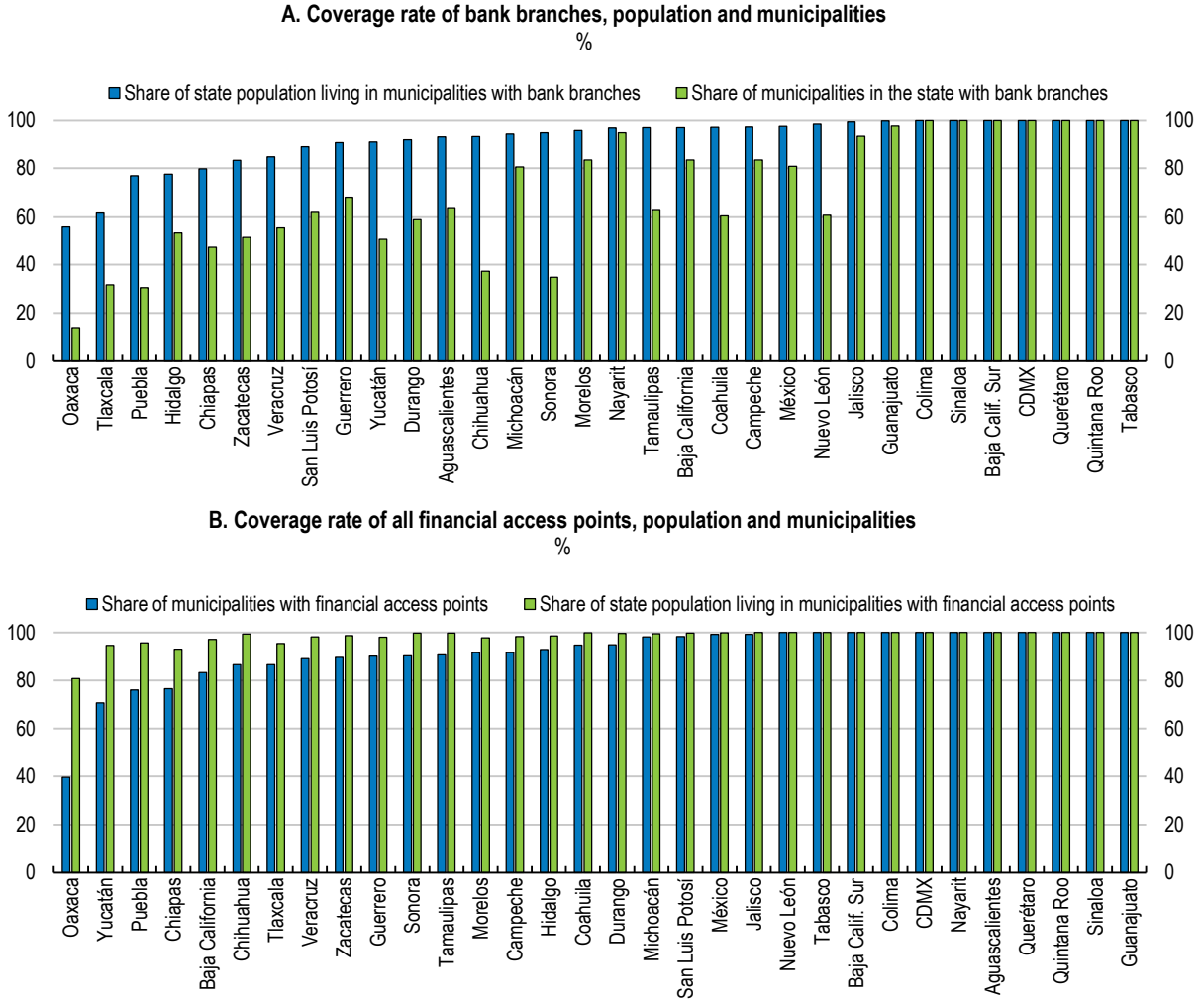
Figure 11. Regional gaps in financial infrastructure persist



Source: Comisión Nacional Bancaria y de Valores Base de Datos de Inclusión Financiera, marzo 2021.

StatLink https://stat.link/mc149p

Figure 12. In some states a high share of the population has no access to bank branches

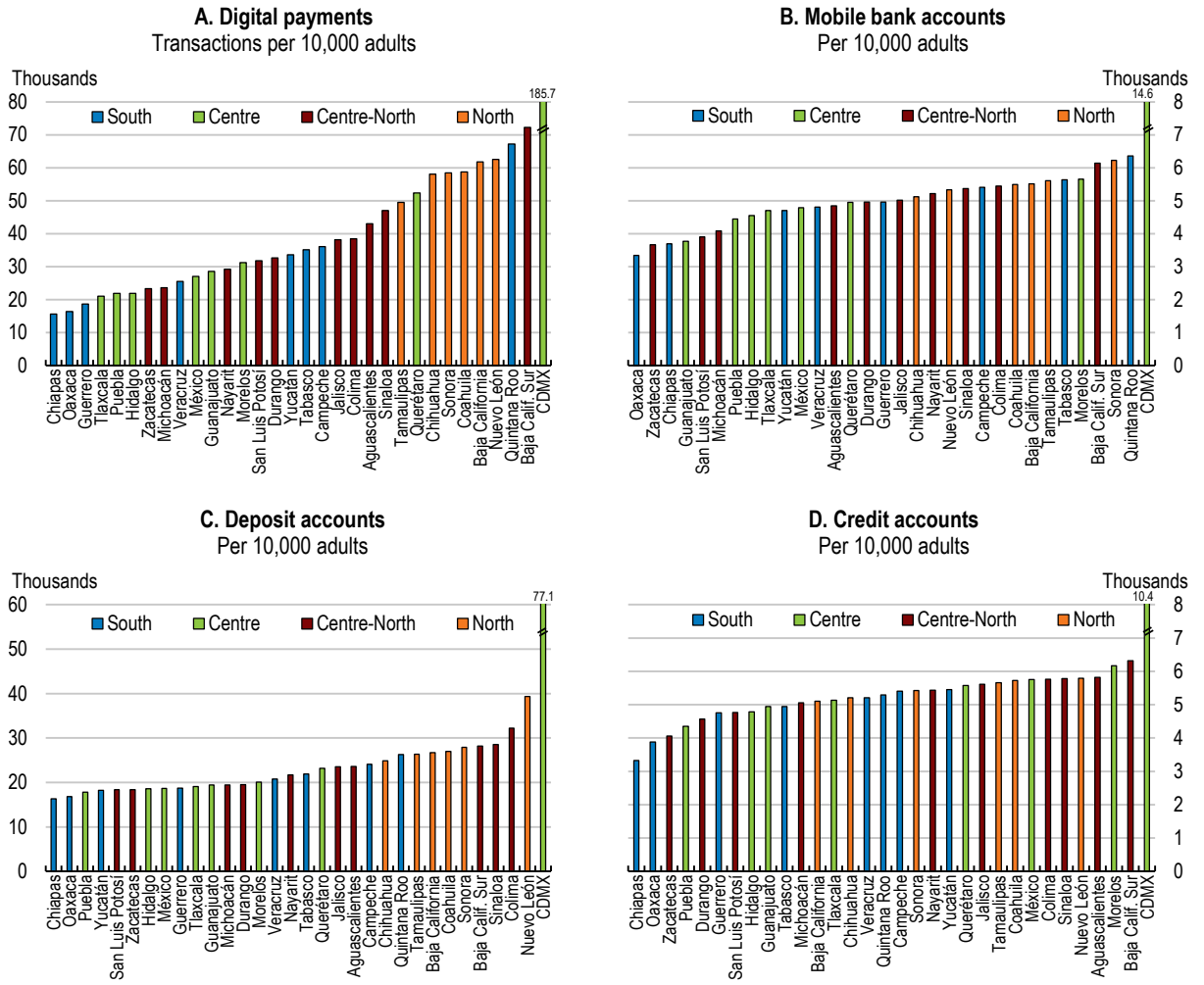


Source: Comisión Nacional Bancaria y de Valores Base de Datos de Inclusión Financiera, marzo 2021.

StatLink https://stat.link/zt32se

Regional gaps in the use of financial services are large (Figure 13). Except for Mexico City, which has the highest rate of use of financial products per inhabitant, financial services are used most frequently in Northern and Centre-North states (e.g. Nuevo Leon, Baja California, Baja California Sur) and the least in Southern states. Poorer states display a lower use of financial services as well as fewer access points to formal financial services. Increasing financial inclusion in these states would then be especially beneficial and help fill regional economic disparities.

Figure 13. Users of financial services concentrate in Mexico City and Northern states

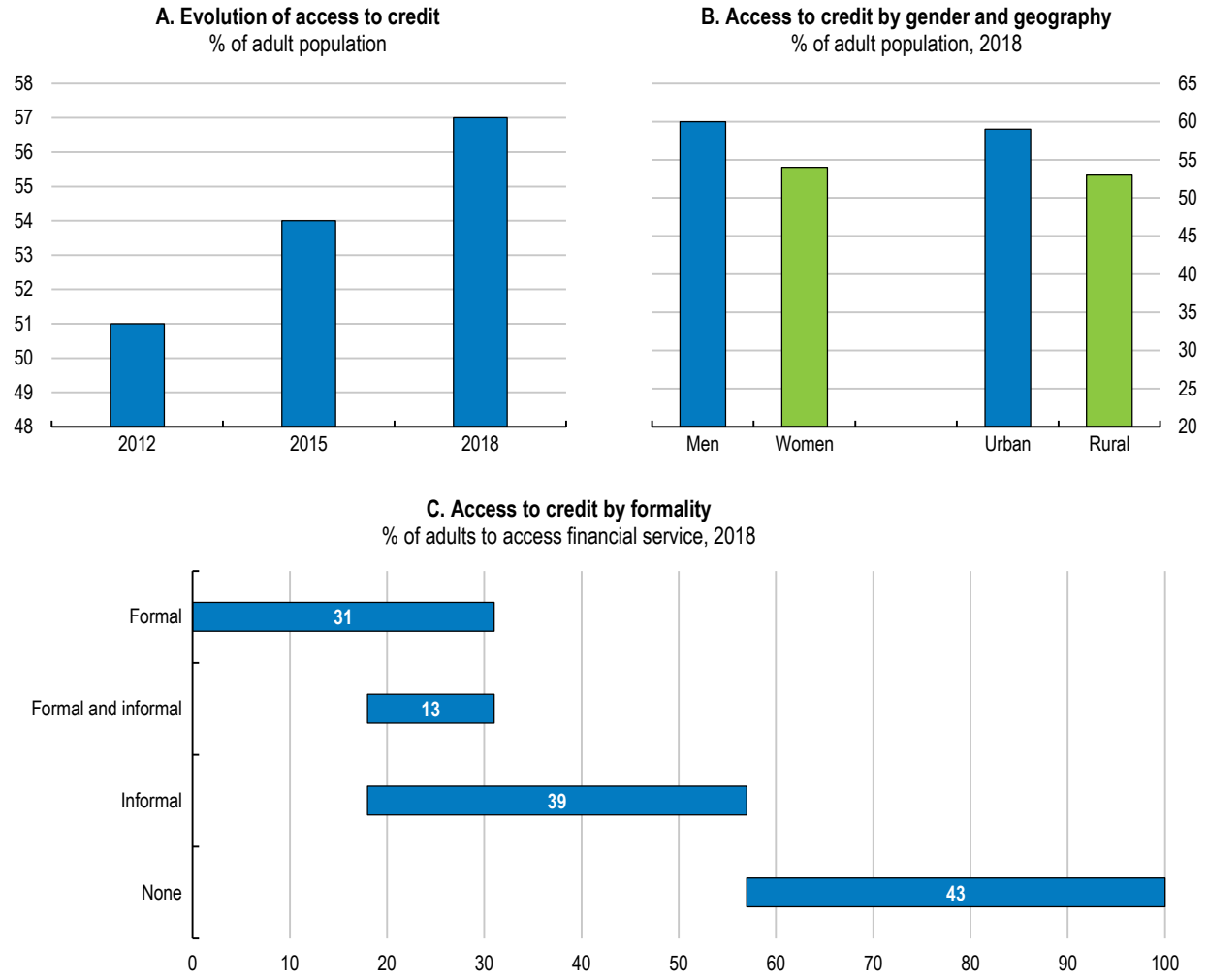


Source: Comisión Nacional Bancaria y de Valores Base de Datos de Inclusión Financiera, marzo 2021.

StatLink https://stat.link/jlga2e

Individual access to credit has improved in Mexico (Figure 14, Panel A), but further efforts are required to reduce existing geographical and gender gaps (Figure 14, Panel B) and increase access to formal credit (Figure 14, Panel C) that would promote growth. A recent study of the Central Bank finds that increasing the size of private credit would be beneficial to growth, with a 10% increase in the ratio of banking credit to GDP increasing per capita GDP growth by around 0.7 percentage points (Torre Cepeda and Flores Segovia, 2020[38]). Regional disparities in access to credit are also large (Figure 15, Panel A). Northern states record the highest average rate of access to formal credit, while Southern states have the highest average access to credit, though it is prevalently from informal sources (friends, family or an informal lender) (Figure 15, Panel B). The lowest access to credit, both formal and formal, is found among the states in the Centre.

Figure 14. Individual access to credit has increased but there are gender and rural gaps



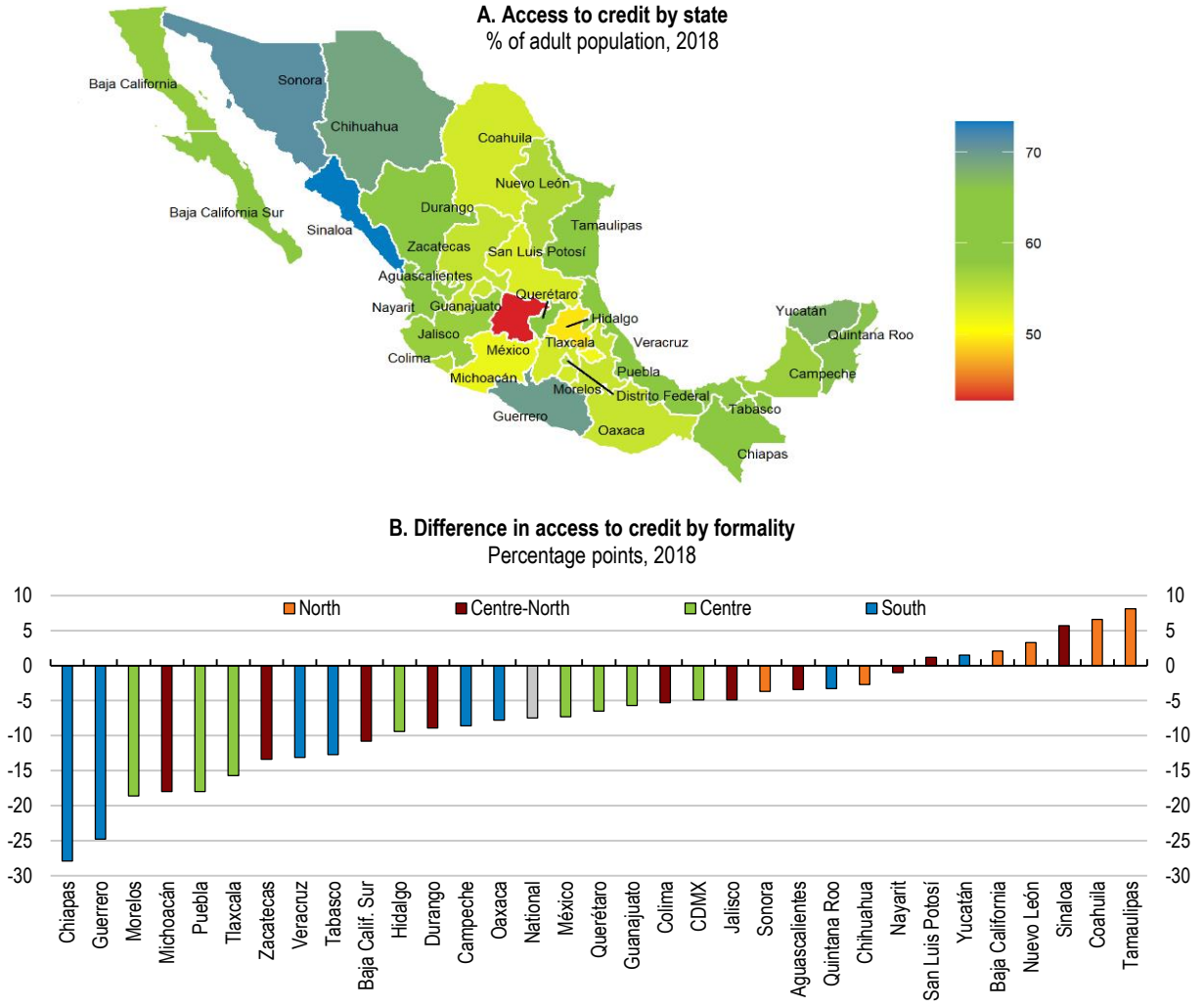
Source: ENIF.

