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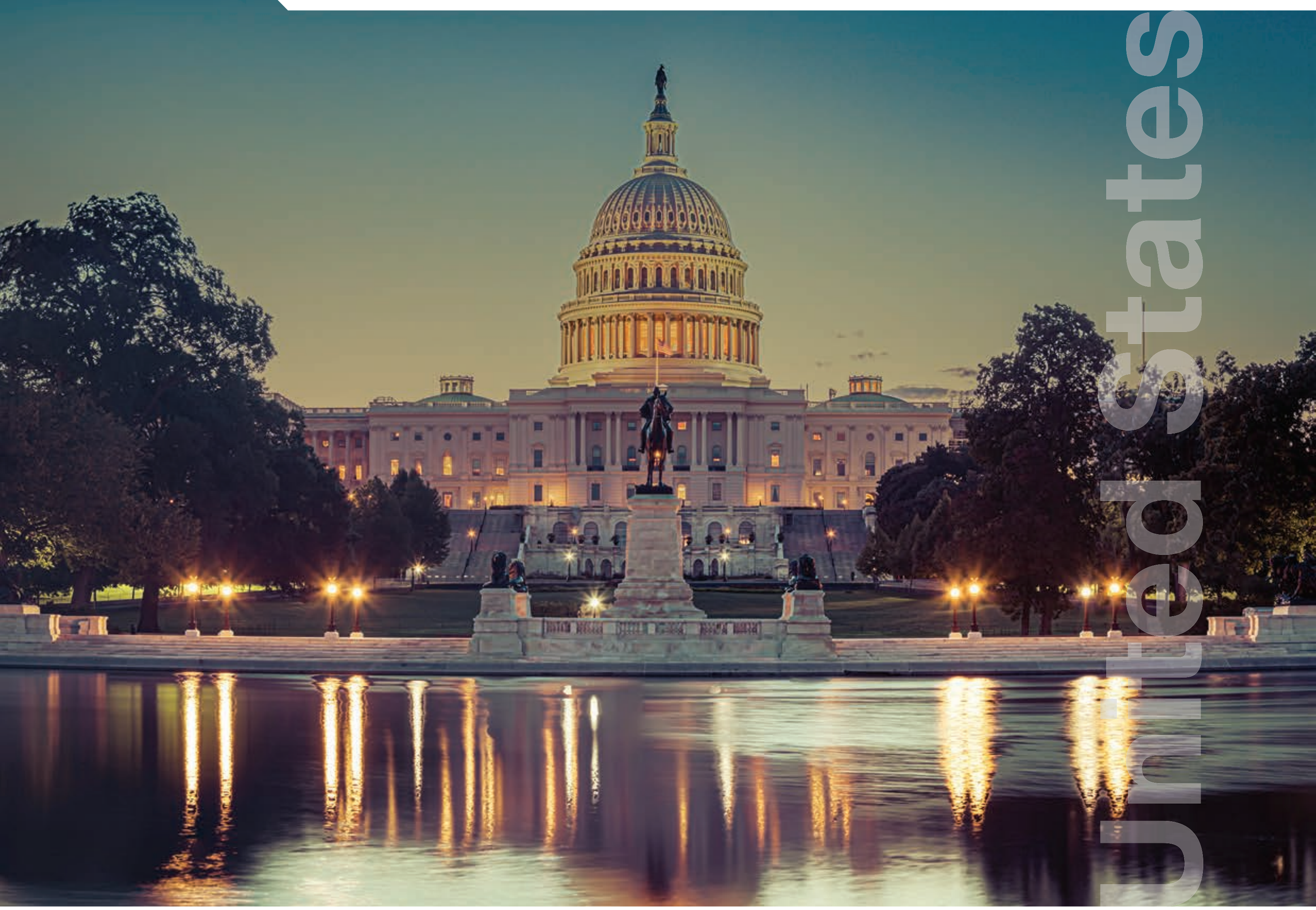

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This Survey *is published on the responsibility of the Economic and Development Review Committee of the OECD, which is charged with the examination of the economic situation of member countries.*

The draft report was discussed at a meeting of the Economic and Development Review Committee on 2 & 3 June 2020, with participation of representatives of the United States authorities.

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Basic statistics of United States, 2019*

(Numbers in parentheses refer to the OECD average)**

LAND, PEOPLE AND ELECTORAL CYCLE					
Population (million)	327.2		Population density per km²	35.8	(37.8)
Under 15 (%)	18.7	(17.8)	Life expectancy (years, 2015)	78.5	(80.1)
Over 65 (%)	15.8	(17.1)	Men	76.1	(77.5)
Foreign-born (%, 2011)	13.6		Women	81.1	(82.9)
Latest 5-year average growth (%)	0.7	(0.6)	Latest general election	November	2016
ECONOMY					
Gross domestic product (GDP)			Value added shares (%, 2017, OECD: 2018)		
In current prices (billion USD, 2018)	20 580.2		Agriculture, forestry and fishing	0.9	(2.4)
Latest 5-year average real growth (%)	2.5	(2.3)	Industry including construction	18.9	(27.3)
Per capita (000 USD PPP, 2018)	62.9	(47.1)	Services	80.2	(70.4)
GENERAL GOVERNMENT Per cent of GDP					
Expenditure (2018)	37.9	(41.2)	Gross financial debt (2018, OECD: 2017)	106.7	(109.5)
Revenue (2018)	31.2	(38.2)	Net financial debt (2018, OECD: 2017)	82.2	(69.4)
EXTERNAL ACCOUNTS					
Exchange rate (EUR per USD)	0.893		Main exports (% of total merchandise exports, 2018)		
PPP exchange rate (USA = 1)	1.0		Machinery and transport equipment	32.2	
In per cent of GDP			Chemicals and related products, n.e.s.	13.4	
Exports of goods and services (2018)	12.2	(55.5)	Commodities and transactions, n.e.s.	12.1	
Imports of goods and services (2018)	15.3	(51.3)	Main imports (% of total merchandise imports, 2018)		
Current account balance (2018)	-2.4	(0.3)	Machinery and transport equipment	42.0	
Net international investment position (2018)	-46.4		Miscellaneous manufactured articles	15.8	
			Manufactured goods	11.0	
LABOUR MARKET, SKILLS AND INNOVATION					
Employment rate (aged 15 and over, %, 2018)	60.4	(57.1)	Unemployment rate, Labour Force Survey (aged 15 and over, %, 2018)	3.9	(5.3)
Men (2018)	66.3	(65.3)	Youth (aged 15-24, %, 2018)	8.6	(11.1)
Women (2018)	54.9	(49.4)	Long-term unemployed (1 year and over, %, 2018)	0.5	(1.5)
Participation rate (aged 15 and over, %, 2018)	62.9	(60.5)	Tertiary educational attainment (aged 25-64, %, 2018)	47.4	(36.9)
Average hours worked per year (2018)	1 786	(1734)	Gross domestic expenditure on R&D (% of GDP, 2017)	2.8	(2.6)
ENVIRONMENT					
Total primary energy supply per capita (toe, 2018)	6.8	(4.1)	CO2 emissions from fuel combustion per capita (tonnes, 2018)	15.0	(8.9)
Renewables (%, 2018)	7.8	(10.5)	Water abstractions per capita (1 000 m³, 2015)	1.2	
Exposure to air pollution (more than 10 μg/m³ of PM 2.5, % of population, 2017)	3.1	(58.7)	Municipal waste per capita (tonnes, 2015, OECD: 2017)	0.7	(0.5)
SOCIETY					
Income inequality (Gini coefficient, 2017, OECD: 2016)	0.390	(0.310)	Education outcomes (PISA score, 2018)		
Relative poverty rate (%, 2017, OECD: 2016)	17.8	(11.6)	Reading	505	(489)
Median disposable household income (000 USD PPP, 2017, OECD: 2016)	35.6	(23.6)	Mathematics	478	(492)
Public and private spending (% of GDP)			Science	502	(491)
Health care (2018)	16.9	(8.8)	Share of women in parliament (%, 2018)	19.6	(29.7)
Pensions (2017, OECD: 2015)	7.1	(8.5)	Net official development assistance (% of GNI, 2017)	0.2	(0.4)
Education (public, 2017)	4.4	(4.5)			

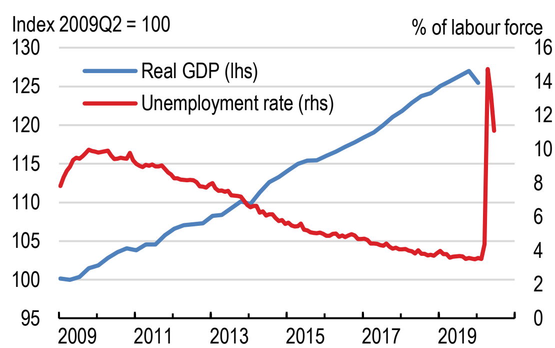
* The year is indicated in parenthesis if it deviates from the year in the main title of this table.
** Where the OECD aggregate is not provided in the source database, a simple OECD average of latest available data is calculated where data exist for at least 80% of member countries.
Source: Calculations based on data extracted from databases of the following organisations: OECD, International Energy Agency, International Labour Organisation, International Monetary Fund, World Bank.

Executive summary

The economy has been hit hard

The coronavirus pandemic has hit the economy hard. Lockdown orders forced many businesses to shut down and activity dropped sharply (Figure 1). Large numbers of people became unemployed or dropped out of the labour market, unwinding a large part of the 10-year progress made to restore full employment. The downturn hit at a time when the economy was performing well, with wages gaining momentum, businesses generating large earnings, and banks posting healthy capital buffers.

Figure 1. The expansion has stopped abruptly



Source: OECD Analytical database.

With cases of COVID-19 increasing steadily, efforts were made to control the pandemic. State-level shelter-in-place orders requiring households to remain at home and businesses to close have helped to flatten the curve of new cases, but the death toll has continued to mount. Progress was made to slow the contagion but, as in other countries, the outbreak will take a long time to stop.

The economic impact of the coronavirus crisis is substantial. Output has slumped, and only a partial recovery is likely (Figure 2 and Table 1). Businesses that are sensitive to distancing will recover only gradually and to the extent that customers regain confidence sufficiently to return to their former consumption patterns.

Forceful macroeconomic support

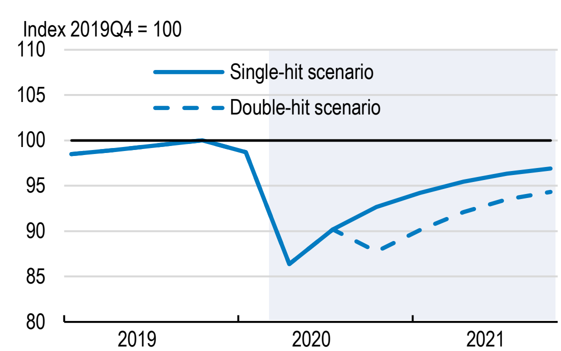
Fiscal space and room for monetary policy easing were available when the crisis hit and rapidly deployed to support the economy. Fiscal policy has responded forcefully to the crisis and provided welcome financial relief to unemployed workers and struggling businesses during the first phase of confinement. With the exit from confinement well underway, policy actions should now focus on reviving the economy.

This fiscal support should be extended as needed, including in case of a second wave, which will cause budget deficits to swell (Figure 3). These deficits have been easily financed thanks to abundant liquidity and bond purchases by the Federal Reserve. However, they will add to debt challenges in the long run as ageing will put mounting pressure on pension and healthcare spending. Concrete action to reform these entitlements and raise revenue will be needed to ensure long-run sustainability.

Table 1. A gradual recovery is projected

Double-hit scenario	2019	2020	2021
Gross domestic product	2.3	-8.5	1.9
Unemployment rate	3.7	12.9	11.5
Fiscal balance (% of GDP)	-7.3	-16.8	-11.5
Public debt (gross, % of GDP)	108.5	131.8	139.9
Single-hit scenario	**2019**	**2020**	**2021**
Gross domestic product	2.3	-7.3	4.1
Unemployment rate	3.7	11.3	8.5
Fiscal balance (% of GDP)	-7.3	-15.0	-10.5
Public debt (gross, % of GDP)	108.5	128.8	133.1

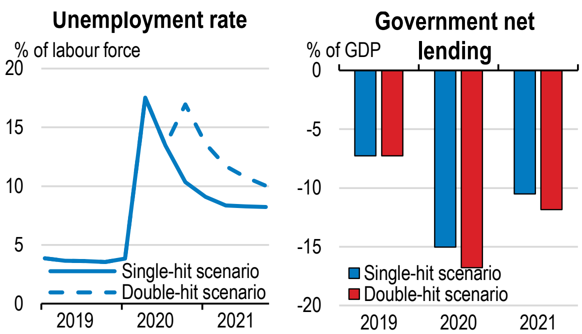
Figure 2. Output will recover gradually



Source: OECD Economic Outlook 107 database. The "single-hit" scenario assumes that the pandemic is brought under control before the Summer; the "double-hit" scenario assumes a second wave of contagion and lockdown measures after the Summer.

Monetary policy also responded quickly and forcefully. Interest rates were reduced to 0-0.25%, quantitative easing and forward guidance were restarted, and massive Fed lending programmes were created to provide cash relief to businesses. In the case of a further weakening, monetary policy can react by augmenting forward guidance and expanding asset purchases. The outlook is uncertain for inflation although in the short run it is likely to continue to undershoot the Fed's target.

Figure 3. Unemployment and budget deficits will remain elevated



Source: OECD Economic Outlook 107 database.

The banking sector appears to have withstood the initial shock. A number of vulnerabilities have emerged and credit markets experienced considerable stress, but this was quickly brought under control. Nonetheless, high corporate leverage creates a risk for the banking system, which will become more visible as government support is withdrawn. Continued support could be considered if liquidity and solvency problems emerge swamping the bankruptcy system.

The labour market has experienced an unprecedented shock

With the shuttering of many businesses, unemployment has surged and many have left the labour force. The unemployment rate jumped to almost 15% in April before declining and the employment to population ratio fell to the lowest level on record. The prime age participation rate has fallen back to levels last seen in the 1980s. While many workers appear to have retained an attachment to their former firms, many have not.

Bringing people back into work quickly is important. Not only would this help households recover, but also preserve the positive gains from the long expansion in sharing the benefits more widely. A robust recovery from the current downturn will limit the damage to the labour market, but additional effort will be needed to make sure groups often on the margins of the labour force are not left behind. Sustained high levels of unemployment and the drop in prime age participation can be difficult to reverse. Government policies to help workers re-enter employment quickly will be crucial.

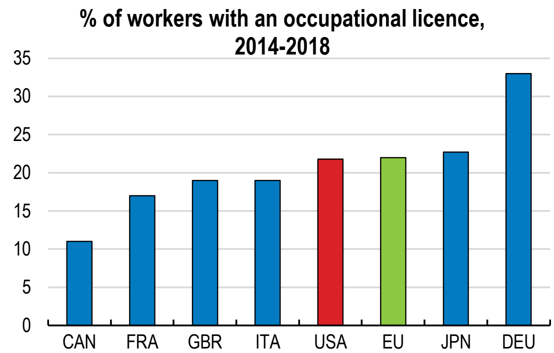
Regulatory reforms will support the recovery

The recession risks leaving behind a long-lasting negative economic impact. Reforms are essential to lift productivity growth and ensure that all benefit from future growth. Productivity has been sluggish for a variety of reasons. Policies are needed to support labour mobility and competition to help workers and businesses avoid scarring effects and fully recover from the crisis.

The regulatory process in the United States has a large state and local element. This can be a strength but in some cases this has led to uncoordinated policies, contributing to weaker labour market dynamism. When regulations impede the ability of workers to change jobs, which have large payoffs for workers with low incomes or skills, these policies can have important distributional impacts.

Occupational licensing and non-compete agreements are impediments to moving to new employers. They also hinder workers finding good jobs. These types of labour market regulations both cover around one fifth of workers (Figure 4). Regulation is needed to protect safety and ensure quality of services, but it also creates entry barriers and reduces competition with important costs for job mobility, earnings and productivity growth.

Figure 4. Licensing restrictions are comparable with many other countries, but not all



Source: BLS; Koumenta and Pagliero (2017); Morikawa (2018); Zhang (2019).

Low-skilled workers and disadvantaged groups tend to be particularly affected by these barriers. The states are mainly responsible for regulation concerning occupational licensing and non-compete agreements and the variation across states is similar to the variation across the European Union. The requirements vary widely by state both in whether an occupation is covered at all and in how restrictive the requirements are. Reducing the restrictive impact of occupational licensing and the use of non-competition covenants could help to circumvent the secular decline in dynamism. However, attempts to reform often face stiff opposition from associations of professionals.

A further barrier to labour mobility is the housing market. Housing supply has barely kept pace with population growth and lags other OECD countries . This is partly the result of restrictive land use policies at the local level making it difficult to expand housing supply, particularly in and around successful cities. Cities where land use policies are less restrictive also tend to be cities where productivity growth is stronger and where people change jobs more frequently. Better coordination of housing, land use and transport policies are needed to help cities and their surrounding areas realise their potential and grow sustainably.

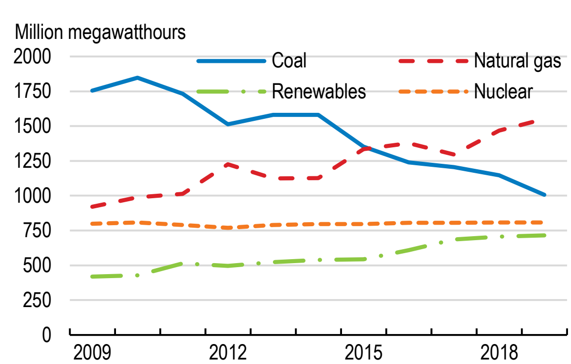
Ensuring competition is a priority for promoting productivity growth. While competition remains intense in some markets, such as retail trade, there are some concerns in other industries, notably information technology, media and health. In some cases, regulatory barriers appear to contribute to sluggish firm entry. Trade policy has the potential to reduce barriers to competition and to support the recovery. In particular, barriers to trade in services appear to hold back the economy.

Emissions have begun to fall, but further reductions will be more challenging

Environmental performance and energy security has continued to improve along some dimensions. These include high air quality and a large reduction of greenhouse gas emissions notably with growing production and use of natural gas, rising renewable energy capacity, steady nuclear generation and the decline of coal.

Greenhouse gas emissions have been falling since 2005. Emissions declined by around 12% by 2018. Improvements in technology, increased supply of natural gas as well as state and local policies have begun to reduce greenhouse gas emissions. A switch in electricity production from coal to natural gas and renewables has made an important contribution to emission reductions (Figure 6). Recently, electricity production by renewables over a month outpaced coal for the first time, although overall for the year coal remains a more important source of generation capacity. As this process runs its course further reductions will be difficult to attain without policy support, which should prioritise the most cost-efficient ways to reduce emissions as part of the Administration's all fuels and technologies approach.

Figure 5. Natural gas and renewables are becoming more important for electricity



Source: EIA – Electricity data (2019)).

MAIN FINDINGS	KEY RECOMMENDATIONS
Improving macroeconomic and international trade policies	
The federal government has reacted quickly to shield households and businesses from the brunt of the shock. As a result the budget deficit is large and public debt has risen, but debt service remains moderate thanks to low interest rates, In the longer term, entitlement spending is projected to increase reflecting ageing and healthcare costs.	Continue to provide exceptional fiscal support to help unemployed workers and support the recovery. When the situation normalizes, reform entitlement spending, reduce spending inefficiencies in the healthcare sector, close loopholes and broaden the tax base to ensure long-term debt sustainability.
The Federal Reserve has responded robustly to the crisis, moving quickly to support the economy as it was hit by the coronavirus and ensuring that financial markets continued to operate.	In case of a further slowdown be ready to augment forward guidance and quantitative easing. Update the monetary policy framework as intended, retaining discretion in meeting the inflation target symmetrically.
Financial market risks have mounted with some firms entering the crisis with elevated debt loads and other firms facing a very uncertain future.	Continue providing temporary liquidity support to firms as long as needed to avoid widespread bankruptcies.
Trade in services is growing but regulatory barriers tend to be more restrictive than tariffs on goods.	Put more emphasis on lowering regulatory barriers to trade in services. Abolish or provide permanent waivers for the most restrictive rules, in particular maritime transport between U.S. maritime ports.
Strengthening the response to future health shocks	
The pandemic proved difficult to control and the virus quickly spread across the country, causing loss of life and provoking distancing measures that caused a sharp contraction in economic activity. The prospects for future health shocks cannot be ruled out.	Improve public health policy coordination across levels of government and reduce regulatory barriers that hinder an effective response. Ensure that the suite of policies that support health insurance coverage do not let large population groups fall through the gaps.
Helping workers find jobs, including by moving across the country	
Restrictive land use regulations are slowing the supply of new housing and workers moving across the country to new job opportunities.	Provide fiscal incentives for states and localities to relax land use restrictions and promote multi-use zoning.
States and localities are responsible for land use planning, transportation and housing policies. When these policies are not co-ordinated inefficiencies arise that can reduce productivity.	Help states and localities better co-ordinate land-use, transportation and housing policies. Require metro mass transit fund recipients to integrate transport policy with land-use and housing policy.
Infrastructure investment has been sluggish since the early 2000s. Failure to invest hinders productivity growth and reduces the accessibility of cities.	Invest in new telecommunication infrastructure where supported by appropriate evaluation such as cost benefit analysis. Improve the maintenance of the road network.
Reducing anti-competitive and regulatory barriers in the labour market	
In some markets, particularly in technology sectors, dominant firms have the ability to exercise market power.	Anti-trust policy should police markets vigorously to ensure competition remains healthy.
Less than 50 occupations are licensed in all states, while more than 400 occupations are licensed in at least one State. Empirical analysis suggest that larger coverage of licensing is associated with lower job mobility.	Encourage states to delicense occupations with very limited concerns for public health and safety and act against anticompetitive behaviour.
Licensures obtained in one state are not automatically recognised in other states. Procedures to implement mutual recognition across states can be cumbersome.	Use federal law to impose recognition of out-of-State licensures, allowing States to set stricter requirements only if they can prove it is necessary to protect the public.
Some population groups are particularly exposed to excessive licensing requirements, such as individuals with a criminal record, and immigrants with foreign credentials.	Address excessive employment barriers that create obstacles for ethnic minorities and foreign nationals.
Evidence suggest that non-competes cause anti-competitive harm in the form of lower wages to workers. Usage of non-competes have become more widespread, including among low-skilled and low-income workers, who are unlikely to have access to protectable interests of the employer.	Outlaw the use of non-competes except where employers can prove benefit to workers. Set a minimum earning or minimum skill threshold for using non-competes to protect low-income workers.
Strengthening green growth	
Greenhouse gas emissions have been declining, with the all-fuels all-technologies approach, but there are still opportunities for further reductions. Financial institutions hold large amounts of assets linked to activities that are exposed to climate risks, such as mortgages of properties in floodable and costal zones	Invest in extreme weather and climate-resilient infrastructure. Continue support for fuels and technologies, including nuclear and carbon capture, utilisation and storage, where cost efficient, to achieve further emissions reductions. Ensure harmful emissions are priced appropriately. Systematically assess financial institutions' exposures to climate-related risks such as rising sea levels, flooding, wild fires, and tighter energy efficiency.

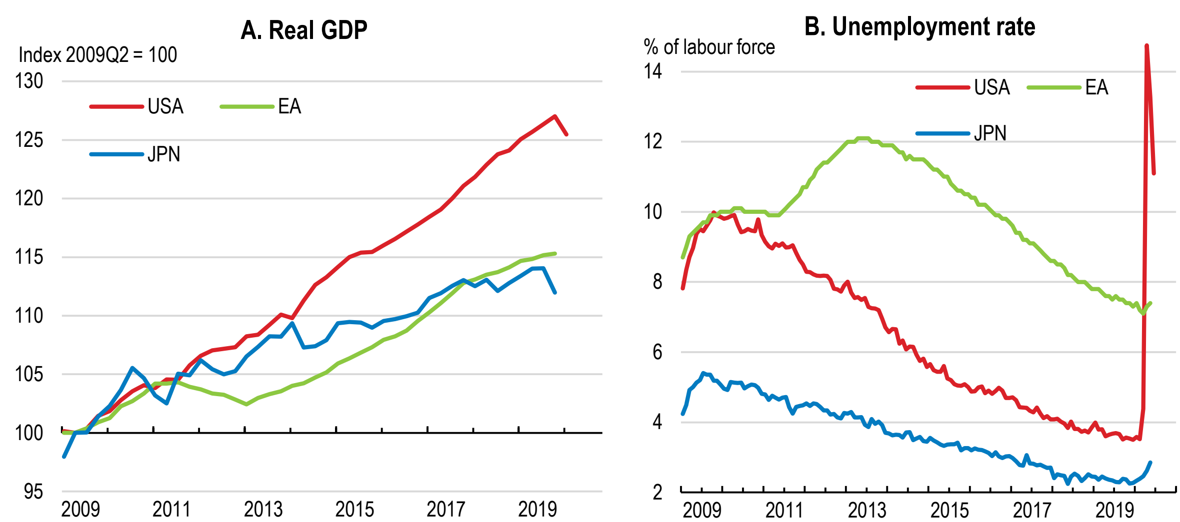
1. Key policy insights

The longest expansion on record came to a juddering halt with the worldwide spread of the coronavirus. The containment measures introduced have contributed to the economy suffering one of the largest shocks outside wartime and leading to extremely high unemployment. A rapid and substantial policy response has aimed to shield households and businesses from the worst of this shock. As the economy re-emerges from the shutdown pressures on public finances will be intensified, but policy support should remain available while the economy is operating well below capacity. Sanitary measures remaining in place until the coronavirus is eliminated will weaken an already sluggish productivity growth and population ageing will continue constraining the available labour supply. The government should therefore continue to focus on structural reforms liberalising productive forces, especially by removing regulatory barriers that stand in the way of boosting productivity. Helping Americans go back into employment and acquire the skills needed to take advantage of new job opportunities will also support the return of the high levels of prosperity American's have enjoyed in the past.

The coronavirus pandemic threatens achievements made over the last decade in boosting material standards of living. For American households, unemployment has risen precipitously and while government interventions have shielded most families from the brunt of the shock, prospects are now less certain.

Before the outbreak of the coronavirus, the United States had benefitted from resilient economic growth during the 2010s. In 2019, the economic expansion and the unbroken string of monthly job gains became the longest on record (Figure 1.1). The strength of the labour market had gradually induced those on the margins to increase their participation. Strong job gains and gradual increases in real wages helped raise household incomes, bringing to an end the previous flat trend in median real income. Measures of poverty stabilised, although at relatively high levels. Indeed, as the labour market tightened the wages of those towards the bottom of the income distribution increased more rapidly than median wages. This had improved wellbeing for many Americans, as measured by the Better Life Index. Despite progress, income and wealth inequality have been persistently high and many Black and African Americans and indigenous populations remain in the low-income groups. Furthermore, the income gains to the workforce may not be widely shared due to polarisation of earnings. Large disparities also exist across the country. For example, differences in a suite of health outcomes measured by the OECD's Better Life Index are dramatic, with states, such as Mississippi, among the worst performers in the OECD.

Figure 1.1.The COVID-19 crisis has reversed the progress made in reducing unemployment



Source: OECD Analytical Database.

The economy is projected to see a marked contraction in economic activity in 2020 before partially recovering in 2021. As confinement measures are lifted, much of the dislocation caused by shelter-in-place orders will wane, many businesses will reopen and most workers return to work. However, policy support will continue to be needed as the shock will dent prospects for some industries, such as the hospitality sector, and many workers will have lost their attachment to employers and will face difficulties in finding new jobs. The consequences of the coronavirus shock will likely lead to business failures and sectoral shifts in output that will require many workers to find new jobs. Against this background, the main messages of the Survey are:

- Macroeconomic policy still needs to provide additional support in the near term to help the recovery and should remain ready to act in case of further waves of contagion or unexpected downturn.
- Lowering regulatory barriers will facilitate the return to sustained growth, especially regulations in the labour market, because they prevent workers from realising their potential and employers from

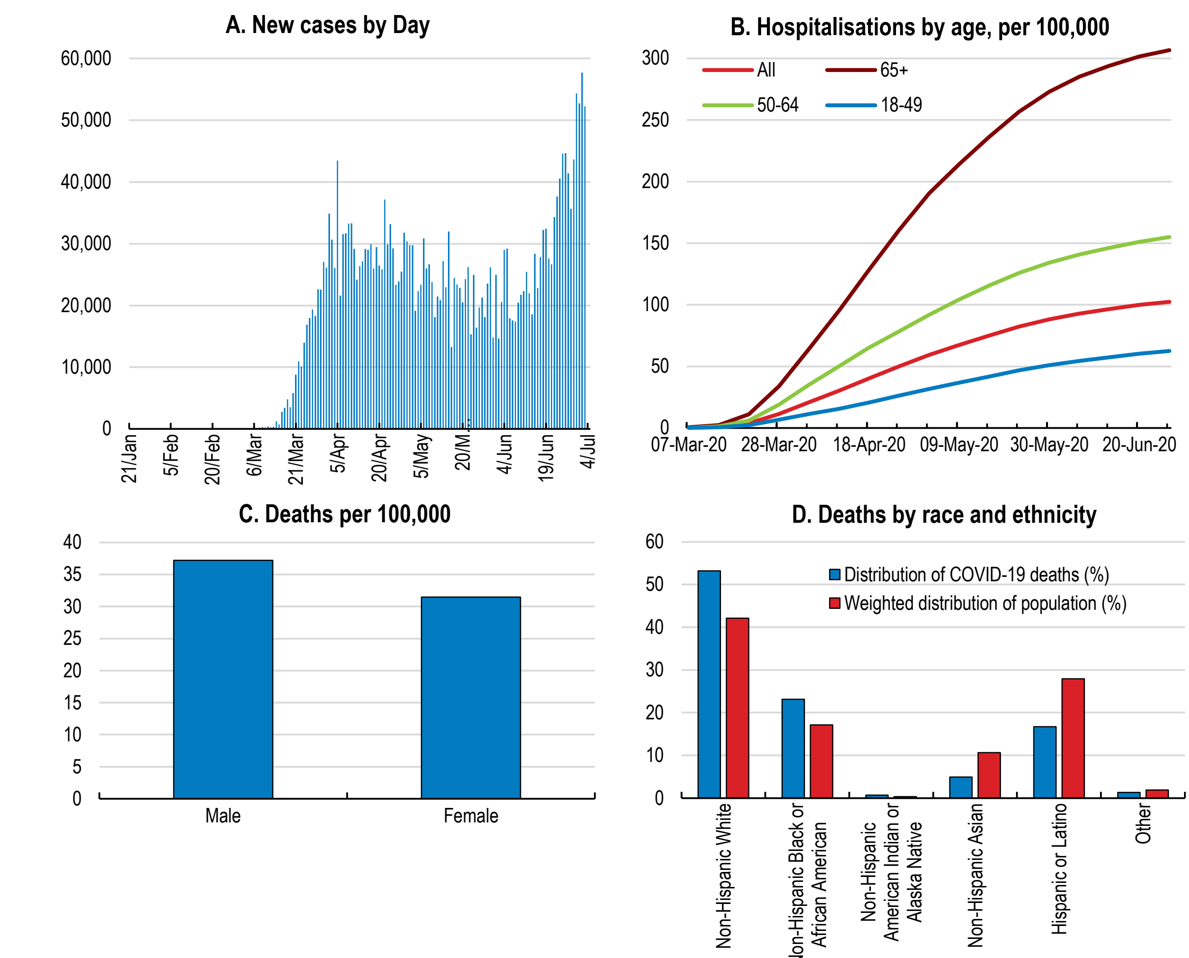
getting the right skills. Occupational licensing and restrictive land use regulation should be eased because they hinder people moving to more productive jobs.

- Under-privileged groups should be supported, especially workers who have not completed a college education, through supporting a strong recovery and lowering regulatory barriers to their labour-market participation, while considering how to strengthen education, training, lifelong learning and health policies. Such measures will improve the employability and opportunities of those groups lagging behind and typically those who fare less well during downturns.

The economy requires continued macroeconomic policy support

Since the first case recorded in late January, the spread of the coronavirus has been rapid and by May 2020 over one million Americans have been diagnosed with COVID-19, with important clusters in several large metropolitan areas. Even though the US health system was apparently well placed to deal with a pandemic, ranked as having a high ability to respond rapidly and mitigate the spread of a virus and with comparatively large health care capacity (GHS Index, 2019[1]), the coronavirus pandemic has proven difficult to bring under control. Confinement measures decided in most states have helped to flatten the curve of new cases, but there are large uncertainties about the future course of the pandemic. The incidence of COVID-19 appears to disproportionally affect the elderly, black and African Americans, while mortality risk appears elevated for men (Figure 1.2).

Figure 1.2. COVID-19 cases had grown strongly

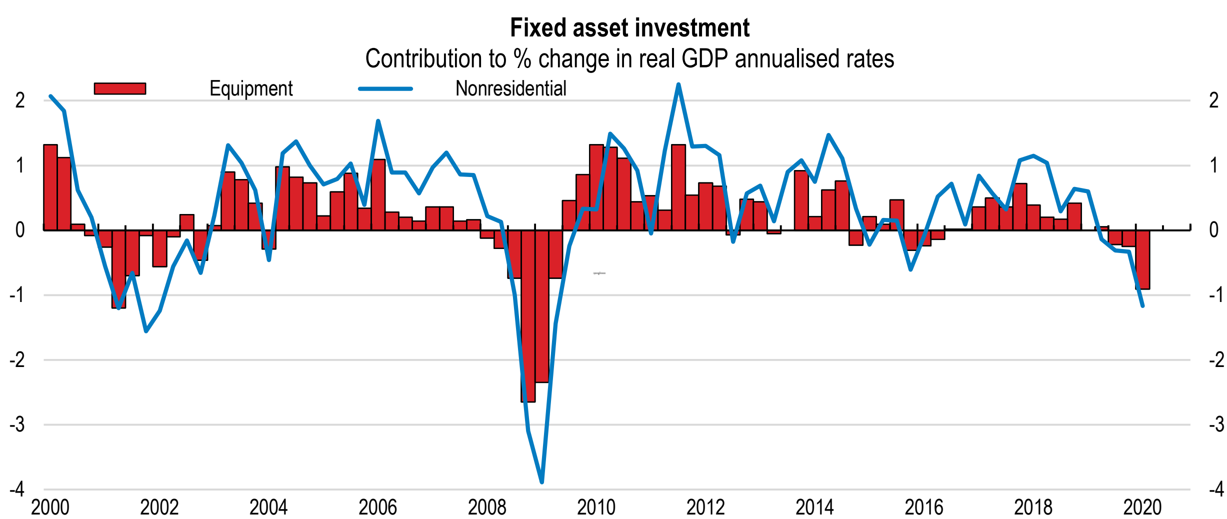


Source: Centers for Disease Control and Prevention.

As the coronavirus started to spread, states implemented distancing strategies to slow the contagion. Most states closed schools and nonessential businesses, restricted public gatherings and then issued Shelter-in-Place orders, with the first being introduced in California in late March. Some states began to relax containment measures in late April, adopting a phased re-opening of the economy. Typically, schools and bars, restaurants and places of entertainment remained closed in May 2020, but other sectors can begin to operate with some restrictions requiring distancing in the workplace and staggering shift times. The ambition is to replace non-pharmaceutical interventions, such as lockdowns, with increased testing and contact tracing while avoiding overburdening the health sector. At the federal level, support for testing provides a complement for state strategies to reopen their economies.