StatLink https://stat.link/0za9fb

Around 39% of the adult population in Mexico used informal credit in 2018, increasing by 5 percentage points with respect to 2012. Family and friends are the most common source of informal credit, accounting for around 75% of all informal credits; other sources of informal credit (pawn house, *tandas de credito informal*) play a minor role. Informal credit is relatively more widespread in rural areas, where it is used by 41% of the adult population against 37% of the adults living in urban areas, and among men, with 40% of men using informal credit against 38% of women. The use of informal credit is widespread across adult of all educational attainment, but tend to decrease with the level of income, with 45% of the adults earning up to four times the minimum wage using informal credit against 31% of the adults earning more than this amount. Most recipients of informal credit use it for housing, health and emergency-related spending, to a lesser extent for education and business-related spending, and only a few use it for leisure (CNBV, 2021[39]).

A better access to formal credit would increase the ability of households to invest in human and physical capital and reduce the possibility of falling into poverty after a negative income shock (sickness, unemployment). Strengthening credit registries and initiatives to build credit history information for informal workers, as discussed above, could help more Mexicans get access to formal credit and reduce their dependence on informal credit channels.

Figure 15. Informal credit is common and easier to access in most states than formal credit



Note: Panel B plots the percentage point difference in access to formal and informal credit. For instance, a negative value means that it is easier to access informal credit than formal credit.
Source: ENIF.

StatLink https://stat.link/l0jmgv

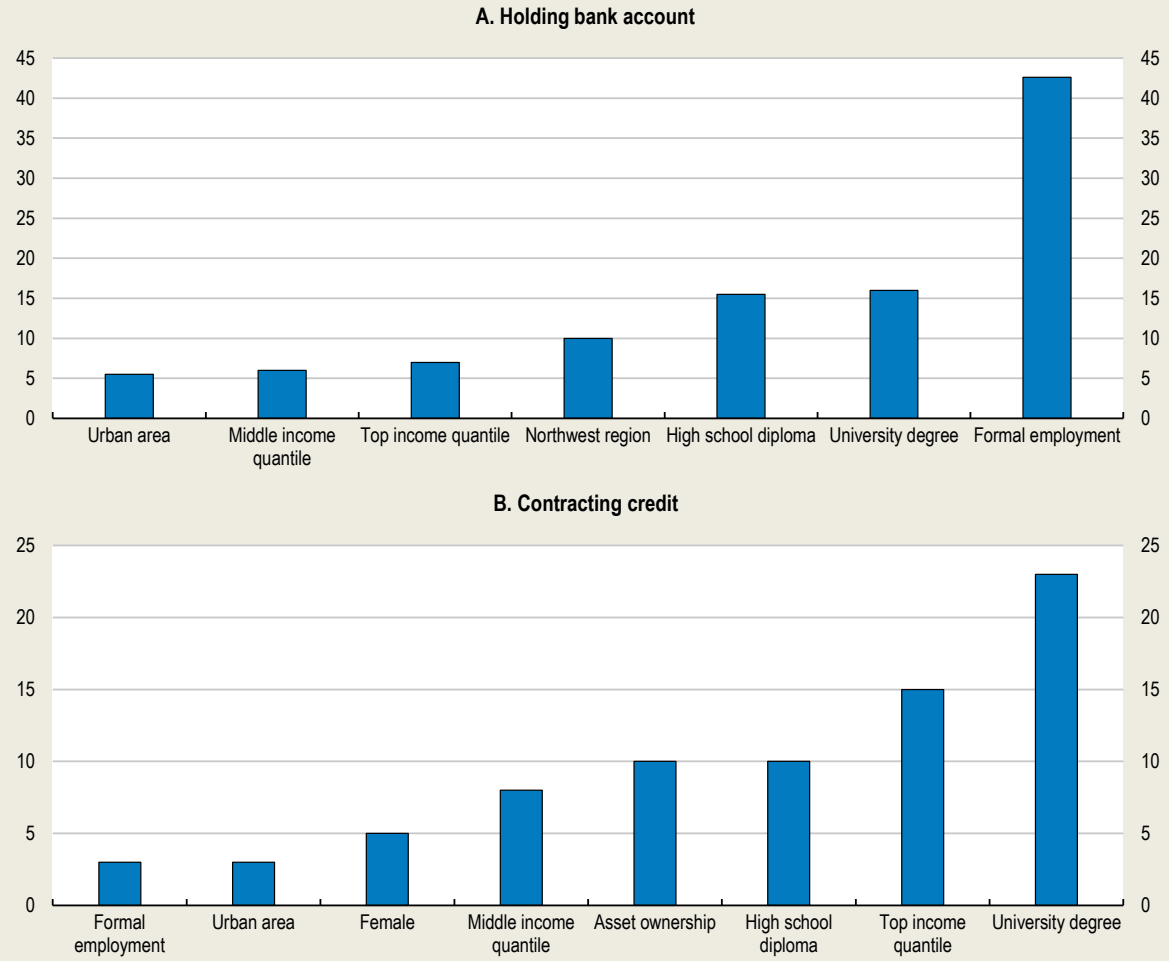
Working in the informal sector is the most important factor of exclusion from having a bank account (Box 3). As the majority of poor households works in the informal economy they tend to be excluded from formal financial services. This increases inequalities by imposing large opportunity costs on that part of the population who has then to rely on informal financial services which tend to be insufficient in size, unreliable and more expensive (Cull, Ehrbeck and Holle, 2014[40]). Policies promoting labour formalisation and reducing information asymmetries in the credit market appear to be among the most promising venues to promote financial inclusion. Reducing information asymmetry would benefit disproportionally the poor who often lack collaterals (Banerjee and Newman, 1993[41]). Strengthening financial literacy to increase awareness of consumer protection regulation and of the tools available to consumers would also help build trust in financial markets and reduce voluntary financial exclusion.

Box 3. Which factors hinder the demand for formal financial services in Mexico?

Using micro-data from the 2018 National Financial Inclusion Survey (*Encuesta Nacional de Inclusión Financiera* in Spanish), Cassimon, Gonzalez-Pandiella, Maravalle and Tourroques (forthcoming) estimate a set of Probit models to assess the main socio-economic characteristics that affect the probability of an adult to hold a bank account or to access formal credit and the main factors acting as a barrier to holding any of these two financial products.

Figure 16. Education, income and formal employment are the main drivers of financial inclusion

Average marginal effect on probability of accessing financial service, %



Note: The average marginal probability measures the average change in the probability of having access to a formal financial service (bank account or credit) for an individual who has a category of a socio-economic variable different from the benchmark category. The benchmark category of the variables reported in Panel A and B are: living in a rural area (urban or rural area variables); No income (income variable); West and Baijo region (regional variable); having pre-school/no school education (education attainment variable); working in the informal sector (sector of employment variable); female (gender variable); no asset ownership (asset ownership variable).
Source: Cassimon, Gonzalez Pandiella, Maravalle and Turroques (forthcoming).

StatLink https://stat.link/hagtqj

The analysis shows that working in the informal sector is the most important factor of exclusion from having a bank account (Figure 16, Panel A). The probability of holding a bank account of an adult working in the formal sector is 40 percentage points higher than that of an adult employed in the informal

sector. This is in accordance with descriptive statistics showing that almost all adults with a formal job (96%) have at least one financial product. Other factors that are associated to financial exclusion, but to a lesser extent, are a low level of education attainment and geographical variables, such as living in a rural rather than an urban area or in a region different from the Northwest.

Results show that direct and indirect economic barriers are the main reasons for not holding a bank account. Around half of the adults without a bank account reports that it is due to high banking costs and commissions or not meeting the banking requirements. Some of the 26% of adults who report not holding a bank account because they do not need it might indicate that earning a low income does not allow them to have savings.

An insufficient financial infrastructure, instead, is a relevant obstacle to financial inclusion for a small share of Mexicans. Distance from a bank branch is rarely a cause for not holding a bank account, as it is quoted as a barrier to financial inclusion only by 2% of the adults.

Estimations show that the most important determinants of access to formal credit are the income level, wealth and education (Figure 16, Panel B), which are all related to the creditworthiness of the individual. Education, indeed, is often considered a proxy for creditworthiness in the presence of strong asymmetric information (Anjali et al., 2005[42]). Reducing such asymmetries would likely expand financial access to formal credit. Households with a higher level of education are also more likely to be aware of credit sources, and regions with greater average schooling use more formal credit in Mexico (Campero and Kaiser, 2013[43]). Asset ownership, another proxy for creditworthiness, also increases the probability of contracting a credit by 10 percentage points.

By looking at the reason for not applying for a credit, most respondents quote economic barriers (around 35%) such as high costs and not meeting the required requirements. However, around one in fourth claims personal preferences, such as dislike of indebtedness and mistrust in the financial sector. Voluntary financial exclusion because of personal preferences, such as mistrust in financial institutions or preferences for other saving mechanisms, also concerns around 15% of the adults not holding a bank account.

Estimations from the Probit model show that women have a slightly higher probability of receiving a formal credit than men, *ceteris paribus*. However, descriptive statistics show a gender gap in credit, with 60% of men having access to it against 54% of women. These results suggest that economic factors such as the lower participation rate of women and their relatively larger presence in the informal labour market, which is dominated by low wages, are key determinants of the gender gap in formal credit.

In replacing informal with formal credit among rural and vulnerable groups, it is important to understand what would be the overall impact on how they transfer resources within their own extended family network. These transfers may produce positive externalities if they help relax credit constraints faced by the most vulnerable members of the network who would not be able to obtain such transfers by themselves. For example, the Prospera program in Mexico led to permanent gains in consumption and investment within the whole family network as eligible households shared the transfers with members of the network who were not eligible (Aguilar, Barnard and De Giorgi, 2019[44]). A careful assessment of how transfers are shared within a family network in rural areas may help avoid that policies aimed at replacing informal with formal credit might end up damaging the most vulnerable members of the family network (Banerjee et al., 2021[45]).

An inefficient legal system is also a reason for the low level of bank intermediation in Mexico. Difficulties in collecting collateral may limit credit expansion and empirical evidence shows that better contract enforcement induces credit suppliers to increase loan size, lengthen loan maturity, and reduce loan spreads (Fabbri, 2010[46]; Jappelli, Bianco and Pagano, 2005[47]). Only a fifth of Mexican companies find judicial proceedings simple and fast (INEGI, 2016[48]), and the enforcement of civil courts judicial ruling is below most OECD countries ((WJP), 2017-2018[49]). Length of proceeding, procedural complexity and high cost discourage private companies starting in-court proceedings when they have a dispute on contract enforcement that failed to be settled out of court (INEGI, 2016[48]; (ITAM) and Gaxiola Calvo, 2017[50]).

Mexico implemented recent reforms in commercial dispute resolutions, namely setting up oral proceedings in commercial cases in the first instance (*oralidad mercantil en primera instancia*) and the creation of specialised commercial courts. International practice shows that specialised commercial courts help improve efficiency in the resolution of corporate disputes, as illustrated by the Delaware Court of Chancery in the United States, the Commercial Court in the Netherlands and specialised commercial courts in France (Teplova and Pascual Dapenda, 2020[51]). Initial evidence in some regions shows that ongoing reforms contribute to improve the effectiveness and efficiency of commercial dispute resolutions. For example, the establishment of specialised commercial courts in the Estado de Mexico reduced the average length for commercial trial by 40%. However the courts' workload remains high and regional disparities in the implementation and performance of these reforms remain large ((ITAM) and Gaxiola Calvo, 2017[50]), also due to variation between states in court infrastructure such as developing IT systems to support case managements by both judges and litigants (Teplova and Pascual Dapenda, 2020[51]).

Several initiatives have been launched to accelerate the implementation of the reform introducing oral proceeding in first instance, including the 2017 National Training Programme for Judges regarding Oral Proceedings in Commercial matters, which provides judges with training and tools for an effective use of oral proceedings, and the National Programme on Oral Proceedings, to ensure that oral trials comply with the new procedures. Mexican regions could accelerate the establishment of specialised commercial courts, including strengthening the training specialisation of judges for considering commercial and economic cases and improve court infrastructure.

Improve financial literacy effectiveness and public trust in financial markets

Financial literacy can support responsible financial inclusion. Individuals with a higher degree of financial literacy tend to use more financial products (CNBV, 2019[52]) and save more, and are more likely to ensure consumption smoothing (Lusardi and Mitchell, 2011[53]; Lusardi and Mitchell, 2014[54]). Policies aimed at promoting financial education, such as the *Semana Nacional de Educación Financiera*, have been able to spread across the population basic financial concepts. Mexico ranks just below the average G20 country in the index of financial literacy, but further efforts are warranted to effectively modify financial behaviours and bridge regional gaps in financial literacy in states such as Chiapas, Oaxaca, Colima and Zacatecas (Figure 17, Panel A). Mexico performs better than the average G20 country in the subindices of financial knowledge and financial attitude (Figure 17, Panels B and C). However, it has very poor performance in the ability to respect a budget and pay debt on time, the attitude to voluntary savings and the use of comparing financial products for decision-making (Figure 17, Panel D). Even if 58% of adults disposes of a high level of financial knowledge, only a fraction of them is able to translate this knowledge into healthy financial behaviours such as make a budget, being on time with debt payments or do voluntary savings and set long term financial targets (CNBV, 2019[52]).

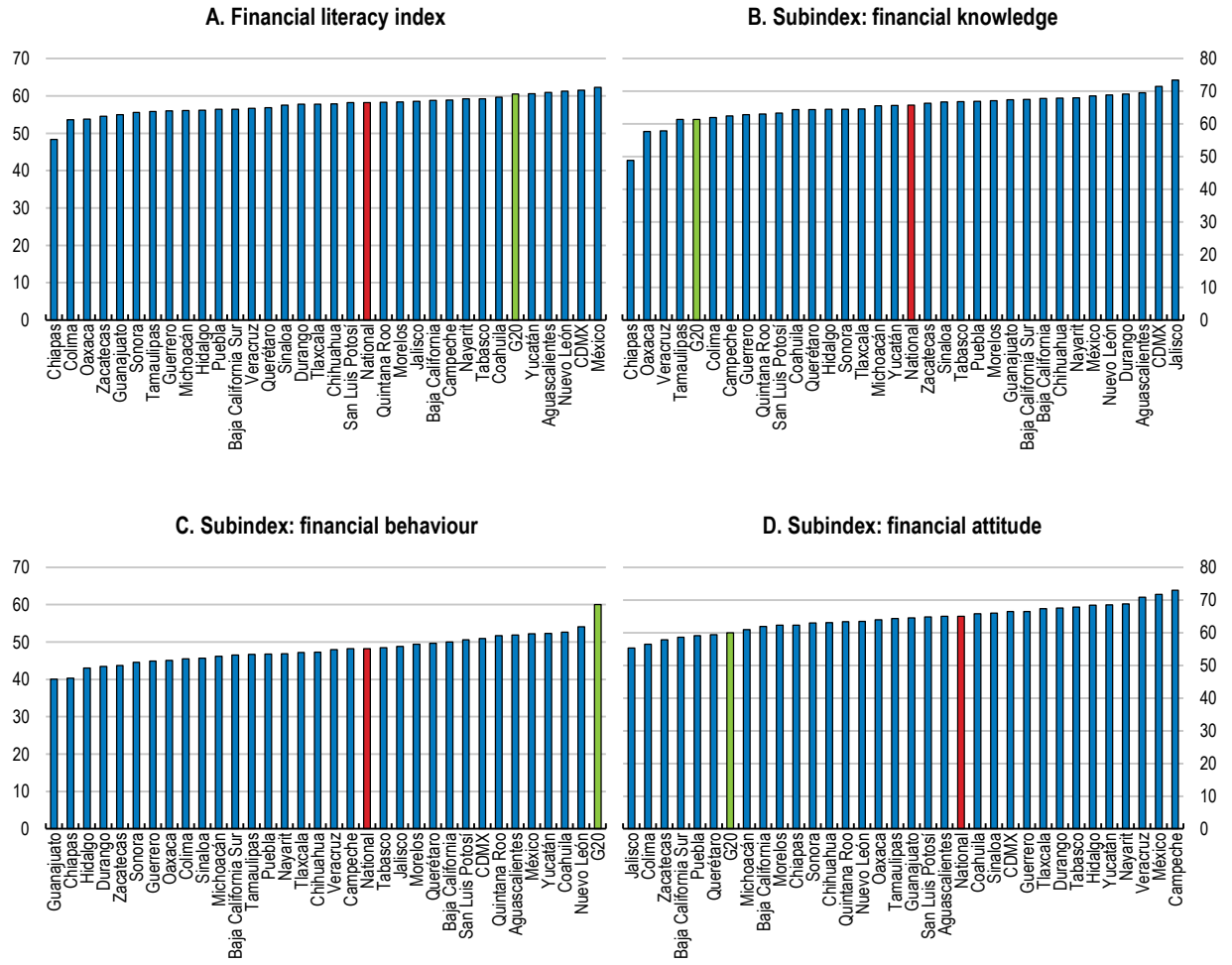
Programs of financial education should target low-income adults who tend to have a lower level of financial literacy. The gap in financial literacy between low-income beneficiaries of social programs and the national average is large. Increasing the initiatives combining access to social programmes with enrolment into a financial education programme would be a targeted way to close financial education gaps.