The containment measures, businesses shutting down, and households staying at home have led to a severe contraction in economic activity. Activity in the entertainment sector and passenger transport has been decimated. This has provoked an unprecedented sharp increase in unemployment. Over 20 million workers lost their jobs during April, far quicker than during the 2008 financial crisis or even the Great Depression. To compound the coronavirus shock, the oil price collapsed as supply overwhelmed storage capacity. By early May, drilling activity was down by 50% on the beginning of the year and contributed to the slump in investment (Figure 1.3). Financial markets have shown signs of stress with yields surging in some markets and measures of asset prices falling by around one fifth.

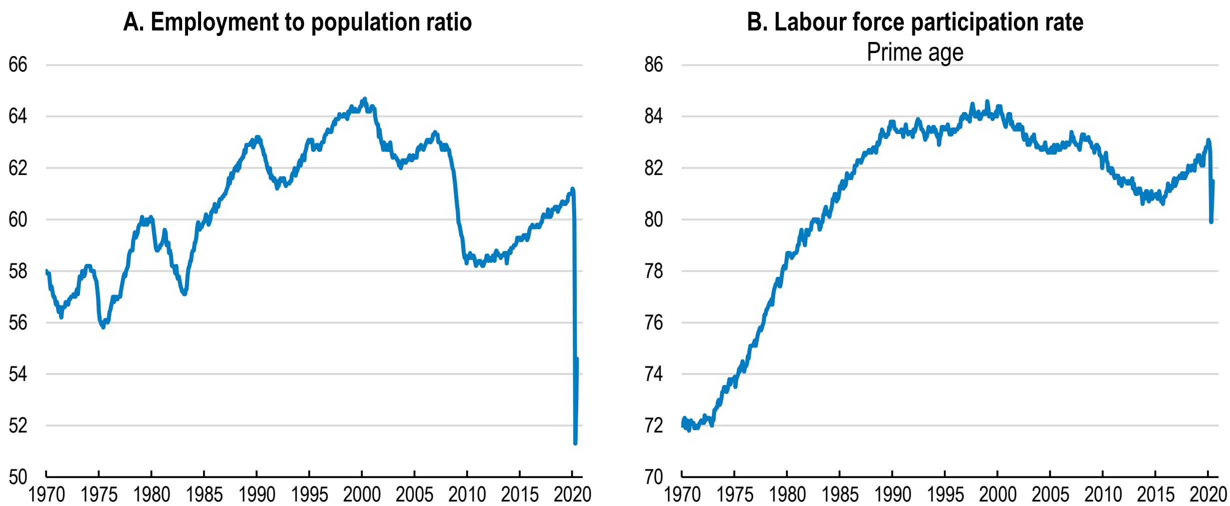
Figure 1.3. Business investment has slowed



Source: BEA Table 1.1.2.

The economy is set to climb out of the coronavirus recession as states and sectors sequentially reopen (Table 1.2). The economy was largely constrained by shelter-in-place measures through most of April and May but then reopened with restrictions lingering in sectors and parts of the country where distancing remained a concern. Nonetheless a renewed wave of coronavirus infections remains a possibility. In the double-hit scenario a renewed, but milder, outbreak of COVID-19 infections is assumed to occur in October and November. To minimise the risk of a second wave leading to another large-scale lockdown of the economy to protect lives, developing testing to identify those infected and then tracking and isolating to limit further infections will be needed. Augmenting medical capacity to cope with a second wave and identifying those who have acquired immunity will help mitigate the impact on the economy of a second wave by facilitating greater reliance on targeted measures to limit the spread of the virus. In the single-hit scenario, the economy is assumed to recover gradually as the distancing restrictions are lifted. An unusually large share of the unemployed are on temporary furlough, which suggests that many will regain employment relatively quickly, providing a strong rebound in the short term. However, employment dropped dramatically and many workers have not retained attachments to employers (Barrero, Bloom and Davis, 2020[2]). In addition, some businesses will face uncertain futures, particularly if liquidity problems translate into solvency issues. Furthermore, labour force participation dropped sharply to levels not seen since the early 1980s (Figure 1.4). A large fall in prime-age participation also occurred during the 2008 financial crisis and took around a decade to reverse with some of workers facing greater difficulties re-entering the market, such as those with lower levels of educational attainment.

Figure 1.4. The labour market shock is without precedent



Source: US Bureau of Labor Statistics; and FRED, Federal Reserve Bank of St. Louis.

During the recovery from the financial crisis in 2008, the unemployment rate came down relatively gradually over a long period, partly due to workers slowly re-entering the labour force. In part, this reflected the difficulties in making employer-employee matches, especially for a worker who has dropped out of the labour force. Congress has recognised this threat and set up the Paycheck Protection Program to help small businesses keep workers on their books. While the initial sums available were quickly oversubscribed, the early indications are that millions of workers have lost this link. As such the unemployment rate is assumed to decline relatively gradually also after the current recession. In addition, a reallocation of labour across sectors is likely to be required during the recovery, as activities requiring face-to-face contact, such as travel and accommodation, will be affected to infection risks, while other sectors, especially health and digital services, will benefit from rising demand. Past experience shows that inter-sectoral labour reallocation takes time because of retraining needs and is impeded by regulations, such as occupational licensing.

Weakened consumer demand in conditions of elevated unemployment and heightened uncertainty will depress business investment, which is likely to weaken productivity growth. With high unemployment rates, inflation is set to be quiescent throughout the projections. These projections are subject to substantial uncertainty and risks as the world continues to grapple with the coronavirus pandemic (Table 1.1). Macroeconomic policy should be ready to act further if required, including by continuing to support the economy as it emerges from lockdown.

Table 1.1. Low probability vulnerabilities

Vulnerability	Possible outcome
Health pandemics	The outburst of coronavirus in early 2020 highlights the risks of future pandemics leading to loss of life as well as economic dislocation due to interconnectedness of economies and global supply chains.
Financial market difficulties	Systemically-important financial institutions create too-big-to-fail problems for the regulators. Risks emanating from the shadow banking system threaten to undermine financial stability.
Intensified weather variability and storm activity	Coastal areas are already exposed to sometimes devastating storm damage. Extreme natural disasters may have long-term negative effects on local economies and require large responses in disaster relief, putting a strain on State and federal fiscal positions.
Climate change risks prompt aggressive policy even when considering energy security and the economy	Large adaptation and mitigation costs need to be borne and the potential for substantial stranded assets may lead to balance sheets deteriorating rapidly.
An intensification of geo-political tensions and threats of terrorist activity	Heightened insecurity could undermine consumer confidence. Addressing potential threats would likely require substantial public spending and may disrupt economic activity, notably through tighter border controls.
A retreat from internationalism despite progress in regional trade agreements	The use of trade measures alongside negotiation of trade agreements to lower trade barriers needs to ensure a pathway to reversing tariff increases. Without some pathway, trade policy uncertainty will likely remain large.
Political gridlock	An intensification of past difficulties in forging consensus on the budget and economic policy more broadly may result in gridlock. Risks of default on federal debt or underfunding of essential activities could risk sharp shocks to the economy and financial sector.

Table 1.2. Recovery from the COVID-19 recession is projected to be gradual

A. Double-hit scenario

	2016	2017	2018	2019	2020	2021
United States: double-hit scenario	Current prices USD billion	Percentage changes, volume (2012 prices)				
GDP at market prices	18 715.0	2.4	2.9	2.3	-8.5	1.9
Private consumption	12 748.5	2.6	3.0	2.6	-9.4	2.6
Government consumption	2 671.4	0.6	1.7	1.8	2.5	2.0
Gross fixed capital formation	3 786.9	3.7	4.1	1.8	-9.5	0.8
Final domestic demand	19 206.8	2.5	3.0	2.3	-7.8	2.1
Stockbuilding[1]	27.1	0.0	0.1	0.1	-0.8	0.0
Total domestic demand	19 233.8	2.6	3.1	2.4	-8.5	2.1
Exports of goods and services	2 220.6	3.5	3.0	0.0	-11.1	-0.6
Imports of goods and services	2 739.4	4.7	4.4	1.0	-11.0	0.7
Net exports[1]	- 518.8	-0.3	-0.3	-0.1	0.3	-0.2
Memorandum items						
GDP deflator	_	1.9	2.4	1.7	1.7	1.6
Personal consumption expenditures deflator	_	1.8	2.1	1.4	1.2	1.1
Core personal consumption expenditures deflator[2]	_	1.6	2.0	1.6	1.4	1.0
Unemployment rate (% of labour force)	_	4.4	3.9	3.7	12.9	11.5
General government financial balance (% of GDP)	_	-4.3	-6.7	-7.3	-16.8	-11.8
General government gross debt (% of GDP)	_	105.7	106.7	108.5	131.8	139.9
Current account balance (% of GDP)	_	-2.3	-2.4	-2.3	-2.1	-2.2

1. Contributions to changes in real GDP, actual amount in the first column.
2. Deflator for private consumption excluding food and energy.
Source: OECD Economic Outlook 107 database.

B. Single-hit scenario

United States: single-hit scenario	2016	2017	2018	2019	2020	2021
	Current prices USD billion	Percentage changes, volume (2012 prices)				
GDP at market prices	18 715.0	2.4	2.9	2.3	-7.3	4.1
Private consumption	12 748.5	2.6	3.0	2.6	-7.8	6.2
Government consumption	2 671.4	0.6	1.7	1.8	2.3	1.3
Gross fixed capital formation	3 786.9	3.7	4.1	1.8	-8.2	3.2
Final domestic demand	19 206.8	2.5	3.0	2.3	-6.5	4.9
Stockbuilding[1]	27.1	0.0	0.1	0.1	-0.8	0.0
Total domestic demand	19 233.8	2.6	3.1	2.4	-7.2	4.9
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Unemployment rate (% of labour force)	_	4.4	3.9	3.7	11.3	8.5
General government financial balance (% of GDP)	_	-4.3	-6.7	-7.3	-15.0	-10.5
General government gross debt (% of GDP)	_	105.7	106.7	108.5	128.8	133.1
Current account balance (% of GDP)	_	-2.3	-2.4	-2.3	-2.1	-2.2

1. Contributions to changes in real GDP, actual amount in the first column.
2. Deflator for private consumption excluding food and energy.
Source: OECD Economic Outlook 107 database.

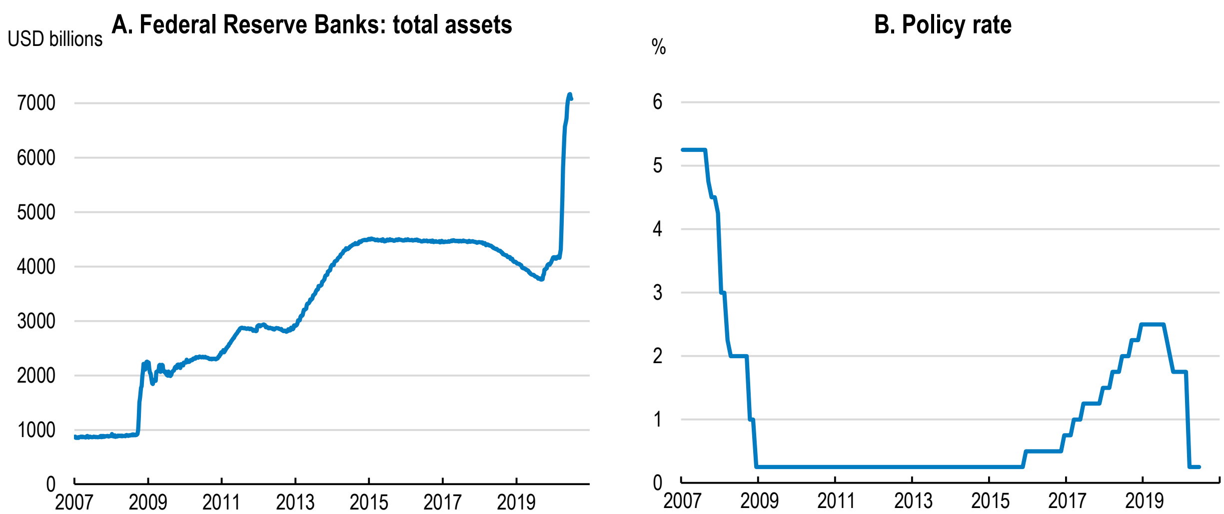
Monetary policy is in unchartered territory

Monetary policy reacted forcefully and quickly to the emerging coronavirus crisis. The Federal Reserve dropped the target range for the federal funds rate to 0-0.25% in two unscheduled meetings and then announced the resumption of large scale purchases of Treasury and agency Mortgage-Backed Securities to address a severe deterioration in the functioning of these critical markets. These purchases, have swollen the size of the balance sheet far quicker than was seen during the 2018 global financial crisis (Figure 1.5). Statements made clear that the federal funds rate would remain low giving markets forward guidance. As a result of the shock, wage and price inflation is likely to remain muted and continue the prolonged period of undershooting the Federal Reserve's 2 percent inflation target. In the medium term, weak productivity growth coupled with reshoring and diversifying supply chains may put upward pressure on prices. If inflation were to pick up more robustly and the real economy safely recovered the Federal Reserve would then be able to scale back asset purchases and ultimately raise interest rates once again.

In responding to the coronavirus shock, monetary policymakers have enhanced and expanded their tools. Forward guidance and quantitative easing used in the Great Recession proved their mettle and are now familiar to market participants, although there is concern that increasing the balance sheet further may diminish the effectiveness of balance sheet tools. There are options to buttress forward guidance, such as by committing to buy bonds at specific maturities (Brainard, 2019[3]). Other Central banks have already adopted negative interest rates. In the United States, the structure of the capital markets would make it more difficult to implement them (Bernanke, 2020[4]). The Federal Reserve has examined this option and decided that it is not an attractive monetary policy tool in the United States (FOMC, 2019[5]). Given potentially limited room for manoeuvre, drawing up contingency plans for forward guidance and large scale asset purchases, including the possibilities for expanding the range of eligible assets in case of an even more severe downturn would be advisable (Gagnon and Collins, 2019[6]).

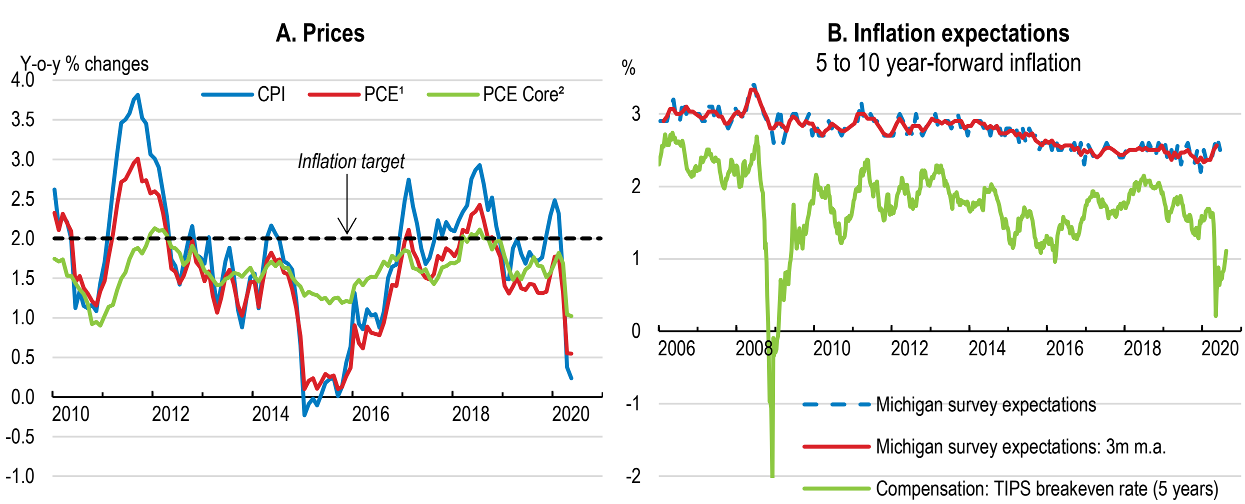
Continued undershooting of the symmetric inflation target of 2% is a concern for meeting the price stability part of the Federal Reserve's mandate in the future. This may be particularly worrisome given the slide in some measures of inflation expectations to low rates by historical comparison (Figure 1.6). If inflation expectations become anchored at these rates and inflation and interest rates decrease in response, monetary policy will be unable to respond to future downturns using conventional tools as aggressively as it has in the past.

Figure 1.5. Monetary policy has reacted forcefully to the crisis



Source: Refinitiv.

Figure 1.6. Inflation had only slowly returned to target and expectations have slipped



1. Personal Consumption Expenditures price index
2. Personal Consumption Expenditures excluding food and energy price index
Source: OECD Analytical Database and Refinitiv.

Against the backdrop of interest rates likely to remain lower in the future as inflation rates have declined (Kiley and Roberts, 2017[7]), the Federal Reserve has undertaken a review of its monetary policy framework. One essential aspect of this review will be to ensure central bank communication is effective, particularly when policy rates are near or constrained by the effective lower bound. In this environment, explaining clearly the future path of policy rates will be crucial. It is thus vital that monetary policy independence is maintained. Changes to the monetary policy framework should make clear that the inflation target is symmetric (as recommended by past OECD Economic Surveys). One option is to allow the Federal Reserve to meet the inflation target on average, with explicit overshooting of the inflation target during expansions to offset undershooting during contractions. Average inflation targeting would potentially help stabilise inflation expectations around the inflation target. However, the operationalisation is complicated. Analysis by Reifshneider and Wilcox (2019[8]) point to a number of drawbacks if the review leads to a rules-bound approach. These include the possibility that rules may not be able to prevent inflation expectations from sliding, they may not be aggressive enough in the case of a large shock and also lack credibility. In addition, rigid policy rules that include explicit demands to make up for inflation shortfalls may be difficult to implement due to communication challenges if they arise from idiosyncratic and temporary supply shocks (Box 1.1). In this context, retaining discretion will be important in setting policy.

Box 1.1. Implications of climate risks

A new area of challenges is how monetary and financial policy should adjust to enhanced climate risks (Brainard, 2019[9]). Mitigation and adaptation measures will affect prices and employment, which may require monetary policy to react to the extent to which these shocks are temporary or permanent. The resilience of the financial sector to possible changes in asset valuations is another climate related risk. They can arise if policy changes create stranded assets affecting balance sheets. Companies are increasingly reporting climate-related financial exposures. The 500 largest firms have estimated exposures totalling $1 trillion. Other central banks, such as the Bank of England and Banque de France, are including climate risks in their stress testing of the financial system. Against this background, systematically assessing financial institutions' exposures to climate-related risks through rising sea levels and potential flooding, fires and regulatory changes, such as energy efficiency standards creating stranded assets would complement existing stress tests without adding to the regulatory burden.

Financial market regulation has reacted to the crisis

The financial markets were hit hard by the coronavirus shock. Asset prices in stock markets dropped sharply and by early May were around one-fifth lower than their peaks recorded in February. Credit markets also showed signs of strain, with yields in different markets surging as liquidity dried up. This led the Federal Reserve to create a suite of new lending facilities (see Box 1.2). Liquidity facilities have been created to underpin credit for securities firms, money market mutual funds, major companies and state and local governments. An additional facility to target lending to "main street" businesses is an innovation expanding support to sectors traditionally far beyond the purview of monetary authorities. In addition, prudential regulators have temporarily relaxed some requirements for the financial sector to avoid credit drying up.

Box 1.2. Financial policy response to the COVID-19 shock

The Federal Reserve moved quickly to prevent liquidity drying up on different markets by resurrecting or introducing new loan facilities, extending the reach of the central bank across the economy. These include:

- Primary and Secondary Market Corporate Credit Facilities to provide liquidity for corporate bonds,
- Term Asset-Backed Securities Loan Facility that will support the issuance of asset-backed securities (ABS) backed by student loans, auto loans, credit card loans, and loans guaranteed by the Small Business Administration
- Money Market Mutual Fund Liquidity Facility and the Commercial Paper Funding Facility to support the flow of credit to short-term funding markets.
- Municipal Liquidity Facility to help state and local governments manage cash flow pressures after the municipal bond market showed signs of stress.
- Main Street Business Lending Program to support lending to small-and-medium sized businesses.

These facilities are supported by equity investments by the U.S. Treasury in order to ensure that the Federal Reserve will not have to absorb losses.

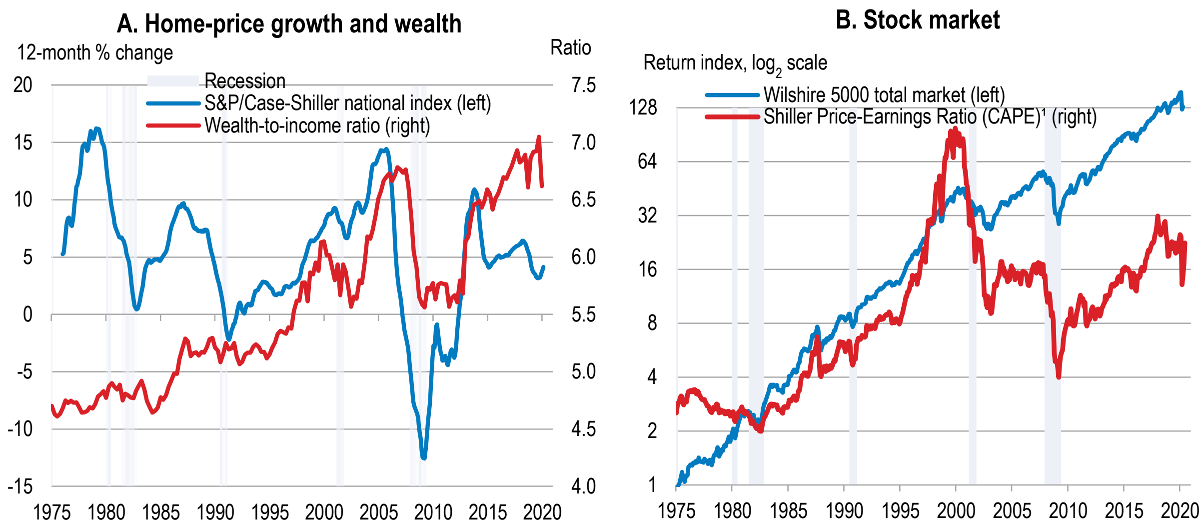
In addition, the Federal Reserve established liquidity swaps with foreign central banks to prevent the disruption of credit that may occur with the breakdown of bank funding markets. The swap lines provide dollar or foreign currency liquidity to institutions during times of market stress.

To support initiatives to shore up credit markets, the financial regulators have advised banks to work constructively with customers in modifying loans, eased compliance requirements for lenders, delayed implementation of new regulatory requirements, targeted temporary changes in capital requirements, reduced reserve requirements and increased the availability of the discount window to meet liquidity needs and support customers by ensuring the continued functioning of financial markets.

The banking sector appears to have withstood the initial impact of the coronavirus shock. However, the long period of low interest rates - which contributed to elevated asset prices (Figure 1.7) - is likely to continue. The low interest rate environment had supported high stock market valuations and house prices in some cities, such as Los Angeles, San Francisco and San Diego. Concerns about the sharp retrenchment in asset prices since the start of the coronavirus pandemic are mitigated by relatively healthy household balance sheets, at least on aggregate. A somewhat larger concern is that the scale of loans in the non-financial corporate sector is at historic highs (Figure 1.8). Furthermore, some evidence indicates that the firms that had been amassing large debt loads were those with high leverage and low earnings and cash holdings. In addition, credit quality had deteriorated. The share of non-bank institutions in segments of the financial markets had been growing more important, such as syndicated loans.

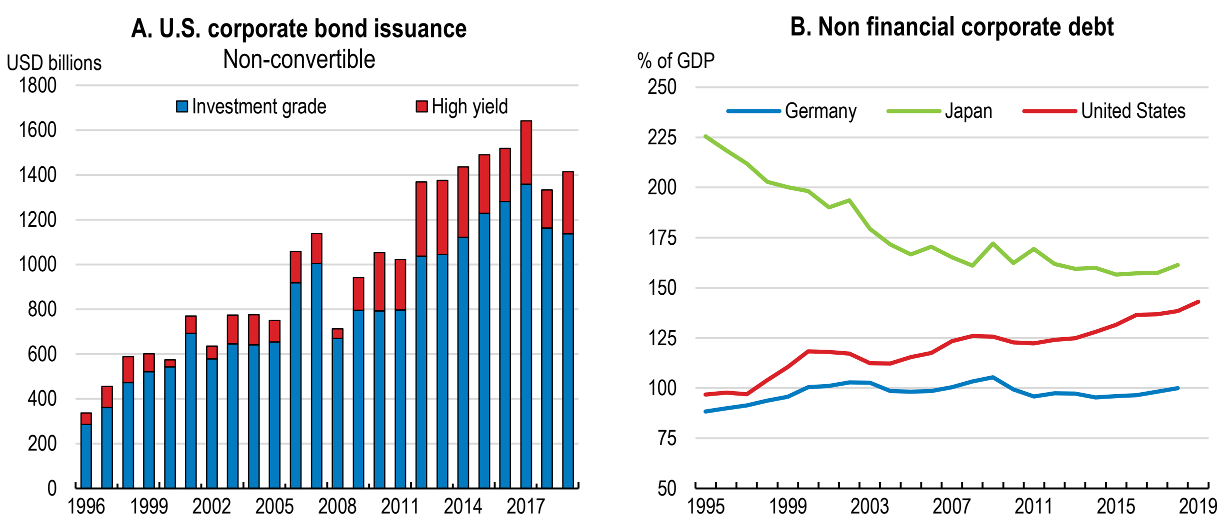
The vulnerabilities in the corporate sector creates risks (Federal Reserve, 2020[10]). With economic activity contracting sharply, highly leveraged firms are particularly exposed to default risks while the economy recovers. Liquidity support to bridge a period of subdued earnings may leave firms with even higher leverage. Ratings downgrades and pressures on the corporate bond market could amplify the economic downturn if earnings remain weak and firms face difficulties in refinancing existing debt.

Figure 1.7. Asset price have fallen back from recent highs



1.Cyclically Adjusted Price Earnings Ratio (CAPE, P/E10)
Source: Refinitiv.

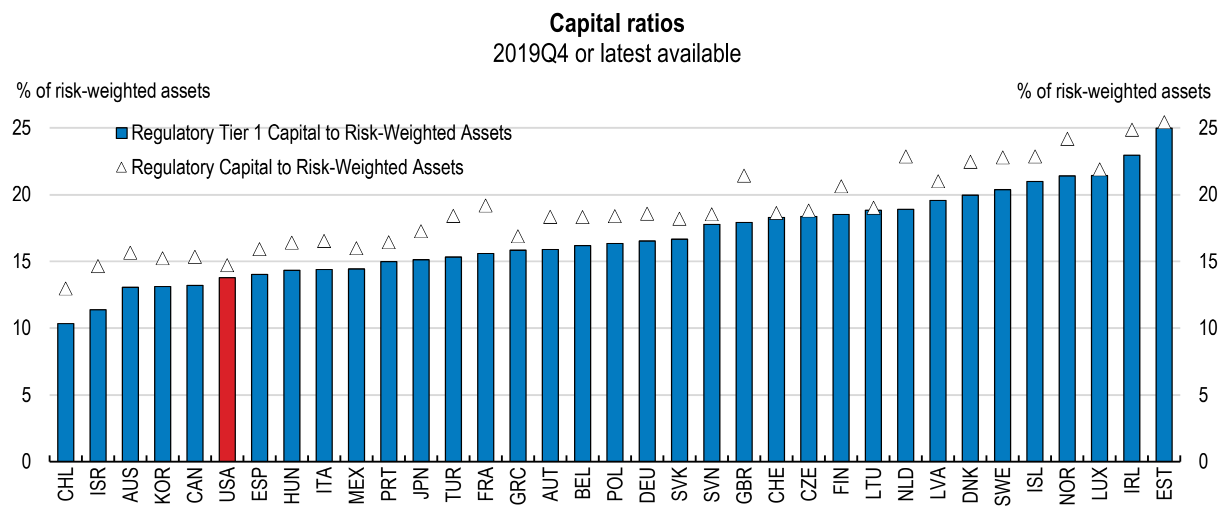
Figure 1.8. Non-financial corporate debt has risen



Source: SIFMA; and OECD National Accounts – Financial dashboard.

The constellation of risks requires careful monitoring and action to prevent them, particularly those from the non-bank sector, ultimately materialising on bank (or government) balance sheets. The weaknesses revealed in governance and controls in some of the larger banks warns against complacency. The early experience of the coronavirus pandemic, suggests that the banking sector has weathered the shock, validating the efforts of lawmakers and regulators to strengthen banks resilience. In this light, maintaining robust prudential regulation on banks, particularly the largest systemically important financial institutions, remains essential. The policy framework for financial stability has improved since the 2008 financial crisis, with the implementation of the Dodd-Frank Act. Strict regulation and supervision particularly of larger banks and systemically important financial institutions, including monitoring of capital adequacy and conducting stress tests have played a role in boosting banking sector resiliency (Figure 1.9). For example, nonperforming loans have decreased steadily and accounted for only around one percent of total loans on the eve of the coronavirus crisis. However, this situation may deteriorate rapidly as the economy emerges from the lockdowns and liquidity support is withdrawn. Small and medium sized enterprises are likely to be particularly vulnerable, but also enterprises in sectors, such as hospitality, may also come under stress. The corporate bankruptcy system works effectively although if particular asset classes face more uncertain prospects leading to solvency concerns uncoordinated action by creditors runs the risk of triggering fire sales. Finally, the Federal Reserve has begun to release publically a regular Financial Stability Report to assess emerging risks (as recommended by past Economic Surveys).

Figure 1.9. Bank regulation should not be relaxed for systemically important banks



Source: IMF Financial Soundness Indicators (FSIs).

Prudential regulation can create trade-offs in terms of access to credit, as typically smaller relational lenders, who are often important for low-income households, incur proportionally large costs in meeting regulatory standards. The authorities have reacted to the proportionally heavier regulatory burden imposed on the smaller banks and have acted to lighten it on the banks least likely to threaten financial markets. Additional policies to foster financial inclusion would support access to credit of under-banked groups (Box 1.3). In the longer run, the Federal Reserve could alter macroprudential policy to be more dynamic varying counter-cyclical capital buffers over the cycle to further strengthen the resilience in case of a downturn. This should be gradually introduced with the aim of being operational over future cycles.

Previous *OECD Economic Surveys* have argued for housing finance reform to target improving housing affordability in the rental market, which is likely to benefit lower-income households, while reducing taxpayer exposure to costly bailouts. The government-sponsored enterprises, Freddie Mac and Fannie Mae, remain important players in the housing market and their portfolios are designed to help provide affordable housing. However, the housing finance system remains essentially unchanged since they were taken into government conservatorship in the midst of the sub-prime crisis, and as the housing market has recovered they have made profits. More recently, some recapitalisation has been allowed. Greater recapitalisation may provide preconditions for the government to step back from guaranteeing these enterprises. A number of options exist depending on the desired involvement of the private sector in the mortgage market (CBO, 2018[11]). Decisions about the size of the capital base for the government-sponsored enterprises will partly determine the government's credulity in distancing itself from pressure for bail outs.

Table 1.3. Previous monetary and financial policy recommendations

Main recommendations	Action taken since September 2018
Reform housing finance, including government sponsored enterprises, to better target housing affordability measures to the rental market. Support the provision of affordable housing for low-income families.	The Administration has made housing finance reform a top priority and is considering legislative (and, if necessary, administrative) proposals. Administration goals include an end to GSE conservatorship, expansion of the market share for private lending, protection for taxpayers, and creation of a robust and sustainable housing finance system.
Continue to raise interest rates at a gradual pace as long as inflation remains close to the Fed's target and the labour market remains close to full employment.	Interest rates were gradually raised and then lowered as the economy weakened

Box 1.3. Financial inclusion

Low-income households are less likely to have access to banking services (Azzopardi et al., 2019[12]). For poorer households, social and demographic characteristics appear to be potent covariates with access to banking services (Hayashi and Minhas, 2018[13]). These include educational attainment, the age of the head of the household, internet access, race, employment status and homeownership. Technological solutions may be feasible to address access to banking services for these demographic groups. Amongst low-income households, access to the internet is associated with an 11 percentage point increase in the probability of being banked.

Access to banking services has recovered after the financial crisis and now only around 7% of households are unbanked. Community banks can play an important role in offering traditional banking services, they provide the sole bank branch in around 40% of counties in the United States (CEA, 2019[14]). These banks account for 92 per cent of federally insured banks and are responsible for 16% of total loans and leases, but are much more important for small loans to banks and businesses. The roll out of the Dodd-Frank Act imposed large burdens on these banks that were recognised and rolled back in the "Crapo Bill" of 2018.

Fiscal policy faces challenges

Fiscal policy also reacted forcefully to the coronavirus (Box 1.4). Initial policy moves were relatively small and mainly targeted the medical response, but as the scale of the impact on the economy became clearer Congress passed a suite of budgetary acts to shield families and businesses. One-off payments to all families and boosted unemployment insurance payments provided the bulwark in shielding households from the shutdown. Congress has also authorised direct payments to distressed industries, such as airlines. Credits are available for other companies. For small businesses these loans become grants if mainly used to support payrolls as policymakers recognised the importance of keeping workers attached to businesses. In addition, some funds have been directed to support state governments that have come under budgetary strain due to the impact of dealing with the coronavirus at a time when their revenue sources are drying up. Cumulatively these measures will see budget deficits balloon in the short term, and will contribute to raising general government debt by over 20% of GDP in 2020 and 2021.

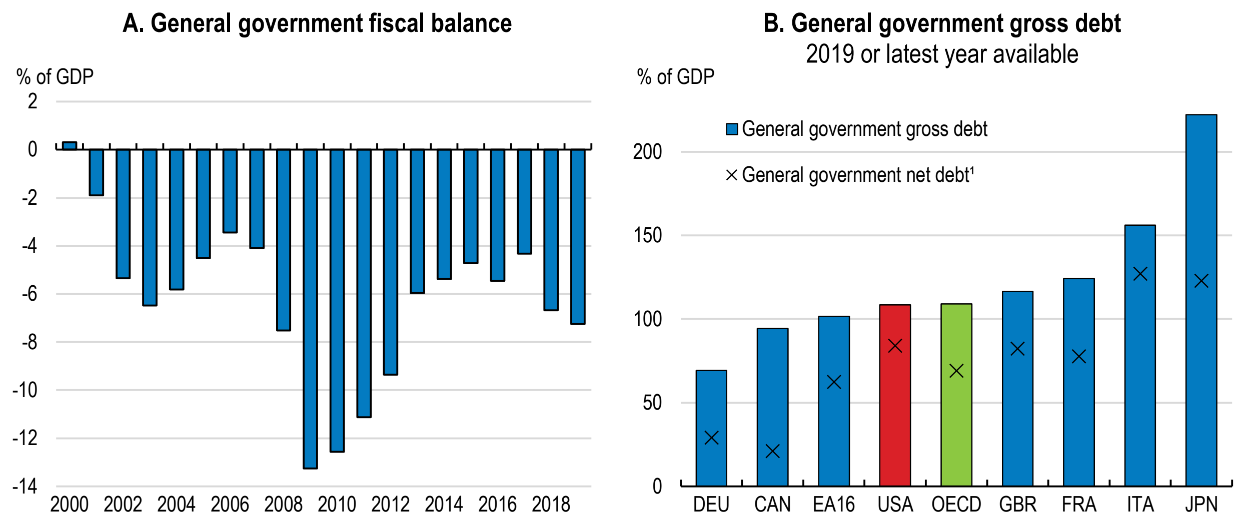
Box 1.4. Fiscal policy response to the COVID-19 shock

The federal government has introduced a number of measures in response to the spread of the coronavirus. Initially the acts passed by Congress targeted mainly the medical response but later developed to shield households and businesses from the shock and the impact of the shutdowns being introduced across the country. The main support packages were:

- The Coronavirus Preparedness and Response Supplemental Appropriations Act provided early support, including by enhancing telehealth, for the response to the crisis, including through making appropriations for vaccine development, support for state and local governments' prevention and response efforts, and the purchase of medical supplies.
- The Families First Coronavirus Response Act targeted to support workers and social assistance. The bill provides for free testing for the coronavirus, 2 weeks paid sick leave (capped) and then additional paid sick leave for workers with children for up to 3 months. Additional resources were devoted to providing food for households with low income. Money was also targeted to support the expected increase of unemployment insurance, which is administered by the states. The bill also increases Medicaid payments to states.
- The CARES Act provides support for households and businesses during the crisis. For households the principle measures were: About $301 billion will provide income support for families in the form of direct payments of $1200 for each adult and $500 for children (unless household income is above a threshold) and about $250 billion will boost unemployment insurance payments to $600 per week through July, expand coverage to include the self-employed and gig economy workers, and extend benefits from 26 weeks to 39 weeks. Additionally, the federal government will defer interest and principal payments on federal student loans. The act also supports businesses, cities and states that have been hard hit by the coronavirus. Of this, the CARES Act allows the Treasury to make loans to airlines, air cargo, and national security critical firms of $25 billion, $4 billion, and $17 billion, respectively. The remaining $454 billion will provide equity to the Federal Reserve to establish 13(3) lending facilities for other businesses. Such lending facilities could support around $4 trillion in business loans. Around $350 billion is included to support business interruption loans to small businesses. Principal on these loans that small businesses used for payroll, rent, interest on existing obligations, and utilities for eight weeks will be forgiven if such small business maintain pre-crisis employment levels. Thus, these business interruption loans are effectively grants to keep workers on the payroll during the crisis.