Financial education should also be taught in schools to provide younger generations with sound financial literacy, following the example of countries such as Peru, Estonia and Australia. In Peru, financial education is compulsory for students between 4 to 14 years, and students attending these courses have a higher degree of financial literacy (Frisancho, 2020[55]). Financial education in younger generations is important as they will require to save more along their lives given their relatively higher life expectancy and the transition from a defined benefit pension scheme to a defined contribution. In Estonia, financial literacy is considered an essential life skill and is part of the school program in both primary and basic schools, including activities in which children study entrepreneurship and make mini-companies. In Australia, financial education is part of the curriculum since an early age and until 16, and PISA results show that students in Australia have higher financial literacy scores that the average OECD country (OECD, 2021[56]). An initiative to include financial education courses at all compulsory education levels is being currently developed. The involvement of financial intermediaries and fintechs could further contribute to the diffusion of financial capabilities among the population (Box 4).

Mistrust of financial products is still high in rural areas, where consumers prefer informal financial products (i2i-CNBV, 2019[57]) and is a barrier to financial inclusion. A 2019 survey held in the state of Puebla reported that while one third of the respondents trusted informal financial products only around a fifth of them trusted formal products. To build up trust and effectively promote financial products within vulnerable groups, a personalised approach, exploiting the specific features of the underlying community network, is more likely to render positive results**.** The support of local leaders to a government initiative was very effective in promoting the adoption of mobile banking among women in rural areas in Peru (Brañas-Garza, Kovarik and Rascón-Ramirez, 2021[58]).

To increase the diffusion of formal financial instruments a better communication policy is also necessary to promote trust in financial markets both by increasing consumer awareness of existing financial consumer protection and by reducing the cost that potential users face in gathering information about the characteristics of financial products available in the market. In Mexico exist several tools to easily access financial information and ease comparison among financial products. For example, the Central Bank has developed a digital tool to compare costs of several types of credit products (credit card, mortgages, car, and personal and payroll credit) among financial institutions. The National Commission of the Retirement Savings System (*Comisión Nacional del Sistema de Ahorro para el Retiro*, Consar) provides a tool to compare pension funds (Seifores and Afores); the National Commission for the Protection and Defence of Users of Financial Services (*Comisión Nacional para la Protección y Defensa de los Usuarios de Servicios Financieros*, Condusef) provides a tool to compare saving and credit products; and the Office of the Federal Prosecutor for the Consumer (*Procuraduría Federal del Consumidor*, Profeco) devised a free digital tool to compare the cost of sending remittances. However, consumers rarely use these tools. Only 29% of the adult population who in 2018 contracted a bank account, an insurance or a credit compared among alternative financial products before purchasing one. This is far below the best performing G20 countries, such as Indonesia (83%) or France (78%). Also, few adults are aware of the legal instruments that can be used to complain in case of issues with financial products, only 25% of adults is aware that bank deposits enjoy public protection, and even less are aware of the existence of zero-commission banking account.

Figure 17. Mexico needs to strengthen financial literacy



Note: Financial literacy is defined as "the combination of awareness, knowledge, skills, attitude and behaviours necessary to make sound financial decisions and ultimately achieve individual financial wellbeing". The index is based on 2018 national survey on financial inclusion (Encuesta Nacional de Inclusión Financiera) and is built according to the methodology developed by the 2015 OECD/INFE Toolkit for financial literacy and financial inclusion. The index measures core financial competencies accounting for the aspects of knowledge, behaviours and attitudes that form the basis of sound financial decisions that benefit an individual. Financial behaviour includes financial control, that is the ability to respect a budget and paying debt on time, and financial resilience, which captures the attitude to voluntary savings and comparison of financial products for decision-making. Financial knowledge includes the assimilation of basic financial concepts. Financial attitude concerns the ability of individuals to do future financial planning.
Source: CNBV, SHCP 2019.

StatLink https://stat.link/2qef0u

Box 4. Good practices for increasing customers' financial literacy

Public and private sector may both contribute to improve financial literacy, which is especially important for low-income customers in emerging markets for whom financial services may be unfamiliar.

There are more than 70 case studies of digital initiatives and tools to support financial literacy that have been designed or already implemented by public authorities in more than 40 OECD/INFE members, recognising the potential of digitalisation for helping to meet the financial literacy needs of the general population and vulnerable target audiences (OECD 2021, OECD/INFE 2021(forthcoming)).

In Australia, the Australian Securities and Investments Commission created in 2011 a public website (moneysmart) offering several tools to support financial literacy, including the possibility of contacting a financial counsellors. In Brazil, the public website "Minha Vida Financeira "(my financial life) run by the Central Bank offers several digital programmes promoting financial literacy. In Chile, the Financial Market Commission (Comisión para el Mercado Financiero) established in 2019 a public website (Educa) that provides citizens with information on several financial areas (investment, insurance, banking) and products and financial legislation. In Mexico, the Central Bank, among other initiatives, launched in 2020 the online courses platform "Banxico Forma" targeted to children, youth and adults where they can learn about economic-financial decision making, the role of money in society and the functions of the Central Bank, using innovative methods such as escape rooms and gamification to encourage learning.

In the private sector, using insights from behavioural economics, banks in many countries have designed products to help customers use financial products effectively and develop healthy financial habits. The most widespread practices include using artificial intelligence chatbot to encourage vulnerable customers to use financial products more effectively; introducing incentives to increase savings such as lotteries; offering financial products that provide access to credit to informal workers and SMEs.

In Colombia, a financial institution launched a mobile based account targeting low-income rural customers employed in the informal sector. The account provides savings, small credit and transfers services, and integrate an artificial intelligence chatbot that sends text messages to encourage vulnerable customers to use financial products more effectively.

In South Africa, customers of a banking group may enter into a monthly lottery if they maintain a minimum balance in their account over the month. When the balance is above a certain threshold, the remuneration rate of the account increases and account maintenance fees are no longer required, thus providing an economic incentive for saving. The possibility of winning works as a positive reinforcement of savings behaviour.

In India, innovative banking products target SMEs with no formal income documentation and no credit history. After a one-time cash flow assessment operated by a loan officer, eligible customers are offered a credit and a credit literacy module that informs them about the terms of the loan, the consequences of delinquency, and how their repayment behaviour would affect their possibility of accessing formal credit in the future. SMEs can benefit from lower interest rates than from informal sources and receive timely nudges and reminders to help them stick to their payment schedule.

A credit cooperative in Mexico provides payroll loans with an automated savings option. Loan repayments and savings are automatically debited from the customers' payroll, so that customers do not have the opportunity to spend the savings unless they make the extra step of withdrawing funds from the account. Initial results indicate that this mechanism contributed to increase savings.

Source: Kelly, S., D. Ferenzy and A. McGrath (2018), "Banking sector approaches to customer engagement and capability", Center for Financial Inclusion, Mainstreaming Financial Inclusion best practice series. OECD (2021), Digital delivery of financial education: design and practice. OECD Publishing, Paris.

Embracing digitalisation is key to promote digital financial markets

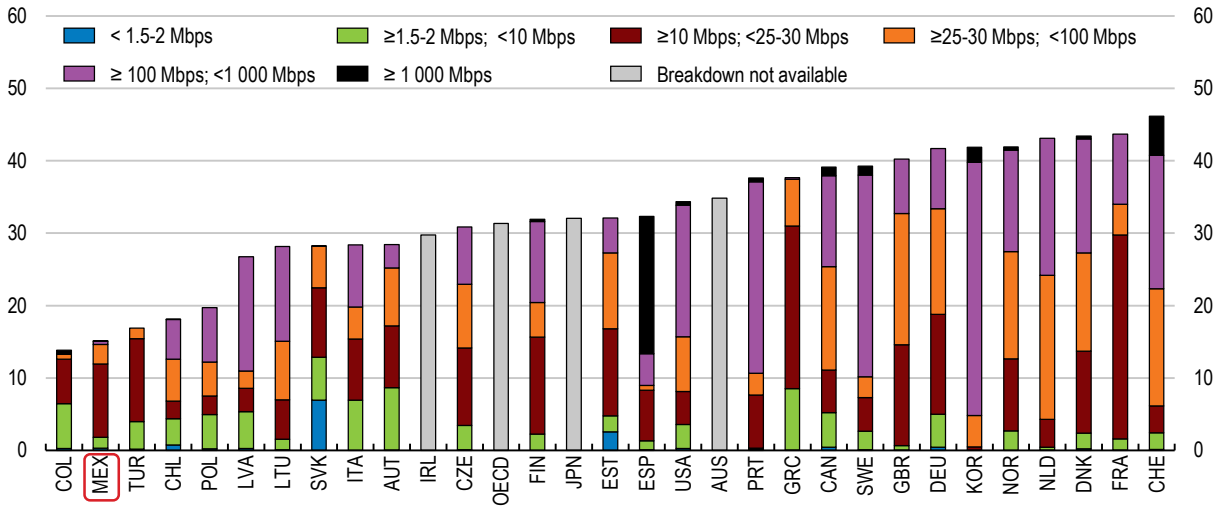
An effective diffusion of digital financial services requires a robust and broad digital infrastructure, adequate regulation to promote innovations and competition, and a broad use of digital technologies. An adequate level of financial and digital skills must then be sufficiently widespread among the population, as well as trust in financial institutions.

The digital infrastructure coverage is improving but still too few have access to it

Mexico ranks low in international comparison in access to digital infrastructure. The number of fixed broadband subscriptions per 100 inhabitants is well below the average OECD country, and most subscriptions feature a slow Internet download speed (below 25 megabits per second) (Figure 18) and are expensive (Figure 19, Panel A). Mexico performs better in access to mobile broadband, with a number of subscriptions around 20% below that of the average OECD country (Figure 20) and costs that are in line with the target set by the United Nation Commission on broadband connectivity for 2025 (a cost of accessing 4G mobile broadband services of 1 Gigabyte of around 2% of the average per-capita income) (Figure 19, Panel B).

Figure 18. Access to fixed broadband lags

Fixed broadband subscriptions per 100 inhabitants, by speed tiers, June 2019

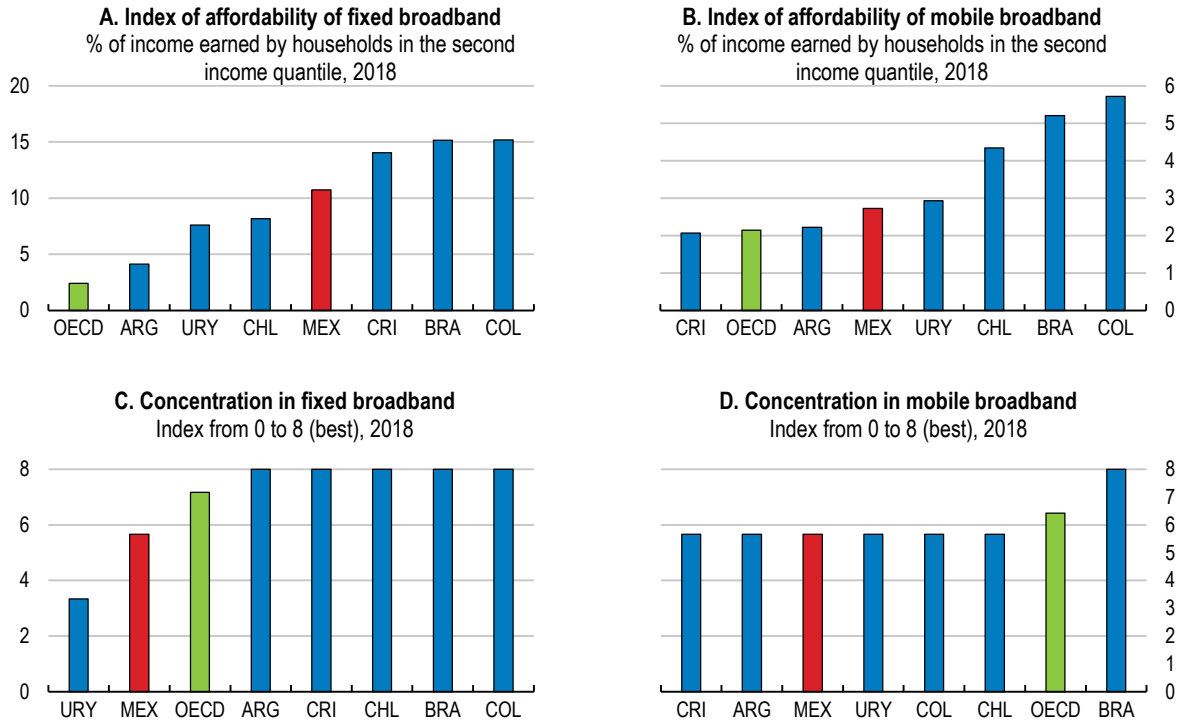


Note: Mbps = megabits per second.
Source: OECD Broadband Portal (database).

StatLink https://stat.link/wl0ibn

The 2014 reform of the telecommunications market improved access to mobile broadband and spurred competition, promoted investment, increased access and improved the quality of mobile services. The drop in the price of mobile connectivity has benefited particularly low-income households (Ennis, Gonzaga and Pike, 2017[59]) and regions lagging in connectivity. This illustrates the benefits of opening up markets by favouring the entry of new providers. It would be desirable that a similar improvement in prices extends to the fixed broadband market, where prices are still much higher than in the average OECD country.

Figure 19. Fixed broadband subscriptions are expensive



Note: Panel A and B; The index of affordability of fixed broadband services is the monthly cost of a subscription to a fixed broadband service of 2 Mbps of speed as a share of the average income of an household in the second quintile of the income distribution. The index of affordability of mobile broadband services is the monthly cost of a subscription to a mobile broadband service of 1 GB of data as a share of the average income of a household in the second quintile of the income distribution.
Source: Interamerican Development Bank DigiLAC Indicators.

StatLink https://stat.link/w1zr5q

Two programmes in the National Development Plan 2019-24 aim at extending coverage and use of the Internet infrastructure. The “Programa de Cobertura Social 2021-21” aims at setting up telecommunication networks (broadband and internet) in remote areas, predominantly in South-East states (Chiapas, Oaxaca, Veracruz and Guerrero). So far, it has extended internet coverage to around one million people, increasing the number of Internet users by 600 thousand. The programme “Internet para todos” aims at extending the coverage of the public digital infrastructure from the current 70% to the whole country, addressing underserved areas also providing internet services through the state owned enterprise ”CFE Telecomunicaciones e internet para todos” whenever private operators would not. The programme also includes subsidies and loans to SMEs that would invest in infrastructures to provide Internet access to final consumers. In September the National Digital Strategy 2021-24 has been announced, whose objectives include strengthening the process of digitalisation of the public sector and reducing regional gaps in digital infrastructures, also by extending internet infrastructure throughout the country as to provide universal access to digital technology. It also promotes free connectivity in public spaces.