The temporary increase in deficits and rise in debt levels incurred in the coronavirus response will add to the debt stock, but will not fundamentally alter the long-run sustainability challenge. This is largely determined by the underlying growth in spending pressures leading to growing deficits in the absence of corrective action. Even before the crisis the federal government had been running large deficits, raising debt levels (Figure 1.10). However, as interest rates are low and set to remain low for some time, the ability to service interest payments on comparatively large debts is enhanced (Blanchard, 2019[15]). The U.S. dollar's international reserve currency position reduces concerns about volatile increases in interest rates. A sharp fiscal retrenchment would be counter-productive and as such the temporary provisions in the recent tax reform should not be allowed to expire. Furthermore, automatic stabilisers and additional measures implemented as part of the crisis reaction should be allowed to play out. In the long term, demographic trends will increase spending as a share of GDP. As such, fiscal policy should aim to stabilise debt by gradually reducing budget deficits. From a longer-term perspective, ensuring fiscal sustainability will require measures that will constrain spending growth of some programmes (notably Medicaid, Medicare and Social Security), raise revenue and improve the efficiency of public spending.

Figure 1.10. Government deficits and debt levels are high



Note: General government shows the consolidated (i.e. with intra-government amounts netted out) accounts for all levels of government (central plus State/local) based on OECD national accounts. This measure differs from the federal debt held by the public, which was 79.2% of GDP for the 2019 fiscal year.
Source: Congressional Budget Office; and OECD Analytical Database.

Letting the automatic stabilisers operate and boosting productive spending

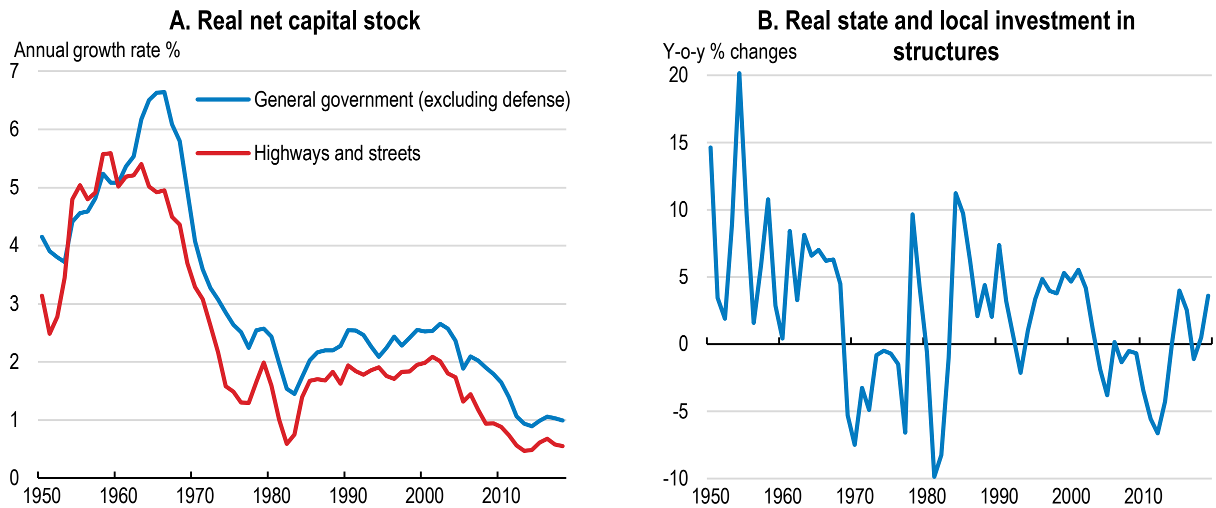
In the near term, fiscal policy should allow the automatic stabilisers to operate and support aggregate demand as the economy recovers. As with precious recessions, Congress has extended unemployment insurance and increased discretionary spending and should be ready to continue support as the economy reopens. In particular, measures to help workers back into employment and viable firms to weather periods of still subdued demand would support reviving the economy. In addition, fiscal support for state and local governments during a period when their revenues have dried up would counter an unwelcome fiscal contraction just as the economy is beginning to regain its footing.

For future downturns, counter-cyclical policy could be made more potent, which may reduce output losses and see quicker recoveries. One proposal would trigger automatic payments to households when the unemployment rate increased by 0.5 percentage points over the last three months on average relative to the lowest unemployment rate observed over the past year (Sahm, 2019[16]). Breeching this threshold has been a reliable indicator of having entered a recession in the past. That said, fiscal policy reacted with impressive speed to the coronavirus spread with a number of sizeable spending packages.

Given the failure of the government capital stock, particularly transportation infrastructure, to keep pace with output growth there is a case for boosting infrastructure investment and badly needed maintenance of existing assets (Figure 1.11). Establishing a pipeline of new projects and necessary maintenance based on cost-benefit analysis, would help ensure value for money and potentially support counter-cyclical policy. For example, if Congress decides to boost investment spending temporarily during a downturn it would be easier to channel spending into higher-return projects. While investment in these assets is often implemented by state and local governments, the federal government plays an important role through grants for highway and mass transit projects, telecommunications and water. For example, the surge in capital stock growth in the 1950s and 1960s is related to the expansion of the inter-state highway system.

Figure 1.11. Public infrastructure spending has slowed

Growth rate of the real net capital stock and annualised growth rate of state and local investment in structures



Source: Bureau of Economic Analysis.

The funding for the grants for road transportation and mass transit comes from fuel taxes and is channelled through the Highway Trust Fund or appropriations such as the Fixing America's Surface Transportation Act (covering 2016-2020). Additional appropriations are needed because tax revenues have repeatedly fallen short of spending, reflecting difficulties in raising the fuel tax rate, which has not changed since 1993. This is compounded by investment becoming increasingly expensive, increasing fuel efficiency and the shift to hydrogen and electric vehicles. There are already around 1 million electric vehicles in the United States and penetration is expected to develop further and reduce fuel tax revenues substantially (Davis and Sallee, 2019[17]). One option is to switch increasingly to user fees for funding (Box 1.5). This is in line with the proposed reforms for inland water transport moving from fuel taxes to user fees that are set to cover investment needs and operation costs. Alternatively, if fuel taxes were raised to reflect inflation since they were introduced the additional revenue raised would be substantial ($25-$50 billion annually depending on the scenario).

The federal authorities face difficulties in investing in specific infrastructure assets. Funding from general revenue is likely to be a limited option given projected discretionary spending. That places an onus on other forms of funding, principally user fees or value capture. This would potentially open the door for innovative financing solutions, such as public-private partnerships, which have been used to some success in states such as Virginia and California and across the OECD. However, options to use public-private partnerships are often limited by budgeting procedures. The bias in the municipal bond market for tax-exempt bonds and restrictions on using bonds to fund projects with private ownership of assets discourages such financing. At the federal level, appropriations may set ceilings that make it difficult for multiyear projects to remain under (Section 302(b) allocations) and limits on long-term contracting can reduce opportunities to experiment with different financing mechanisms. In order to tap into different delivery options the federal government should experiment with states on ways to relax rules for specific infrastructure projects. On the bases of *ex post* evaluation, best practice cementing new ways to budget for these types of investment projects should be disseminated.

Box 1.5. Funding for surface transportation

It needs to change to more user fees and taking into account externalities

The present system is ill-adapted to meet trends in transport use. The major charge levied on drivers is the gasoline tax. At the federal level this is only 18 cents per gallon and while the receipts have been earmarked for interstate highways, infrastructure projects and mass transit, the amounts collected have been insufficient to meet spending needs. The switch to electric cars, hydrogen technology, and better fuel efficiency further undermines the tax base.

There are several externalities from driving include pavement damage, accidents, congestion, local air pollution and the emission of long-range transboundary pollutants and greenhouse gases. At present drivers pay a fraction of the wider costs they impose. Given the different natures of the externalities a combination of approaches is likely optimal. For the purposes of infrastructure provision, a switch towards user fees that better account for pavement damage and congestion. In addition user fees would reduce demand and signal more accurately where new capacity is needed, thereby ensuring the efficiency of public investment.

A number of states (California, Illinois, Oregon and Washington) are piloting programmes to introduce distance-based charging. Elsewhere in the OECD, some countries have already moved to distance based tolling for heavy goods vehicles and current technology is approaching the stage when this can approach can be extended to the passenger car fleet.

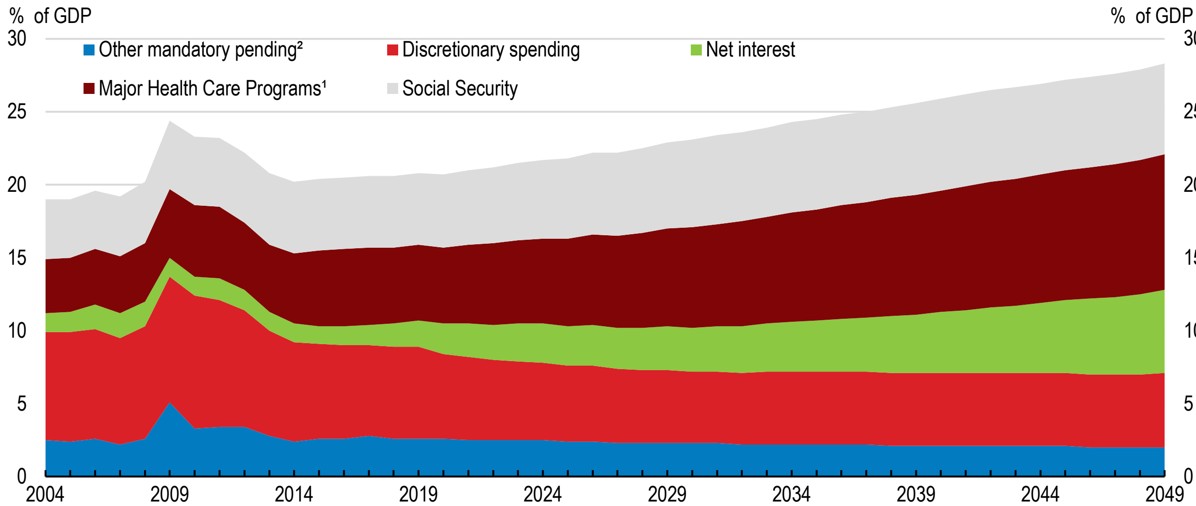
As an alternative, several states already implement road use taxes (Kentucky, New Mexico, New York and Oregon). Expanding this approach to the federal level could yield revenues in the range of $1.7-$2.7 billion if levied at the rate of 1 cent per mile on commercial trucks (CBO, 2019). However, enforcement or upfront capital costs would be larger than the current reliance on fuel taxation. Without enforcement evasion can be an important problem (around 50% in some cases) and has led states to repeal distance-based charges in the past. On the positive side, a distance based tax that varied with weight per axel could reduce pavement damage substantially. There would also be ancillary positive impacts reducing congestion if fees varied by time and place.

Growing spending pressures

The spending pressure on federal budget's long-term sustainability is largely driven by health and social security, which together account for three-quarters of mandatory spending (Figure 1.12). Mandatory spending currently accounts for around 13% of GDP and is expected to rise by another 2 percentage points over the next decade. The upward pressure on spending largely comes from rising health care costs, ageing - as more people enter retirement - and rising interest payments as the debt burden continues to mount. Without corrective action, fiscal policy is unstainable in the long term (Box 1.6).

The United States spends a substantially larger share of income on health care than other OECD countries (over 16% of GDP in the United States against an OECD average of under 9%). The public sector is responsible for over 40% spending on health, with compulsory insurance accounting for about another one-third of spending. The public sector portion has gradually expanded over time (Medicare, Medicaid, Veterans' Affairs). Reform options are complicated as the system has evolved with employers and health insurance companies playing an important role. Proposals for further expansion and Medicare-For-All would come at a substantial cost and need radical changes to funding, particularly if current levels of provision were offered (CBO, 2019[18]). An approach adopted in other OECD countries would be to provide a less generous basic package and allow households wanting more health care coverage to top up using private plans. An alternative approach would be using greater means-testing in accessing healthcare.

Figure 1.12. Spending is set to rise substantially



1. Spending for the major health care programmes (Medicare, Medicaid, and the Children's Health Insurance Program) as well as outlays to subsidize health insurance purchased through marketplaces established under the Affordable Care Act and related spending.
2. Consists of all mandatory spending other than that for Social Security and the major health care programs. It includes the refundable portions of the earned income and child tax credits and of the American Opportunity Tax Credit.
Source: CBO (2019).

Large differences in health spending exist not only across countries, but also between states. Various estimates suggest opportunities to curb wasteful spending which may account for as much as 30% or $750 billion of spending in 2009. (Smith et al., 2013[19]). Benchmarking states suggests considerable savings could be made by reducing the use of emergency departments, ensuring medication is taken as intended, reducing avoidable hospitalisations and unnecessary procedures and improving end-of-life care (Linder et al., 2018[20]). The administration has acted to accelerate the approval process at the FDA to promote greater competition in the pharmaceutical market, which has contributed to the recent decline of prescription drug price inflation (Council of Economic Advisers, 2019[21]). In light of the coronavirus, reforms to health spending should ensure that they do not undermine the health sector's capacity to respond to medical needs. In addition, it appears that large-scale testing capacity is a prerequisite for introducing more targeted measures and avoid the shuttering of the economy when a pandemic hits. Increased availability of personal protective equipment for health professionals and the population at large should help to reduce the transmission of a virus. Beyond this, improved governance and better co-ordination while reducing some of the regulatory barriers that initially hampered testing would enhance the ability of the health sector to respond effectively to a future health crisis.

There is scope to make savings in social security spending that would grow over time by increasing the progressivity of the system. The CBO estimates that modest changes to the formula used could reduce social security payments by 0.2 percentage points of GDP, by reducing benefit levels for higher earners (CBO, 2018[22]). More aggressive changes would have larger impacts, although such changes would weaken the link between social security benefits and earnings. Alternative approaches to ensure sustainability include changing the price index used to calculate benefits and increasing further the early and full retirement ages. Finally, raising the cap on earnings subject to contributions or the tax rate would raise additional revenues (Burtless, 2019[23]).

Discretionary spending – that is, spending decided annually in the budget process - currently accounts for 30% of federal outlays. Discretionary spending has been trending down to around 6% of GDP. Defence spending now accounts for around one half of this category. Government projections cap discretionary spending growth which will reduce it to historically low levels (5.4% of GDP). This type of spending includes transportation and education outlays and a continued squeeze on these programmes without rethinking how they are funded or their objectives may be neither realistic nor sustainable. For example, underfunding maintenance can provoke large capital spending when infrastructure assets fail. In addition, discretionary spending can play an important role in macroeconomic stabilisation during downturns (as seen around 2009).

Box 1.6. Debt sustainability

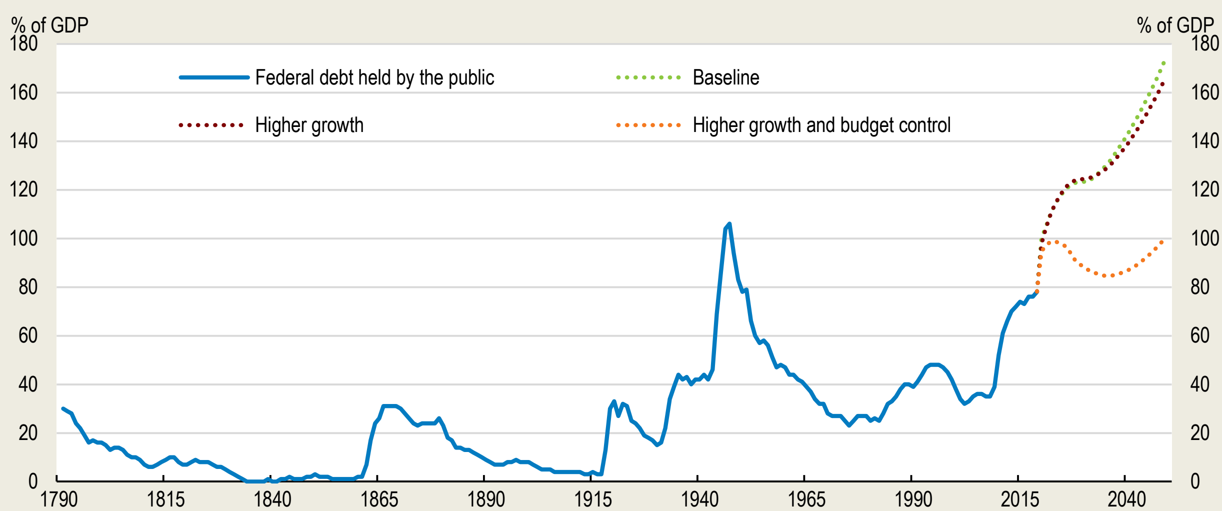
Given current policies the Congressional Budget Office projects that federal debt held by the public will rise substantially over the coming decades (Figure 1.12). To explore options to restore long-run sustainability, a number of mechanical simulations were conducted using reforms recommended in this Survey. Measures intended to boost GDP growth (increasing labour supply and productivity growth) raise the level of nominal GDP by 4% by 2030 and almost 10% in 2050 slowing debt accumulation. However, the scale of the challenge requires additional action to bring the budget deficit under control.

A mixture of base-broadening measures and addressing environmental externalities to increase revenue and indexation measures to constrain spending has the potential (other things being equal) to bring debt levels down. The effort would be substantial amounting to a 2½ percentage point of GDP reduction in the deficit by 2030. Even then, underlying spending pressures are still mounting due to demographic and excess health spending cost pressures. Ageing accounts for around half of the growth in spending in these projections, with the remaining increases due to rising net interest payments and excess cost growth in health spending, more than offsetting falls in discretionary spending.

The impact of the coronavirus on debt sustainability is relatively modest in comparison with the pressures emanating from pensions and health spending, but losses in the private sector (such as from contingent liabilities) could materialise quickly and push up debt levels even further.

Figure 1.13. The outlook for Federal debt is worrisome

Federal debt held by the public

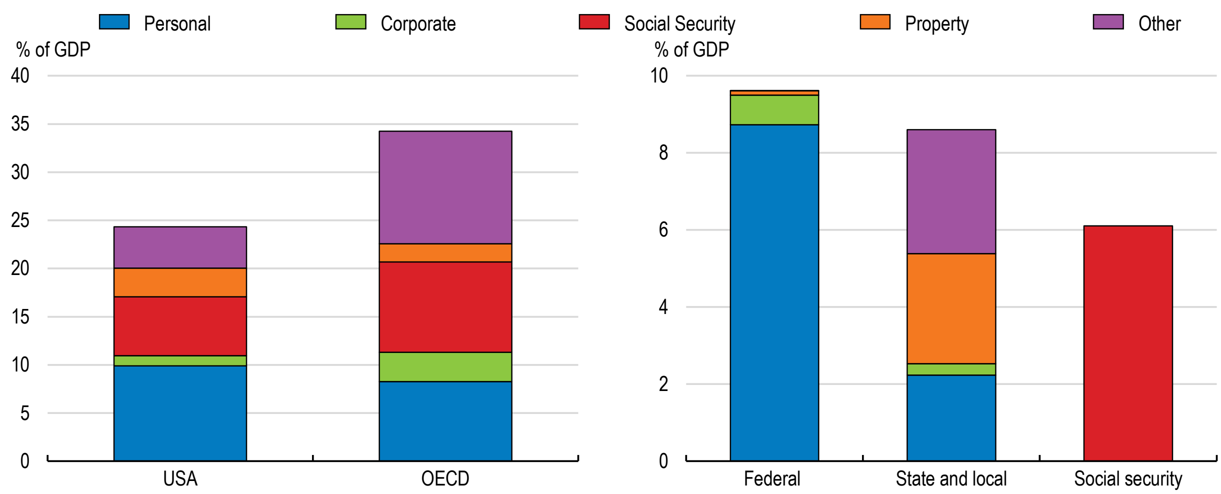


Note: The dotted lines indicate the projections of the Federal debt held by the public. The baseline scenario takes the CBO's January 2020 projections and adjusts the path of GDP and the federal deficit to incorporate the projected impact of the coronavirus during 2020 and 2021 before elevated unemployment rates and deficits are worked off over the subsequent decade. The higher growth scenario assumes an additional 3 million workers enter employment over the next decade and productivity growth is 0.2 percentage points higher than the baseline. The higher growth and budget control scenario is based on the higher growth scenario and assumes indexation of social security and Medicaid, eliminating itemised deductions, increasing excise duties on fuel, tobacco and freight transport, and reforms to the estate tax, carried interest provisions and taxation of pass-through entities in line with CBO (2018) till the end of the decade and then holding the consolidation effort as a share of GDP constant thereafter.
Source: CBO and OECD calculations.

Raising additional revenues

Tax revenues for all levels of government account for almost 25% of GDP, and considerably less than the total tax receipts on average in the OECD (Figure 1.14). This is principally due to lower revenues from sales taxes rather than a value added tax, which is levied in other OECD countries. Combined personal and corporate income taxes are around the level elsewhere in the OECD and taxes on property are relatively high. The federal government is almost completely reliant on personal income tax revenues. The Tax Cuts and Jobs Act of 2017 cut these tax rates, which has seen revenue decline, but the personal income tax structure remains relatively progressive in comparison with other OECD countries. However, changes to personal tax rates and some of the modifications for corporate taxation were temporary (in part to ensure meeting budget scoring conventions). Historically, Congress has often extended such taxes or made them permanent to avoid abrupt fiscal shocks.

Figure 1.14. Tax revenues are low by international comparison

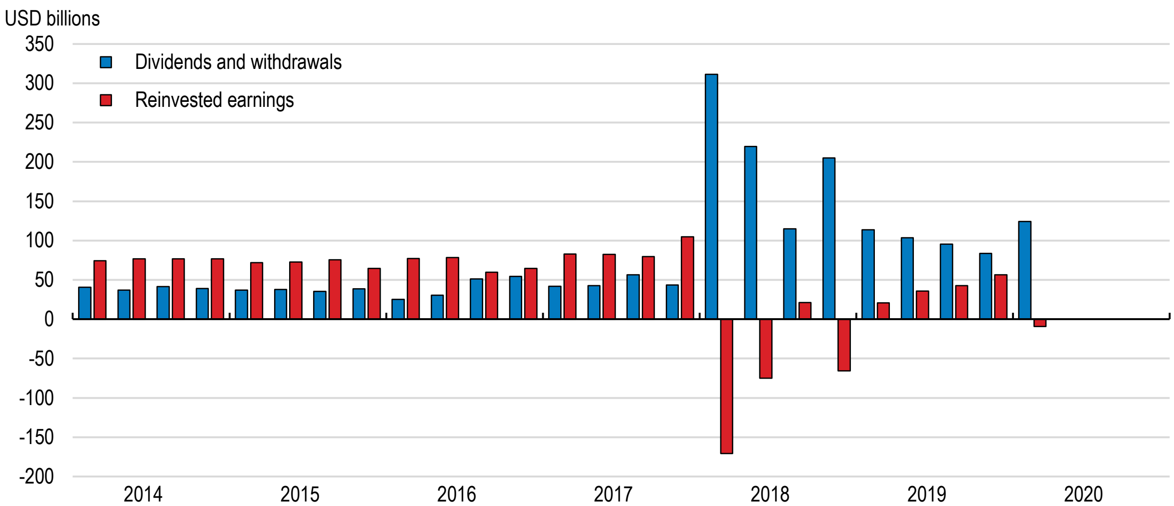


Note: Data are for 2018
Source: OECD Revenue Statistics.

The full implications of the tax reform have yet to play out, but some measures appear to have brought improvements. Changes to remove incentives for multinational companies to park earnings abroad have seen more profits being reported (Figure 1.15). However, growing pressure on public finances will likely require raising more tax revenues. In order to minimise the negative impact on growth, fully reversing the tax reforms and raising marginal tax rates on those taxes most inimical to growth, such as income taxes, should be avoided (Akgun, Cournède and Fournier, 2017[24]). Reversing the improved investment incentives for businesses would weaken long-term prospects for the economy.

Figure 1.15. Companies are reporting that they are repatriating more profits

U.S. international transactions in primary income on direct investment



Source: Bureau of Economic Analysis.

There are opportunities to increase revenue without raising marginal tax rates. Closing loopholes and broadening tax bases for a number of taxes could raise revenue.

- Adjusting the step up provision that currently bases capital gains on inherited assets on the difference from the value on transfer to the original purchase price. This would also reduce incentives for tax planning and increase incentives for productive investment.
- Reforming the carried interest provision for pass-through business could increase revenue modestly ($1.5 billion annually if treated as labour income) and treat this income source similarly to other performance-based compensation. However, to preserve intangible capital investment some carried forward provision may need to be retained.
- Taxing pass-through owners on the basis of the Self-Employment Contributions Act rather than the Federal Insurance Contribution Act. This would raise an addition $20 billion a year and treat different types of owners equally. It would also remove incentives to use different business forms for tax planning and help simplify the tax code.

Complementary to closing loopholes, recent evaluations of tax policy implementation suggests sizeable tax underpayment. Increasing inspection and investment in modern technology to identify suspicious returns could potentially yield additional increases in tax payments (Sarin and Summers, 2019[25]).

Another means to raise revenue is to reduce or remove tax expenditures. The 2017 tax reform capped the mortgage interest rate deduction, but reforms could go further and eliminate it entirely. These tax deductions and the state and local tax deduction is partly capitalised into housing values and is regressive in that high-income filers benefit the most from these tax expenditures. The federal government also foregoes significant tax revenue through the support of private health care.

Introducing a wealth tax has been advocated to cover increased government spending and make the tax system highly progressive (Saez, Berkeley and Zucman, 2019[26]). At present only six OECD countries implement a wealth tax raising relatively little revenue, although it does rise to 1% of GDP in Switzerland (OECD, 2018[27]). Administration and compliance issues, such as exemptions progressively undermining the tax base, have ultimately led countries to repeal recurrent taxes on net wealth. While a case can be made for a net wealth tax, effective taxation of capital income at the individual level as well as recurrent taxes on immovable and property and estate and gift taxes are likely a more robust approach to raising revenues sustainably.

Finally, if additional tax revenue is needed introducing a federal value added tax would be amongst the least distortionary means, but the political economy surrounding this tax makes legislation difficult. Environmental taxes and taxes that address externalities are options for new taxes that could raise revenues and well-being. For example, accounting for some of the negative effects of driving by increasing the fuel tax and thereafter indexing it to inflation could make a sizeable contribution to revenues. Increasing the excise tax on tobacco could produce a modest revenue gain while improving health (Box 1.7).

Box 1.7. Fiscal policy effects

The following estimates roughly quantify the fiscal impact of selected recommendations and options to enhance fiscal sustainability. The estimated fiscal effects abstract from short-term behavioural responses that could be induced by the given policy change.

Table 1.4. Illustrative fiscal impact of selected reforms

Policy	Measure	Impact on the fiscal balance, % of GDP
Proposed increases in spending		
Infrastructure investments	Boost investment in infrastructure, including mass transit (temporary increase over 10 years)	0.10%
Tax reform	Make expensing permanent	0.20%
Possible offsetting measures and reform options		
Indexation	Use an alternative measure of inflation to index social security and other mandatory programmes	0.09%
Indexation	Establish caps on federal spending for Medicaid with growth based on the consumer price index	0.32%
Excise taxes	Increase excise tax on motor fuels by 35 cents and index for inflation; Increase the excise tax on cigarettes by 50 cents per pack; impose excise tax on overland freight transport	0.37%
Tax base	Eliminate itemised deductions	0.45%
Tax base	Change the tax treatment of capital gains from sales of inherited assets	0.05%
Tax base	Tax carried interest as ordinary income	0.01%
Tax base	Tax pass-through business owners under SECA and impose a material participation standard	0.07%

Note: The estimates give the average budgetary impact over 10 years.
Source: Congressional Budget Office, OECD (2018)

Table 1.5. Previous fiscal policy recommendations

Main recommendations	Action taken since September 2018
Make R&D tax credits refundable for new firms.	No action taken
Increase reliance on consumption taxes	No action taken
Implement the recently-passed corporate tax reform and make permanent investment incentives set to expire.	The reform have been implemented
Ensure long-term sustainability by reining in spending growth, particularly by reforming entitlement programmes, where appropriate.	Action to slow health spending taken

Roll out initiatives to invest more in infrastructure, making use of greater private-sector financing, user fees and flexible risk-sharing arrangements.	No action taken

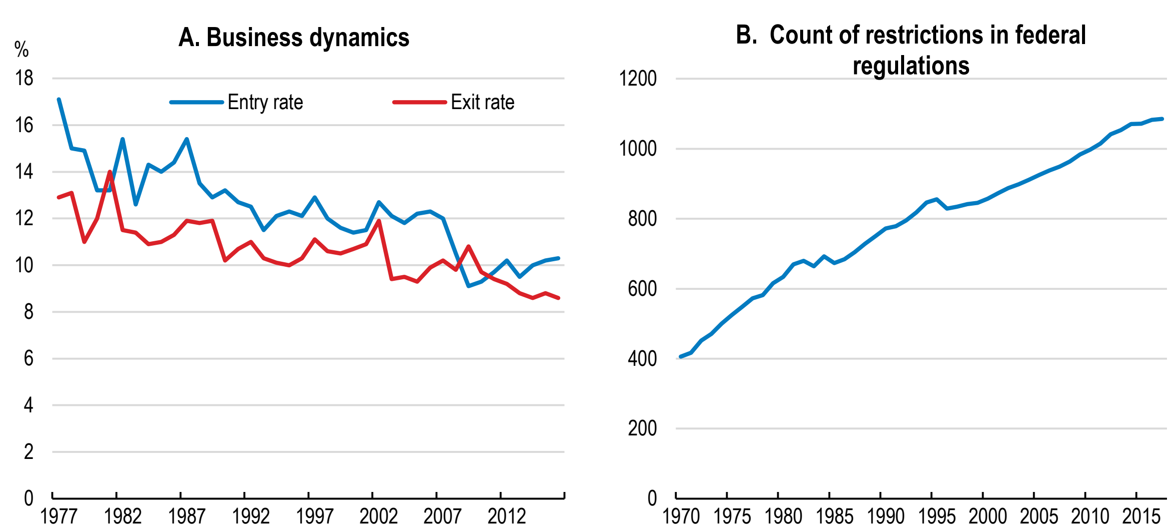
Improving the business environment

Ensuring competition

Overall the business environment is competitive internationally. The United States is normally placed amongst the highest in the competitiveness rankings produced by the World Bank and World Economic Forum (Schwab, 2019[28]). While performance is good overall there are areas of relative weakness. For example, although the United States is ranked as the 6th best in the world for the overall ease of doing business ,the rank drops to 55th for the ease of opening a new business and to 64th for getting electricity (World Bank, 2019[29]). In the wake of the coronavirus shock, ensuring competition is likely to be important in facilitating the restructuring of the economy by supporting the entry of new firms and preventing the loss of existing firms giving rise to anti-competitive behaviour by the remaining incumbents.

The decline in new firms entering the market is a cause for concern, given that they are often important for spurring productivity growth (Alon et al., 2018[30]). One explanation for the slowdown in firm entry is increased regulation (and greater lobbying) creating barriers to entry (Figure 1.16). Regulation appears to have become more important in deterring small firms. Regulation (measured by the number of restrictions contained in federal regulation) roughly doubled since the mid-1970s and empirical evidence suggests this could account for a 2.5% decrease in firm creation rate (which fell by around 7% during the same period) (Gutiérrez and Philippon, 2019[31]). Regulation at the state and local level will also weigh on entrepreneur's decisions. The administration is beginning to address the growing burden of regulation on the business environment. Regulatory agencies are now required to evaluate the overall costs of their actions are placing on the economy, by introducing regulatory cost caps. This effort also requires regulatory agencies to reduce at least two regulations for the introduction of a new regulatory burden. This has helped curb – and even led to a shrinkage in – the restrictions embodied in federal regulations.

Figure 1.16. Firm creation has declined as regulation has increased



Source: Census Bureau and RegCount.

Competition policy has an important role to ensure that the economy remains vibrant and preserves the incentives for innovation and productivity growth. Examining competition policy in light of the new modes of business in technology sectors in particular was recommended in the past two OECD Economic Surveys The large technology-dominated markets (due to the network characteristics) may present special cause for concern.. A trade-off needs to be struck between the advantages - such as services being offered for free to consumers - and the challenges to new firms in overcoming network effects. In addition, the network characteristics may give advantages to incumbents that can facilitate entry into new markets, make markets less contestable and affect competition by making it more difficult for new entrants to attain viability. The Department of Justice and the Federal Trade Commission have launched inquires into the large technology companies (Apple, Google, Facebook, Amazon).

A number of authors have pointed to evidence consistent with the economy becoming less competitive, but empirical research on whether the economy is becoming more or less competitive is active but inconclusive (Syverson, 2019[32]). Evidences from specific markets suggests rising concentration has had detrimental outcomes. For example, hospital concentration has been linked with higher prices and lower quality (Gaynor, Martin and Town, 2012[33]). However, it is harder to assess whether similar effects hold across the economy. For example, dramatic rises in mark-ups suggesting rising market power have been questioned and subsequent work found smaller increases (Hall, 2018[34]) (De Loecker et al., 2019[35]) (Demirer, 2019[36]). Aggregate data suggesting increasing concentration or mark ups can coexist with healthy competition. In the retail sector large firms, such as Amazon and Walmart, have attained important positions in the national market. However, concentration at the regional level has not increased, suggesting that localised markets are still competitive and benefitting the consumer (Rossi-Hansberg, Sarte and Trachter, 2019[37]). Further empirical evidence suggests that concentration rising in sectors where productivity growth is strongest. In this light, concentration ,ay reflect the effective working of the market and winner–takes-most outcomes (Autor et al., 2017[38]).

A possible challenge in markets like healthcare and telecoms and media markets concerns vertical mergers, which are harder to bring under existing antitrust policy. As a general matter, vertical mergers should be less problematic than horizontal mergers, as they can potentially generate substantial benefits and reduce costs. Yet they also have the potential to be anticompetitive. For example, in the evolving telecom and media market, vertical mergers between content providers and telecom firms may give rise to problems of input foreclosure (Shapiro, 2019[39]). However, ultimately the effect of any particular vertical merger is an empirical matter.

Table 1.6. Previous recommendations on competition policy

Main recommendations	Action taken since September 2018
Adapt antitrust policy to new trends in digitalisation, financial innovation and globalisation. Strengthen compliance with merger remedies.	The anti-trust agencies are reacting to the changes in digitalisation including through preparing studies to examine the issues. The Federal Trade Commission and Department of Justice have initiated broad-ranging inquiries and investigations into the competitiveness of U.S. technology and digital markets. For example, the FTC recently launched a study of acquisitions by large technology firms during the past 10 years.
Continue to strengthen pro-competitive policies, including in telecoms.	The Federal Communications Commission assesses the wireless market as being competitive. With respect to broadband deployment, progress has slowed. The President has signed an Executive Order to promote rural broadband development.
Remove anti-trust law exemptions, including in the digital economy.	
Broaden merger analysis to ensure greater competition.	
Privatise state-owned utilities and transport authorities.	
Ease restrictions in services trade	

Securing the gains from trade

Trade volumes had gradually picked up into early 2018, but have become volatile thereafter as trade policy dramatically increased in importance and then the differential impact of the coronavirus across trading partners. Imports and exports have spiked and then collapsed as trade measures have been introduced. In particular, tariffs levied on imports from China have risen from an average of 3.1% in early 2018 to 19.3% in late 2019 with tariffs covered by these measures accounting for almost two-thirds of Chinese imports (Bown, 2019[40])), but subsequently some were relaxed so that firms could import inputs needed for the coronavirus response. The impact of the coronavirus shock is likely to have enduring impacts on trade as supply chains are made more resilient.

Trade policy has also reacted to the outcome of long-standing disputes that have worked through multilateral institutions (such as the WTO dispute over support in the aerospace industry) to new measures and potential threats of new measures. In many cases, these measures have provoked counter-measures affecting U.S. exports.

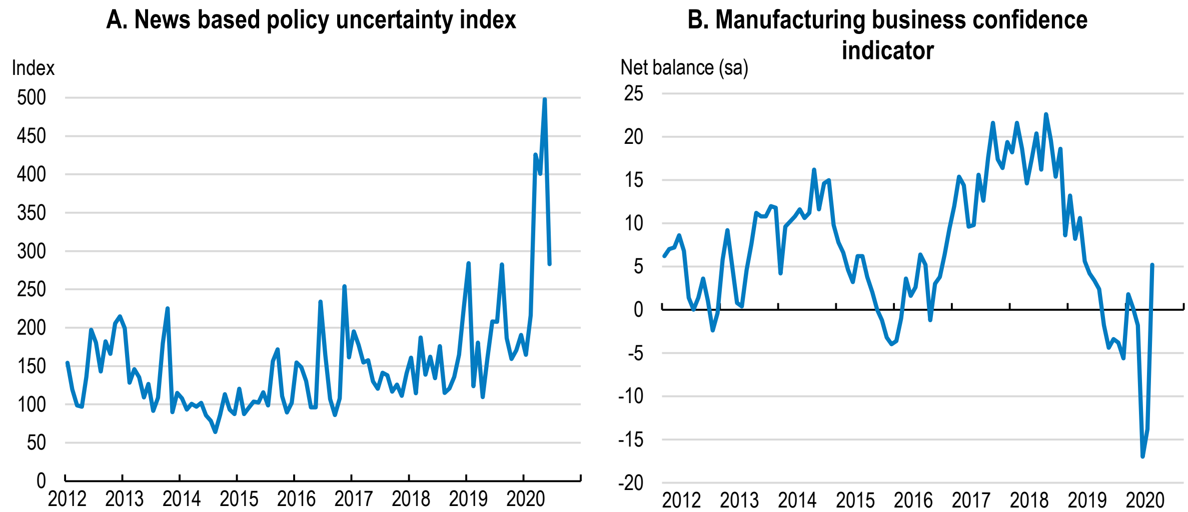
The administration's aim in introducing different measures since early 2018 has been to address shortcomings in existing trade rules. In particular, disputes have arisen due to concerns about intellectual property rights, non-tariff barriers to access certain markets (such as forced technology transfer), and the lack of a level playing field through distorted public procurement procedures and restrictions on foreign directed investment. There is cross-country support for this agenda, but disagreement on how best to achieve the goals.

The administration has negotiated a new trade agreement with Canada and Mexico (USMCA), which was passed by Congress in late 2019. This agreement modernises aspects - such as e-commerce - of the former NAFTA agreement as well as aiming to promote domestic manufacturing, though rules of origin requirements. Discussion with other countries have been largely on a bi-lateral basis. Tariff increases or other trade measures have been rescinded or not implemented when these discussions reached agreement, often with a commitment to increase imports from the United States. In particular, an agreement with China in January 2020 marked a pause in the escalation of this dispute. A greater reliance on and a more effective a multilateral approach would require finding solutions to issues that the current constellation of organisations and agreements are ill-adapted to address (Bown and Hillman, 2019[41]). The administration also needs to find a way to unwind trade measures, which can be long lasting. The US tariff on light trucks was introduced in 1964, in a dispute over poultry exports, and remains in place.

Empirical evidence suggests that the short-run impact of the tariffs has raised prices for domestic consumers, implying welfare losses of around $50 billion which needs to be weighed against the costs of inaction (Fajgelbaum et al., 2019[42]). Sectors and regions most exposed to retaliatory tariffs are also suffering. Empirical research suggests that regions most exposed to retaliatory tariffs areas experienced drops in consumption, as proxied by new car sales, of nearly 4%, which is likely driven by falls in relative employment of 0.7% rising to 1.7% for goods-producing employment (Waugh, 2019[43]).

The introduction of tariff measures and retaliatory actions has accompanied increases of trade-related uncertainty (Figure 1.17). This has likely depressed business confidence and investment as companies wait to see the repercussions before determining how they will be affected and whether they need to reshape their supply chains. One study estimates that trade policy uncertainty may have reduced investment by more than one percentage point (Caldara et al., 2019[44]). To the extent that changes in trading relationships reflect investment decisions to protect supply chains or a pull-back from competition this will contribute to de-globalisation and as a negative supply shock will tend to depress long-run living standards.

Figure 1.17. Policy uncertainty is high and volatile while business confidence has declined

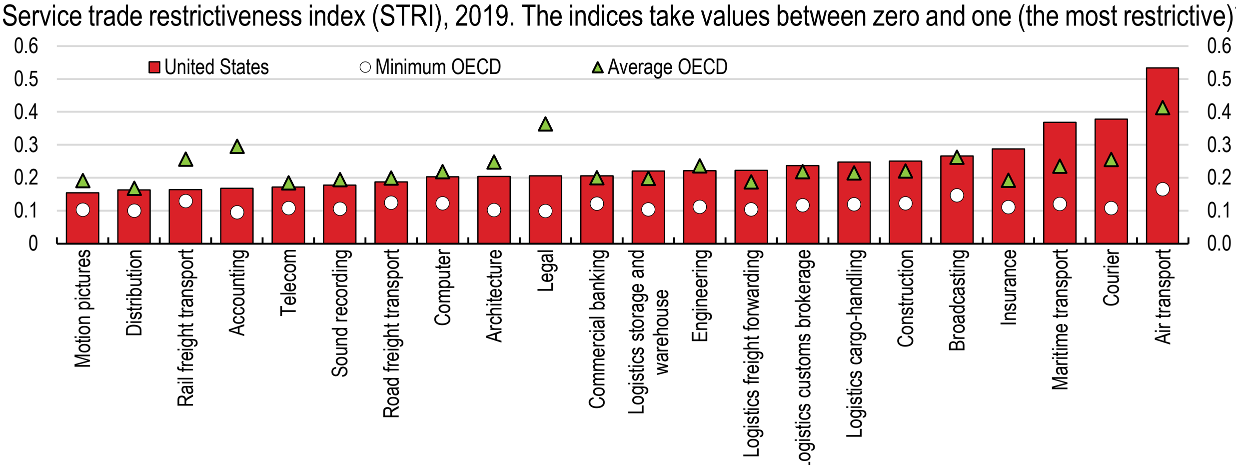


Source: Economic Policy Uncertainty (www.PolicyUncertainty.com); and OECD Business Tendency and Consumer Opinion Surveys (MEI).

So far, much of the focus has been on trade in goods. However, the composition of exports is increasingly shifting towards services and they already account for over half of gross exports and 70% of the value added exported. The importance of this type of trade is unlikely to diminish in the future and is particularly susceptible to regulatory barriers. At present, the regulatory environment for services trade is relatively open in 18 out of the 22 sectors measured by the OECD, including distribution services, rail freight transport services and professional services. On the other hand, services trade restrictions are particularly pronounced in maritime transport, postal/courier services and air transport services (Figure 1.18). The lifting of the Jones Act in the wake of hurricanes highlights some of the costs regulatory barriers impose on the U.S. economy (Box 1.8). Against this background, making further progress in reducing trade impediments would be beneficial (Box 1.9).

Figure 1.18. Trade in services is quite restrictive in some sectors

Service trade restrictiveness index (STRI), 2019. The indices take values between zero and one (the most restrictive)[1]



Note: The index includes regulatory transparency, barriers to competition, other discriminatory measures, restrictions on movement of people and restrictions on foreign entry. The STRI methodology takes into account different market and trade cost structures across sectors to ensure that they reflect the relative restrictiveness of each sector. Nevertheless, the indices may not be perfectly comparable across sectors. The indicators are for 2019.
Source: OECD Services Trade Restrictiveness Index (STRI).

Box 1.8. The Jones Act and its costs

The Jones Act was introduced in 1920 to ensure a merchant marine fleet that could also serve as a naval reserve. One requirement is the restriction that goods shipped between U.S. ports are transported by U.S. built, owned and operated vessels. Over time, rising costs of building new vessels within the United States relative to other countries, has seen the U.S. fleet age and the shipbuilding industry increasingly concentrating on producing tug boats and barges. These are relatively small vessels and mainly ply their trade along the Mississippi river and not along coastal ports or between the contiguous states and Alaska, Guam, Hawaii and Puerto Rico.

Through the restrictions on which ships can operate for domestic cabotage, one effect of the Jones Act is higher transportation costs. Higher costs are particularly severe for the non-contiguous areas as they are more reliant on shipping (Grennes, 2017[45]). The restrictions and high costs have seen goods diverted through Canada, for example, before being exported by ship back to the United States. In the wake of natural disasters, such as hurricanes, the Jones Act is often waived to allow the timely delivery of emergency supplies. This highlights that the Jones Act has failed to preserve a sizeable merchant marine fleet at the expense of higher prices and trade diversion.

Box 1.9. Gains from reducing barriers to trade in services are substantial

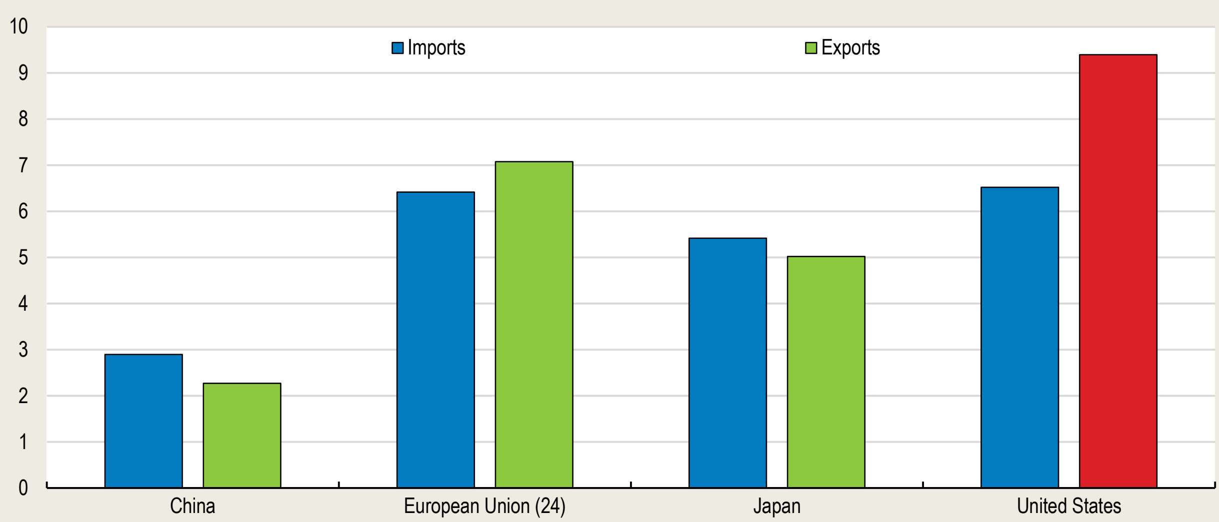
Services trade covers activities such as transportation, telecommunications, financial services and other professional services. For these industries regulations present important barriers to service providers seeking to enter new markets. Considerable regulatory differences exist across countries, with regulations set by national authorities or professional bodies. In some cases the complexity of regulation can inhibit trade almost entirely. Reducing these barriers involves domestic policy reforms (such as lifting restrictions on foreign investments in particular sectors) and also international co-operation. International co-operation would reduce trade costs by promoting transparency and reducing uncertainty, including through locking in regulatory co-operation in trade agreements.

The policy indicators underlying the Services Trade Restrictiveness Indicator can be mapped to trade costs (Benz, 2020). For the United States, the largest barriers to services trade in relation to the country with the lowest trade costs are in air transport, courier services and insurance. In these sectors halving the trade costs relative to the best performer would reduce trade costs by around one fifth.

To examine potential gains, simulations using the OECD METRO model assess the impact on trade flows from reducing services trade costs to those observed amongst members of the European Economic Area. This sets a level of ambition, which is achievable but required sustained negotiations to ensure market access across various regulatory regimes. If similar agreements were reached across G20 countries the boost to trade in the medium term would be substantial for all economies (Figure 1.19). For the United States, imports and exports of goods and services would rise in the medium term by around 6% and 10%, respectively. The wider impact on the economy would lower prices and increase variety and efficiency and boost to the level of US GDP of around 1½ percentage points. By contrast, efforts to eliminate nearly all tariff barriers on trade in goods were estimated using the OECD METRO model to yield gains of around 3% for imports and exports in the medium term (OECD. 2018).

Figure 1.19. Reducing barriers to trade in services would boost trade volumes

Per cent increases in exports and imports in the medium term

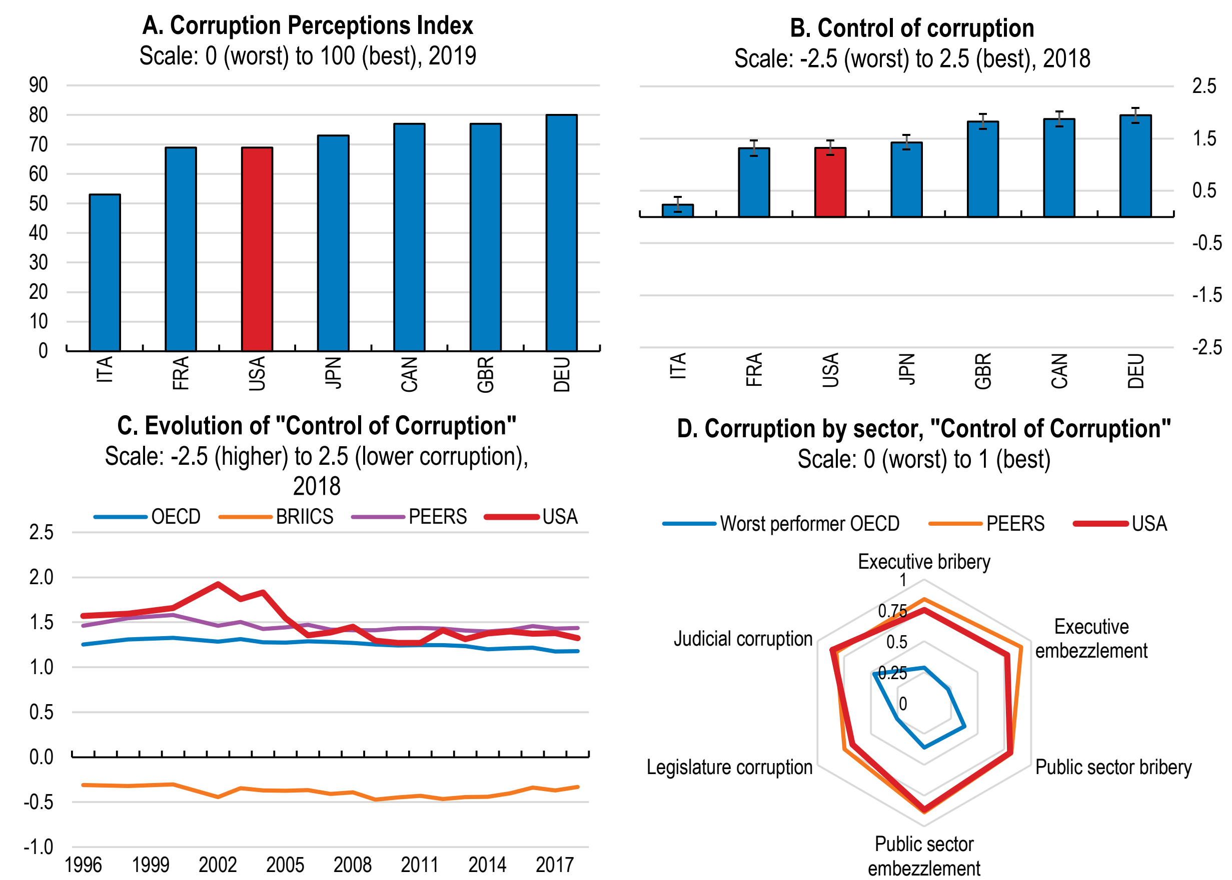


Source: OECD Metro model.

Addressing corruption, money laundering and financial crimes

The perception of corruption is low, but remains somewhat weaker than in most other G7 counties (Figure 1.20). The control of corruption indicator is also relatively weak, but has been improving over the past 20 years. The main area of weakness is control of executive embezzlement. Within the public sector evidence suggests that corruption is declining. The public integrity section of the Department of Justice oversees efforts to combat corruption by elected and appointed officials at all levels of government as well as the private citizens involved. The charges levied against individuals peaked in 2008 at 1304 and have subsequently declined, by around one half for government officials. Conviction rates are around 90% for government officials and 75% for private individuals.

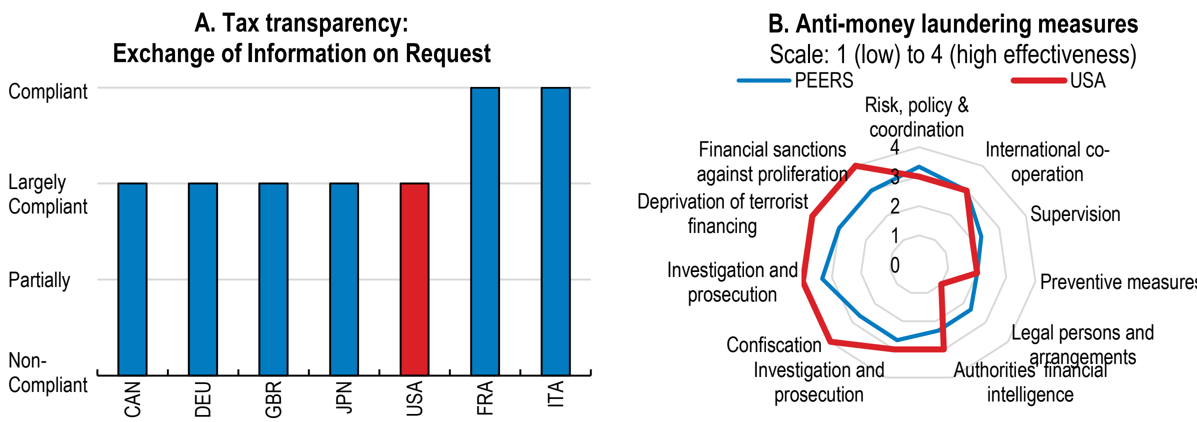
Figure 1.20. The perception and control of corruption is generally favourable



Note: Panel B shows the point estimate and the margin of error. Panel D shows sector-based subcomponents of the "Control of Corruption" indicator by the Varieties of Democracy Project.
Source: Panel A: Transparency International; Panels B & C: World Bank, Worldwide Governance Indicators; Panel D: Varieties of Democracy Institute; University of Gothenburg; and University of Notre Dame.

The United States attracts money laundering activities by virtue of its economic and financial importance in the global economy. In terms of tax transparency, which reduces the scope for tax evasion, the United States is largely compliant and similar to other G7 countries and with respect to the effectiveness of anti-money laundering measures, the United States performs better or at least equivalent to other G7 countries. Concerning the Technical Compliance of anti-money laundering measures, however, the Financial Action Task Force judges the United States non-compliant in four areas: transparency and beneficial ownership of legal persons, customer due diligence, other measures and regulation and supervision of designated non-financial businesses and progressions. The Department of Treasury and the FBI provide information to financial market participants about how the financial markets are being used to channel illicit proceeds out of foreign countries. Lawmakers should finalise the enactment of the Illicit Cash Act and the Corporate Transparency Act which both have already passed the House of Representatives with bipartisan support and are awaiting approval by the Senate; both acts together would substantially boost the United States' efforts to combat money laundering.

Figure 1.21. The compliance gap in the anti-money laundering regime is being addressed



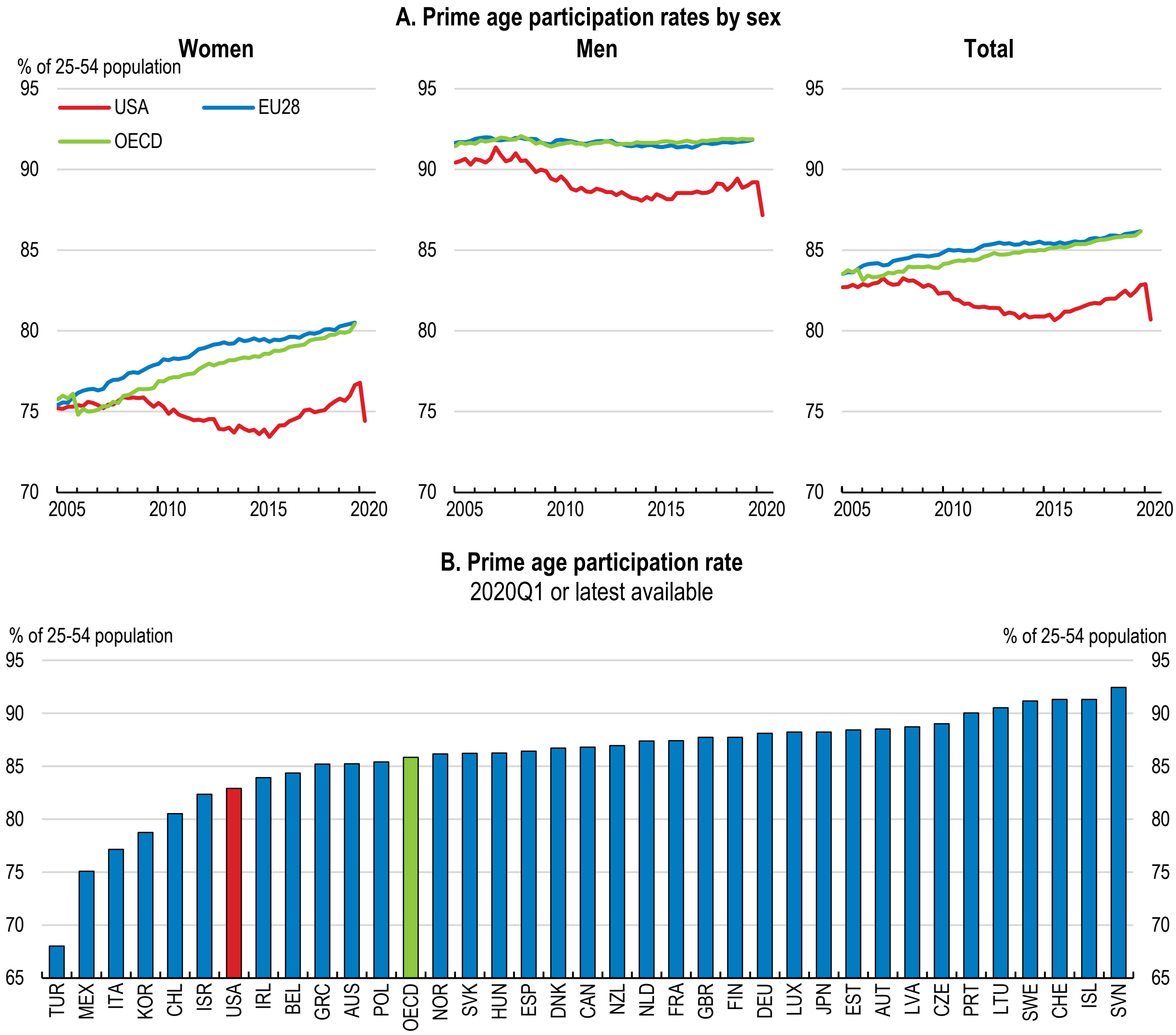
Note: Panel A summarises the overall assessment on the exchange of information in practice from peer reviews by the Global Forum on Transparency and Exchange of Information for Tax Purposes. Peer reviews assess member jurisdictions' ability to ensure the transparency of their legal entities and arrangements and to co-operate with other tax administrations in accordance with the internationally agreed standard. The figure shows first round results; a second round is ongoing. Panel B shows ratings from the FATF peer reviews of each member to assess levels of implementation of the FATF Recommendations. The ratings reflect the extent to which a country's measures are effective against 11 immediate outcomes. "Investigation and prosecution" refers to money laundering. "Investigation and prosecution" refers to terrorist financing.
Source: OECD Secretariat's own calculation based on the materials from the Global Forum on Transparency and Exchange of Information for Tax Purposes; and OECD, Financial Action Task Force (FATF).

Improving participation and opportunity

The impact of the coronavirus is likely to undo some of the achievements of the long economic expansion. Not only had the employment to population rate fallen to its lowest level ever recorded prime age labour force participation has also dropped precipitously. The prime age participation rate also dropped markedly during the last recession and have only just returned to pre-crisis rates (Figure 1.22). That recovery in participation coupled with a gradual increase in earnings, had become stronger at the bottom of the wage distribution over time and had lifted household income. As a result, poverty was beginning to come down and the sustained rise in income inequality has halted (Figure 1.23). The very strong labour market had successfully retained or brought in workers who are often on the margins. For example, disability rolls had fallen as the inflow of eligible workers into disability insurance has slowed.

The impacts of the coronavirus and shelter-in-place orders have dealt a sharp blow to this progress. Labour force participation has slumped to around 60%, affecting those with traditionally weaker attachment to the labour force to a greater extent. Thus, while a robust recovery from the current downturn will limit the damage to the labour market by drawing back in workers on the margins, additional effort will be needed to make sure opportunities are again widely shared. Action to improve active labour market policies - such as job placement services, support for geographical mobility and retraining or reskilling opportunities - would help workers displaced by the coronavirus shock (OECD, 2018). In addition, continuing efforts to provide apprenticeships and training to young workers just entering the labour force would help avoid the scarring effects from failing to make a successful transition from school to work in a difficult labour market.

Figure 1.22. Labour force participation had risen but remained relatively low

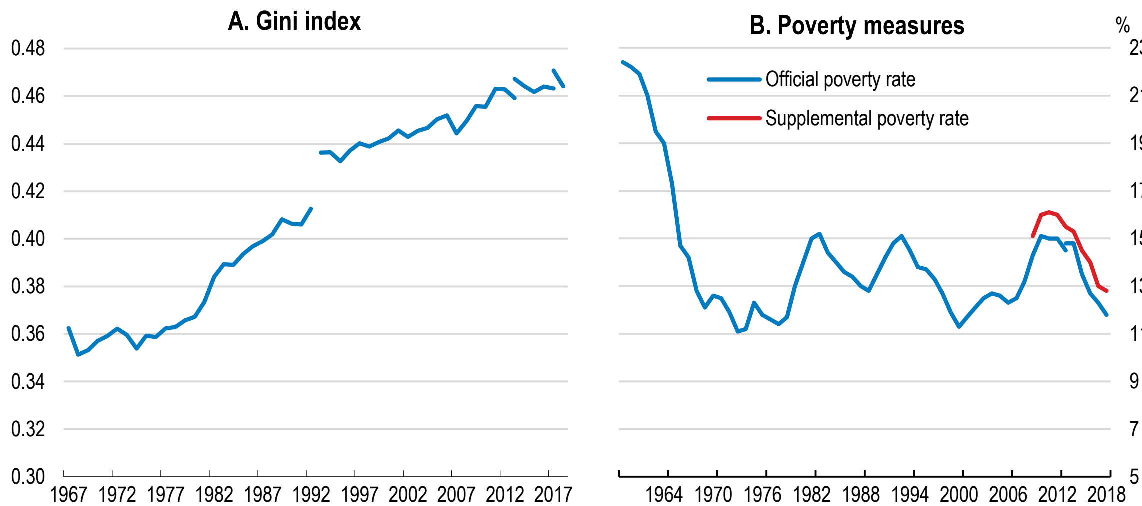


Note: Simple OECD average.
Source: OECD Short-term labour market statistics.

Despite progress, inequality of opportunity remains a concern. Average income levels between racial and ethnic groups have not narrowed, resulting in a worrying persistence of inequalities (Box 1.10). Intergenerational income mobility is low by comparison with other countries. For example, existing patterns of income persistence suggest that it would take 5 generations to move from the lowest income decline to reach average income, which is somewhat longer than average for the OECD (OECD, 2018[46]). Furthermore, recent work suggests that this is a place-based phenomenon with a strong racial and ethnic component in outcomes (Chetty et al., 2018[47]). In this context, working to overcome barriers to opportunity through education and health as well as moving to opportunity could help improve well-being.

Figure 1.23. Inequality had stabilised

Total population inequality and poverty rate



Note: Breaks in the line are where methodologies were revised. The supplemental measure includes basic costs of living that can vary across states. It also includes transfers from safety net programs and in-kind benefits.
Source: U.S. Census Bureau.

Table 1.7. Past recommendations to boost opportunity

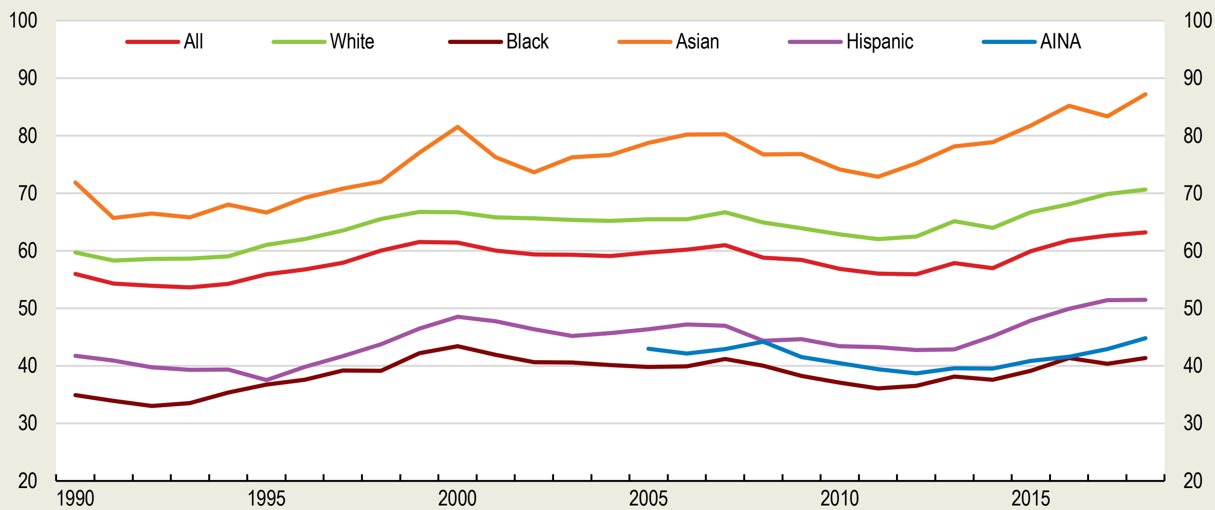
Main recommendations	Action taken since September 2018
Use federal funding for targeted programmes to reduce disparities in student opportunities and encourage states to be ambitious in lifting educational attainment.	Implementing the Every Student Succeeds Act will see peer reviews of plans developed by State educational agencies.
Provide support to parents with young children by expanding access to paid family leave nationally. Require paid parental leave and improve access to quality childcare to help reduce wage gaps and improve career prospects.	No action taken. The Administration has announced its intention to work with Congress to extend paid family leave to more American workers. The tax reform expanded eligibility and refundability of the Child Tax Credit.
Develop reskilling programmes with established effectiveness in helping people back to work.	The Department of Labor is working to expand use of apprenticeships, job placement services and other services for displaced workers.
Continue to roll out the Affordable Care Act.	Uninsured rates remain around 14% of the population of ages between 19 and 64.
Expand earned income tax credits, particularly in locations where the participation rate is very low. Increase spending on effective active labour market policies, such as job placement services and support to geographic mobility. Improve and broaden programmes for displaced workers, including workers most at risk from automation. Expand the use of apprenticeships and on-the-job training to ease the school-to-work transition.	Grants were awarded in September 2019 to expand services for displaced workers in rural communities. Since 2018, the Department of Labor has been working to expand the use of apprenticeships and ease the school to work transition. Measures include: providing grants to states to expand apprenticeship opportunities; funding industry intermediaries to support apprenticeships; partnering with community colleges to promote vocational training and establishing youth and pre-apprenticeship programmes.
Use federal funding to encourage states to remove unnecessary occupational licensing requirements and to make others more easily portable across States.	The competition authorities have been supporting the reduction of licensing, including through friends of the court briefings. The infrastructure initiative also supports this.
Ease restrictions in services trade.	
Encourage state and local governments to deregulate occupational licensing and recognise credentials granted by other States.	

Box 1.10. Some groups appear stuck

Inequalities appear persistent for some groups, notwithstanding progress in educational attainment. household income for Black and African American and American Indian and Native Americans (AINA) remains stuck below median income for all American households (Figure 1.24). By contrast, the gap for Hispanic households appears to be narrowing somewhat. These gaps remain after controlling for other factors. Furthermore relative income convergence appears to have slowed after the Great Recession (Akee, Jones and Porter, 2019[48]).

Figure 1.24. Income inequalities across population groups remain quite wide

Real median household income, 2018 (thousands) dollars



Source: U.S. Census Bureau, Current Population Survey, Annual Social and Economic Supplements; American Community Survey.

Reducing regulatory burdens in the housing and labour markets

In the housing and labour market regulatory barriers to mobility across the country and between jobs are impediments to workers getting access to employment and making the transition to better and more productive jobs and as a result depress output (Box 1.11). To the extent that the coronavirus changes patterns of economic activity, these also create barriers to a strong recovery. Notably, restrictions on land use and housing can prevent cities from growing (Hsieh and Moretti, 2019[49]). This is important as the economic geography of the United States is changing with the population and employment shifting west and south. The inability of some cities to grow in population size or effectively integrate surrounding regions by strengthening economic links limits potential returns to scale and hinders workers finding jobs including by moving from declining to better performing areas. In addition, urban sprawl can reduce accessibility of jobs to workers. The federal government, states and some cities run "moving to opportunity" schemes that provide assistance to help families to move for improving job and education opportunities. The health risks revealed by the coronavirus pandemic will alter some of this calculus as the public preferences for high density cities may diminish and public policies will need to balance making cities resilient to contagion and productivity gains.

One factor behind barriers to moving is policy fragmentation, which for housing is more pronounced than many other OECD countries. Many decisions are made at the local level and do not consider the broader implications of housing, land use and transport planning. Overly restrictive and poorly integrated policy can affect timely and co-ordinated supply of infrastructure and give rise to sprawl, which is more prevalent in the United States than in other OECD countries. As a result, workers find it difficult to move jobs. Furthermore, even within cities, workers may find it extremely difficult to find work within a reasonable commuting distance, especially if they rely on mass transit.