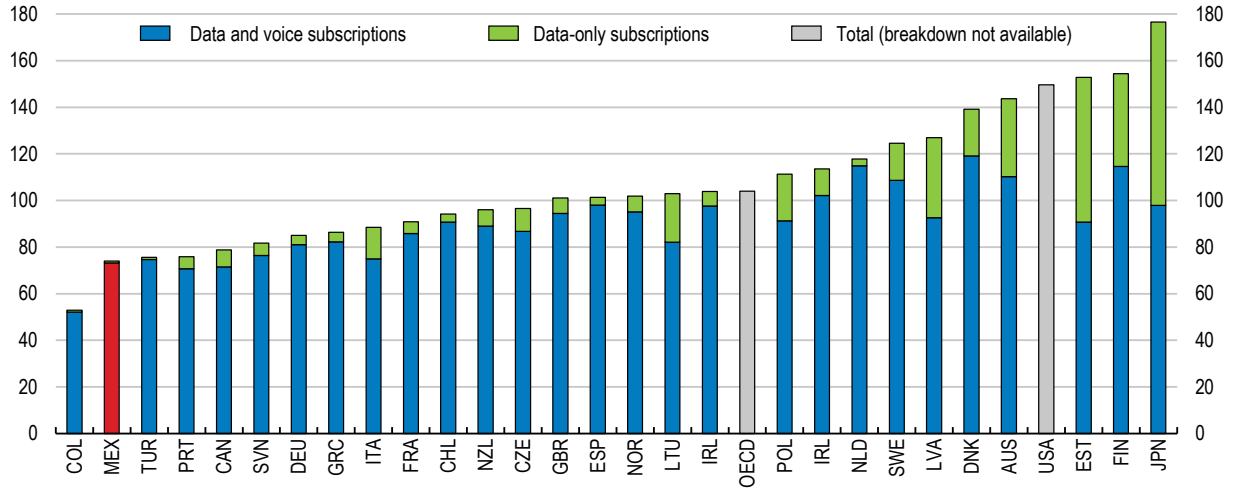
Other than extending the coverage of its digital infrastructure, Mexico should incentivise investment that raises the connectivity speed of the fixed broadband and the development of a mobile 5G infrastructure. Enhancing regulations on the sharing of passive infrastructures – non-electronic infrastructure such as powers poles and ducts - that represent a large part of the cost of building telecommunication networks and often are a barrier for new entrants, would help achieve this goal (Martínez Garza Fernández, Iglesias Rodriguez and García Zaballos, 2020[60]). The deployment of an IT system that provides all operators with information on the availability of passive infrastructure and supports the process for requesting its use is a

key tool for its efficient use. In Germany, a nationwide infrastructure atlas was created in 2012 by the German regulatory agency to provide operators with information about the location of all relevant infrastructure. This allows operators involved in broadband expansion projects to easily identify opportunities for a joint use of the existing infrastructure to negotiate with their owners. In Japan, network infrastructures inside tunnels of railroads, roads and subways provide an example of infrastructure sharing. Since 1994, they are built by the Japan Mobile Communications Infrastructure Association, whose members, mostly mobile network operators, then share its use.

Further development of digital government has the potential to improve the range and quality of public services, thus also increasing trust in government. In Mexico only 25% of the population used internet to interact with public authorities in 2019 (OECD, 2020[61]). The experience of Estonia and South Korea in successfully expanding digital government may be valuable. Estonia's success is based on the widespread use of electronic identification cards allowing citizens to digitally identify themselves and sign documents or actions. The creation of a national digital identification system, to uniquely identify citizens, and of the Population Register, the main government data repository, were a precondition for the diffusion of digital identification. The development of an adequate legal framework for data protection, privacy and security complemented the e-government ecosystem in Estonia. A widespread diffusion of digital identity with trusted identification, digital signature and a central infrastructure development contributed to increase the share of individuals using internet to interact with public authorities from 50% in 2009 to 80% in 2019. South Korea started promoting digital government since the early 2000s and in recent years has been among the top performers in the UN the e-government development index. The success of South Korea's strategy was based on a strong and continuous political commitment that ensured financial resources to develop the necessary ICT infrastructures, such as an internet superhighway network and a mobile broadband, and a national digital identification system through which firms and citizenships can easily and timely access public services.

Figure 20. The number of mobile broadband subscriptions is low

Mobile broadband subscriptions per 100 inhabitants, June 2019



Source: OECD Broadband Portal (database).

StatLink https://stat.link/hdb862

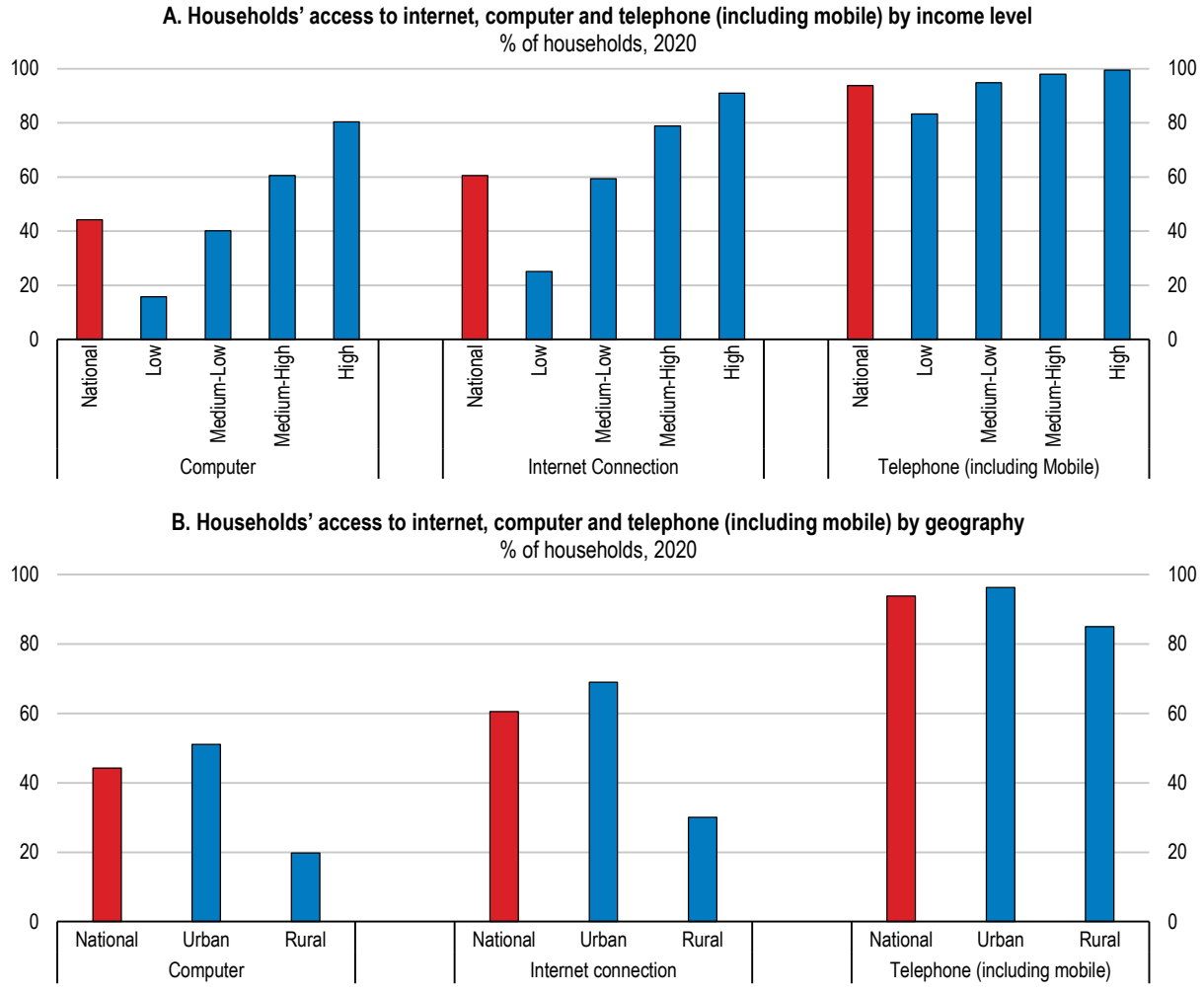
The diffusion of digital technology lags behind

There are large education, age and income gaps in households' access to digital technologies

Having access to and using digital technologies is far less common among households living in rural areas and among low-income households (Figure 21). There is also a wider divide in internet use related to age and educational attainment than in most other OECD countries (Figure 22, Panels A and B). Younger generations (aged between 16 and 24 year old) in Mexico use the Internet on average more than twice as much as older adults (aged between 55 and 74 year old), and only less than 30% of older adults in Mexico use Internet at all, against an OECD average of 60%. Policy efforts to improve connectivity and affordability in most deprived regions and municipalities and among low-income households are needed.

The education gap in internet use among younger adults (Figure 22, Panel A) highlights the risk of a persistent digital divide that might strengthen socio-economic disparities and enlarge inequalities (OECD, 2020[61]). People with higher education not only have greater access to the Internet but also use it intensively (Figure 23), gaining further possibilities of expanding their knowledge and job opportunities (following online course, finding better jobs) with respect to that part of the population with lower education attainment and no access to internet.

Figure 21. Low-income and rural households have low access to digital technology

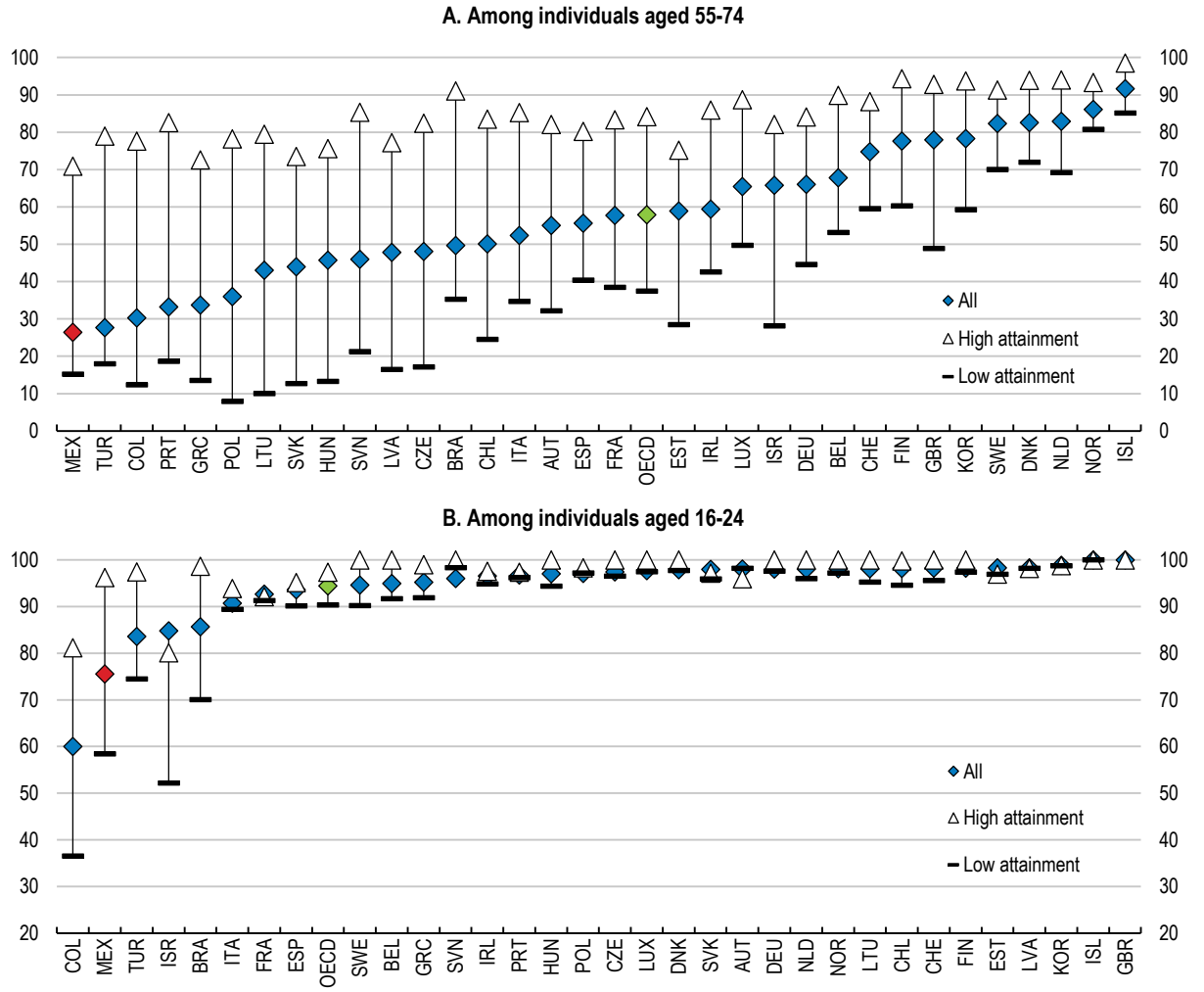


Source: INEGI. Encuesta Nacional sobre Disponibilidad y Uso de TIC en Hogares, ENDUTIH 2020.

StatLink https://stat.link/2yoh4u

Figure 22. The digital divide in internet use is large in Mexico

Percentage of the population by age and educational attainment, 2019 or latest available year

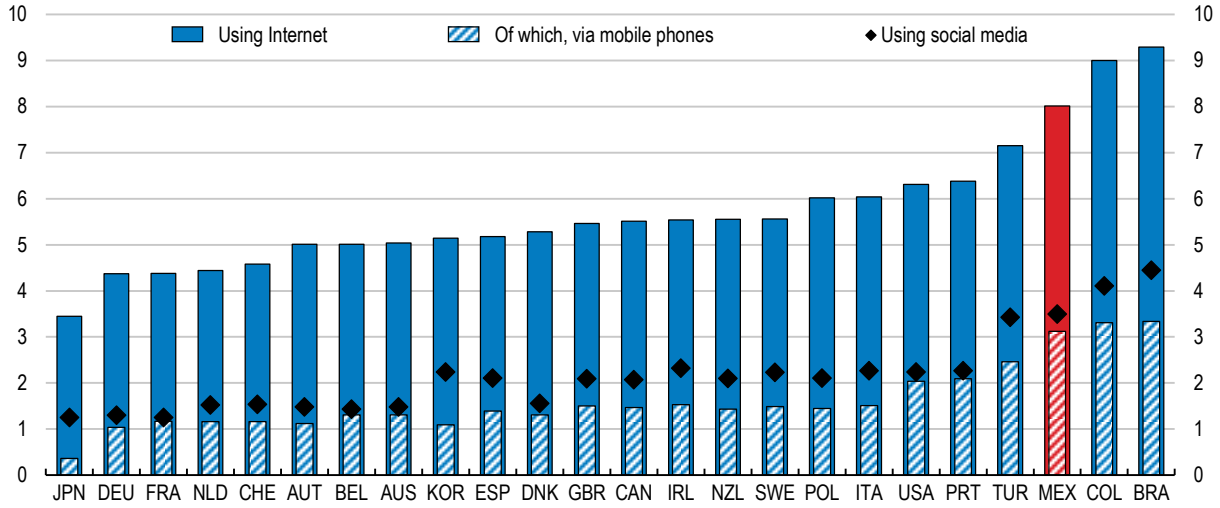


Note: Frequent Internet use is by individuals using the Internet every day or almost every day. OECD is an unweighted average of countries with available data. Panel B: data for Israel refer to individuals aged 20-24.
Source: OECD Digital Economy Outlook 2020.

StatLink https://stat.link/lpod3a

Figure 23. Average daily time spent using the Internet and social media

Number of hours, 2019



Source: OECD Digital Economy Outlook 2020.