Occupational licensing has become more prevalent now covering around one quarter of the labour force and creating barriers to raising efficiency through better matches and implications for inequality. New evidence from occupation licensing suggests that the effects can be large (Box 1.10). Furthermore, the operation of occupational licensing can create obstacles for particular groups of the population. The coronavirus pandemic revealed the barriers that they can create are detrimental requiring action to reduce their impact. The Center for Medicare and Medicaid Services issued a national emergency order to permit doctors to treat patients in states where they don’t have a licence to practice. In addition, several states have decided to wave occupational licensing restrictions or issue temporary licences for medical personnel.

Occupational licensing introduces sand in the process of workers and firms finding good matches, inhibiting moves to new jobs and depressing labour market fluidity. The types of restrictions imposed can have different effects with most depressing job mobility. On the other hand there is some evidence that educational requirements appear to support mobility by increasing worker skills. Moreover, interstate job-to-job mobility tends to be lower towards states with more extensive and stricter licensing regulation. At present, initiatives such as Arizona accepting licences issued by other states work towards reducing the regulatory burden. However, even this relaxation still blocks the trade in services across state boundaries.

Non-compete clause in employment contracts, which create restrictions on workers moving to competitors, have become more prevalent over time and appear to cover around one quarter of the labour force. While there are reasons for such clauses, such as protecting market sensitive information being revealed to competitors, they have been applied in anti-competitive ways, which also has a negative impact on labour market fluidity. Comparative data for other OECD countries reveals that the diversity of enforcement across the US (spanning from very restrictive in Florida to unenforced in California) is similar to the differences across the OECD (Portugal to Mexico).

Box 1.11. Quantification of structural reforms

Reforms proposed in the Survey are quantified in the table below. Some of the estimates reported are based on empirical relationships between past structural reforms and productivity, employment and investment. These relationships allow the potential impact of structural reforms to be gauged. The effects are based on estimates, not necessarily reflecting the particular institutional settings of the United States. This includes how representative changes in policies under the control of the states are for the whole country. As such, these quantifications are illustrative.

Table 1.8. Potential impact of structural reforms on per capita GDP

Reform	10 year effect	Long-run effect
Labour market policies		
Reduce coverage of occupational licensing by 5 percentage points		0.6-1.0%
Reduce strictness of occupational licensing to minimum State level		1.2%
Set a minimum earning or minimum income threshold for using non-competes		1.1-1.6%
Tax reform		
Making corporate tax reforms permanent	0.8%	2.2%
Housing reforms		
Remove restrictive land use planning and increase housing supply in growth areas		0.7-2.0%
International trade reforms		
Reduce regulatory barriers to trade in services	1.3%	

Source:OECD calculations based on Hermansen (2019); Lipsitz and Starr (2019); von Rueden et al. (2020); Barro and Furman (2018); Glaeser and Gyourko (2018).

Reducing inequalities in education and health

Education provides a primary means of improving opportunity and policy has succeeded in raising participation and attainment. Since 2000, high school completion rates and measures of educational attainment rose, especially for Black and African Americans and Hispanic, although they still lag white and Asian students (Brey, 2018[50]). At college level, undergraduate enrolment more than doubled since 2000, with participation rates rising quickly, particularly for Hispanic young adults, and closing the gap with white and Asian students. Another change that has gradually emerged with the latest cohorts is women now more likely to have a college education than men (Coile and Duggan, 2019[51]).

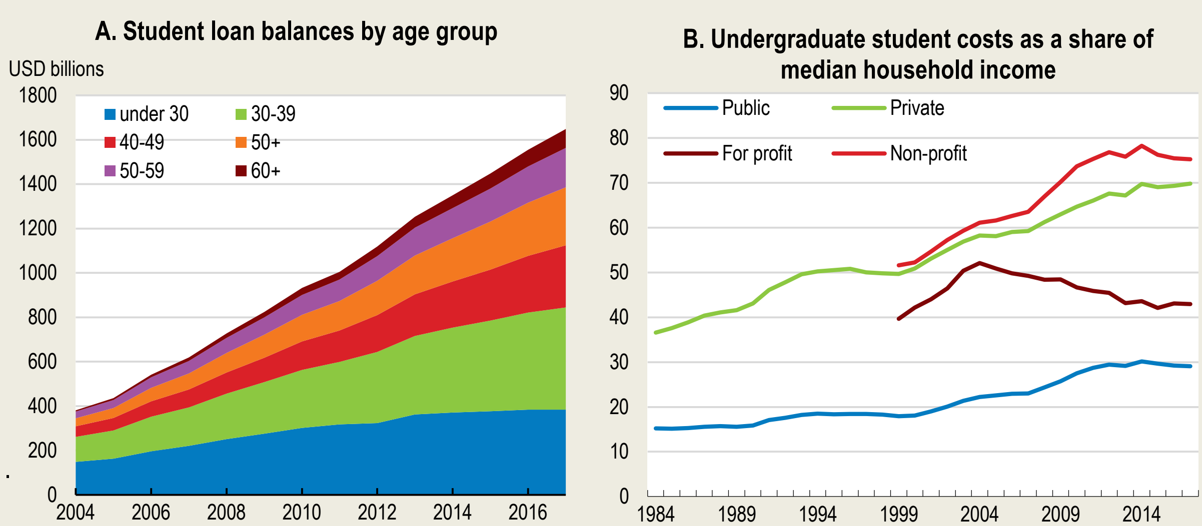
The growth in college education has led to the growth of student debt, which is a concern for students coming from low-income backgrounds. Investing in education remains an important means of improving opportunities and wellbeing. For example, higher levels of educational attainment are correlated with higher earnings, though there are differences with Asian and white generally earning more than Black and Hispanic young adults (Brey, 2018[50]). Students from lower income backgrounds have higher delinquency rates. Whether these problems is concentrated by race or ethnicity are difficult to determine (the design of student loan programmes prevents collecting such information). That said, student debt borrowing is rising faster in areas with a higher Black and African American shares of the population. Furthermore, the average debt levels to average income ratios in these areas is very high and the default rates (18% of borrowers) are double those in majority-white areas. A legacy of student debt delinquency can create problems for borrowers in the future (Box 1.12).

Box 1.12. Student debt burdens

After a sustained increase in costs of attending college, more recent information suggests that this has plateaued, in relation to median household income (Figure 1.25). The amount of borrowing amongst younger cohorts appears to be stabilising and students are switching away from for-profit schools that had often been associated with poorer outcomes and greater student debt problems. Many students face difficulties due to the costs, resulting in growing student debt burdens which now represent the second largest component of household debt after mortgages. Furthermore, large numbers have defaulted on Federal Direct Loans or Federal Family Education Loans (25 and 40 percent of borrowers in repayment, respectively) (Di and Edmiston, 2017[52]). The use of income-contingent loans is relatively undeveloped. Student debt is associated with a number of poor outcomes (Goodman et al., 2018[53]), including delaying household formation and first house purchase, slowing new firm formation which often relies on personal debt to finance and disqualifying borrowers from access to additional credit when they are in delinquency and default

Part of the increase in costs since the Great Recession has been a retrenchment in state funding for public universities (Bound et al., 2019[54]). However, partly offsetting this merit aid programmes have been implemented in 27 states, usually offering reduced in-state tuition fees to qualifying students. Recent findings suggest these programmes do not induce additional students, but help reduce the debt burden of the students and may lead to lower delinquency rates, particularly amongst low-income and minority groups (Chakrabarti, Nober and van der Klaauw, 2019[55]). As a result, merit aid helps improves opportunity for disadvantaged groups but expanding such programmes may not reach those that would benefit most from raising their educational attainment. For these individuals, more targeted interventions may be more appropriate. Debt forgiveness would be another approach to reducing the longer-term burdens on individuals, but this comes at substantial fiscal cost to the federal budget.

Figure 1.25. Student debt is rising but costs are stabilising



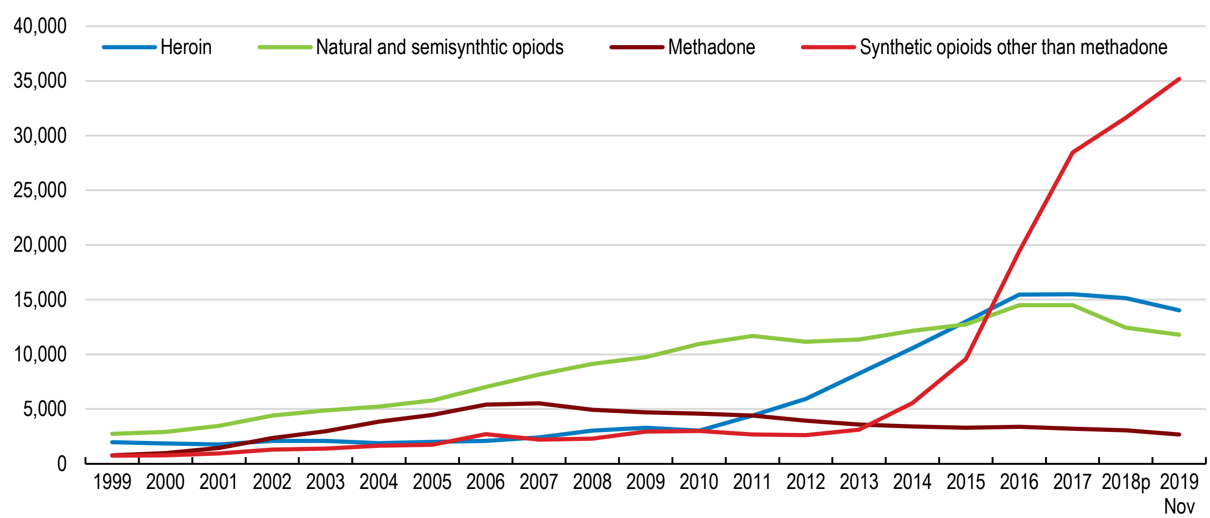
Note: Student costs are total tuition, fees, room and board.
Source: Bureau of Economic Analysis, National Center for Educational Statistics, New York Federal Reserve.

A final area of disparities across population groups concerns health. For example, differences in utilisation of health care by income group are stronger than in many OECD countries (OECD, 2019[56]). In part, this may reflect incomplete health insurance coverage as well as geographic differences in provision. While health un-insurance rose slightly in 2018 to 8.5% of the population, it remains around half the rate that existed before the role out of the Affordable Care Act. Nonetheless, health disparities can be very large between population groups, with health assessments of American Indians being considerably worse than the national average (Baciu *et al*., 2017). Disparities in health outcomes by some measures across population groups have been gradually declining. For example, over the last decade the difference between Black and White life expectancy at birth has narrowed by over 1 year, although the gap remains sizeable at 3.6 years and is partly driven by declining white life expectancy. Notwithstanding the relative improvement, life expectancy has been falling since 2014 and remains amongst the bottom quartile of OECD countries.

In part, and before the coronavirus spread across the United States, the decline in life expectancy is due to rising overdoses. The previous OECD Economic Survey highlighted the enormous costs of the opioid epidemic and recent estimates suggest a cost to the economy rising to over $170 billion in 2019, before taking into account the human loss (Davenport, Weaver and Caverly, 2019[57]). Recent estimates suggests that overdose death rates appear to be stabilising, but remain high with around 70,000 deaths annually (Figure 1.26). Deaths from natural and semisynthetic opioids are declining, which is likely the result of states tightening opioid prescription practice and may be a harbinger for fewer overdose deaths in the future. Prescription drugs have served as a pathway to addiction when too liberally prescribed and easily available (Alpert et al., 2019[58]). Individuals who become reliant on opioids have resorted to taking illegal drugs, such as heroin and fentanyl, when obtaining prescription drugs become more difficult and appears to have contributed to the dramatic spike in death rates. An emerging concern is growing overdoes from psychostimulants. Seizures of methamphetamine are rising dramatically, more than doubling in 2018, suggesting increasing supply and that a new wave of addiction may be developing.

Figure 1.26. Opioid deaths are stabilising, but remain high

Number of deaths in the preceding 12 months



Note: Data for 2018 and Nov 2019 are provisional estimates.
Source: CDC.

Table 1.9. Previous recommendations on the opioid crisis

Main recommendations	Action taken since September 2018
Ease administrative barriers to the treatment of opioid addiction.	
Promote and expand medically assisted treatment options. Help reintegrate former addicts into employment, including by expunging criminal records, for those who have successfully completed treatment for addiction.	

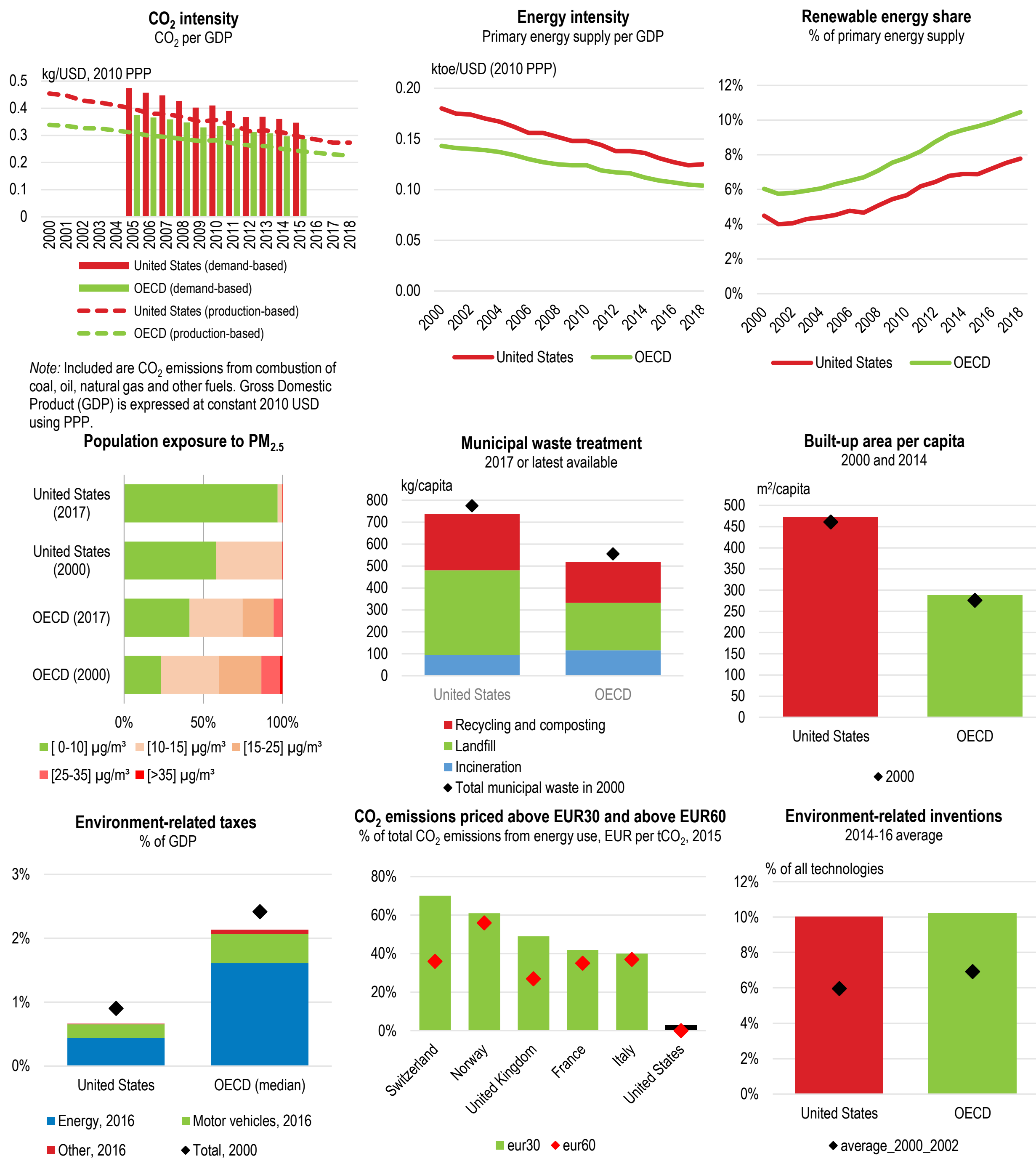
Building on environmental gains

Some indicators of environment pressures have been improving, such as the decline in greenhouse gas emissions overtime, with decoupling from economic activity and reduced exposure to particulate matter pollution. Indeed, air quality for the country as a whole is higher than the OECD average (Figure 1.27). Increased natural gas supply and renewable energies are replacing coal in electricity generation. Businesses have also begun to act to reduce emissions and water use, tapping into a growing market for green bonds, and in line with investors favouring more responsible business conduct.

In 2018, , greenhouse gas emissions remained 1% above their 1990 levels. (Figure 1.28). Carbon dioxide emissions have fallen by around 12% between 2007 and 2018, largely due to a switch in electricity production from coal to natural gas and renewables, contributing to some success in decoupling emissions from economic activity (Figure 1.26). A large number of states recorded reductions of carbon dioxide emissions, and in some cases they were substantial (Figure 1.28). Large falls recorded in District of Columbia (-38%) were thanks to decreasing emissions in the transportation sector. On the other hand, emissions rose in nine states, most notably in Idaho.

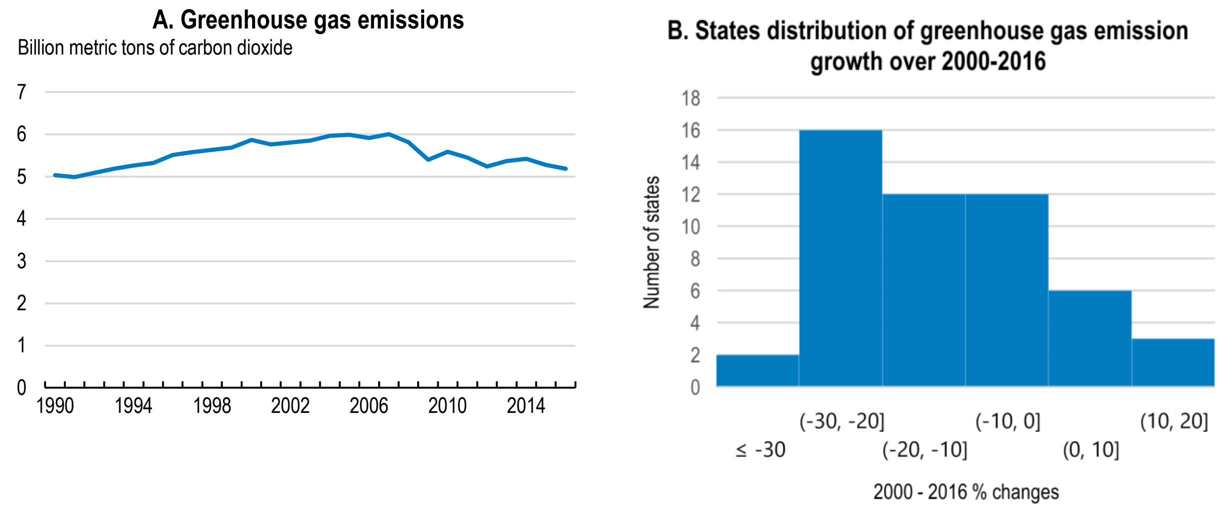
Important drivers have been innovation, notably the development of hydraulic fracturing (see OECD, 2014), the relative fall in natural gas prices, and regulatory reforms. A “dash to gas” was responsible for some of the earlier emission reductions recorded in Europe, partly also reflecting lower initial investment costs. The consumption (and production) of coal peaked before the great recession and has subsequently fallen by around one-half. The number and generation capacity of coal power facilities has been falling (by around one half and one quarter since 2010, respectively). Emissions from electricity generation are likely to decline further. Renewable generation and capacity (hydro, wind, solar, geothermal and biomass) has been rising, such that capacity in summer months is now at least as important as coal. In April 2019, monthly electricity generation by renewables surpassed that of coal for the first time. Despite the growth in renewables, fossil fuels – petroleum, natural gas, and coal – still account for roughly 80% of total U.S. energy consumption, and the renewable share of energy consumption in 2018 (11.4%) was slightly less than its 2017 share. The share of nuclear power in electricity generation has been relatively constant. The administration is pursuing an all fuels and technologies approach balancing environmental concerns with energy security and economic development.

Figure 1.27. Indicators of green growth



Source: OECD Green Growth Indicators database.

Figure 1.28. Greenhouse gas emissions are coming down

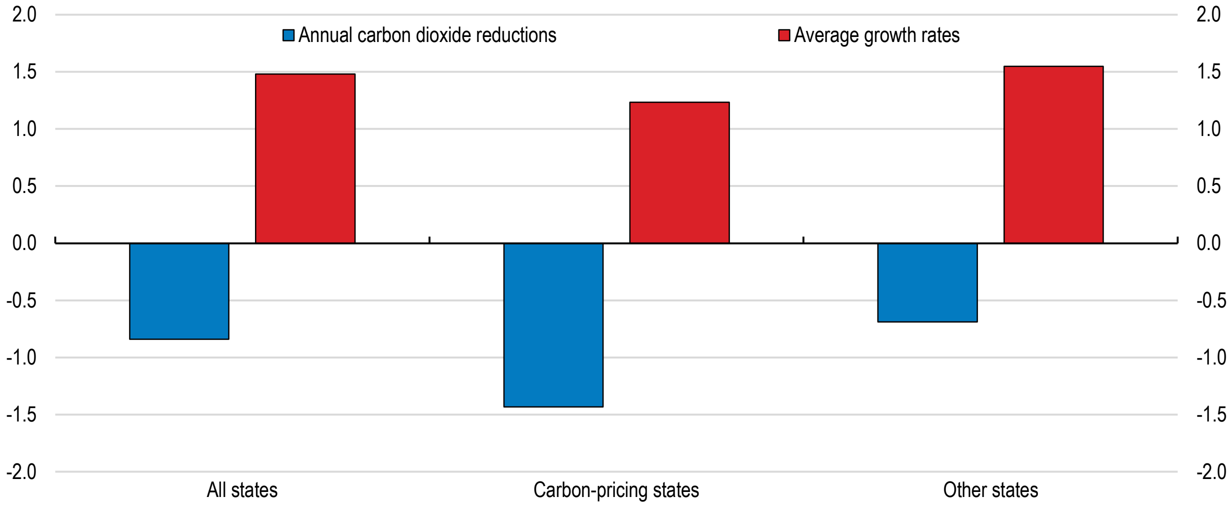


Source: Energy Information Agency: state energy-related carbon dioxide emissions

The federal government has not adopted a greenhouse gas emissions target for the United States, but state and local governments have a variety of targets spanning from energy efficiency to specific greenhouse gas emission reduction goals, and business have been taking action independently (Box 1.13). Some states adopted objectives to attain carbon neutrality by mid-century. Carbon dioxide emissions in those states that have adopted climate change targets have on average fallen more than in other states. In the states that have additionally introduced carbon-pricing mechanisms (the members of Regional Greenhouse Gas Initiative in the north east and the separate cap-and-trade system in California) have also seen larger falls than other states, although GDP growth has been slightly (though not statistically significantly) weaker (Figure 1.29). A continued rise of renewable generation is likely not only due to the falling costs of renewables generation but also due to states adopting renewable portfolio standards, requiring utilities to source rising shares of their electricity from renewable sources. In 2019, at least 7 states have adopted mid-century targets to source electricity completely from renewables or clean sources or meet zero emission goals. Five states have implemented programmes to assist nuclear power plants, with some including these plants in clean energy markets which were previously limited to renewables. Other states and the Department of Energy are supporting carbon capture, utilisation and storage projects.

Figure 1.29. States implementing carbon-pricing strategies have reduced emissions more

State-level reductions of carbon dioxide emissions and annual GDP growth, 2000-2016, %



Source: USEPA, BEA.

Energy efficiency is potentially an important element of a plan to reduce emissions. For example, buildings account for around two-fifths of energy consumption. States are setting performance standards, benchmarking and financing to achieve greater energy efficiency. However, a regulatory approach to emission reductions can be more costly than using market instruments. Furthermore environmental objectives can also have distributional consequences, which can make the political economy of introducing such measures difficult. A number of states have addressed these concerns by relaxing cost-effectiveness provisions in energy efficiency programmes for low-income households.

Actions to reduce regulatory burdens have been undertaken in the environmental sphere. These include reducing economy-wide ambitions to tighten vehicle fuel-efficiency standards. The federal government has recently sought to revoke California’s waiver under the Clean Air Act to set its own vehicle emission standards, which tend to influence the whole of the North American car market. Regulations on methane emissions at oil and gas wells were relaxed and the Clean Power Plan was replaced by the Affordable Clean Energy rule. This rule shifts the aim for emission reductions from changing generation source (e.g., from coal to natural gas) to reducing emissions within existing facilities. This rule may have adverse implications for state level cap-and-trade programmes and make emission reductions more costly (Goffman and Mccoy, 2019[59]).

Box 1.13. Green finance is growing

Businesses are taking their environmental and social responsibility more seriously. Private sector companies have also begun to invest in emission reductions. For example in January 2020, Microsoft announced plans to be carbon neutral in the following 10 years and eliminate direct emission by 2050. Firms are increasingly tapping into the Green Bond market, which offers over normal bond issuance when there is credible certification that the intended investment is actually contributing to an environmental goal (e.g. reduction in emission or water stress) (Flammer, 2019[60]).

Green bond have grown in importance

The green bond market has developed rapidly in recent years. In 2019, over $250 billion bonds were issued, the market having grown more than fivefold since 2015. Companies in the United States accounted for around $50 billion or one-fifth of the global market. The Government Sponsored Enterprise Fannie Mae was responsible for around one-half of the bond issues in the United States and is now one of the largest players in the market. Certification of these bonds is also developing, but only about one sixth by value was certified in 2019 (Climate Bonds Initiative, 2020[61]).

Table 1.10. Past recommendations on environmental policy

Main recommendations	Action taken since September 2018
Work towards putting a price on carbon, such as by implementing the proposed $10 per barrel tax on oil and the Clean Power Plan.	No action taken
Ensure that harmful emissions, such as carbon and particulate matter, are priced appropriately.	

Box 1.14. Key policy insight recommendations

Table 1.11. Recommendations

MAIN FINDINGS	KEY RECOMMENDATIONS
Improving macroeconomic policies and economic governance	
The federal government has reacted quickly to shield households and businesses from the brunt of the shock. As a result the budget deficit is large and public debt has risen, but debt service remains moderate thanks to low interest rates. As the economy recovers it will remain sensitive to fiscal shocks and weak demand. In the longer term, entitlement spending is projected to increase reflecting ageing and healthcare costs.	**Continue to provide exceptional fiscal support to help unemployed workers and support the recovery.** **When the situation normalizes, reform entitlement spending, reduce spending inefficiencies in the healthcare sector, close loopholes and broaden the tax base to ensure long-term debt sustainability.** Extend corporate and personal tax cuts beyond their expiration date. Support maintenance spending and investment in infrastructure**.**
The Federal Reserve has responded robustly to the crisis, moving quickly to support the economy as it was hit by the coronavirus and ensuring that financial markets continued to operate.	**In case of a further slowdown be ready to augment forward guidance and quantitative easing.** **Update the monetary policy framework as intended, retaining discretion in meeting the inflation target symmetrically.**
Financial market risks have mounted with some firms entering the crisis with elevated debt loads and other firms facing a very uncertain future.	**Continue providing temporary liquidity support to firms to avoid widespread bankruptcy.** As the economy begins to recover remove the emergency support measures for firms cautiously to prevent triggering a wave of bankruptcies that overwhelms the bankruptcy system. In the longer run, remove the explicit guarantee from the government sponsored enterprises. Eliminate mortgage loan interest deductibility from income taxes. Make more use of counter-cyclical capital buffers.
Workers displaced by the coronavirus shock, particularly those from disadvantaged groups, risk falling behind if not successful in moving back into employment quickly.	Increase spending on effective active labour market policies, such as job placement services and support to geographic mobility.
Trade policy is creating uncertainty, while reactions to the coronavirus may provoke a retreat from international trade.	Make greater use of regional and multilateral fora to discuss international trade challenges and agreements.
Trade in services is growing but regulatory barriers tend to be more restrictive than tariffs on goods.	**Put more emphasis on lowering regulatory barriers to trade in services. Abolish or provide permanent waivers for the most affected areas from restrictions on transport between U.S. maritime ports.**
In some markets, particularly in technology sectors, dominant firms have the ability to exercise market power	**Anti-trust policy should police markets vigorously to ensure competition remains healthy.**
Strengthening the response to future health shocks	
The pandemic proved difficult to control and the virus quickly spread across the country, causing loss of life and provoking distancing measures that caused a sharp contraction in economic activity. The prospects for future health shocks cannot be ruled out.	**Improve public health policy coordination across levels of government and reduce regulatory barriers that hinder an effective response** **Ensure that the suite of policies that support health insurance coverage do not let large population groups fall through the gaps**
Strengthening green growth	
Greenhouse gas emissions have been declining, with the all-fuels all-technologies approach, but there are still opportunities for further reductions.	**Invest in extreme weather and climate-resilient infrastructure.** **Continue support for fuels and technologies, including nuclear and carbon capture, utilisation and storage, where cost efficient, to achieve further emissions reductions.** **Ensure harmful emissions are priced appropriately.** Encourage banks to innovate further, including in the green bond market, and offer access to finance to all available energy sources and technologies.
Financial institutions hold large amounts of assets linked to activities that are exposed to climate risks, such as mortgages of properties in floodable and costal zones	**Systematically assess financial institutions' exposures to climate-related risks such as rising sea levels, flooding, wild fires, and tighter energy efficiency.** .Invest in extreme weather and climate-resilient infrastructure.

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2. Modernising state-level regulation and policies to boost mobility

The U.S. population is becoming increasingly urban and has gradually shifted to the south and west. Policy restrictions have played a role in preventing dynamic areas expanding, and when they do expand it can be through low-density housing sprawl. Land use restrictions and a sluggish housing supply as well as difficulties in making timely and co-ordinated supply of infrastructure have hindered workers benefiting from new opportunities including through moving. Policies can address these issues by targeting housing affordability, help families move and invest in infrastructure to improve accessibility and connectivity.

The population is moving and the economy is changing

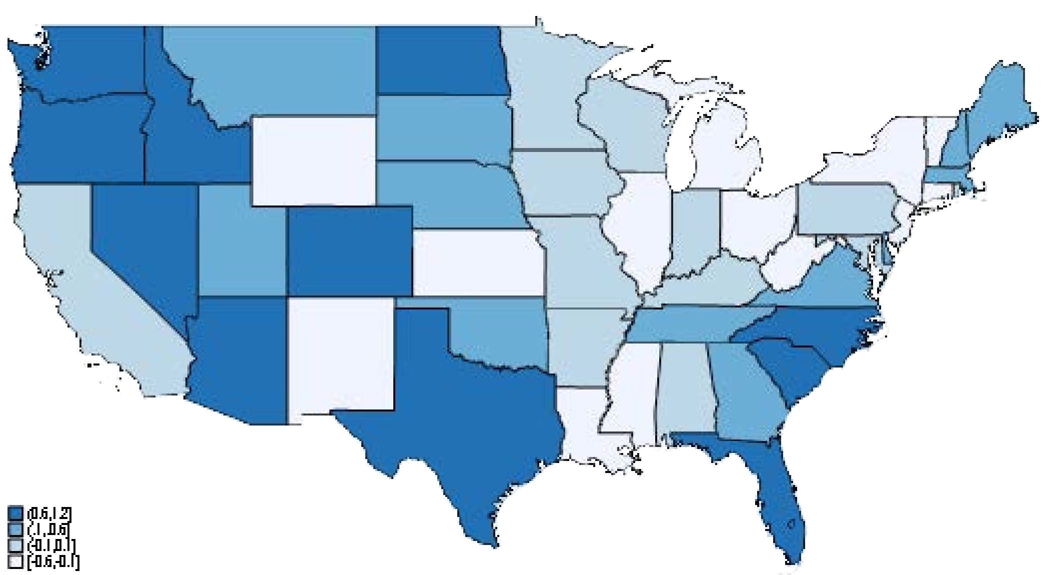
The economic geography of the United States is shifting. As technology, trade and preferences have changed so has the location of the population and economic activity. In some areas, factories have closed and jobs have been lost. Employment has grown elsewhere as new industries have developed in places that are not bound by past production networks. While opportunities have emerged elsewhere, changing jobs needs to overcome distance and other barriers. In part, these barriers reflect regulations, which have become important determinants of opportunity for American workers.

Over the past 50 years, the growth of services and high-tech products, the rising importance of foreign trade and integration of global value chains to the US economy have also contributed to changing locus of economic activity. The share of manufacturing in employment has declined, particularly in the old industrial heartland of the Mid-East and Great Lakes regions. This region accounted for one half of total production and employment but now only accounts for one third as manufacturing activity has shifted to the south and west.

A second important driver of economic activity has been a secular trend of relative population increase in areas with warmer climates, partly driven by population movement both nationally and internationally. The effects of these processes drive net migration differences across the country (Figure 2.1). Even though mobility rates are declining as households move less often than they did in the past, households are nonetheless gradually moving from colder areas and places that are performing poorly towards the south and west of the United States. As a consequence, elderly populations are becoming relatively more important in the north and east.

Figure 2.1. The population has moved west and south

Net migration rates as percent of population, average annual rates 2011-2017

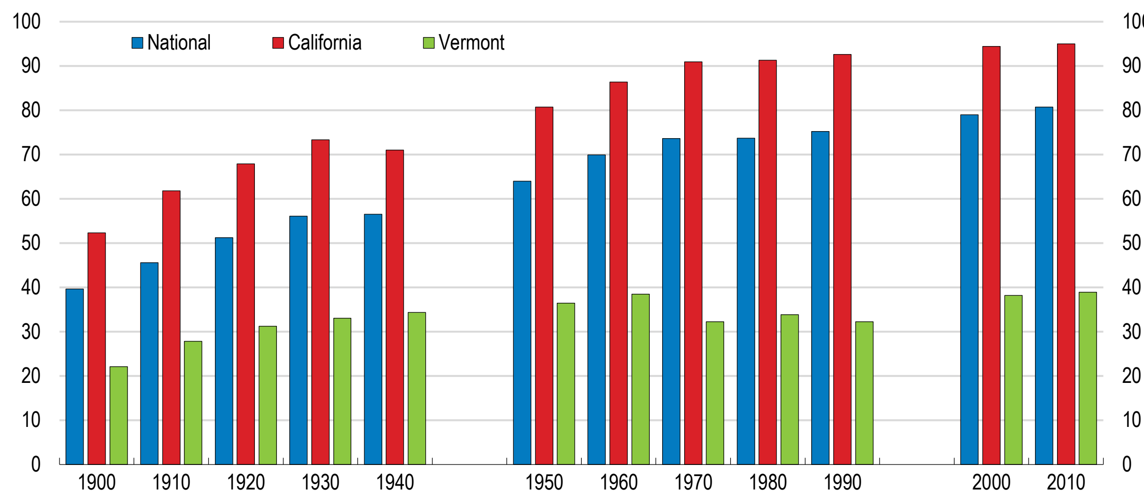


Source: Census Bureau.

Accompanying these changes has been increasing urbanisation. At the last census, around 80% of the population were urban (areas with at least 2,500 inhabitants), with the share increasing on average by 3 percentage points each decade (Figure 2.2). The share of the population in cities is greater than the OECD average (75% and 64%, respectively). Cities with populations greater than 500,000 are especially prevalent and they are important centres for employment and economic activity. Since 2000, larger cities have accounted for over three-quarters of national GDP growth. Firm creation rates, while declining, have fallen by less in metropolitan areas, contributing an increasing urban concentration of firms and employment (Figure 2.3). Employment has fallen since the great recession in rural areas, particularly those that are not close to a metropolitan area (Arnosti and Liu, 2018[62]). Generally, smaller urban areas have also struggled during the 2010s in comparison with larger and better-connected areas.

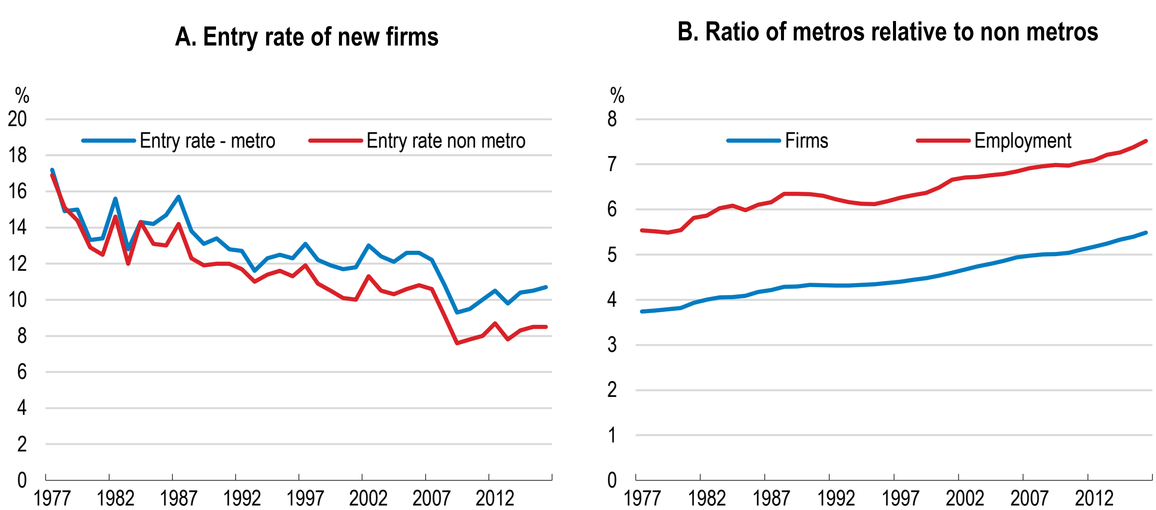
Figure 2.2. The population is increasingly urban

Per cent of population that lives in urban areas in the United States and selected states.



Note: Definitions were changed in 1950 and 2000. California and Vermont are the most and least urbanised states.
Source: Census Bureau.

Figure 2.3. Firms and employment are increasingly located in metro areas



Source: Census Bureau, BDS database.

The importance of these patterns of development is that they can give rise to spatial misallocation of resources as jobs are being created in places away from the places that old jobs are lost. A more vibrant labour market with people moving to opportunity or better able to access jobs in their existing areas is vital to boosting productivity and helping people remain active. Indeed, the ability to move from job to job is important for people joining the labour force and becoming more productive. Avoiding spells of joblessness also appears to be increasingly important. However, the share of the population moving each year has fallen from around 20% in the 1970s to under 10% more recently, with moves across state boundaries or moves to look for work also having been reduced.

This chapter examines the barriers to labour mobility with an eye to the links to productivity. It first uses labour market and income and output measures clustered into different groupings to explore the different labour market experiences of metropolitan areas. It then discusses emerging persistent differences of performance across metropolitan areas and states, while noting that labour market mobility to take advantage of opportunities elsewhere has diminished. The chapter then considers how housing and other policies can affect the mobility of the population. Geographical mobility is not a solution for all workers, particularly when new opportunities are distant. In this light, policies to help sustain employment in areas currently undergoing difficulties are complements to the regulatory focus of this chapter. When assessing the barriers to mobility and constraints on productivity growth the focus is mainly on state and local-level policies.

Emerging differences in labour market performance

Cities are adapting in different ways

In response to productivity and labour mobility patterns, metropolitan areas are developing in quite diverse ways (Figure 2.4). New statistical analysis conducted for this Survey of labour market characteristics and indicators of economic growth suggest there are four distinct groupings of the 372 metropolitan areas included in the analysis, covering 86% of the population (Box 2.1) (Azzopardi *et al.,* 2020). This analysis reveals some areas are doing well, some are struggling and falling behind, but others are nonetheless adapting to shocks. This approach makes it possible to break down very diverse cities into different subsets that are statistically similar with also differences in the indicators of labour market fluidity:

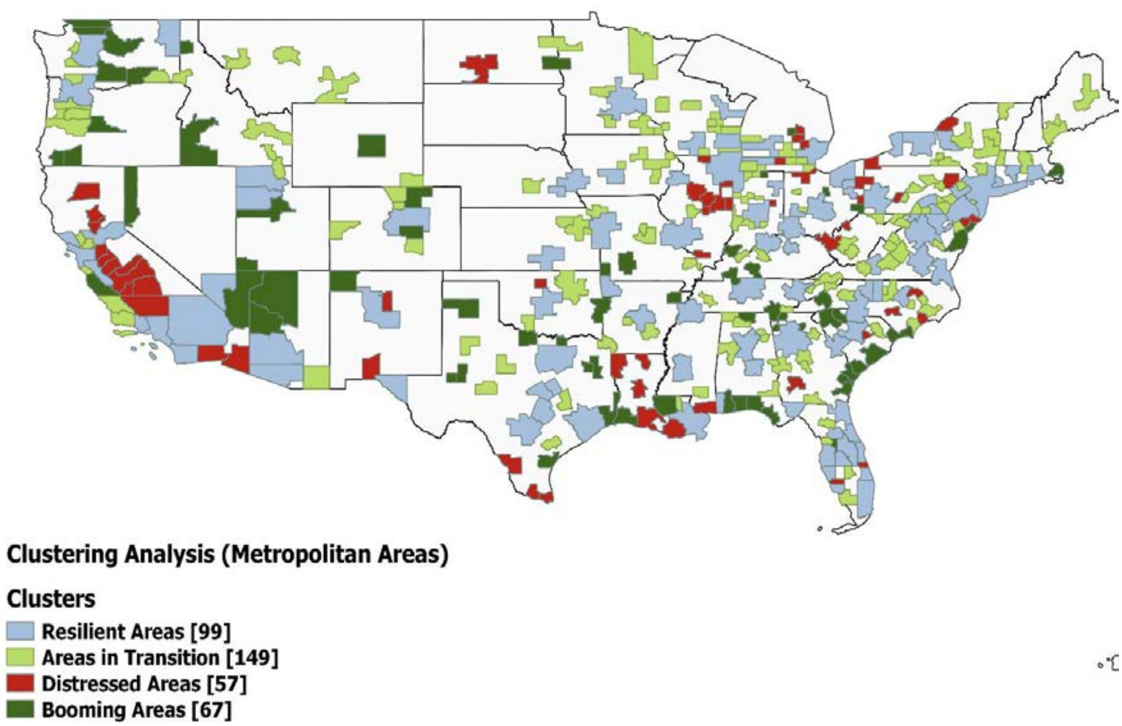
- **Booming Metropolitan Areas:** These 67 metropolitan areas are home to about 7% of the total urban population in the U.S. Most of these areas are located in the South and the West. These areas have found success by building on often unique features. Some of these areas are fast growing technology centres and some are becoming retirement destinations such as Florida. These areas have the highest Job-to-Job mobility rates and also the highest GDP growth rate compared to other clusters. They also have a positive net job-to-job flow rate indicating that more job-to-job moves are flowing into these areas as compared to jobs moving out of these areas. They are attracting workers and companies due to their high quality of life and comparatively low cost of living. Metropolitan areas in the states of Texas, Washington, and Florida are overrepresented in this cluster. For example, in 2017, about 305,000 job-to-job moves came into Texas and about 260,000 came into Florida from other states. About 33,000 people from California and 32,000 people from Louisiana moved to Texas for a job-to-job move. Similarly, about 24,000 people from Georgia and 23,000 people from New York moved to Florida.
- **Distressed Metropolitan Areas:** This cluster includes 57 metropolitan areas that seem to be struggling. Home to about 6% of the total urban population, these areas have a low job mobility rate and high unemployment rate. These areas also have a significantly lower GDP and income per capita growth rate, as compared to all other clusters. This group includes many trailing cities and old industrial areas. Metropolitan areas in North Dakota (Bismarck), Illinois (Bloomington, Champaign-Urbana) and California (El Centro, Chico) are a part of this cluster. Moreover, this cluster includes areas that have a negative net flow of job to job moves i.e. jobs moving out of these areas are higher than jobs coming into these areas. Many metropolitan areas in central

California are also a part of this cluster. In 2017, more than one-quarter million job-to-job moves went out from California to other states. The highest number of these jobs went to Texas (about 33,000) followed by Arizona (about 25,000) and Washington (about 24,000). Another major reason behind these moves seems to be the high cost of living and the high housing prices in some of these metropolitan areas.

- **Resilient Mega Metropolitan Areas:** This cluster includes 99 metropolitan areas and about three quarters of the U.S. urban population resides here. These areas are classified by very high population, low unemployment rate, average job mobility rate, and a high income per capita as compared to other clusters. This cluster includes most of the mega cities in the U.S. including New York, Los Angeles, Chicago, Dallas, Houston, Washington DC, and Miami. The average population size of the metropolitan areas in this cluster is more than 2 million people.
- **Metropolitan Areas in Transition:** 149 metropolitan areas are a part of this cluster and account for about 11% of the urban population. These areas have slightly lower than the average job mobility rate and GDP growth rate, but they have a relatively higher income per capita growth rate as compared to other clusters. This cluster is mainly composed of relatively smaller areas such as Lewiston, ID-WA, Great Falls, MT, Columbus, IN and Kokomo, IN. The average population size of areas in this cluster is about 200,000 people is the lowest amongst all clusters.

Figure 2.4. Metro areas are different

Results of the clustering analysis conducted on metropolitan areas



Source: *OECD Staff calculations based on 2017 data from BLS, Census Bureau and J2J Data.*

Box 2.1. Machine learning cluster analysis of metropolitan labour markets

In order to understand the different patterns of development across U.S. cities new research used clustering analysis s to identify groups of metropolitan areas with similar labour market characteristics (Azzopardi *et al*, 2020). The main analysis replied on labour market indicators including the Census Bureau's measures of job-to-job mobility, income growth, unemployment rate, and population size and also economic performance measured by metropolitan GDP growth.

The analysis used an unsupervised machine learning technique. A partitioning method named K-means clustering algorithm was applied on the whole sample of metropolitan areas to obtain homogeneous clusters of metropolitan areas. This algorithm makes it possible to break down set of observations into several subsets that are statistically homogeneous in their characteristics. This ascending approach, or agglomeration, starts with an observation in each class, then successively merges the two closest classes, and stops when there is only one class containing all the observations. In this analysis the K-means algorithm partitions the full set of observation into four homogenous clusters.

The results suggest can be divided into four unique clusters (Table 2.1)

Table 2.1. Characteristics of metropolitan area cluster groupings

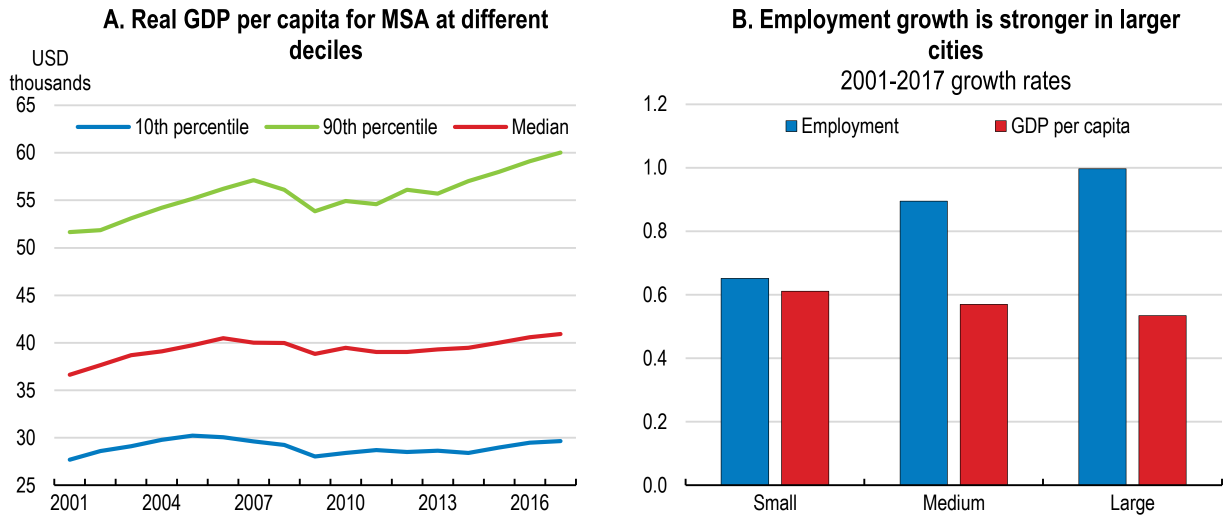
Cluster (Metropolitan areas	Main Characteristics	Average job-to-job mobility	Average GDP growth	Average unemployment rate	Average income per capita
Booming Areas	Very high mobility, Net job gainers, High GDP growth	7.0	3.1	4.5	44301
Distressed Areas	Low mobility, Lowest income growth, Low GDP, High unemployment	5.4	-0.2	6.5	40952
Resilient Mega Areas	Average mobility, High income per capita, low unemployment, high population density	5.8	2.0	4.1	50843
Areas in Transition	Low mobility, High income growth, Low unemployment	5.6	1.5	4.1	44076
All Areas		5.9	1.7	4.5	45619

Source: OECD analysis based on data for BEA. BLS, Census Bureau

One of the factors contributing to the varying performance of different areas is persistent differences in productivity growth. Productivity growth is increasingly concentrated in cities, and better performing areas appear to be pulling away (Figure 2.5). Higher income cities have enjoyed stronger real output growth since the turn of the century. In addition, larger cities are experiencing faster employment growth, although average per capita output growth since 2001 has been slightly slower. The plight of smaller cities is heterogeneous. A few, such as Midland, Texas, are growing rapidly, due to the expansion of shale oil production but other smaller cities are falling behind. Overall, these developments suggest a pattern of scale economies benefitting larger cities, but congestion or regulatory impediments damping growth for others (Rappaport, 2018[63]).

Figure 2.5. Cities are becoming more unequal

Real GDP per capita and employment in Metropolitan Statistical Areas.

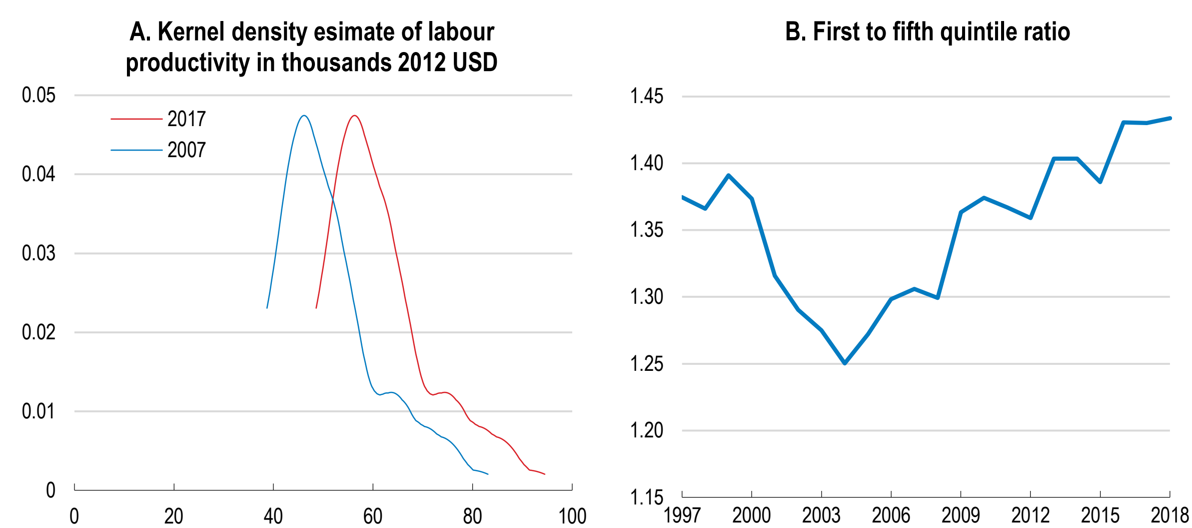


Note: City size is the smallest, middle and upper third of the MSA distribution in 2001.
Source: Bureau of Economic Analysis.

The patterns at the metropolitan level also seem to be feeding into developments at the state level. As is seen in other OECD countries, the divergence of income and productivity across regions within the country is increasing. Labour productivity variation across U.S. states is pronounced, with many states clustered together with similar levels of output per hour worked and a tail of a few states with higher levels (Figure 2.6). The trends also suggest that the better performing regions are pulling away from those with low income and productivity levels since the mid-2000s. The poorly performing states are often where dependence on natural resources is higher than average (such as Alabama, Louisiana and, Wyoming).

Figure 2.6. Productivity is skewed across states

Labour productivity in 2012 dollars in 2007 and 2017 and 1st to 5th quantile ratio



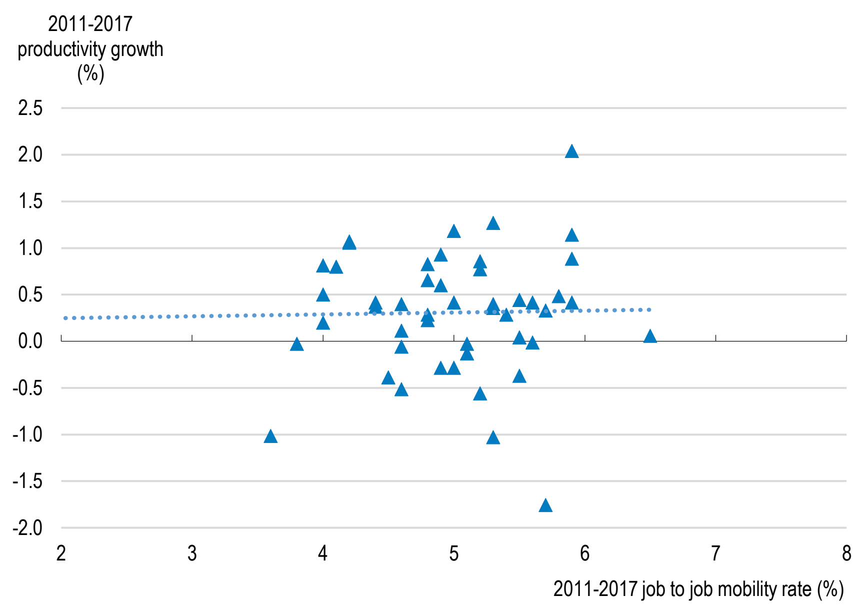
Note: In the left panel, the value of production is deflated by the implicit output deflator.
Source: Bureau of Labor Statistics.

On the other hand, productivity developments have tended to be more evenly distributed than in countries such as France and the United Kingdom, where a single region has accounted for the lion's share of productivity growth (OECD, 2019[64]). This suggests wider opportunities for workers to move to areas that are performing comparatively strongly. However, the large and seemingly persistent differences emerging across the country are not being tempered by convergence of income levels to the extent that happened in the past. Ganong and Shoag (2017[65]) argue that income convergence has stalled in large part due to the slowdown in workers moving across states. This movement of workers has been an important shock absorber in the past (Blanchard and Katz, 1992[66]).

Job-to-job moves are also an important driver of productivity growth and a mechanism helping workers move up the job ladder (Haltiwanger, Hyatt and McEntarfer, 2018[67]) (Box 2.2). The recent growth literature emphasizes the importance of labour mobility and spillovers across industries and demographics. For example, labour mobility (inflows) appears to be positively related to regional entrepreneurship (Braunerhjelm, Ding and Thulin, 2016[68]). Similarly, (Foster-McGregor and Pöschl, 2016[69]) also found higher productivity effects through knowledge spillovers from labour mobility. Indeed, there is a positive correlation between states' productivity growth and job-to-job flows (Figure 2.7).

Figure 2.7. Labour mobility and productivity growth are correlated

State level productivity and job-to-job flows.



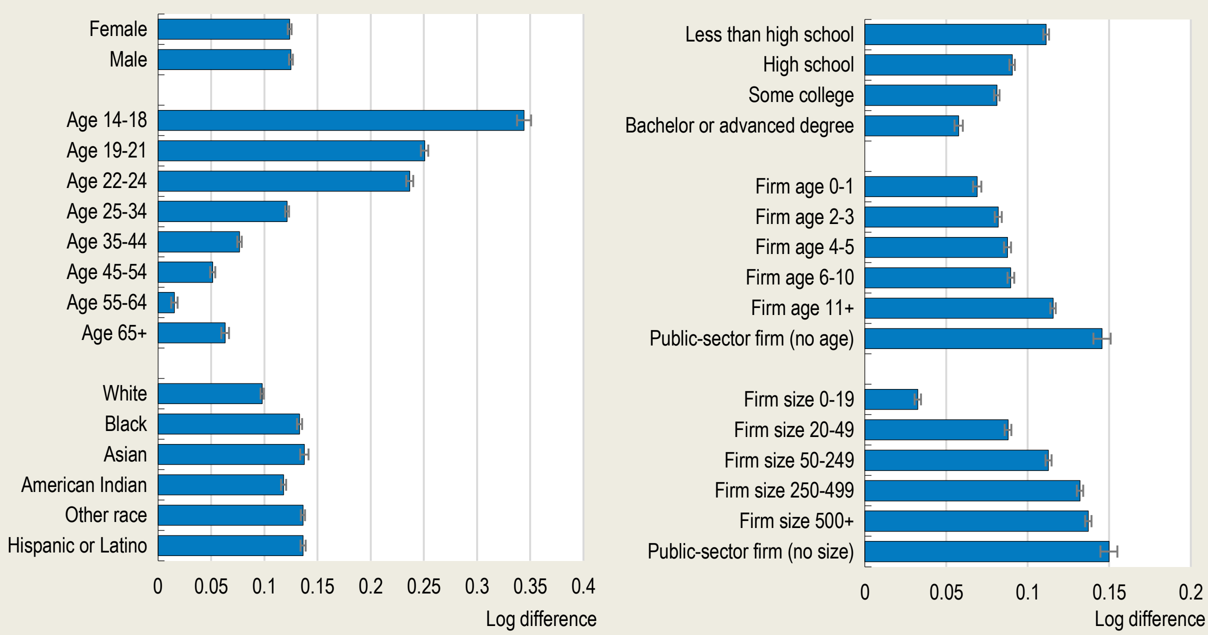
Note: Labour productivity is measured as output per hour worked.
Source: *Bureau of Labour Statistics (BLS) and Job-to-Job Flows Data from the Census Bureau.*

Box 2.2. Who gains the most from job-to-job moves?

Job-to-job moves are an important mechanism for moving up the job ladder. The U.S. Census Bureau provides detailed statistics on job mobility and earnings growth as a result of transition in and out of employment (Azzopardi *et al.*, 2020). Job mobility varies substantially across age groups, reflecting the different stages of a working life. The hire rate is very high and substantially above the separation rate among youth entering the labour market, Across job-to-job movers, more disadvantaged groups (youth, ethnic and racial minorities and those with lower educational attainment) on average experience the largest earnings growth (Figure 2.8).

Figure 2.8. Who gains the most from moving job?

Job-to-job move with no nonemployment period (job move within quarter), estimated marginal job-to-job earnings growth effect of worker and firm characteristics, 2000 Q2-2017 Q3

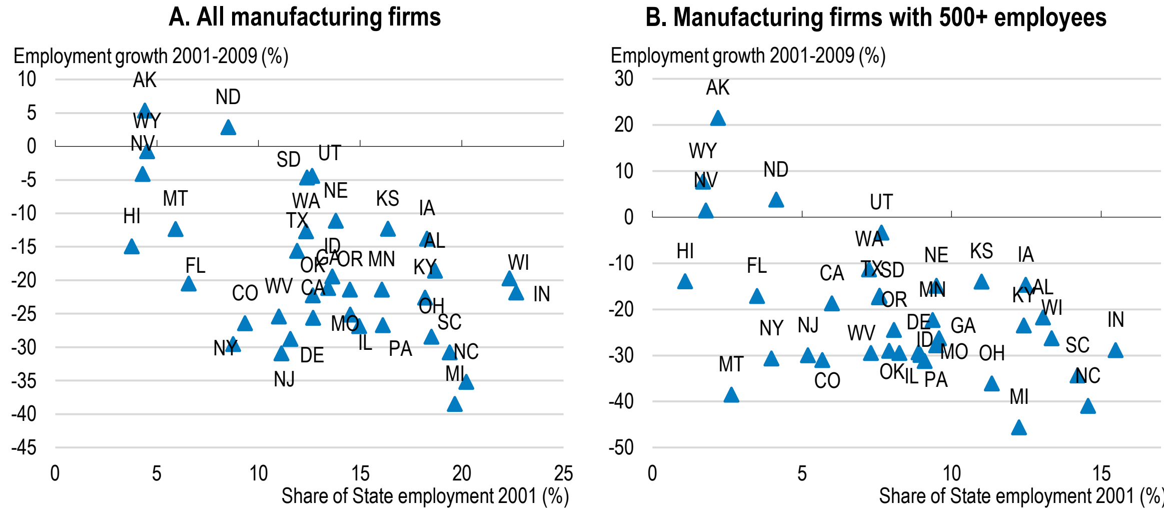


Note: Earnings are deflated by the PCE deflator. The bars reflect the marginal effects from a regression of the change in average earnings from a job-to-job move on indicators for the reported worker and firm characteristics as well as controls for within/between state move, state unemployment rates, industry, state and time fixed effects. Earnings are measured the quarter before (t-1) and after (t+1) the quarter of the move (t). Separate estimations are applied for sex/age; race/ethnicity; sex/education; firm age; and firm size. Error bands report 95% confidence intervals.
Source: OECD staff calculations based on Job-to-Job Flows Data from the Census Bureau.

As discussed in the previous Economic Survey, during the 2000s public policies were ill-equipped to deal with large and often localised rises in unemployment and non-participation - partly the result of sizeable job losses in large firms (Figure 2.9). This has contributed to a decline in labour market fluidity (Box 2.3). However, other often regulatory factors are also at play hindering workers finding new employment opportunities.

Figure 2.9. Manufacturing losses were heavily concentrated

States with a high share of manufacturing employment in 2001 experienced large losses from 2001-2009

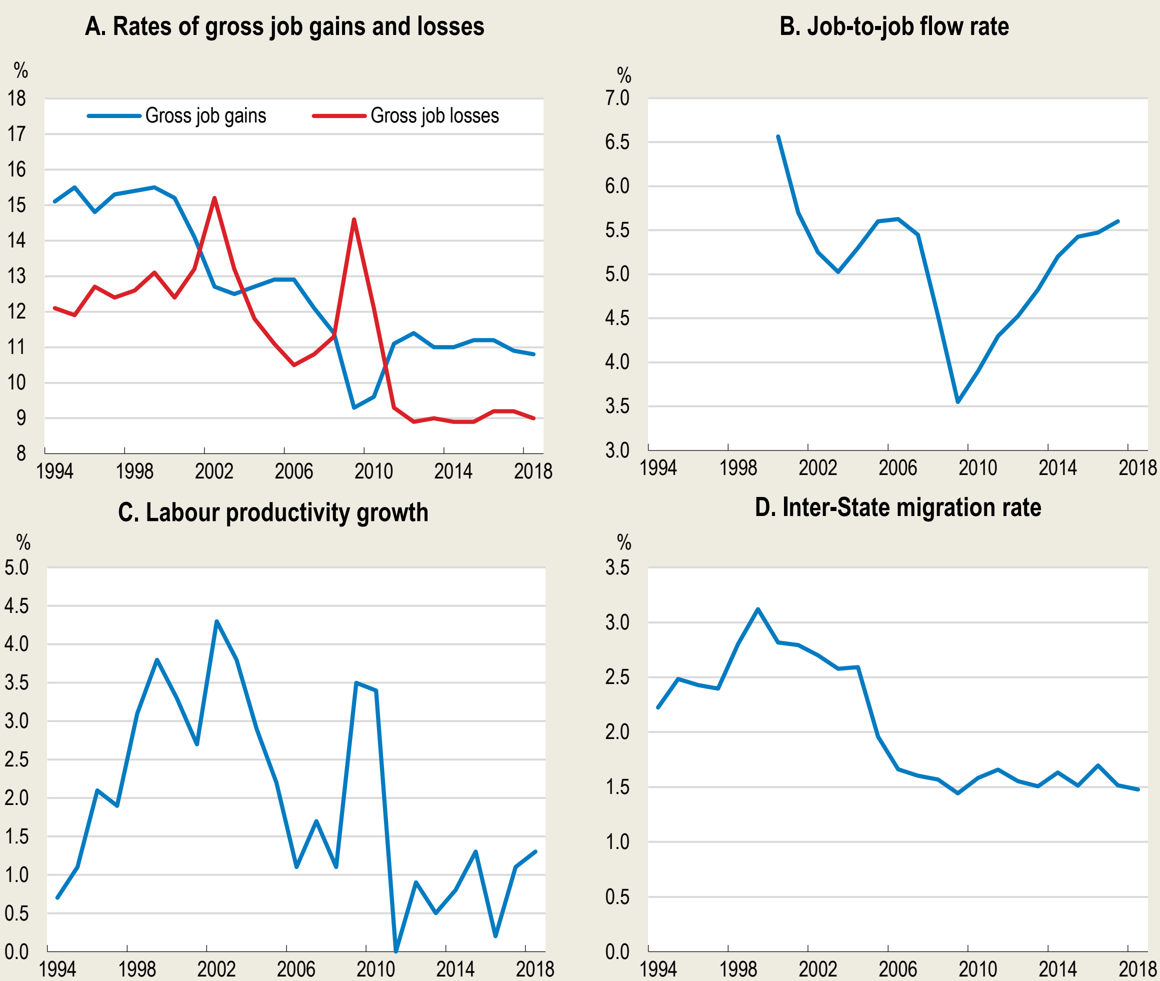


Note: Data is not available for 15 States. Total employment excludes self-employed and federal employed workers.
Source: OECD calculations based on Job-to-Job Flows database, Census Bureau.

Box 2.3. Labour market fluidity has been declining

Labour market fluidity has declined substantially since the late 1990s, coinciding with a period of sluggish productivity growth (Figure 2.10). Measures of job creation and gross job destructions have being trending down, especially during the 2000s while job hire and job separation rates dropped sharply during the two most recent recessions and have only partly recovered during subsequent upturns. Across measures and sources, the decline in mobility appears to be concentrated in the decade from 2000 to 2010, notably during the two recessions.

Figure 2.10. Labour market mobility and productivity have declined

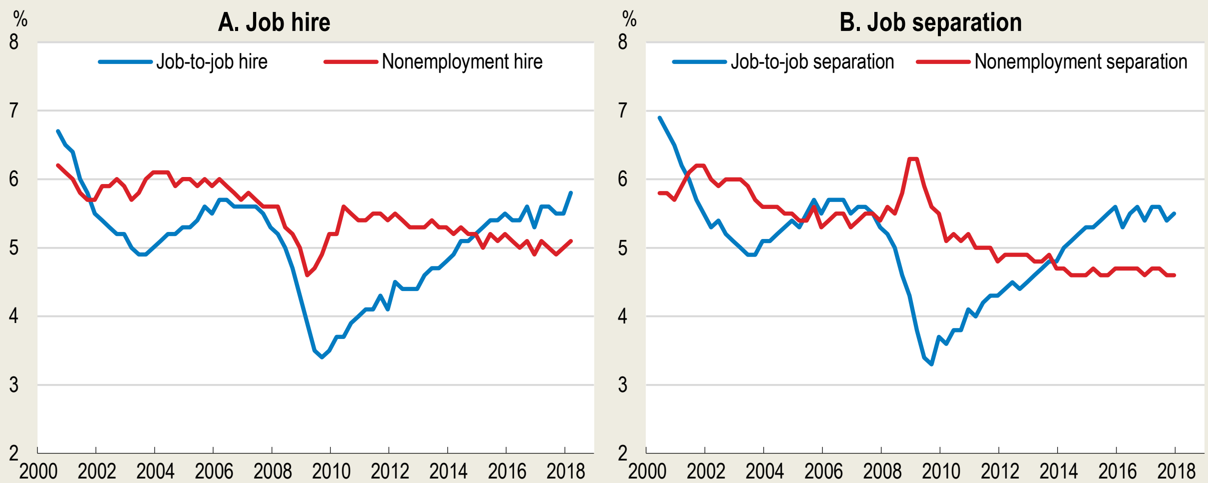


Note: Trends are comparable across sources, but not levels since different measures and frequencies are used.
Source: *Census Bureau; BLS; Fallick and Fleischman (2004)*.

Some of the recent decline in labour market fluidity has been cyclical and reflected the severity of the great recession and the difficulties faced by workers displaced by the China shock. Job-to-job moves (a transition from one job to another job even with a short period of non-employment) accounts for around one half of all job hires. Job-to-job hires declined sharply around the great recession and have largely recovered to the pre-crisis rates, but remain below the rates observed at the beginning of the century. A more worrying trend decline in labour market mobility is seen in hires from non-employment. These types of hires have been on a downward trend from around 6% of employment every quarter to around 5% in recent years (Figure 2.11).

Figure 2.11. Job-to-job flows account for half of all job hires

Job hire and separations in percent of total employment in the United States.



Note: The hire (separation) rate is defined as the number of hires (separations) divided by the average of total employment in the beginning and end of the quarter.
Source: Job-to-Job Flows Data from the Census Bureau.

Mobility is affected by land use restrictions and housing policies

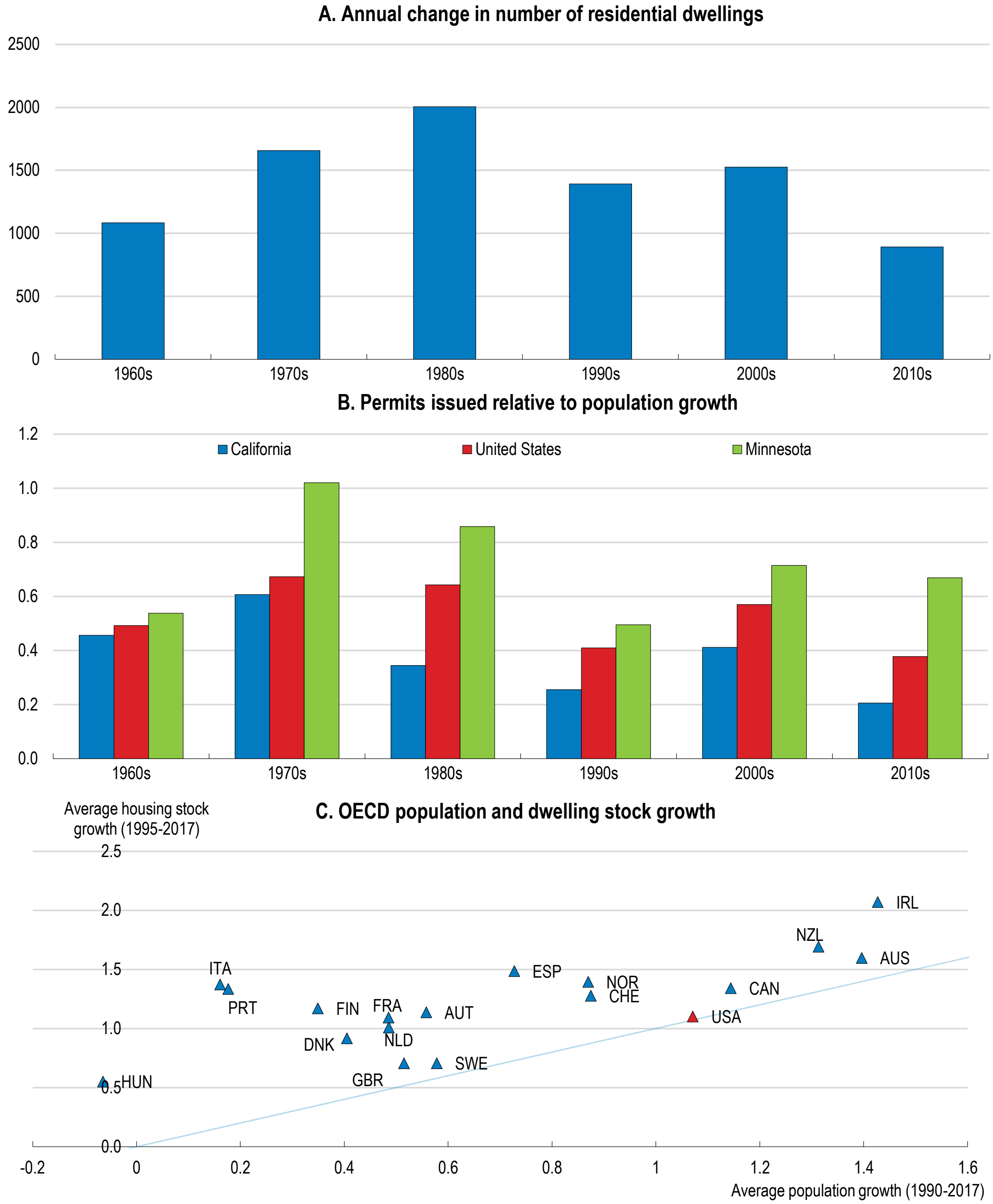
Against this background of the growing importance of metropolitan areas in economic activity, their diverging economic performance and declining labour market fluidity, what are the obstacles in the way of American workers moving to opportunities? Some recent analysis points to declining wage premia for low-skilled workers moving to the more successful cities (Autor, 2019[70]). The job-to-job flow data reveals that moves that are geographically distant typically have a high return for the worker, who is often highly qualified. Lower skilled workers are not necessarily expected to move to high-skill clusters. But even moving within States has become a less frequent occurrence. A number of regulatory factors appear to be contributing to less labour mobility.