StatLink https://stat.link/4gt6bs

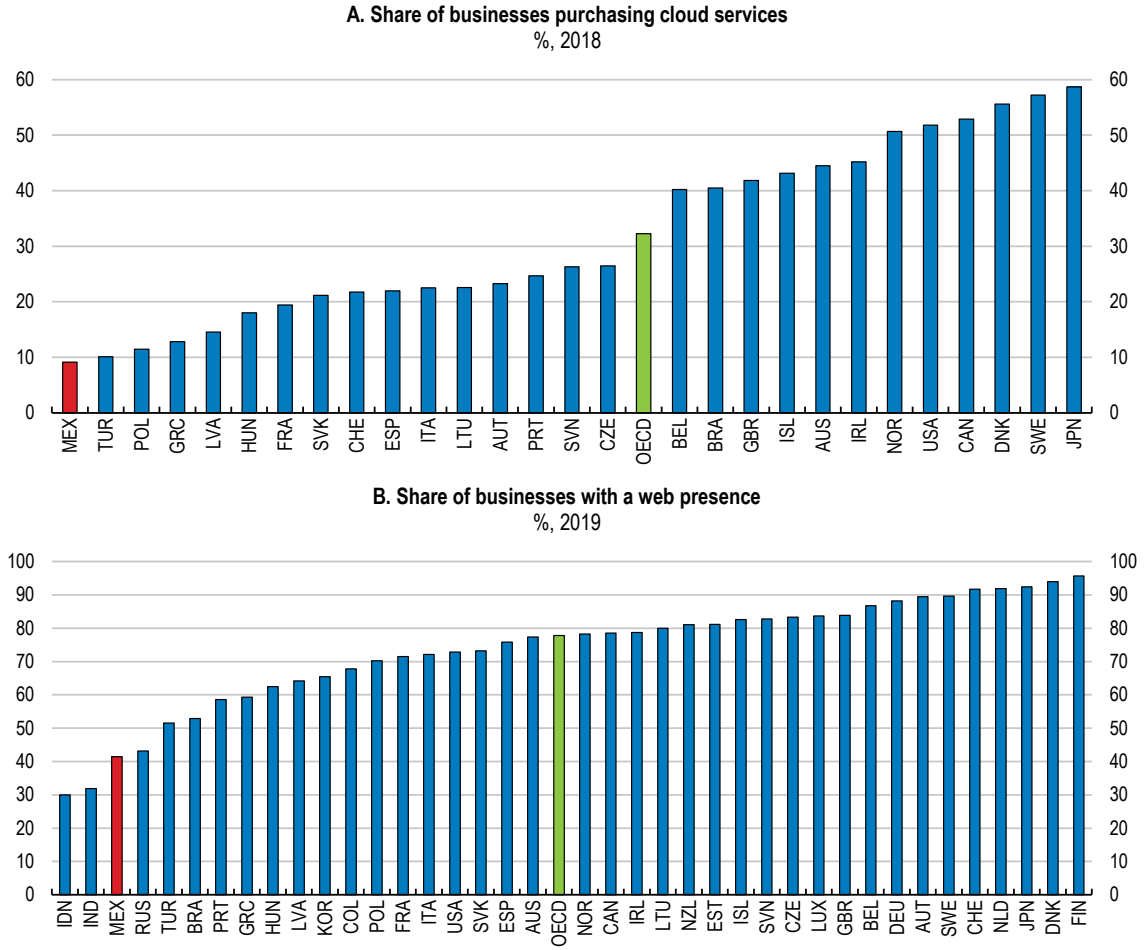
The business sector lags behind in exploiting the potential of digitalisation

Only about 9% of Mexican businesses purchased cloud services against 32% in the average OECD country (Figure 24, Panel A), the share of Mexican businesses with a web presence is well below other OECD countries (Figure 24, Panel B), and the penetration of key technologies for the development of the internet of things is one of the lowest among OECD countries (Figure 25). Still too few firms accept digital payments - only 35% in 2018, though in the retail sector the share reaches 57% (ENAFIN, 2018[62]) - thus contributing to a low diffusion of online purchases, which is below peers in the regions such as Chile and Brazil (Figure 26).

The COVID-19 pandemic has accelerated the adoption of digital tools by Mexican firms and recent policy initiatives have promoted the digitalisation of business, especially of micro and small enterprises. The programme "*#Le Atiendo por internet*" aims at helping two millions of micro and small businesses to start selling online. During the pandemic, the digital platforms "*Mercado Solidario*" and "MYPyMES.mx" were created to help small enterprises continue their activities online. Depending on the effectiveness of these policies in the near future, further policy efforts might be warranted to close the gap with OECD countries and regional peers.

The slow digitalisation of firms in Mexico is mirrored by a low average ICT task intensity of jobs in international comparison (Figure 27), even if there are large regional disparities. As international evidence shows that jobs are increasingly ICT-task intensive (OECD, 2020[61]), this calls for further efforts to engage in policies that favour a flexible learning environment to face the rapid pace of change at work brought about by digitalisation. Learning systems should be both lifelong (accessible to all at any age) and life-wide (promote and recognise learning acquired outside of formal education systems) (OECD, 2019[63]). Such policies would also reduce the risk of social tensions, as historically new technology adoption brought about a fear of changes in the society (Mokyr, Vickers and Ziebarth, 2015[64]) and disruption in the labour markets (Acemoglu, 2002[65]).

Figure 24. The Mexican business sector lags in adopting digital technologies

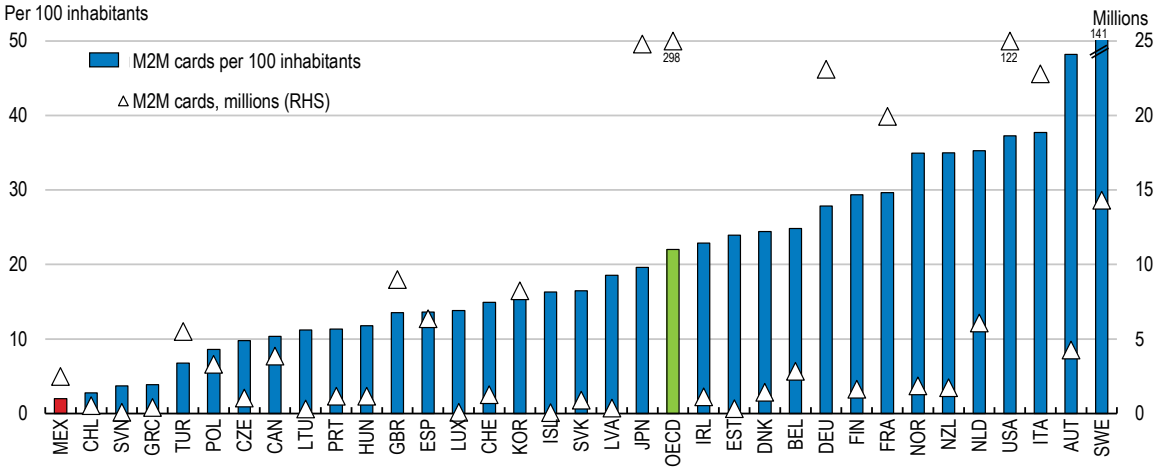


Source: OECD Digital Economy Outlook 2020.

StatLink https://stat.link/jizs7k

Figure 25. Mexico ranks last in the development of Internet of Things technology

M2M/embedded mobile cellular subscriptions, June 2019

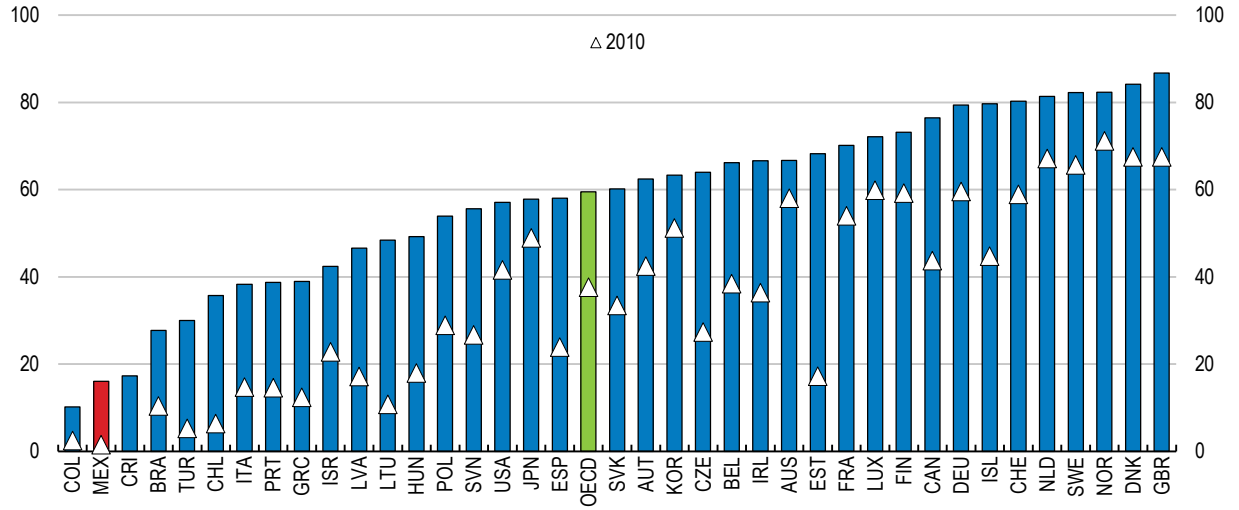


Note: M2M = machine to machine. The number of M2M sim cards measures the penetration of a technology that is fundamental for the development of the Internet of Things.
Source: OECD Digital Economy Outlook 2020.

StatLink https://stat.link/rpqxeu

Figure 26. Online purchases are low

Individuals having ordered goods or services on line, %, 2019 or latest year

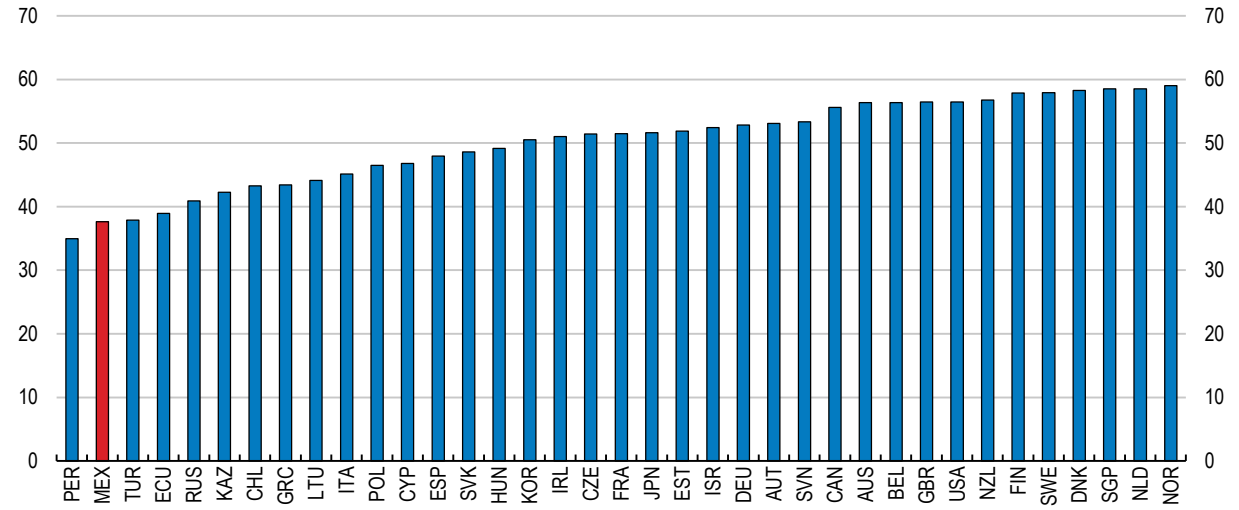


Note: Data for Mexico refer to 2018. OECD is an unweighted average of all member countries with available data.
Source: OECD Digital Economy Outlook 2020.

StatLink https://stat.link/q94u3h

Figure 27. Mexico ranks low in ICT task intensity

Score points, 2018



Note: The ICT task intensity of a person's job describes the frequency with which they undertake ICT tasks at work. The ICT tasks considered relate to the frequency of: using word processing and spreadsheet software; using programming language; making transactions via the Internet (banking, selling/buying); using e-mails and the Internet; using ICT for real-time discussions; reading and composing letters, emails and, memos; and use of computers on the job.
Source: Survey of adult skills (PIAAC) 2018, OECD calculations.

StatLink https://stat.link/r912qx

Accelerating the development of digital financial markets

Digital payments are slowly advancing but remain low

The use of digital payments has been increasing in Mexico, but remains low in international comparison. In 2017, only one third of adults engaged in at least one digital payment in Mexico, against almost two-thirds in Chile. Since then, the share of adults using a debit or a credit card has increased, but their use remains limited: the number of credit card transaction per adult is very low in international comparison and only 55% of credit card holders used it in 2019 (CNBV, 2020[66]).

The use of cash remains dominant in Mexico. Most adults who are financially included use cash for small (90%) and large (78%) payments (ENIF, 2018[33]). Preference for cash and, to a lesser extent, mistrust in the financial sector are the main reasons for not using a debit card (ENIF, 2018[33]). Older adults and individuals living in rural areas are also far less likely to use digital payments, which points to an important digital and financial education gap across generations and between rural and urban areas (ENIF, 2018[33]). Regional gaps are also relevant, with Ciudad de Mexico, Quintana Roo and in general Northern states largely outperforming the other states in number of digital transactions (Figure 13, Panel A). The Covid-19 pandemic and the associated confinement measures triggered a shift towards online purchases and digital payments. This creates a good momentum for the digitalisation of payments that could be reinforced by additional policy efforts.

The diffusion of digital payments is a priority to effectively promote financial inclusion and inclusive growth as digital payments favour the access to other financial services (Demirguc-Kunt, Klapper and Singer, 2017[17]). Digital payments also lower the cost, and increase the speed, of making and receiving payments. This is especially relevant in rural areas where distances to a government office, bank branch or money transfer operator may be large, which further highlights the need for extending digital infrastructure to rural underserved areas. They reduce security risks associated to handling cash, helping to reduce the incidence of crime (Wright et al., 2014[67]) and allow for direct payment of government transfers, thus increasing transparency and reducing the risk of bribes (Muralidharan, Niehaus and Sukhtankar, 2014[68]). They may contribute to reduce the gender gap by granting women control over the transfers received in their account, thus reducing the possibility of a kinship tax (Morawczynski and Pickens, 2009[69]).

Digital payments may also help build a credit record, thus facilitating households' access to credit and allowing financial institutions a better credit risk assessment (Cook and McKay, 2015[70]). This is especially relevant in large informal economies like Mexico where the use of cash is more widespread (GPFI, 2018[71]). Digitalisation has the potential to grant firms and individuals that operate in the informal sector a greater chance to access formal financial products, thus boosting financial inclusion. Moreover, digital financial services might also reduce informality in the long run by relaxing credit constraints (Capasso and Jappelli, 2013[72]) and boosting productivity (Beck and Hoseini, 2014[73]).

Promoting competition in the payment card market

The Central Bank and the National Banking and Securities Commission (*Comisión Nacional Bancaria de Valores*, CNBV) should modify secondary regulation to remove regulatory barriers that prevent competition in the Mexican payment card market, as signalled by the Mexican competition authority (COFECE, 2020[74]). Current regulation prevents the entry of competitors to the unique domestic digital payment system (Box 5) because of uncertainty about what rules, operational standards and costs would apply to digital payments involving a buyer (cardholder) and a seller (business) using different payment systems (cross-system transaction). In the absence of a clear regulation on cross-system transactions, the potential risk is that the network administrator of the dominant domestic payment system would impose its rules and costs as to prevent price competition. This risk deters the entry of new players (COFECE, 2020[74]) in the payment card market where the overall degree of concentration remains high, with the five largest banks accounting for about 80% of the market (Bátiz-Zuk and Lara Sánchez, 2021[23]).

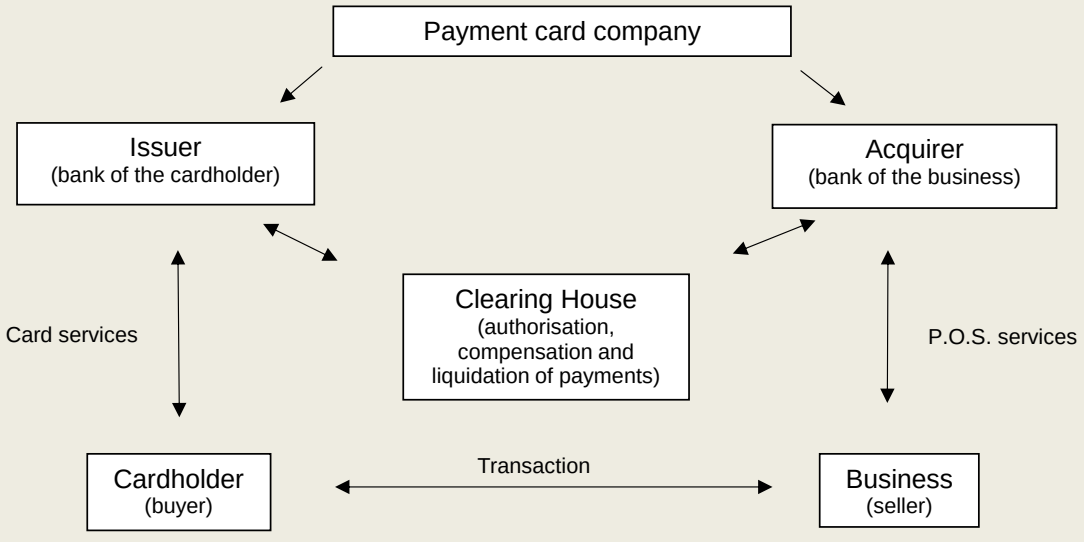
The authorisation process of a new clearing house participating in the digital payment system should be amended to guarantee impartiality. Currently, such authorisation is conditional on the technical approval of incumbent clearing houses, which are required to ensure interoperability among different payment systems. This technical approval, however, should be subject to a time limit, which is currently absent, thus provoking an excessively lengthy authorisation procedure. Also, the liquidity guarantee of digital payment transactions should be shifted from the company to the clearing house, who holds better information to evaluate the counterpart risk, to incentivise competition.