Housing supply is responding less quickly to demand

The growing share of the urban population and population shifts away from declining areas has put pressure on housing in metropolitan areas. A sluggish supply response despite mounting demands for housing units in thriving cities is partly determined by geography, but also by deliberate policy choices. In particular, land use restrictions, inclusionary zoning, and rent control can damp investment while attempting to address the shortfall in housing for lower-income and often young households. Other factors, such as some forms of property taxation, can also create disincentives to move.

A flexible housing market is associated with reduced house price volatility, fewer problems with housing affordability and less economic inefficiency as workers are able to move to better opportunities. Housing supply in the United States is relatively elastic, both at the national level and across many cities. At the national level, residential investment responds strongly to price and income signals, but the speed of adjustment of supply appears to have slowed over time (Box 2.4). Indeed, the number of new dwellings created annually has been gradually decreasing. In addition, the number of permits issued annually does not appear to be keeping up with population growth, particularly in some areas, such as California but less so in Florida (Figure 2.12). In comparison with other OECD countries, the growth in the dwelling stock has been very sluggish.

Figure 2.12. The supply of housing has slowed



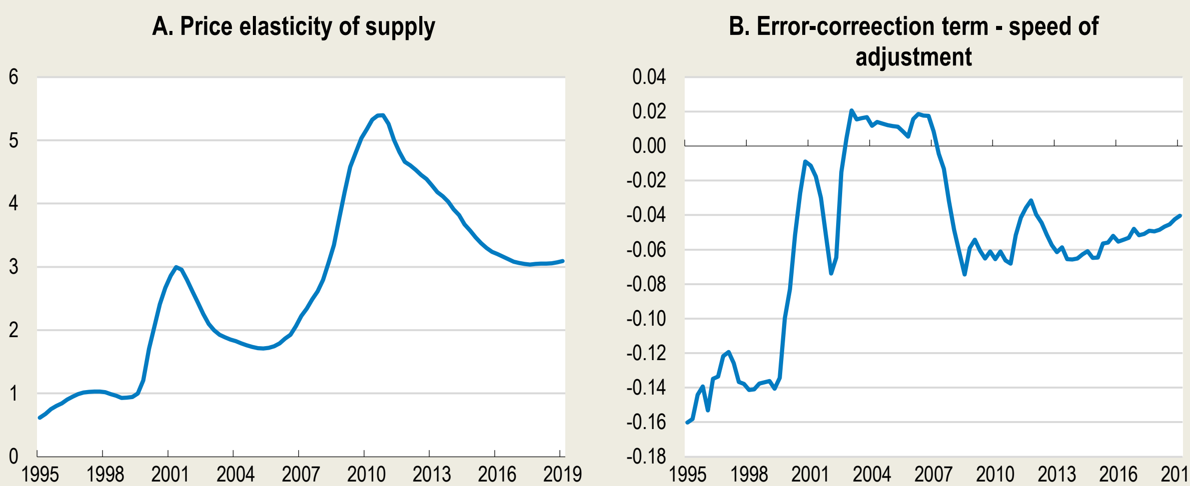
Source: U.S. Census Bureau, Cournede, Cavalleri and Zeiman (2019).

Box 2.4. Housing supply responsiveness

Empirical estimates of the responsiveness of housing supply to prices in the United States is generally high (Caldera Sánchez and Johansson, 2011[71]) (Cournede et al, 2019). Using the simultaneous equation framework developed in these papers and re-estimating them for sub-samples can give an indication of how the housing market has changed. As in the other estimates, the price elasticity of supply is consistently large, suggesting that housing investment responds to price signals strongly (Figure 2.13). In other OECD countries the price elasticity is typically below 2. The coefficient for the error correction term gives an indication of the quickness of the supply response. Generally, the more negative the value the quicker the adjustment takes. During the peak of the housing bubble short-run adjustments were not moving the housing market towards equilibrium. After this period, however, the size of the term suggests that the speed of adjustment is now considerably slower than it was before the pre-bubble period.

Figure 2.13. Residential investment is responsive to prices, but is taking longer

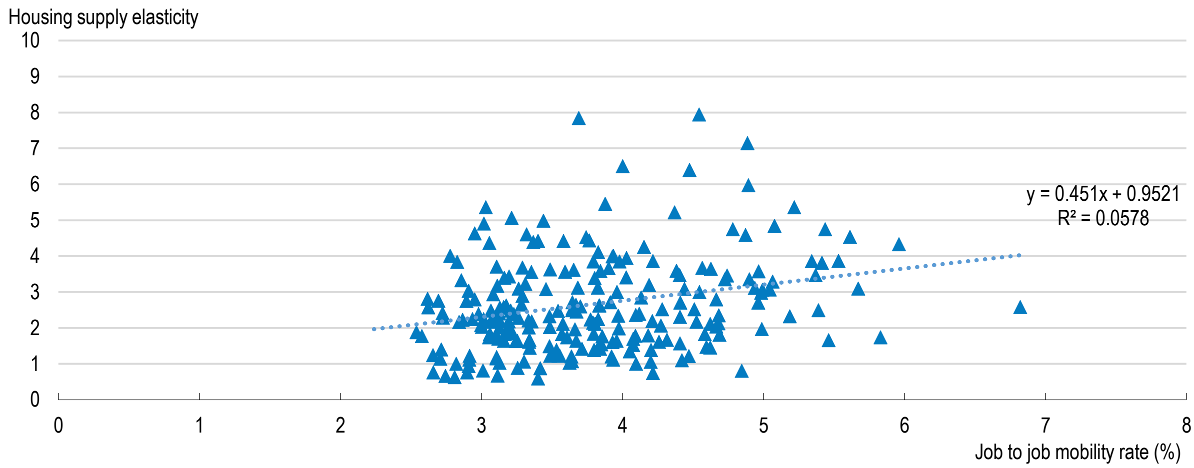
Coefficients from 80 quarter rolling regressions over the period 1975Q1-2019Q1



Note: The observations correspond to the coefficient estimated for the 80 quarters leading up to the date.
Source: OECD, BEA, Census Bureau, FHFA.

Estimates of supply elasticities at the city level show considerable variability. Cities with stronger supply elasticities also generally have greater job-to-job mobility (Figure 2.14), consistent with flexible housing markets enabling labour mobility and potentially reducing mismatches. A recent paper provided empirical evidence that increasing house prices have in particular reduced long distance migration (Bayoumi and Berkema, 2019[72]).

Figure 2.14. Cities with responsive housing supply also tend to have greater labour mobility



Source: Census Bureau Job to Job database.

In part the supply of housing is determined by physical constraints. Estimates of the impact of water (either rivers, lakes or seas) and steep terrain suggest that some cities in the United States face considerable difficulties in increasing supply by expanding laterally. For example, in some growth areas, such as San Francisco and Seattle, the coastline limits how far the city can expand. Taking into account the topography of the San Francisco-Oakland-Hayward metropolitan area suggests around 90% of the land is unavailable (Cournede *et al*, 2020). In addition, areas susceptible to natural disasters (earthquakes, flooding and hurricanes) may want to restrict supply or impose higher standards to ensure buildings are resilient. In others cases, such as the recently booming Midland, Texas, there are essentially few physical constraints to city growth. Furthermore, not all of barriers are related to geographical constraints.

Land use restrictions are prevalent

Land-use restrictions act as another barrier to housing supply. Restrictions that prevent mixed-unit developments or impose building requirements that limit the type of housing available to single family units can have the effect of holding down population density. A sluggish supply response in high demand areas contributes to sizeable fluctuations in house prices, mainly driven by the cost of land rather than construction. The impact of land use restrictions on property values can be large. Estimates suggest that property prices have been boosted by up to 20% by different varieties of land use restrictions (Severen and Plantinga, 2018[73]; Albouy and Ehrlich, 2018[74]).

Land use restrictions are widespread across the United States (Box 2.5). Justifications range from preventing construction on sites that are geologically unstable or liable to flooding to providing local externalities that boost the amenity value of a location, and thus housing demand. However, in other cases zoning appears to be driven by local residents' desire to protect or enhance the value of their property (Smith, 1983[75]). The empirical evidence suggests that land-use restrictions matter for productivity, by preventing agglomeration economies being exploited in full. Agglomeration economies promise the harnessing of workers' creative power more effectively from proximity and the availability of specialised services and amenities. Land-use restrictions can impede the full benefits by leading to a misallocation of workers across metropolitan areas. Restrictive land use regulations can prevent workers moving to cities where they could be more productive. One estimate of the aggregate consequences of land use policies between 1964 and 2009 suggests that U.S. GDP could have been 3.7% higher if housing supply had not been constrained in New York, San Francisco and San Jose (Hsieh and Moretti, 2019[76]). Even with smaller movements of workers than these calculations assume would still imply sizeable impacts on GDP (Glaeser and Gyourko, 2018[77]).

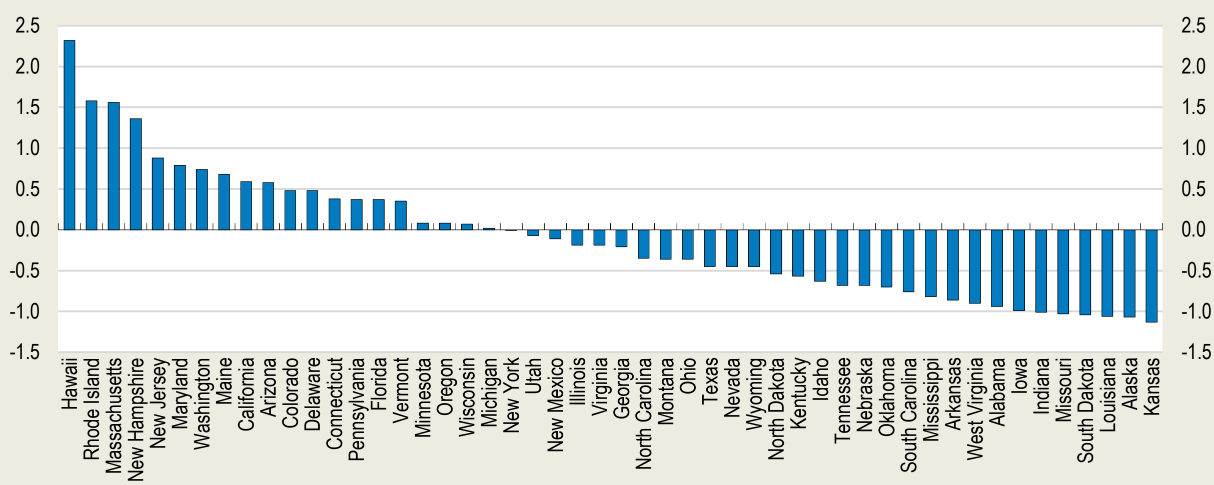
Box 2.5. Land use restrictions in the United States

Zoning was introduced in New York in the early 20th century and rapidly spread to other cities. Partly the spread of zoning was a reaction to uncoordinated development leading to high population densities, poor sanitary conditions and outbreaks of infectious diseases., as well as nuisances such as noise pollution from neighbouring factories. But also local residents saw zoning as a means to protect property values (Shertzer, Twinam and Walsh, 2018[78]).

Due to the decentralised nature of land use regulation comparable information across the country is sparse. A nation-wide picture of zoning comes from the Wharton Residential Land Use Regulation Index, giving a snapshot of the local land use policies across 2,611 communities in 2008. The index combines information on different aspects of land use regulation, with lower values representing less restrictiveness. By construction the mean is 0 and the standard deviation is 1. The degree of restrictiveness varies considerably across cities in the United States, with the distribution of land use regulation skewed by some communities having very restrictive land use (Figure 2.15). On average, communities in the North East and the West Coast are more likely to have more restrictive land use regulations. Communities will often set density restrictions, impose open space requirements and on average took 6 months to take a decision on a housing project. In the highly regulated communities, more political entities were involved with the planning process with many veto points for a planning application and the process take longer. These areas will often require a popular vote on any changes to zoning and in metropolitan areas have formal restriction on new supply.

Figure 2.15. Land use restrictiveness varies substantially

The Wharton Residential land use regulation average for cities in each state.

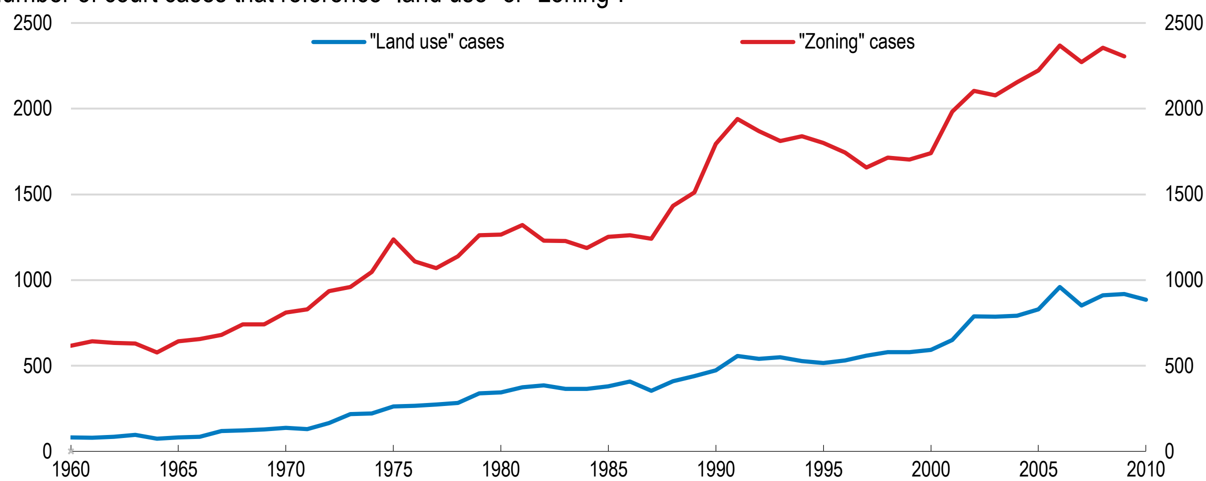


Note: The index is constructed so that the mean value is 0 and the standard deviation is 1.
Source: The Wharton Residential Land Use Regulation Index.

The increased use of zoning appears to have had detrimental effects on housing development by increasing transaction costs. Disputes over land use regulation and zoning appear to have risen strongly over time (Figure 2.16), although court cases have risen more quickly than overall civil cases in state courts they do not necessarily provide a gauge of whether land use restrictiveness has become more onerous. The increase in court cases involving land use or zoning has been associated with higher house prices. The issuance of permits for new construction tend to be lower in the states where the rise in court cases has been strongest (In simple panel regressions of the number of housing permits issued each year by state, the coefficient on the measures of zoning or land use cases implies that a 10% increase would be associated with a 2% decline in the number of permits). This holds when population growth is taken into account. In more regulated states the length of time taken to develop a project is correspondingly longer and can lead to projects being held up by legal challenge. The evidence from job-to-job transitions does seem to support that restrictive zoning is associated with lower labour market fluidity (Figure 2.17).

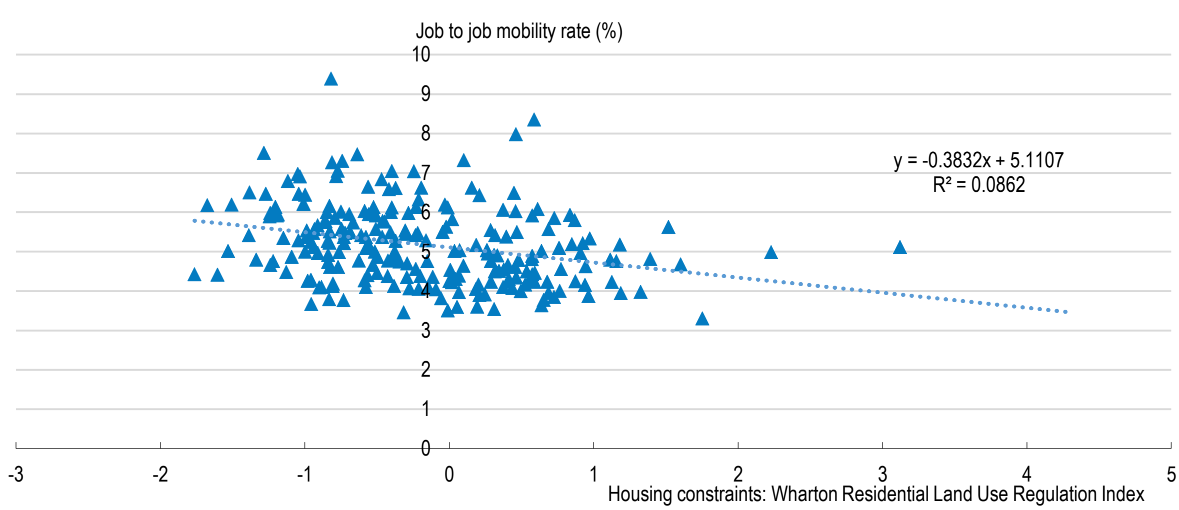
Figure 2.16. Court cases involving land use or zoning have risen over time

Number of court cases that reference “land use” or “zoning”.



Note: The total displayed excludes Washington, D.C.
Source: Data provided by Daniel Shoag.

Figure 2.17. Job-to-job mobility is lower in cities with more restrictive land use



Source: Census Bureau, Gyourko et al.

In other OECD countries, emerging best practice on land use restrictions are moving away from single-use zoning, towards systems that are based on assessing the externalities of a proposed development. For example, the Netherlands introduced a new system in 2016 that simplified planning legislation and integrated other aspects of land use, including the environment. Such an approach can guarantee core objectives are met and speed up the decision making process while allowing more flexibility and the possibilities for mixed-use development (OECD, 2017[79]). The system in Japan defines areas and thresholds for externalities and any development below this threshold is permitted. The system encourages mixed use, although the thresholds are more demanding in primarily residential areas. Mixed-use zoning is more developed in some of the coastal cities in the United States in the West and North East and less used in the Midwest and South (Sarzynski, Galster and Stack, 2014[80]). As cities grow, land use regulation should encourage densification along public transport corridors and low-density areas near city centres. This will only happen relatively slowly if policies are not co-ordinated. For example, the housing stock has only adjusted gradually around the expansion of the metro system in Los Angeles (Severen, 2018[81]).

City form is often not ideal for capturing returns to scale

Effective land-use planning needs to be co-ordinated with transport, housing and also energy, water, agriculture, tourism and economic development. In part alignment is needed to ensure the capacity of infrastructure to deal with proposed land use developments, but also ensure that policies are not working at cross purposes. As land use planning has typically significant local input, evaluation of policies and spread of best practice can help improve choices and help avoid pitfalls. In this light, one development to assist state and local policy is greater use of cost-benefit analysis, not only for specific projects but also for legislation affecting these areas. However, the degree to which states make systematic use of cost-benefit analysis across policy areas varies markedly (Nunn, Parsons and Shambaugh, 2019[82]). Providing technical support so that states can use standardised approaches to cost-benefit analysis may help their policymakers understand when policies and projects are good or poor value for money by facilitating comparison with other states' experiences. Policy co-ordination will also be important in addressing various trends confronting OECD countries, including the ageing and depopulation of localities as well as confronting environmental challenges, such as making cities and towns resilient to water stress, extreme weather and climate change.

Local governments in the United States have considerable authority over land use planning than is usual in other OECD countries; a consequence of state governments delegating substantial responsibility. This gives rise to marked diversity across local governments. While this may help reflect local preferences it can also result in more fragmented metropolitan areas. The degree of fragmentation can be severe. For example, the winning bid for Amazon headquarters 2 in Virginia needed the consultation of around 60 different bodies. The difficulties in surface transportation in the Chicago Tri-State region is partly related to hold-up problems due to the large numbers of (local) actors involved (OECD, 2012[83]). The fragmentation of city government both across areas and by function leads to important co-ordination problems and can affect city productivity.

Typically, in other OECD countries, national or state-level framework legislation or other requirements determine planning processes (OECD, 2017[84]). For example, in Canada, all provinces and territories have regional plans with policies and objectives for land use and economic development as well as environmental protection. In the United States, only 13 states have state-wide spatial plans and not all are binding. The Federal government has some influence through environmental regulation, land ownership and specific policies such as the inter-state highway system and fiscal incentives.

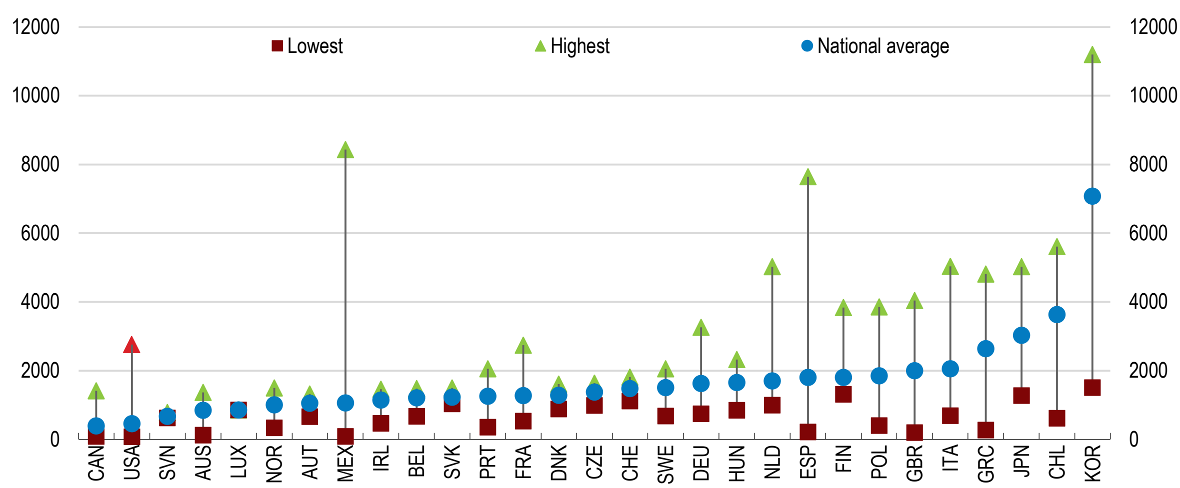
The federal government through the Comprehensive Economic Development Strategy run by the Department of Commerce's Economic Development Administration can provide support for economic development plans, which can also provide a framework to enhance co-ordination. Nonetheless, the economic development plans tend to be locally driven and thus fail to co-ordinate at a level to ensures that policies in different jurisdictions are not working against one another. For example, urban cores may wish to develop mass transit to neighbouring jurisdictions to reduce congestion and strengthen accessibility, whereas residents in these areas will tend to block this to prevent densification and preserve property prices.

Across the OECD, larger metropolitan areas (or functional urban areas) are more productive than smaller ones. Empirical work for functional urban areas in 5 OECD countries found sizeable agglomeration economies such that a doubling of city size was associated with a 2-5% increase in productivity (Ahrend et al., 2017[85]). However, administrative fragmentation, with some functional urban areas consisting of more than 100 municipalities, is found to hinder the achievements of these agglomeration benefits. The resulting administrative fragmentation can lead to adverse outcomes such as congestion and hamper the ease of doing business with negative consequence on the attractiveness of the city and ultimately productivity. The empirical work on city productivity found that cities with twice the number of municipalities would have 6% lower productivity levels than a comparable city. Cities that have developed co-ordinating mechanisms can mitigate some of the negative effects of fragmentation, and reduce the costs by half.

A further concern of uncoordinated development is it can give rise to sprawl. In comparison with many other metropolitan areas in the OECD, urban areas of the United States are some of the least dense, with only Canada having a lower density rate in urban areas (Figure 2.18). However, urban areas in the United States are very heterogeneous. Functional urban areas such as New York and Thousand Oaks, California have an average urban population density which is quite high as compared to most European cities. It is also important to note that population density of urban areas in the U.S. has been increasing over the last few years. On average, density growth in urban areas in the U.S. was the third highest amongst the 29 OECD countries between 2000 and 2014.

Figure 2.18. US cities are amongst the least dense

Average population density in urban areas, 2014



Source: Sprawl in OECD Urban Areas.

Housing affordability

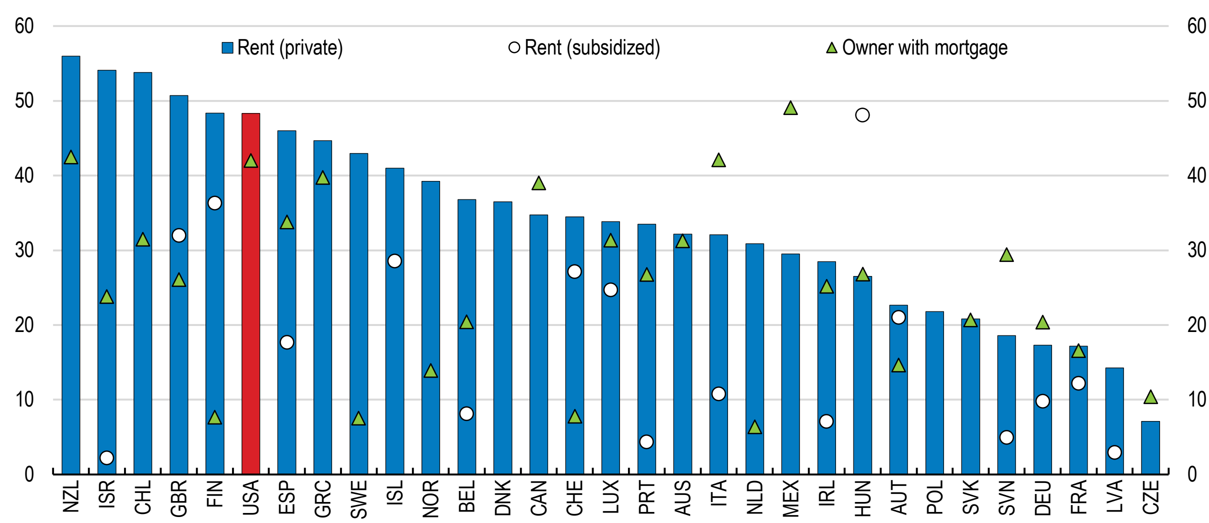
To the extent that land use policies increase house prices and in particular restrict the supply of housing they aggravate housing affordability concerns. Housing affordability is also skewed by the tax code. Mortgage interest deductibility and the state and local tax deduction disproportionally benefits high-income families and pushes up property prices. The Tax Cuts and Jobs Act capped these tax expenditures, making the tax code more progressive.

A lack of affordable housing damps possibilities to move to job opportunities given the prevalence of house ownership and a relatively limited rental market. House prices in metropolitan areas are skewed with a tenfold difference between the cheapest and most expensive metropolitan areas (Youngstown-Warren Boardman in Ohio and San Jose-Sunnyvale-Santa Clara in California, respectively). Prices in the rental market by contrast vary by a factor of four (Zillow house price data). In addition, the price differences across cities are more pronounced for "bottom tier" houses. Large house price differentials are barriers to migration between metropolitan areas (Bayoumi and Barkema, 2019[86]), and thus have a potentially larger impact on workers with lower incomes, who potentially have the most to gain from moving job.

Elevated house prices also have other adverse distributional consequences. Housing costs can account for a sizeable proportion of disposable income for lower-income families. Around 60% of the population in the lowest income quintile spend more than 40% of disposable income on mortgages or rents, which represents a bigger share than in many other high-income OECD economies (Figure 2.19). Furthermore, the lack of affordable housing near employment opportunities dictates that many workers have to commute often long distances. Transportation costs account for between one-third to one-half of housing costs and the combined costs of housing and transportation account for a large share of families with low incomes (Figure 2.20). The share of public transport in total household spending has been rising relatively quickly in recent years, which is particularly a concern for households in lower-income groups.

Figure 2.19. The housing cost overburden is substantial

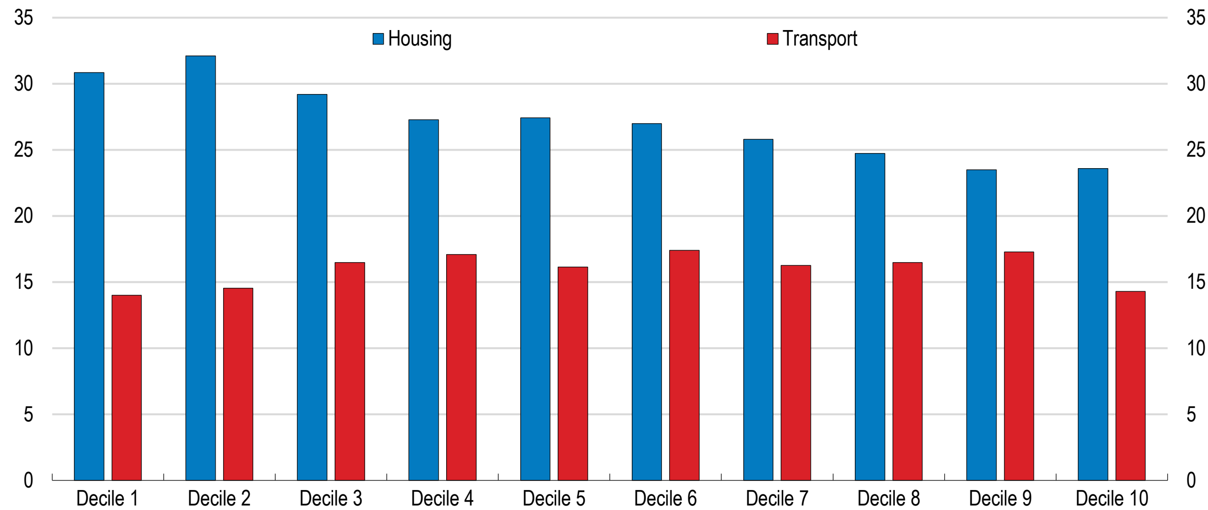
Share of population in the bottom quintile of the income distribution spending more than 40% of disposable income on mortgage or rent, by tenure



Source: OECD Affordable Housing Database.

Figure 2.20. Housing and transport are important spending items

Shares of annual aggregate expenditures by income decile, %



Source: Consumer Expenditure Survey, U.S. Bureau of Labor Statistics.

The under-provision of affordable housing can create barriers to workers:

- At the local level, exclusionary land use restrictions may impede workers living close to places of work (they may be zoned in different areas) and thereby increasing commuting times. There is some empirical evidence that more restrictive land-use regulations increase commuting times. Commuting times tend to be longer for workers with tertiary education and high-income workers, possibly reflecting the greater employment opportunity to individuals with their own means of transport.
- For longer moves, biases in the tax code supporting single unit housing and in land use regulations can mean that insufficient rental units are available, particularly for lower-income workers. Job-to-job transitions that cross state borders, particularly longer distances, are dominated by higher paying jobs. As such, job opportunities in high-productivity cities may not have substantial impacts on low-income workers stuck in declining areas. As a result, inequality within a metropolitan area can diminish as high income workers move to new opportunities, but inequality across metropolitan areas increase (Hornbeck and Moretti, 2018[87]).

The lack of affordable housing has prompted reactions from city, state or federal authorities as they attempt to address the unwanted consequences of local land use restrictions. In some cases, these policies to improve affordability are a double-edged sword. Making housing units available for low or moderate-income families by holding the rental price below the market price, can also have a pernicious effect on supply in the longer run. Evidence in OECD countries suggests that increasing supply at different price ranges in line with demographic trends helps support cities remaining affordable (OECD, 2017[79]).

At the state and local level, recent initiatives to address housing affordability, including the use of inclusionary zoning, rent controls and initiatives to overcome local nimbyism.

- Inclusionary zoning has attracted increasing attention since it was introduced in California in the 1970s and appears a way to ensure affordable housing provision. This approach requires developers to provide a proportion of new housing units for low-to-moderate income families and as such will only be attractive in high cost markets. The majority of inclusionary zoning units have been developed in the Washington D.C. metropolitan area and tend to be in low-poverty areas

(Schwartz et al., 2012[88]). The increased share of affordable housing for lower-income households may potentially depress investment, increase market rents and modify residential patterns by increasing the attractiveness of less central locations (where affordable housing is generally scarcest in the absence of a policy intervention). The authorities can try to mitigate the costs to developers of providing housing units by relaxing density, height and parking requirements or providing fiscal inducements or subsidies.

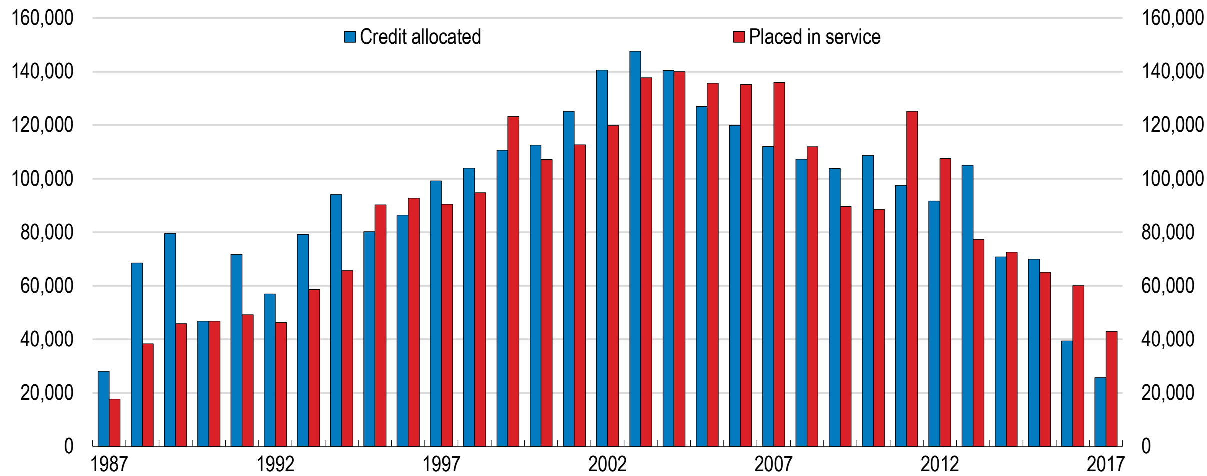
- Rent controls are well-established in parts of California and New York. More recently, in 2019 Oregon has introduced a state-wide restriction. However, other states have banned their use. Typically rent controls impose restriction on the growth of rents for older housing units. But the United States is one of the few countries in the OECD where rent control can also determine the initial rent level. Empirical evidence from across the OECD suggests that these measures harm residential mobility (Caldera Sánchez and Andrews, 2011[89]). An additional concern is that they may lead to housing being withdrawn from the rental market or depressing housing investment. Indeed, the lifting of rent controls has been associated with rising housing values inducing new construction and boosting rental supply (Autor, Palmer and Pathak, 2014[90])
- A number of areas have introduced initiatives to address the supply constraints, by relaxing the constraints imposed by local areas. For example, Massachusetts state law 40B gives the right for developers to override local zoning laws, where a share of affordable housing units meets a threshold (10%). In Minneapolis, the city authorities decided to upzone the entire city. Up-zoning relaxes zoning policies (e.g. single unit or height restrictions) and can allow city density to increase (albeit to the extent that the building stock is replaced). This helps affordability by preventing land prices driving up house prices and by boosting the supply of housing units. One of the emerging findings in detailed empirical work is that increased supply of any sort helps improve housing affordability (Mast, 2019[91]). In this regard, accessory dwelling units can also provide more affordable housing. An accessory dwelling unit is a small, independent housing unit on the same plot as a single-family house and may provide more practical housing options for relatives or renters. For municipalities they can represent an inexpensive way of increasing housing supply while also increasing their property tax base (HUD, 2008[92]). In some cases, such as San Francisco, relaxing zoning laws to allow such units can reflect existing reality in high-pressure housing markets.