Vertical integration between banks participating to the digital payment system (issuers or acquirers) and the clearing house should be discouraged. The use of data collected by the clearing house grants the banks that hold a control participation in the clearing house an anticompetitive information advantage in marketing their products. The Competition authority has recently suggested that such banks should sell shares corresponding to at least 51% of the capital of the clearing house. To avoid anticompetitive behaviours, the bylaws of firms operating in the digital payment market (issuers, acquirers or a different clearing house) should ban the hiring of former executive staff of a clearing house (COFECE 2020).

Box 5. The payment card market in Mexico

The payment cards market is a two-sided market where a payment card company acts as a platform by selling card services to cardholders (buyers) and, through a point-of-sale terminal (POS), to businesses (sellers). The card payment system can be closed or open. In the closed system the credit card company directly provides POS services to sellers and issues cards to buyers, without intermediaries. In the open system, instead, a payment card company provides card and POS services to buyers and sellers indirectly through banks or other financial intermediaries (Figure 28). Accordingly, cardholders buy card services from a bank (issuer) and businesses buy POS services from another bank (acquirer). In an open card payment system, when a cardholder buys a product from a seller, the transaction is cleared at the level of the two banks by a clearing house, which is responsible of the authentication, authorisation, compensation and liquidation of any card payment.

Figure 28. What does an open card payment system look like?



In Mexico there is a closed credit card payment system, which is operated by American Express, and a single domestic open payment system where two other card payment companies (VISA and MasterCard) operate. The rules and operational standards of the domestic payment system are set by the Mexican Bank Association (*Asociación de Bancos de México*). So far, four clearing houses have

been authorised to operate in the domestic card payment system: Prosa (owned by Banorte, Santander, HSBC and Scotiabank), E-Global (owned by BBVA and CITIBANAMEX), Visa Mexico and MasterCard Mexico. However, so far Visa Mexico and MasterCard Mexico have not yet become operational.

Realising FinTech's potential

Fintech has the potential to accelerate the development of digital payments, boost financial inclusion and increase competition in the financial system. Such potential remains so far unrealised. Mexico was a pioneer with the Fintech law in 2018, however, its full effects have not yet materialised since a slow authorisation process of new fintech firms was experienced in part related to a natural learning curve experienced during the initial phase of implementation of the law. However, the aforementioned challenges are expected to dissipate over time. As of mid- October 2021, out of the around 76 fintech firms who demanded for operating in the digital payment and crowdfunding markets, 17 have received full authorisation and 37 a conditional authorisation subject to providing missing documentations or complementary information, and will get the full status once complied with such requirements.

Financial innovations appear still insufficient to promote the necessary level of investment that would ensure adequate security and efficiency in the digital payment system. Technical disruptions that limit the availability of digital payments are frequent and the number of digital frauds is increasing, with online financial frauds representing 70% of all financial frauds in the first quarter of 2021. This has negative repercussions on the level of trust in digital payments and their diffusion. Temporary regulatory sandboxes for fintechs, allowed by the Fintech Law, have the potential to promote financial innovations (OECD, 2020[75]) by enabling fintechs to experiment with new financial products and services temporarily and in a controlled environment. The access could become permanent conditional on the absence of security issues following a congruent observational period. Promoting financial innovations would multiply the potential of fintech-bank relationship that have proved beneficial for financial inclusion in several countries (Box 6).

Box 6. Fintech-bank partnerships

Fintech-bank partnership may increase financial inclusion by providing low-income consumers affordable financial services (credit and savings, person-to-person transactions, business-to-person transactions) through technologies including biometric identification, on-boarding, cloud computing and open application programming interfaces (APIs) (to facilitate integration of IT systems within and between institutions, and across sectors, thus promoting competition and transparency) and distributed ledger technology to make verification and completing transactions faster and easier. These partnerships are also mutually beneficial. Banks benefit from the possibility of offering new products, reaching a larger customer base and improving product efficiency and customer experience. Fintechs get access to capital and scale their technology.

One of the fintech areas with great potential for financial inclusion is the deployment of artificial intelligence (AI) models in lending, to reduce the cost of credit underwriting and facilitate the extension of credit to 'thin file' clients, potentially promoting financial inclusion (OECD, 2021). The use of AI can create efficiencies in data processing for the assessment of creditworthiness of prospective borrowers, enhance the underwriting decision-making process and improve the lending portfolio management. It can also allow for the provision of credit ratings to 'unscored' clients with limited credit history, supporting the financing of the real economy (SMEs) and potentially promoting financial inclusion of underbanked populations (OECD, 2021). AI techniques and models are frequently outsourced to third-party fintechs, except in the case of large financial institutions with in-house capabilities to build such products.

Partnership aimed at reaching unbanked segments of the population.

Fintechs can help financial institutions reaching unbanked segments of the population via on-boarding, as digital technologies overcome physical barriers and long distances and reduce the cost of acquiring and serving low-income segments of the population.

A bank-fintech partnership has extended insurance to 10 million customers in Africa and Asia through an IT platform designed to serve large volumes at lower costs. In South Africa, a bank-fintech partnership allowed 17 million beneficiaries of social grants to open a bank account and receive a debit card in 10 minutes by accessing public locations (churches, town halls).

Partnership offering mobile payments platforms to existing customers in the lower market segment.

Bank-fintech partnerships in India offer customers a blockchain payment network to safely transfer money through a free mobile wallet. In Ghana, a bank-fintech partnership developed a mobile payments platform for underbanked merchants that allows customers to open digital wallets and perform functions such as monitoring their finances, paying bills, sending money, making online and in store payments.

Partnership collecting and using customer data to better assess creditworthiness and design new products.

Fintechs can provide tools that use multiple data sources to achieve a more comprehensive understanding of the risk of customers who have limited or absent documentation (thin-file). Limits to the transfer and use of data from banking institutions to the fintech, and vice versa, set by national regulations however, may limit the scope of such initiatives.

In Colombia, a bank-fintech partnership has improved credit assessment for thin-file customer. In Spain, a financial institution increased the approval rate of credit to file-thin customers up to 70-80% from 0-20%, by adopting a new credit scoring risk model based on psychometric data developed by a fintech.

In India, the partnership between a small finance bank and a fintech has led to important efficiency gains in reaching underserved micro and small firms through the development of on boarding technology. In four years, loan processing time was reduced by 40%, the number of loans processed per agent rose by 50% and the customer base expanded by 230%.

Partnership increasing customer engagement and product usage.

In Mexico and Colombia, a bank-fintech partnership developed a two-way SMS communication platform aimed to increase customers' use of financial services. The platform sends tailored text messages to customers to remind and nudge them to save and become active users of bank services.

Source: Kelly, S., D. Ferenzy and A. McGrath (2017), "How Financial Institutions and Fintechs Are Partnering for Inclusion: Lessons from the Frontlines", *Center for Financial Inclusion, Mainstreaming Financial Inclusion best practice series.*

Fostering the digital finance ecosystem

The Central Bank, within its general strategy to promote financial inclusion (Box 7), created the platform *Cobro Digital* (CoDi) to facilitate the diffusion of digital payment. CoDi may be used for online and physical transactions and without costs for the users. To be able to access it, users (sellers and buyers) must have a bank account in a financial institution adhering to CoDi. Buyers, also need a 3G smartphone. Despite the increasing number of digital payments passing through CoDi since its launch in November 2019, its diffusion appears limited by communication issues. Recent survey-based evidence shows that only 10% of fixed broadband internet users know about the existence of CoDi, and just around 2% of them have ever used it (IFT, 2021[76]). Moreover, the use of CoDi among vulnerable groups may be limited, as they are less likely to hold a bank account or own a 3G mobile. Adding the option of using digital wallet applications

within CoDi, possibly provided by fintechs, would increase the benefits from its use for consumers and facilitate its diffusion.

Mexico might increase the uptake of digital payments by exploiting the potential of digital instruments that are not dependent on bank accounts, as allowed by the 2018 Fintech Law. Cash-in cash-out (CICO) networks, that enable customers to convert cash into digital money, and vice versa, and to transfer it via mobile, proved to be very effective in promoting financial inclusion in Kenya. Within two years from its introduction, the CICO network M-pesa, became the dominant money transfer mechanism in Kenya, thanks to a widespread cellular network and the ability to transfer money instantly, securely and inexpensively through an extensive network of outlets (Mbiti and Weil, 2011[77]) where customers may deposit money in return for digital currency (e-float) by showing a valid identification. The digital currency can then be transferred via phone, even to recipients not registered in the network. By increasing the volume of money in circulation, the M-pesa promoted growth through the expansion of many small businesses (Haas, Plyler and Nagayaran, 2010[78]).

Recent policy initiatives should provide Mexico with a unique digital identity registry, which is currently missing in Mexico. The share of adults with an identity document in Mexico is 89% (Global Findex 2017), below Costa Rica, Brazil and Peru (98%) or Chile (99%). The Mexican identity registry (*Registro Nacional de Población*, RENAPO) reported that 0.8% of the Mexican population, mostly underage and indigenous population, lacked an official identity document (INEGI, 2015[79]). More importantly, the identity system was fragmented, with several institutions issuing each a different identity document, but without a coordination mechanism to centralise all the information. This has so far prevented the creation of a unique identification registry.

In 2020 the government created a digital identity document, to be used in all public administrations, and a digital National Population Registry, that should be operative within the next two years. The digital identity connected to a unique registry will boost the development of digital on boarding, which has the potential to speed up and reduce administrative burdens involved with contracting digital financial products, as well as reduce the probability of digital frauds and identity theft, thus increasing consumer protection. Developing digital on boarding would improve the process of identification and verification of new customers, making it easier for individual to open an account, simplifying documentation requirements, minimising the costs of creating an account remotely and facilitating the delivery of financial services.

An adequate regulatory framework is a further prerequisite for developing digital on boarding successfully. In 2020 the CNBV, also in reaction to social distancing measures implemented during the pandemics, simplified the regulation on digital on boarding and extended its scope, by including corporates, and its coverage, by allowing *sociedades financieras populares*, a non-profit deposit taking institutions, to use digital on-boarding. In September 2021 new regulation extends digital on-boarding to remotely open accounts, sign contracts and validate transactions to brokerage houses, investment funds, small banks and other non-banks deposit-taking institutions and credit cooperatives.

Policymakers should continue to promote open finance and further support data-sharing initiatives that would improve credit risks assessment and financial inclusion. In compliance with the 2018 FinTech law, a new regulation has established in 2020 procedures on data sharing among clearing houses. This is a positive step in favour of open banking. However, further interventions would be beneficial, such as establishing open platforms where pooling data relevant for credit assessment originating from different data repositories such as credit reporting service providers (CRSPs), court records, company registry, public utilities payments and collateral registry; public information such as tax filing, company registration and other government services could also be digitalised and made available. The minimum reporting threshold could be reduced or eliminated and credit information sharing made mandatory. Expanding the scope of data available for credit assessment would help to build credit history and adopt alternative indicators of credit worthiness that would benefit the most vulnerable individuals and firms, especially SMEs, with limited or no credit history (Box 6). In the future, the development of a biometric registry system

could make possible the creation of a single platform connecting all public institutions, thus greatly reducing administrative costs for businesses and citizenships.

The development of open finance would also greatly benefit from the creation of the unique identifier for individuals and unregistered MSMEs or company/legal registration number for registered MSMEs, as data from all providers could be easily linked to the same individual or MSMEs. However, authorities should also encourage transparency and disclosure of scoring methodologies of CRSPs that use alternative data to deal with the opaqueness over the use of alternative data.

Box 7. The strategy of the Central Bank to promote financial inclusion

The Central Bank of Mexico aims to promote transparency, efficiency and competition in the provision of financial services, while ensuring consumers protection. In carrying out its function of oversight over the financial system it strikes a balance between harnessing the opportunities provided by technological innovation to expand financial inclusion and limiting the risks for the stability of the financial system and the consumers represented by the introduction into financial markets of new products and new players. More generally, the strategy followed by the Central Bank in exerting its oversight over the area of digital financial services is summarised by the following principles:

1) Adopting the principle of “same activity, same risk same regulation”.

2) Enforcing interoperability and net neutrality in the offer of digital financial services.

3) Fostering competition and avoiding mergers among dominant players.

4) Ensuring operational continuity with large providers.

5) Achieving international coordination to address jurisdictional gaps.

6) Ensuring full customer protection.

7) Strengthening the standards for cybersecurity.

Boosting digital skills to facilitate diffusion of digital financial services

In Mexico there are still too few students with the skills to thrive in the digital era, as shown by an average PISA score in reading, math and science that is below the average OECD country (see chapter 1). Early disadvantage in acquiring foundation skills leads to further disadvantages when it comes to the acquisition of further skills and competencies later in life and policies should aim at a widespread diffusion of basic literacy and numeracy skills (OECD, 2020[80]). The acquisition of a good level of cognitive skills and a higher educational attainment appear to enable a more diverse and complex internet use (OECD, 2020[61]), including of digital financial tools.

Excessive cost of training and lack of time because of child care responsibilities are the two main barriers to access training for informal workers and non-workers, having prevented around half of them from engaging in training despite willing to do so (Box 8). Strengthening the child care network, as discussed in the 2022 Economic Survey of Mexico, would facilitate women’s uptake of training opportunities and help them to improve their digital skills. Vouchers, grants, stipends and scholarship targeting digital skill training can help to reduce or eliminate the direct and opportunity costs of skills training for informal workers. Drawing on OECD country experience in basic skills programmes, free digital skill programmes could be provided via specialised centres (as in Flanders in Belgium and Ontario in Canada) or through a system of vouchers which individuals may use in training centres of their choice (as in Vienna in Austria) (OECD, 2017[81]; OECD/ILO, 2019[82]; Palmer, 2020[83]).

Box 8. Has Mexico the right skills to embrace digitalisation?

The 2018 Survey of Adults Skills (OECD, 2019[63]) provides a framework to compare Mexico's relative performance in adults' proficiency in key cognitive skills (literacy, numeracy and problem solving), and on how these skills are used at home, at work and in the wider community. Less than 1% adults in Mexico achieves high proficiency in numeracy, literacy and 10% in problem solving, which is far below the performance of the average OECD country in each cognitive skill. (Table 1). Moreover, a large proportion of adults (around 39%) lacks very basic computer skills in Mexico.

Numeracy and literacy present the largest regional gaps in average proficiency (Figure 29), with Ciudad de Mexico and Northern states having the best performance.

Table 1. Few adults in Mexico have a high level of cognitive skills in comparison to the average OECD country

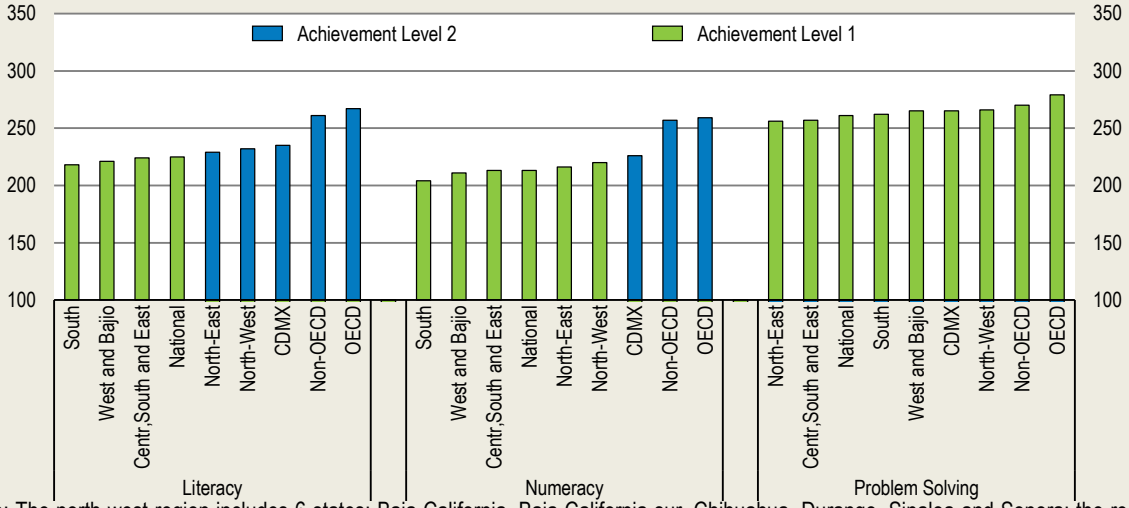
Proportion of adults (aged 16-65) achieving the two highest level of proficiency in numeracy, literacy and problem solving

	OECD	Mexico
Literacy	10%	0.8%
Numeracy	11%	0.7%
Problem Solving	30%	10%

Note: The two highest level of proficiency in numeracy and literacy are 4 and 5; in problem solving they are 2 and 3.
Source: OECD 2019, Mexico country note Survey of adults skills results.

Figure 29. Mexico has large regional gaps in cognitive skills

Proportion of adults (aged 16-65) achieving the two highest level of proficiency in numeracy, literacy and problem solving



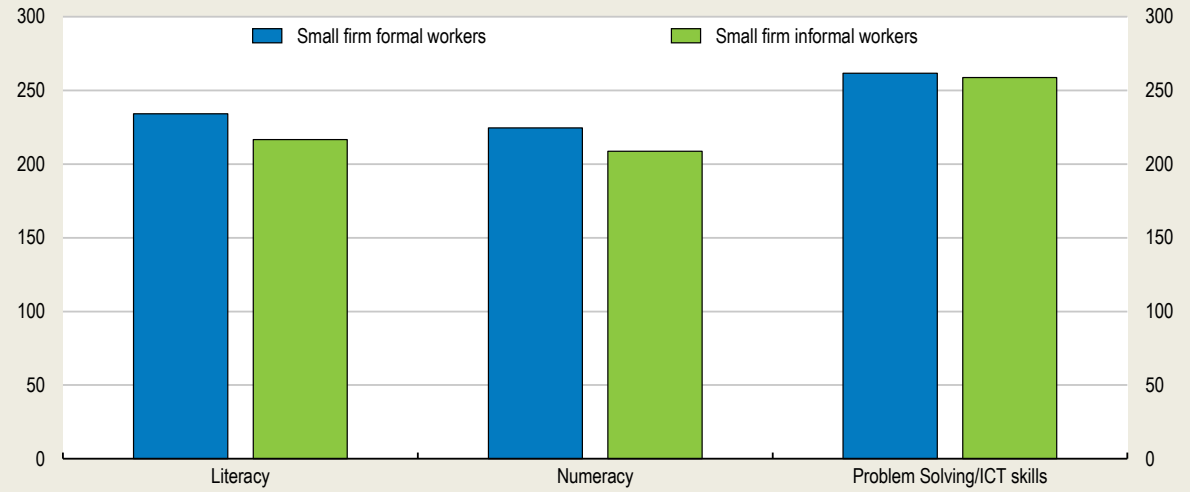
Note: The north-west region includes 6 states: Baja-California, Baja-California sur, Chihuahua, Durango, Sinaloa and Sonora; the region North-East includes 4 states: Cohauila, Nuevo Leon, San Luis Potosi and Tamaulipas; the region West and Bajio includes 8 states: Aguascalientes, Colima, Guanajuato, Jalisco, Michoacán, Nayarit, Queretaro and Zacatecas; the region of Centre, South and West includes 6 states: Hidalgo, Mexico, Morelos, Puebla, Tlaxcala and Veracruz; the South region includes 7 states: Campeche, Chiapas, Guerrero, Oaxaca, Quintana Roo, Tabasco and Yucatan. Ciudad de Mexico is considered as a region by itself. In the numeracy and literacy domain a score range [0-175] corresponds to an achievement level below 1; the score range [176 - 225] corresponds to an achievement level 1, the score range [226 - 275] corresponds to an achievement level 2, the score range 276 - 325] corresponds to an achievement level 3, the score range 326 - 375] corresponds to an achievement level 4, the score range [376 - 500] corresponds to the maximum achievement level 5. in the problem solving domain a score range [0-240] corresponds to an achievement level below 1, the score range [241 - 290] corresponds to an achievement level 1, the score range [291 - 340] corresponds to an achievement level 2, the score range [341 -500] corresponds to the maximum achievement level 3.
Source: Survey of adult skills (PIAAC) 2018, OECD calculations.

StatLink https://stat.link/yw4vg2

Informal workers have on average lower levels of cognitive skills than formal workers (Figure 30) and achieve worse education attainment. Informal workers and non-workers are also less likely to receive training than formal workers, and when they receive some training it is of shorter duration.

Figure 30. Informal workers have lower cognitive skills than formal ones

Score points, 2018



Source: Survey of adult skills (PIAAC) 2018, OECD calculations.

StatLink https://stat.link/c8nev9

Access to funding for training is a relevant barrier for informal workers: among those of them who have received training, only slightly more than half received funding from their employer, compared to 85% of formal workers.

Mexico has set up important initiatives to promote digital skills and inclusion. The online platform *MexicoX* offers over 230 courses for specialised and academic training for teachers and has benefitted more than 1.5 million users. The program *@prende.mx* has provided schools with technological equipment, knowledge-sharing platforms for teachers on using technology as part of the learning process, and has run pilot projects aimed at improving students' access to digital technology. An assessment on the effectiveness of these policies on broader education outcomes or skills development would be useful. Moreover, more attention should be devoted to low-skilled workers that will increasingly face pressures to upskill and reskill as a consequences of the digital revolution.

Table 2. Policy recommendations

MAIN FINDINGS	RECOMMENDATIONS
Boosting firms and individuals access to finance	
Access to finance by firms and households is low. SMEs' access to credit is hampered by high interest rate margins and information asymmetries. Contract enforcement is hampered by long, complex and costly legal procedures.	Strengthen the credit registry system by ensuring that all lenders are able to access all credit history information. Increase the use of alternative source of information (e.g. public utility companies' records) to develop credit scores for informal firms. Accelerate the establishment of specialised commercial courts throughout states and improve courts infrastructure.
Few companies participate in the stock market.	Simplify requirements and reduce costs for SMEs to participate in the stock market.
Financial exclusion is prevalent among informal workers, adults with low-income and living in rural areas.	Promote the use of alternative digital data generated from transactions between households and firms (payments of utilities, loan payments) and between individuals and the government, to improve credit risk assessment of (especially low-income) individuals. Increase the number of social programmes delivered through bank accounts as to include all programmes run by the federal government, states and municipalities.
Mistrust of financial product is a barrier to the use of financial products and few adults are aware that bank deposits enjoy public protection.	Increase awareness of consumer protection legislation and zero-commission bank accounts by promoting communication campaigns, organising public events and cooperating with stakeholders.
Regional gaps in financial education are large and financial knowledge does not translate into healthy financial behaviours (ability to respect a budget, make payments on time).	Reform financial education programmes to reinforce the practice of respecting a budget, making payments on time and encouraging voluntary savings. Focus financial education on low-income adults, by granting compulsory courses to the beneficiaries of social benefits.
Promoting digital financial markets and the use of digital payments	
Digitalisation and Fintech can widen access to finance but their impact is hampered by barriers in digital payment markets and low digital skills.	Upgrade digital payment regulation to facilitate entry in the payment card market. Eliminate uncertainty in secondary regulation on which rules (operational standards and costs) apply to transactions involving two clearing houses. Modify the regulation requiring the approval of incumbent clearing houses to ensure impartiality. Modify the school curriculum to strengthen digital literacy from a young age and upskill teachers' digital capacity.
Low financial innovation causes technical disruptions and a high fraud rate in the digital payments system.	Monitor and, if necessary, upgrade regulation to promote the use of regulatory sandboxes for fintechs to experiment with new financial products in a controlled environment.
Access to fixed broadband is low and expensive.	Increase competition in the fixed broadband market by facilitating the entry of new providers.
Preference for cash hinders the diffusion of digital payments.	Create incentives for the use of digital payments via cash rebates, government sponsored lotteries or consumer rewards.
The business sector lags behind other countries in the adoption of digital technologies.	Monitor and, if necessary, increase the funding of government programmes that support micro and SMEs (technical assistance, grants) selling online.

References

(ITAM), I. and S. Gaxiola Calvo (2017), *Estudio de Administración de Justicia Loca: Ejecución de Contratos Mercantiles e Hipotecas en las Entidades Federativas. Octava edición.*. [50]

(WJP), W. (2017-2018), *Rule of Law Index*. [49]

Acemoglu, D. (2002), "Technical Change, Inequality, and the Labor Market", *Journal of Economic Literature*, Vol. 40/1, pp. 7-72, http://dx.doi.org/DOI: 10.1257/0022051026976. [65]

Acemoglu, D. and F. Zilibotti (1997), "Was Prometeus Unbound by Chance? Risk, Diversification and Growth", *Journal of Political Economy*, Vol. 105/4, pp. 709-751, http://dx.doi.org/DOI: 10.1086/262091. [12]

Aguilar, A., C. Barnard and G. De Giorgi (2019), "Long-Term Effects of PROSPERA on Welfare", *Policy research Working Paper No. 9002*, http://hdl.handle.net/10986/32376. [44]

Andries, N. and S. Billon (2016), "Retail bank interest rate pass-through in the euro area: An empirical survey", *Economic Systems*, Vol. 40/1, pp. 170-194, http://dx.doi.org/10.1016/j.ecosys.2015.06.001. [84]

Anjali, K. et al. (2005), "Assessing Financial Access in Brazil", *World Bank Working Papers*, http://hdl.handle.net/10986/7452. [42]

Ayyagari, M., A. Demirgüç-Kunt and V. Maksimovic (2006), "How important are financing constraints? The role of finance in the business environment", *World Bank Policy Research No. 3820*. [85]

Banerjee, A. et al. (2021), "Changes in the Social Network Structure in response to Exposure to Formal Credit Markets", *NBER Working Papers* No. 28365, https://economics.mit.edu/files/16028. [45]

Banerjee, A. and E. Duflo (2005), "Growth Theory through the Lens of Development Economics", *Handbook of Development Economics Vol. 1*, pp. 473-552. [21]

Banerjee, A. and A. Newman (1993), "Occupational choice and the process of development", *Journal of Political Economy*, pp. 274-298. [41]

BANXICO (2018), "Clústeres de Industrias Relacionadas en las Economías Regionales", *Reporte sobre las Economías Regionales - octubre-diciembre* , recuadro 1, pp. 6-9, https://www.banxico.org.mx/publicaciones-y-prensa/reportes-sobre-las-economias-regionales/recuadros/%7B2BE34966-2A58-64DF-37F6-02E538C11D28%7D.pdf. [16]

BANXICO (2015), "Complejidad Económica de las Entidades Federativas de México", *Reporte sobre las Economías Regionales - julio-septiembre* , recuadro 1, pp. 23-26, https://www.banxico.org.mx/publicaciones-y-prensa/reportes-sobre-las-economias-regionales/%7B3ED3B6E6-6F1D-3EA0-E50B-9909094884D1%7D.pdf. [15]

Banxico (2016), "Cambios Recientes en el Mecanismo de Transmisión de la Política Monetaria en México", *Extracto del Informe Trimestral* Enero – Marzo 2016, Recuadro 2, pp. 47-52, https://www.banxico.org.mx/publicaciones-y-prensa/informes-trimestrales/recuadros/%7B4E9CF0BE-8E0B-B599-6500-6553239FEF8B%7D.pdf. [86]

Barquero-Romero, J. and L. Candra-Villalobos (n.d.), "Cambios Recientes en el Mecanismo de Transmisión de la Política Monetaria en México", *Banco de México Informe Trisestral*, https://www.banxico.org.mx/publicaciones-y-prensa/informes-trimestrales/recuadros/%7B4E9CF0BE-8E0B-B599-6500-6553239FEF8B%7D.pdf. [88]

Barquero-Romero, J. and L. Cendra-Villalobos (2020), "Traspaso de la tasa de política monetaria en Costa Rica de 2000 a 2018", *Banco Central de Costa Rica Documento de Trabajo* No. 1, https://repositorioinvestigaciones.bccr.fi.cr/handle/20.500.12506/334. [87]

Bátiz-Zuk, E. and J. Lara Sánchez (2021), "Measuring the evolution of competition and the impact of the financial reform in the Mexican banking sector, 2008-2019", *Banco de México Working Papers*, Vol. 2021/06, https://www.banxico.org.mx/publicaciones-y-prensa/documentos-de-investigacion-del-banco-de-mexico/%7B84054C36-CC98-4337-0DF8-EDE678F2F4DA%7D.pdf. [23]

Beck, T. and M. Hoseini (2014), "Informality and Access to Finance", *DFID Innovation and Growth Working Papers, Tilburg University*, https://pure.uvt.nl/ws/portalfiles/portal/4225347/Beck_and_Hoseini_informality_in_india.pdf. [73]

Beck, T., R. Levine and A. Levkov (2007), "Big Bad Banks ? The Impact Of U.S. Branch Deregulation On Income Distribution", *World Bank Policy Research Working Papers* No. 4330, http://dx.doi.org/10.1596/1813-9450-4330. [89]

Beck, T. and V. Maksimovic (2005), "Financial and Legal Constraints to growth: Does Firm Size Matter?", *Journal of Finance*. [22]

Brañas-Garza, P., J. Kovarik and E. Rascón-Ramirez (2021), *Diffusion of Mobile Banking among Rural Women: Incentivising Local Leaders vs. a Marketing Campaign*. [58]

Bruhn, M. and I. Love (2014), "The Real Impact of Improved Access to Finance: Evidence from Mexico", *Journal of Finance*, Vol. 69/3, pp. 1347-1376, https://doi.org/10.1111/jofi.12091. [36]

Bulíř, A. and J. Vlček (2015), "Monetary Transmission: Are Emerging Market and Low Income Countries Different?", *IMF Working Papers No. 15/239*. [90]

Campero, A. and K. Kaiser (2013), "Access to Credit: Awareness and Use of Formal and Informal Credit Institutions", *Banco de México Working Papers* No. 2013/07, https://www.banxico.org.mx/publications-and-press/banco-de-mexico-working-papers/%7BEEBBCB70-FFF1-F1A0-E03E-A58AFA9CEC85%7D.pdf. [43]

Cañon, C., E. Cortes and R. Guerrero (2020), "Bank Competition and The Price of Credit: Evidence Using Mexican Loan Level Data", *Inter-American Development Bank Working Papers* No. 1103, http://dx.doi.org/10.18235/0002521. [24]

Cantú, C. et al. (2019), "A loan-level analysis of bank lending in Mexico", *BIS Working Paper No. 802*, https://www.bis.org/publ/work802.htm. [91]

Capasso, S. and T. Jappelli (2013), "Financial Development and the Underground Economy", *Journal of Development Economics*, Vol. 101, pp. 167-178, http://dx.doi.org/10.1016/j.jdeveco.2012.10.005. [72]

Carabarín, M. et al. (2018), *Corresponsales bancarios e inclusión financiera en México*, Centro de Estudios Monetarios Latinoamericanos, https://www.cemla.org/PDF/ic/ic-2016/ic-2016-12.pdf. [37]

Clamara, N., X. Pena and D. Tuesta (2014), "Factors that Matter for Financial Inclusion: Evidence from Peru", *BBVA Working Paper No. 1409*. [92]

Clarke, G., L. Xu and H. Zou (2006), "Finance and Income Inequality: What Do the Data Tell Us?", *Southern Economic Journal*, Vol. 72/3, pp. 578-596, http://dx.doi.org/10.2307/20111834. [9]

CNBV (2021), "El crédito en México: productos, instrumentos y evolución", *Estudios de Inclusión FInanciera* , Comisión Nacional Bancaria y de Valores, https://www.gob.mx/cms/uploads/attachment/file/624795/Estudio_Credito.pdf. [39]

CNBV (2020), "Panorama Anual de Inclusión Financiera" Comisión Nacional Bancaria y de Valores, https://www.gob.mx/cms/uploads/attachment/file/581089/Panorama_IF_2020.pdf. [66]

CNBV (2020), "Política Nacional de Inclusión Financiera", https://www.afi-global.org/wp-content/uploads/2020/07/ES_Strategy_National_Financial_Inclusion_Strategy.pdf. [32]

CNBV (2019), "Alfabetización Financiera en México", *Estudios de Inclusión Financiera* No. 1, https://www.gob.mx/cms/uploads/attachment/file/613908/01_Indice_de_Alfabetizacion.pdf. [52]

COFECE (2020), *Dictamen Preliminar.- Expediente IEBC-005-2018*, https://www.cofece.mx/wp-content/uploads/2020/12/DOF-16diciembre2020-01.pdf. [74]

COFECE (2019), *https://www.cofece.mx/sanciona-cofece-a-dun-bradstreet-por-negativa-de-trato/*. [26]

Cook, T. and C. McKay (2015), *How M-Shwari Works: The Story so far*, Consultative Group to Assist the Poor (CGAP) and FInancal Sector Deepening (FSD) Kenya: Washington, DC, https://www.cgap.org/sites/default/files/Forum-How-M-Shwari-Works-Apr-2015.pdf. [70]

Cottarelli, C. and A. Kourelis (1994), "Financial Structure, Bank Lending Rates, and the Transmission Mechanism of Monetary Policy", *IMF Staff Papers*, Vol. 41/4, http://dx.doi.org/10.2307/3867521. [93]

Cull, R., T. Ehrbeck and N. Holle (2014), "Financial Inclusion and Development: Recent Impact Evidence", *CGAP Focus Note*, Vol. 92, https://www.cgap.org/sites/default/files/FocusNote-Financial-Inclusion-and-Development-April-2014.pdf. [40]

Dabla-Norris, E. et al. (2015), "Identifying Constraints to Financial Inclusion and Their Impact on GDP and Inequality : A Structural Framework for Policy", *IMF Working Papers* 15/22, https://www.imf.org/en/Publications/WP/Issues/2016/12/31/Identifying-Constraints-to-Financial-Inclusion-and-Their-Impact-on-GDP-and-Inequality-A-42649. [5]

Demetriades, P. and S. Law (2006), "Finance, institutions and economic development", *International Journal of FInance and Economics*, Vol. 11/3, pp. 245-260, http://dx.doi.org/10.1002/ijfe.296. [94]

Demirguc-Kunt, A., L. Klapper and D. Singer (2017), "Financial Inclusion and Inclusive Growth : A Review of Recent Empirical Evidence", *World Bank Policy Research Working Paper No. 8040*, http://hdl.handle.net/10986/26479. [17]

ENAFIN (2018), "Encuesta Nacional de Financiamiento de las Empresas", https://www.inegi.org.mx/programas/enafin/2018/. [62]

ENIF (2018), "Encuesta Nacional de Inclusión Financiera", https://www.inegi.org.mx/programas/enif/2018/. [33]

Ennis, S., P. Gonzaga and C. Pike (2017), "The Effects of Market Power on Inequality", *CPI Antritrust Chronicle*, https://www.competitionpolicyinternational.com/the-effects-of-market-power-on-inequality/. [59]

Fabbri, D. (2010), "Law enforcement and firm financing: Theory and evidence", *Journal of the European Economic Association*, Vol. 84/4, pp. 776-816. [46]

Fareed, F. et al. (2017), "Financial Inclusion and Women Entrepreneurship : Evidence from Mexico", *OECD Economics Department Working Papers*, No. 1411, OECD Publishing, Paris, https://dx.doi.org/10.1787/2fbd0f35-en. [34]

Frisancho, V. (2020), "The Impact of Financial Education for Youth", *Economics of Education Review*, Vol. 78, http://dx.doi.org/10.1016/j.econedurev.2019.101918. [55]

GPFI (2018), *G20 Policy Guide: Digitisation and informality*, G20 Global Partnership for Financial Inclusion, https://www.gpfi.org/sites/gpfi/files/documents/G20_Policy_Guide_Digitisation_and_Informality.pdf. [71]

Greenwood, J. and B. Jovanovic (1990), "Financial development, growth, and the distribution of income", *Journal of Political Economy*, Vol. 98, pp. 1076-1107, http://dx.doi.org/10.1086/261720. [8]

Gregor, J. and M. Melecký (2018), "The pass-through of monetary policy rate to lending rates: The role of macro-financial factors", *Economic Modelling*, Vol. 73, pp. 71-88, http://dx.doi.org/10.1016/j.econmod.2018.03.003. [95]

Grundke, R. et al. (2017), "Skills and global value chains: A characterisation", *OECD Science, Technology and Industry Working Papers*, No. 2017/05, https://dx.doi.org/10.1787/cdb5de9b-en. [108]

Grundke, R. et al. (2018), "Which skills for the digital era?: Returns to skills analysis", *OECD Science, Technology and Industry Working Papers*, No. 2018/09, OECD Publishing, Paris, https://dx.doi.org/10.1787/9a9479b5-en. [109]

Guiso, L., P. Sapienza and L. Zingales (2004), "Does Local Financial Development Matter?", *The Quarterly Journal of Economics*, Vol. 119/3, pp. 929-969, https://doi.org/10.1162/0033553041502162. [19]

Haas, S., M. Plyler and G. Nagayaran (2010), *Outreach of M-PESA System in Kenya: Emerging Trends*, The Iris Center, University of Maryland, College Park, http://www.fsassessment.umd.edu/publications/pdfs/Community-Effects-MPESA-Kenya.pdf. [78]

Haneine, R., D. Zdravkvic and F. Vilá (2021), *Reigniting growth in private equity and venture capital in Mexico*, Kearney, https://www.kearney.com/private-equity/article/?/a/reigniting-growth-in-private-equity-and-venture-capital-in-mexico. [31]

Hausmann, R. et al. (2014), *The Atlas of Economic Complexity*, MIT Press, https://growthlab.cid.harvard.edu/files/growthlab/files/atlas_2013_part1.pdf. [14]

Herman, A. and A. Klemm (2019), "Financial Deepening in Mexico", *Journal of Banking and Financial Economics*, Vol. 1/11, http://www.wz.uw.edu.pl/portaleFiles/3842-journal-of-b/issues/JBFE_1(11)2019.pdf. [11]

Hofmann, B. (2004), "Interest rate pass-through and monetary transmission: Evidence from individual financial institutions' retail rates", *Economica*, Vol. 71/281, pp. 99-123, http://dx.doi.org/0.1111/j.0013-0427.2004.00359.x. [96]

i2i-CNBV (2019), *Las Necesidades Financieras de la Población Mexicana*, https://www.findevgateway.org/es/publicacion/2019/09/las-necesidades-financieras-de-la-poblacion-mexicana. [57]

IFT (2021), *Cuarta Encuesta 2020: Usuarios de Servicios de Telecomunicaciones*, Instituto Federal de Telecomunicaciones, http://www.ift.org.mx/usuarios-y-audiencias/cuarta-encuesta-2020-usuarios-de-servicios-de-telecomunicaciones. [76]

INEGI (2016), *Encuesta Nacional de Calidad Regulatoria e Impacto Gubernamental en Empresas (ENCRIGE) 2016: Presentación ejecutiva nacional*. [48]

INEGI (2015), *Encuesta Intercensal*, https://www.inegi.org.mx/programas/intercensal/2015/. [79]

Jahan, S. and B. McDonald (2011), "A Bigger Slice of a Growing Pie", *Finance & Development*, Vol. 48/3, pp. 16-19. [10]

Jappelli, T., M. Bianco and M. Pagano (2005), "Courts and Banks: Effects of Judicial Enforcement on Credit Markets", *The Journal of Money, Credit, and Banking*, 223-244. [47]

Kelly, S., D. Ferenzy and A. McGrath (2018), "Banking sector approaches to customer engagement and capability", *Center for Financial Inclusion, Mainstreaming Financial Inclusion best practice series*. [97]

Kelly, S., D. Ferenzy and A. McGrath (2017), "How Financial Institutions and Fintechs Are Partnering for Inclusion: Lessons from the Frontlines", *Center for Financial Inclusion, Mainstreaming Financial Inclusion best practice series*, https://www.centerforfinancialinclusion.org/how-financial-institutions-and-fintechs-are-partnering-for-inclusion-lessons-from-the-frontlines-2. [98]

Lusardi, A. and O. Mitchell (2014), "The Economic Importance of Financial Literacy: Theory and Evidence", *Journal of Economic Literature*, Vol. 52/1, pp. 5-44, http://dx.doi.org/10.1257/jel.52.1.5. [54]

Lusardi, A. and O. Mitchell (2011), "Financial Literacy around the World: an Overview", *Journal of Pension Economics & Finance*, Vol. 4/10, pp. 497-508, http://dx.doi.org/10.1017/S1474747211000448. [53]

Martínez Garza Fernández, R., E. Iglesias Rodriguez and A. García Zaballos (2020), *Digital Transformation: Infrastructure Sharing in Latin America and the Caribbean*, Inter-American Development Bank, Washington, http://dx.doi.org/10.18235/0002903. [60]

Mbiti, I. and D. Weil (2011), "Mobile Banking:The Impact of M-Pesa in Kenya", *NBER Working Papers* No. 17129, https://www.nber.org/system/files/working_papers/w17129/w17129.pdf. [77]

Medina Cas, S., A. Carrion-Menendez and F. Frantischek (2011), "The Policy Interest-Rate Pass-Through in Central America", *IMF Working Papers* No. 11/240, https://www.imf.org/en/Publications/WP/Issues/2016/12/31/The-Policy-Interest-Rate-Pass-Through-in-Central-America-25299. [99]

Mehrotra, A. and J. Yetman (2015), "Financial inclusion - issues for central banks", *BIS Quarterly Review*, https://www.bis.org/publ/qtrpdf/r_qt1503h.pdf. [7]

Menkhoff, L., D. Neuberger and O. Rungruxsirivorn (2012), "Collateral and its substitutes in emerging markets'lending", *Journal of Banking and Finance*, Vol. 36, pp. 817-834, http://dx.doi.org/10.1016/j.jbankfin.2011.09.010. [35]

Mishra, P. et al. (2014), "Monetary policy and bank lending rates in low-income countries: Heterogeneous panel estimates", *Journal of Economic Development*, Vol. 111/C, pp. 117-131, http://dx.doi.org/10.1016/j.jdeveco.2014.08.005. [100]

Mokyr, J., C. Vickers and N. Ziebarth (2015), "The History of Technological Anxiety and the Future of Economic Growth: Is This Time Different?", *Journal of Economic Perspectives*, Vol. 29/3, pp. 31-50, https://www.aeaweb.org/articles?id=10.1257/jep.29.3.31. [64]

Morawczynski, O. and M. Pickens (2009), *Poor People Using Mobile Financial Services: Observations on Customer Usage and Impact from M-Pesa*, World Bank, Washington, https://openknowledge.worldbank.org/handle/10986/9492. [69]

Muralidharan, K., P. Niehaus and S. Sukhtankar (2014), "Building State Capacity: Evidence from Biometric Smartcards in India", *NBER Working Papers* No. 1999, http://dx.doi.org/10.3386/w19999. [68]

OECD (2021), *OECD Economic Surveys: Australia*, OECD Publishing, Paris, https://dx.doi.org/10.1787/19990146. [56]

OECD (2020), "Digital Government in Mexico: Sustainable and Inclusive Transformation", *OECD Digital Government Studies*, OECD Publishing, Paris, https://doi.org/10.1787/6db24495-en. [80]

OECD (2020), *Financing SMEs and Entrepreneurs 2020: An OECD Scoreboard*, OECD Publishing, Paris, https://dx.doi.org/10.1787/061fe03d-en. [29]

OECD (2020), *OECD Digital Economy Outlook 2020*, OECD Publishing, Paris, https://dx.doi.org/10.1787/bb167041-en. [61]

OECD (2020), *OECD Economic Surveys: Costa Rica 2020*, OECD Publishing, Paris, https://dx.doi.org/10.1787/2e0fea6c-en. [75]

OECD (2019), *Facilitating access to finance*, OECD Publishing, Paris, https://www.oecd.org/global-relations/45370071.pdf. [27]

OECD (2019), *OECD Economic Surveys: Mexico 2019*, OECD Publishing, Paris, https://dx.doi.org/10.1787/a536d00e-en. [2]

OECD (2019), "Skills Matter: Additional Results from the Survey of Adult Skills", *OECD Skills Studies*, https://doi.org/10.1787/1f029d8f-en. [63]

OECD (2018), *SMEs in Public Procurement: Practices and Strategies for Shared Benefits*, OECD Public Governance Reviews, OECD Publishing, Paris, https://dx.doi.org/10.1787/9789264307476-en. [18]

OECD (2017), *Financial Incentives for Steering Education and Training*, Getting Skills Right, OECD Publishing, Paris, https://dx.doi.org/10.1787/9789264272415-en. [81]

OECD (2017), *OECD Economic Surveys: Mexico 2017*, OECD Publishing, Paris, https://dx.doi.org/10.1787/eco_surveys-mex-2017-en. [1]

OECD (2015), *OECD Economic Surveys: Mexico 2015*, OECD Publishing, Paris, https://dx.doi.org/10.1787/eco_surveys-mex-2015-en. [111]

OECD (2015), *OECD/INFE Toolkit for Measuring Financial Literacy and Financial Inclusion*, OECD Publishing, Paris. [101]

OECD (2013), *OECD Economic Surveys: Mexico 2013*, OECD Publishing, Paris, https://dx.doi.org/10.1787/eco_surveys-mex-2013-en. [110]

OECD/ILO (2019), *Tackling Vulnerability in the Informal Economy*, Development Centre Studies, OECD Publishing, Paris, https://dx.doi.org/10.1787/939b7bcd-en. [82]

OECD/The World Bank (2012), *Promoting Inclusive Growth: Challenges and Policies*, OECD Publishing, Paris, https://dx.doi.org/10.1787/9789264168305-en. [3]

Ozdemir, N. and C. Altinoz (2012), ""Determinants of Interest Rate Pass-through for Emerging Market Economies: The Role of Financial Market Structure", *International Advances in Economic Research*, Vol. 18/4, pp. 397-407, http://dx.doi.org/10.1007/s11294-012-9377-9. [102]

Ozdemir, N. and C. Altinoz (2012), "Determinants of Interest Rate Pass-through for Emerging Market Economies: The Role of Financial Market Structure", *International Advances in Economic Research* 18, pp. 397-407, http://dx.doi.org/10.1007/s11294-012-9377-9. [103]

Palmer, R. (2020), "Lifelong Learning in the Informal Economy: a Literature Review", https://www.ilo.org/wcmsp5/groups/public/---ed_emp/---emp_ent/documents/publication/wcms_741169.pdf. [83]

Perron, P. (2006), "Dealing with structural breaks", *in T.C. Mills, K. Patterson (Eds.), Palgrave Handbook of Econometrics, Vol. 1: Econometric Theory*, Vol. , Palgrave Macmillan, New York. [104]

Pesaran, M. and Y. Shin (1999), "An Autoregressive Distributed-Lag Modelling Approach to Cointegration Analysis", *in S. Strøm (Ed.) Econometrics and Economic Theory in the 20th Century: The Ragnar Frisch Centennial Symposium* , Cambridge University Press, pp. 371 - 413, http://dx.doi.org/10.1017/CCOL521633230.011. [106]

Pesaran, M., Y. Shin and R. Smith (2001), "Bounds testing approaches to the analysis of level relationships", *Journal of Applied Econometrics*, Vol. 16, pp. 289-326, http://dx.doi.org/10.1002/jae.616. [105]

Porter, R. (2003), "The Economic Performance of Regions", *Regional Studies*, Vol. 37/6-7, pp. 549-578, http://dx.doi.org/DOI: 10.1080/0034340032000108688. [13]

Rajan, R. (2005), "Has Financial Development Made the World Riskier?", *NBER Working Paper* No. w11728, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=842464. [6]

Rajan, R. and L. Zingales (1998), "Financial Dependence and Growth", *The American Economic Review*, Vol. 88/3, pp. 559-586, https://www.jstor.org/stable/116849?seq=1#metadata_info_tab_contents. [20]

Sahay, R. et al. (2015), "Rethinking Financial Deepening: Stability and Growth in Emerging Markets", *IMF Staff Discussion Notes*, Vol. 2015/008, http://dx.doi.org/ttps://doi.org/10.5089/9781498312615.006. [4]

Sidaoui, J. and M. Ramos-Francia (2008), "The Monetary Transmission Mechanism in Mexico: Recent Developments", *in Transmission Mechanisms for Monetary Policy in Emerging Market Economies, BIS Papers* No. 35, pp. 363-394, https://www.bis.org/publ/bppdf/bispap35.pdf. [107]

Téllez-León, I. and F. Venegas-Martínez (2019), "Determinants of Financial Deepening in Mexico: A Dynamic Panel Data Approach", *Revista De Métodos Cuantitativos Para La Economía Y La Empresa* No. 27, pp. 285-299, https://www.upo.es/revistas/index.php/RevMetCuant/article/view/2761. [25]

Teplova, T. and M. Pascual Dapenda (2020), "Strengthening Local Legal Institutions for Inclusive Growth and Sound Investment in Mexico: Policy Highlights", *Public Governance Directorate Working Paper No. 1*. [51]

Torre Cepeda, L. and M. Flores Segovia (2020), "Crédito Bancario al Sector Privado y Crecimiento Económico en México: Un Análisis con Datos Panel por Entidad Federativa 2005-2018", *Banco de México WOrking Papers* No. 2020-17, https://www.banxico.org.mx/publications-and-press/banco-de-mexico-working-papers/%7B30714CAA-E4A5-DD71-2D31-BCC821F9FE98%7D.pdf. [38]

WEF (2016), *Accelerating Capital Markets Development in Emerging Economies: Country*, World Economic Forum, http://www.weforum.org. [30]

WorldBank (2011), *General principles for credit reporting*, Washington, D.C., https://documents.worldbank.org/en/publication/documents-reports/documentdetail/662161468147557554/general-principles-for-credit-reporting. [28]

Wright, R. et al. (2014), "Less Cash, Less Crime: Evidence from the Electronic Benefit Transfer Program", *NBER Working Papers* No. 19996, http://dx.doi.org/10.3386/w19996. [67]