The federal authorities have started work to address housing affordability. A Presidential executive order established a White House Council on Eliminating Regulatory Barriers to Affordable Housing. The regulations under consideration include overly restrictive zoning, rent controls, building codes, efficiency requirements and permitting procedures. Reforms to such policies may potentially help improve affordability, and the CEA (2019) also suggests may even help reduce homelessness through increasing supply.

The Low-income Housing Tax Credit programme run by Treasury and implemented by state and local governments is an important source of funding for multifamily housing units in the United States. This credit has supported the building or rehabilitation of housing units for low-income tenants, currently the credit is around $10 billion annually and has provided for over 2 million housing units since its introduction in 1986. The number of units placed in service peaked around the turn of the century. Over the past decade the number of units allocated and place in service has been stable although incomplete reporting data appears to show a slwoing (Figure 2.21).

Figure 2.21. Fewer housing units are supported by the low-income household tax credit

The number of housing units placed in service or for which credit has been allocated.



Source: LIHTC database, Department of Housing and Urban Development.

The Low-income Housing Tax Credit accounts for a large share of federal funding for affordable housing, especially in rural areas, and appears to have positive externalities in distressed neighbourhoods by boosting property prices of neighbouring housing and reducing crime rates (Dillman, Mertens Horn and Verrilli, 2017[93]). Evidence for other areas is mixed, but may depress house prices in high-income. There was concern that the 2017 tax reform could affect the attractiveness of the Low-income Housing Tax Credit, to corporations as a result of lowering the corporate income tax rate. . However, two changes made by Congress appear to have muted any effect. First, the amount of credit available to states increased by 12.5% till 2021 and second, Congress relaxed restrictions on tenant income eligibility by allowing some higher income tenants if offset by tenants with incomes lower than program requirements otherwise allow.

Local opposition to the increase of supply (particularly of housing units that are better suited to lower or medium-income tenants) is largely based on the fear that increased supply will have a negative impact on local house prices. The effects are more nuanced, suggesting that different types of housing can coexist (Dillman, Horn and Verrilli, 2017[94]). This can arise from a number of spillovers of increasing investment in the area, renovation of rundown properties that are a blight to local property prices (Edmiston, 2012[95]). Emerging evidence suggests that densification in the urban core is associated with neighbourhood house price gains. On the other hand, suburbs of some metropolitan areas experience a negative impact.

Housing vouchers are another possible means to make housing more affordable for low-income households. At present, this is financed by federal money, but the amounts available fall short of the eligible population (only about one fourth receive a housing voucher through allocation by lottery). Nonetheless, Housing Choice Vouchers support approximately 2 million households. While this addresses distributional concerns, the receipt of a voucher can impede mobility as the landlord also needs to participate. Low-income workers may be concerned about moving to opportunities in higher paying areas where rents are correspondingly higher. While regulations require vouchers to be portable between the Public Housing Authorities implementing the voucher programme, billing issues are complicated and the family may lose the voucher if they do not find a housing unit within a time limit. Recent empirical evidence also suggests that support for low-income families can help families move into areas with higher gains of intergenerational income mobility (Bergman et al., 2019[96]).

The authorities reacted to obstacles in moving to areas offering better opportunities by introducing Small Area Fair Market Rents as a pilot project in 2012 and then extending it in 2018. This scheme sets voucher amounts on the prevailing rents in a neighbourhood rather than across a metropolitan area to allow families greater choice. An evaluation of the pilot revealed that families moved to neighbourhoods offering better opportunities with little impact on overall payments to landlords (Dastrup et al., 2018[97]). A recent initiative by Congress in 2019 supported another mobility demonstration programme for Housing Choice Vouchers, which may facilitate moves between Public Housing Authority areas. The funding will support families in landlord outreach and search assistance as well as financial coaching and post-move support. Some funding is set aside to examine the cost-effectiveness of the programme.

A final area where policy could ease supply constraints would be from reducing other regulatory costs of construction. For example, HUD requires minimum building standards for buildings being constructed as part of HUD housing projects. Ongoing efforts by HUD and state and local governments to alleviate regulations on building materials, for example, have the potential to boost supply. Estimates of the regulatory burden made by the National Association of House Builders suggest that the costs associated with site development, including applying for development approval, could account for 15% of a house price (Emrath, 2016[98]). The costs of adhering to regulation during construction could amount to almost 10% of the final house price. Progress on this front may help to reduce construction costs. The price index for new private residential construction has been rising more quickly than the GDP deflator since the early 1990s - on average by more than a percentage point each year - albeit with a notable fall in the lead up to the great recession.

Other policy levers to address reduced mobility

Not all the solutions to the spatial mismatch of employment opportunities and the current location of the population is likely to be met through boosting house supply and migration. Increasing the attractiveness of areas that are suffering offers one alternative. Recent work from the OECD also suggests that forging better linkages between (smaller) metropolitan areas and surrounding regions can enhance these regions attractiveness by offering greater scale economies (Ahrend and Schumann, 2014[99]). In others cases, particularly more remote areas, the opportunities for piggybacking on cities will be more limited, but enhancing the communication linkages may offer some benefits, not least access to government services.

Using taxation to encourage investment in declining areas

One way municipalities can finance development is through tax increment financing, which is a form of land value capture. In this approach the local authorities designates an area for development. The attraction of this approach is the municipality continues to receive property taxes on the initial "base property values", but as property prices rise with the development the additional revenue stream is dedicated to project development and servicing bond financing. This offers a mechanism to bring the public and private sector together, which may be especially important in declining areas where coordinated action is required. As such these are place-based policies that attempt to overcome barriers to locating economic activity in distressed areas. Furthermore, the calculation of the tax increment requires at least a partial cost-benefit analysis, which can help raise the effectiveness of the investments (OECD, 2017, land use planning systems). However, this approach can incur substantial up-front costs and are criticised for shifting economic activity rather than creating new jobs.

The Tax Cuts and Jobs Act introduced Opportunity Zones, which give tax advantages for investments in underperforming areas. This approach allows private investors to invest unrealised capital gains into funds that finance projects in opportunity zones. The eligible zones are census tracts with relatively high poverty rates and low median income. The longer the investor remains in the investment fund the smaller the estimated capital gains tax they need to pay. The Joint Tax Committee estimates that this will cost $1.6 billion in reduced taxes between 2018 and 2027.

The United States has previously implemented similar schemes: Enterprise Zones and Empowerment and Renewal Communities. Empirical analysis suggests that tax subsidies promote local job creation and lead to wage increases, although this may be a relocation of employment and the cost per job can be relatively high (Busso, Gregory and Kline, 2013[100]). However, the costs of sustained regional underperformance and low employment also needs to be taken into account. As part of the implementation of the Opportunity Zone initiative, the Administration is developing private and public data sources to monitor outcomes better than was done for the previous programs. In light of the potential drawbacks, identification and dissemination of best practice will help ensure that finances are used to boost local economies cost effectively.

Current tax competition between states has not been very successful in this regard. The state of Kansas and Missouri have reached a truce in 2019 after recognising that taxpayers subsidised firms moving jobs across the border in Kansas City with little net employment gain.

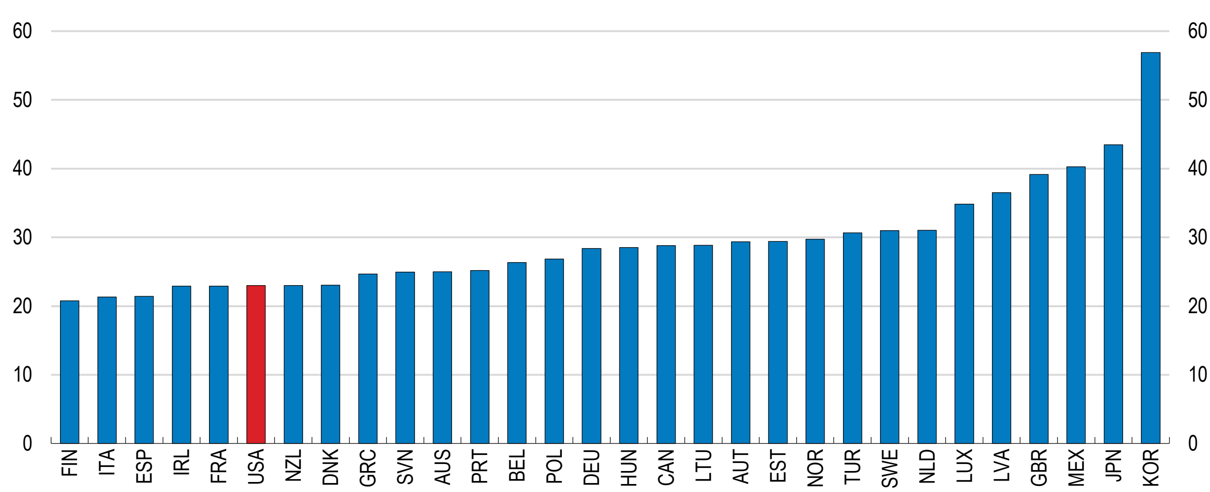
Using infrastructure to facilitate access to metropolitan areas

Infrastructure investment can boost employment opportunities and productivity gains. While the largest cities in the OECD are 2 to 5% more productive than cities half their size (Ahrend et al., 2017[101]), other smaller metropolitan areas can exploit transport connections to their surrounding areas to achieve scale economies. Evidence from European cities suggests that reducing the travel time to urban agglomerations can boost economic growth in these areas (Ahrend and Schumann, 2014[99]).

In comparison with other OECD countries, commuting times in the United States are relatively short for the adult population (Figure 2.22). However, according to the American Community Survey for those who commute the average time to work in 2018 was 27 minutes each day. For those taking public transportation that average commuting time was over 50 minutes. Indeed, the accessibility of jobs by mass transit is limited and commuters in 50 minutes would only have access to 6% of the jobs that a car driver could reach (Figure 2.23). Furthermore, the variation across the country is large. Average one-way commuting times ranges from around 15 minutes in some smaller metropolitan areas to well over 30 minutes in larger metropolitan areas such as New York and Washington, D.C. Average commuting times across metropolitan and metropolitan areas has crept up over the past decade rising by around two minutes.

Figure 2.22. Commuting time is relatively short on average in the United States

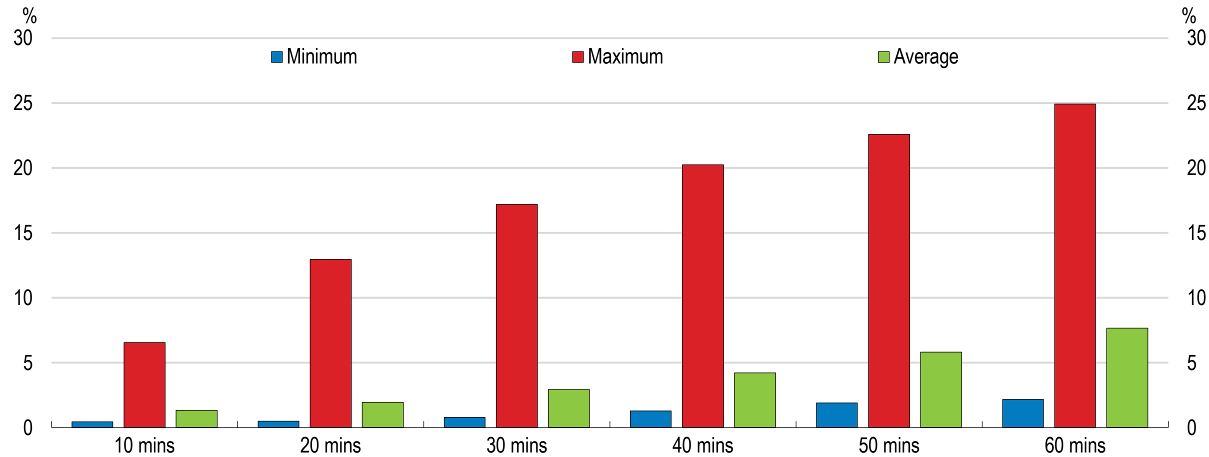
Time spent commuting to work or study in minutes per day, latest available year.



Source: OECD Family Database.

Figure 2.23. Access to jobs by mass transit is limited

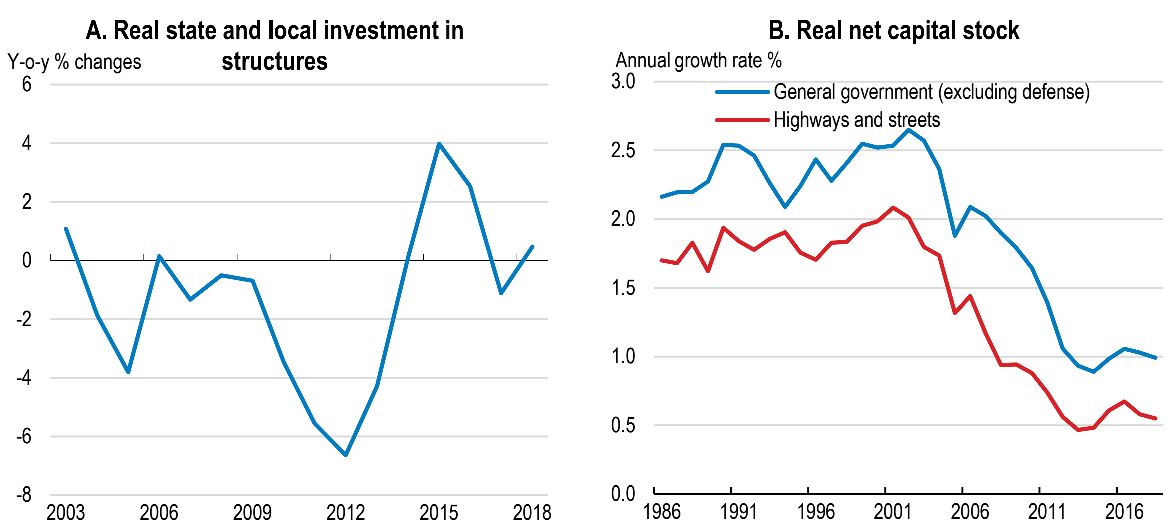
Share of jobs accessible by mass transit relative to cars at different time horizons



Note: Based on data for the 50 largest metropolitan areas.
Source: University of Minnesota Accessibility Observatory.

State and local government investment has fallen in real terms since the beginning of the century, with investment collapsing in the aftermath of the great recession (Figure 2.24). Overall, real investment in government structures has fallen by one-quarter, but the decline has been especially severe for highways and roads. The growth rate of these infrastructure assets has slowed to a crawl. The failure of investment to keep pace with economic development has resulted in poor transport linkages, which can hinder metropolitan areas and their hinterlands exploiting the benefits of better connectivity and can thwart the connection of regions and smaller cities to benefit from greater scale.

Figure 2.24. Sluggish investment has slowed the growth of the transport capital stock



Source: Bureau of Economic Analysis.

The Federal government has some role to play through the disbursement of funds from the Highway and Mass Transit Accounts, accounting for roughly three-quarters and one-quarter of spending respectively. The funding source for fuel taxes has failed to keep pace with inflation and demand, necessitating Congress to transfer supplementary resources. In addition to the lack of funding for transport infrastructure, the co-ordination of investment also needs improving. Fragmentation of land use, housing and transport policies can create barriers to achieving possible scale economies by better linking cities and their surrounding areas. In some cases, counties surrounding urban cores resist the expansion of mass transit to preserve property prices. These actions can effectively harm urban growth prospects in the longer term by fragmenting urban areas. The federal government addresses some of these co-ordination issues by requiring large urban areas to designate a recipient for the whole area, rather than being channelled through state budgets to separate entities. Requiring greater policy co-ordination would not only lead to better outcomes but also potentially speed up decision making by reducing the number of potential decision making bodies.

Another aspect of co-ordination is the link with health and the environment. The lack of co-ordination in urban development has led to the rise of low-density housing, which tends to lead to greater dependency on car transport (OECD, 2018[102]). This in turn can contribute to greater emissions and local air pollution, with adverse consequences for health. Compact cities tend to benefit from lower emissions due to shorter commutes, greater investment in mass transit and a more energy efficient housing stock (Leibowicz, 2017[103]). On the other hand, prioritising urban density can cause congestion in the absence of viable transport options. Furthermore, coronavirus infections have risen more quickly in urban areas revealing a vulnerability of cities that needs to be assessed alongside the productivity and amenity benefits of urban conglomeration.

Improving broadband access

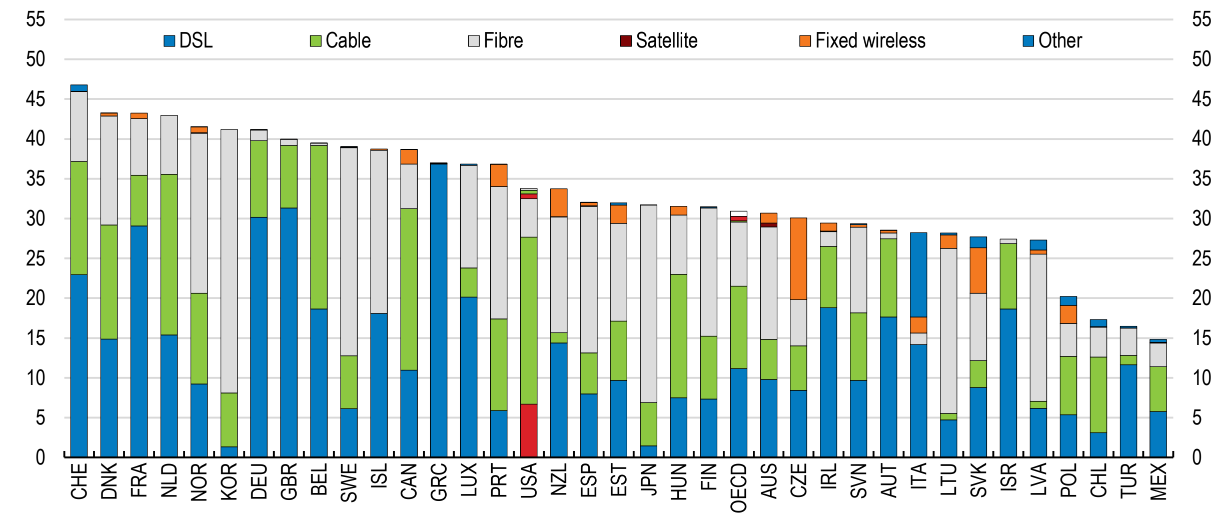
A second infrastructure area with potential to boost productivity and well-being is broadband. The ongoing digital transformation of the economy altering the provision of services and consumption patterns, making broadband access a vital tool for harnessing the opportunities. Within the Unites States, the intensity of ICT use by states is correlated with higher labour productivity growth (Pabilonia et al., 2019[104]). In addition there are ancillary benefits ranging from access to education, healthcare, and financial services that would support broad coverage. Indeed, the importance of broadband in the provision of telemedicine consultations during the coronavirus outbreak as well as in access to goods and services while households are subject to shelter-in-place orders highlights the vital importance of internet access to the population.

Access to high-speed broadband is an increasingly important determinant of productivity. Empirical evidence suggests broadband penetration is associated with increased efficiency and a boost to growth. Different country experiences suggests that access and even distance from the high speed network to the business is important in determining whether a firm survives (DeStefano *et al.*, 2019). And while face-to-face interaction and the provision of specialised services are important and support agglomeration economies in metropolitan areas, access to broadband in rural locations can expand economic opportunities in other activities. For example, broadband access could support industries as diverse as high-tech agriculture and telemedicine. In this light, the patchy development in broadband access is likely a constraint on local economic development.

In comparison with other OECD countries, access to high speed broadband is relatively modest in terms of subscriptions to fixed broadband (Figure 2.25). In part, the relatively low access to fixed broadband is related to marked differences in roll out of fixed and mobile networks across the country. Particularly for the highest-speed broadband, the variation in access to broadband across states and within states between urban and rural areas is marked (Figure 2.26). On the other hand mobile broadband subscriptions is quite high and only Japan, Finland and Estonia have more subscriptions per capita.

Figure 2.25. Subscriptions to fixed broadband are around average

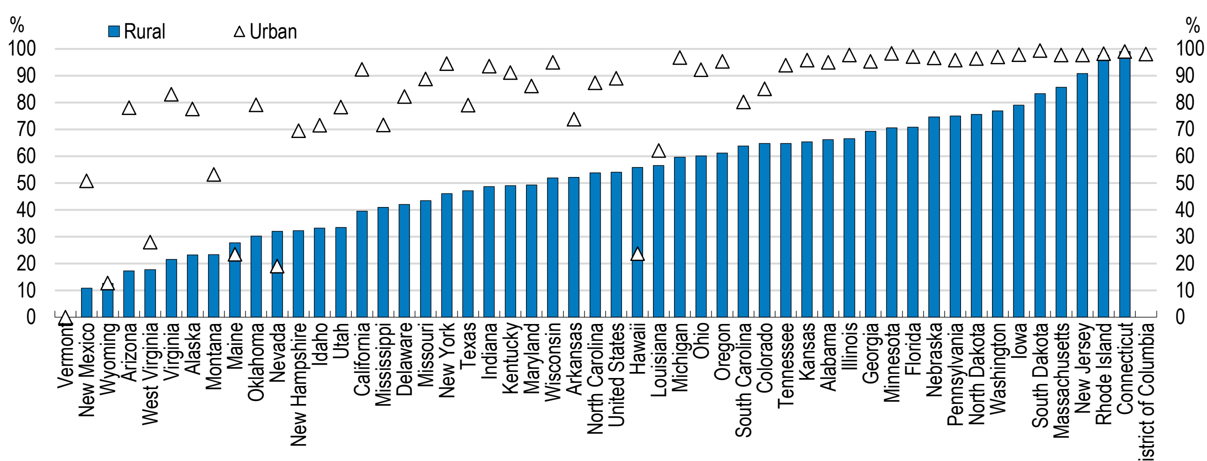
OECD Fixed broadband subscriptions per 100 inhabitants, by technology, Dec-2018



Note: Australia: Data reported for December 2018 and onwards is being collected by a new entity using a different methodology. Figures reported from December 2018 comprise a series break and are incomparable with previous data for any broadband measures Australia reports to the OECD., Data for Canada, Switzerland and United States are preliminary, Canada: Fixed wireless includes Satellite, France: Cable data includes VDSL2 and fixed 4G solutions, Italy: Terrestrial fixed wireless data includes WiMax lines; Other includes vDSL services.
Source: OECD Broadband statistics [http://www.oecd.org/sti/broadband/broadband-statistics]

Figure 2.26. Access to high-speed internet varies considerably across states

Share of population with access to high speed broadband, by State



Note: Americans with access to Fixed 25 Mbps 3Mbps and Mobile LTE 10Mbps/3Mbps.
Source: Federal Communications Commission.

A number of initiatives are attempting to expand the coverage of broadband networks. However, given potentially prohibitive costs of achieving universal coverage for all locations, cost-benefit analysis or similar mechanism would ensure that available funds are put to their best use. At the national level the Federal Communications Commission (FCC) operates the Connect America Fund to improve broadband provision for all Americans including in rural areas at reasonably comparable prices. To achieve this mandate established by Congress, the FCC uses reverse auctions to allocate subsidies for expanding coverage to unserved areas at the lowest possible cost. Action to improve access to broadband is also taking place at the state level. For example, the Commonwealth of Virginia intends to use funds from the Tobacco Settlement to close the comparatively wide rural-urban divide in internet access by 2020.

Even with these efforts the financing demands are large. Particularly as 5G networks are rolled out, large fixed costs need to be borne. This may require sharing network components or co-investing to reduce overall costs (OECD, 2019[105]). Different levels of government and the competition authorities need to assess how best to ensure robust competition between infrastructure owners and other service providers. Competition policy has an important role to play. OECD experience generally suggests that competition between several network operators provides more competitive and innovative services (OECD, 2014[106]). In this light, caution is warranted when considering mergers and opportunities to encourage entry should be considered.

Box 2.6. Recommendations for enhancing worker mobility

Table 2.2. Recommendations

Key recommendations are bolded

FINDINGS	RECOMMENDATIONS
Helping workers move across the country	
Restrictive land use regulations are hindering the supply of new housing and the workers moving across the country to new job opportunities.	**Provide fiscal incentives for states and localities to relax land use restrictions and promote multi-use zoning.** Disseminate information on good practice to convince localities to improve regulation.
States and localities are responsible for land use planning, transportation and housing policies. When these policies are not co-ordinated inefficiencies arise that can depress productivity and	**Help states and localities better co-ordinate land-use, transportation and housing policies.** **Require metro mass transit fund recipients to integrate transport policy with land-use and housing policy.**
Infrastructure investment has been sluggish since the early 2000s. Failure to invest hinders productivity growth and reducing the accessibility of cities, which help	**Invest in new telecommunication infrastructure** where supported by appropriate evaluation such as cost benefit analysis**.** **Improve the maintenance of the road network.** Invest more in mass transit where cost effective. Improve connectivity with the roll out of broadband access. Ensure competition in the broadband market. Make wider use of cost-benefit analysis
Households are able to move to opportunities in different neighbourhoods, but often face sizeable information asymmetries in making choices	Provide additional help for low-income families when they can move to opportunity. Roll out the mobility demonstration project if successful

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3. Anti-competitive and regulatory barriers in the labour market

Occupational licensing and non-competition agreements are two important types of labour market regulation in the United States, both covering around one fifth of all workers. While some regulation is needed to protect safety and ensure quality of services, it also creates entry barriers and reduces competition with important costs for job mobility, earnings and productivity growth. Employment opportunities for low-skilled workers and disadvantaged groups tend to be particularly affected by these barriers. The States are mainly responsible for labour market regulation and the variation across States is similar to the variation in the European Union. Harmonising requirements and scaling back occupational licensing as well as restricting the use of non-competition covenants could help to circumvent the secular decline in dynamism. However, attempts to reform often face stiff opposition from associations of professionals. The federal government has limited influence, but can in some cases help by shifting the burden from workers to meet regulatory requirements onto States and employers to show that high and differing regulatory standards are needed.

Labour market fluidity has declined substantially since the late 1990s and coincides with a period of sluggish productivity growth as discussed in Chapter 2. State-level labour market regulation contributes to some of the concerning lack of dynamism, notably occupational licensing and non-competition agreements, which both cover around one fifth of American workers. Labour market regulation plays an important role in protecting workers and consumers and ensuring well-functioning markets. Too much regulation can however result in excessive entry barriers and reduced opportunities for jobs, mobility and entrepreneurship.

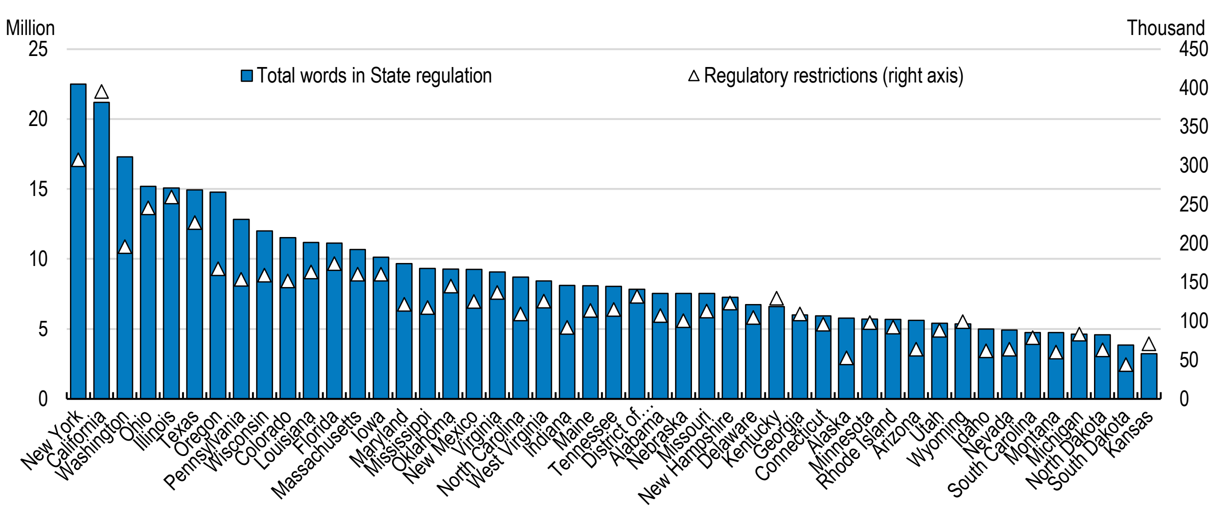
The coronavirus pandemic revealed the barriers occupational licensing can create are harmful requiring action to reduce their impact. Many of the health occupations in high demand are regulated in a way that limit the flow of skilled professionals across State borders. States responded to the crisis by waiving many licensing requirements, by allowing out-of-State licensed professionals to obtain temporary emergency licences to practice and by asking retired health workers or students close to graduation to practice on a temporary basis without a licence (NCSL, 2020; FSMB, 2020).

Occupational entry regulations are widespread in many OECD countries and recent evidence suggests detrimental effects for productivity growth (von Rueden et al., 2020). The reason is that entry barriers lower competition pressures to innovate and reduce reallocation of workers from low to high productive firms. Workers with an occupational licence tend to benefit from higher wages, which has some appeal given persistently weak wage growth. However, low-skilled workers, ethnic minorities and workers with weak labour market attachment are much less likely to hold a licensure and benefit from the higher earnings. The rising use of non-competition agreements (between an employer and an employee) likewise tend to deprive these groups the most by reducing their employment options and wages.

The amount and strictness of all types of regulation vary enormously across States judged by a simple word count of administrative codes (Figure 3.1). With almost 23 million words, New York has seven times the amount of regulation as Kansas. Focusing on restrictive words only, California has almost 400,000 regulatory restrictions, nine times the count for South Dakota. Nevertheless, more words of regulation is not necessarily associated with weaker mobility and poorer economic outcomes. Differences in regulation can potentially provide a spur to competition between States and allows for learning through experimentation. On the other hand, persistent differences may suggest that certain States are not adopting best practices.

Figure 3.1. The total amount of regulation varies substantially across States

Word counts from scan of State administrative codes, 2015-2019



Note: The number of regulatory restrictions is based on the count of the specific words (shall, must, may not, required, and prohibited). Data not available for Alabama, Hawaii, New Jersey and Vermont.
Source: https://quantgov.org/state-regdata/

The extent to which State-level regulation can create barriers is constrained by federal law. In some areas, such as competition policy, the federal authorities have an important role. In addition, as previously regulated industries, such as telecommunications and transportation, were deregulated, restrictions were introduced on States' ability to introduce new regulation. Where they were not, such as trucking, strong interest groups pushed for State level regulation to protect their markets. In other areas, federal government reach is more limited. For example, environmental regulation is an important area where State-level regulation largely determines costs to businesses and has contributed to large differences in stringency emerging across the country (Keller and Levinson, 2002). In other cases, professional groups have sought to use regulatory policy to erect barriers to entry (Teske and Provost, 2014). This is most apparent with the growth of occupational licensing.

This chapter zooms in on two important types of labour market regulation, occupational licensing and non-competition agreements, both mainly governed by States. It presents new empirical evidence on the links with job mobility and discusses how reforms can increase opportunities for workers and boost dynamism and productivity growth. No-poaching agreements (between two employers) has a similar effect on worker mobility as non-competes and are used in more than half of all major franchisors' contracts, such as McDonald's and Burger King (Krueger and Ashenfelter, 2018). The Chapter does not discuss these type of arrangements, among others because no-poaching agreements between independent firms are generally illegal.

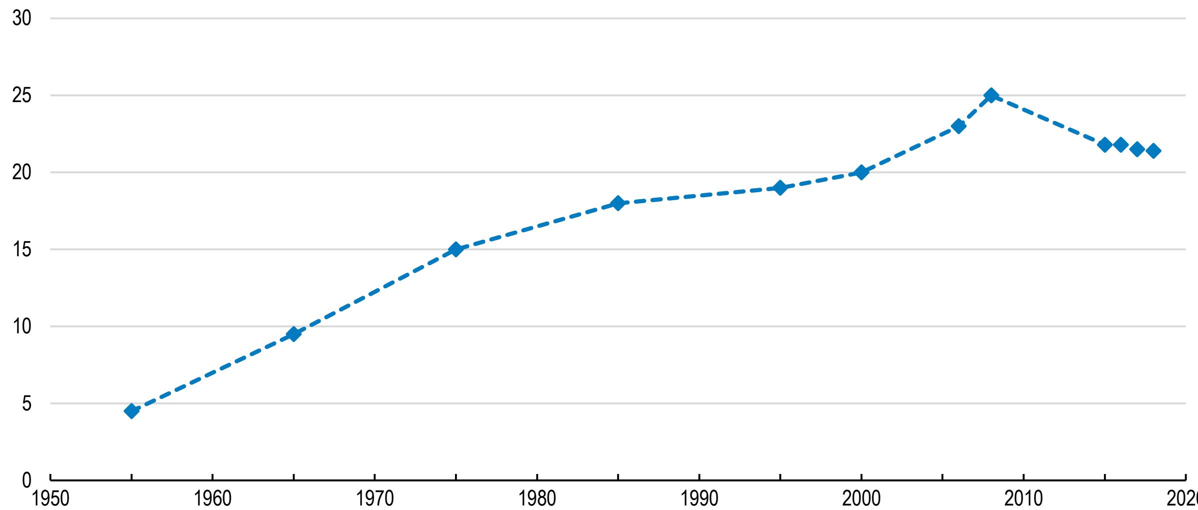
Reforming occupational licensing to boost mobility and opportunities for all

Occupational licensing is a form of regulation by which the government establishes qualifications required to practice a profession, usually including specific education, exam and work experience criteria. Only licensed professionals are then legally permitted to carry out the activities reserved by the specific occupation and use the protected title. Typically, this aims at protecting safety and health of consumers and ensuring quality of services. Most countries regulate professions like doctors, dentists and lawyers, but also electricians, engineers and real estate agents are licensed in many countries.

The prevalence of occupational licensing has grown markedly over time in many OECD countries. Today more than 20% of American workers are licensed, up from around 5% in the early 1950s (Figure 3.2). In part, this reflects the growing share of occupations that are typically licensed, including many services not least in healthcare. Calculations suggest that this compositional effect accounts for around one third of the increase from the 1960s to 2008 (White House, 2015). The spread of licensing to new occupations thus explains the majority of the expanding coverage of the workforce.

Figure 3.2. Occupational licensing now covers more than 20% of workers

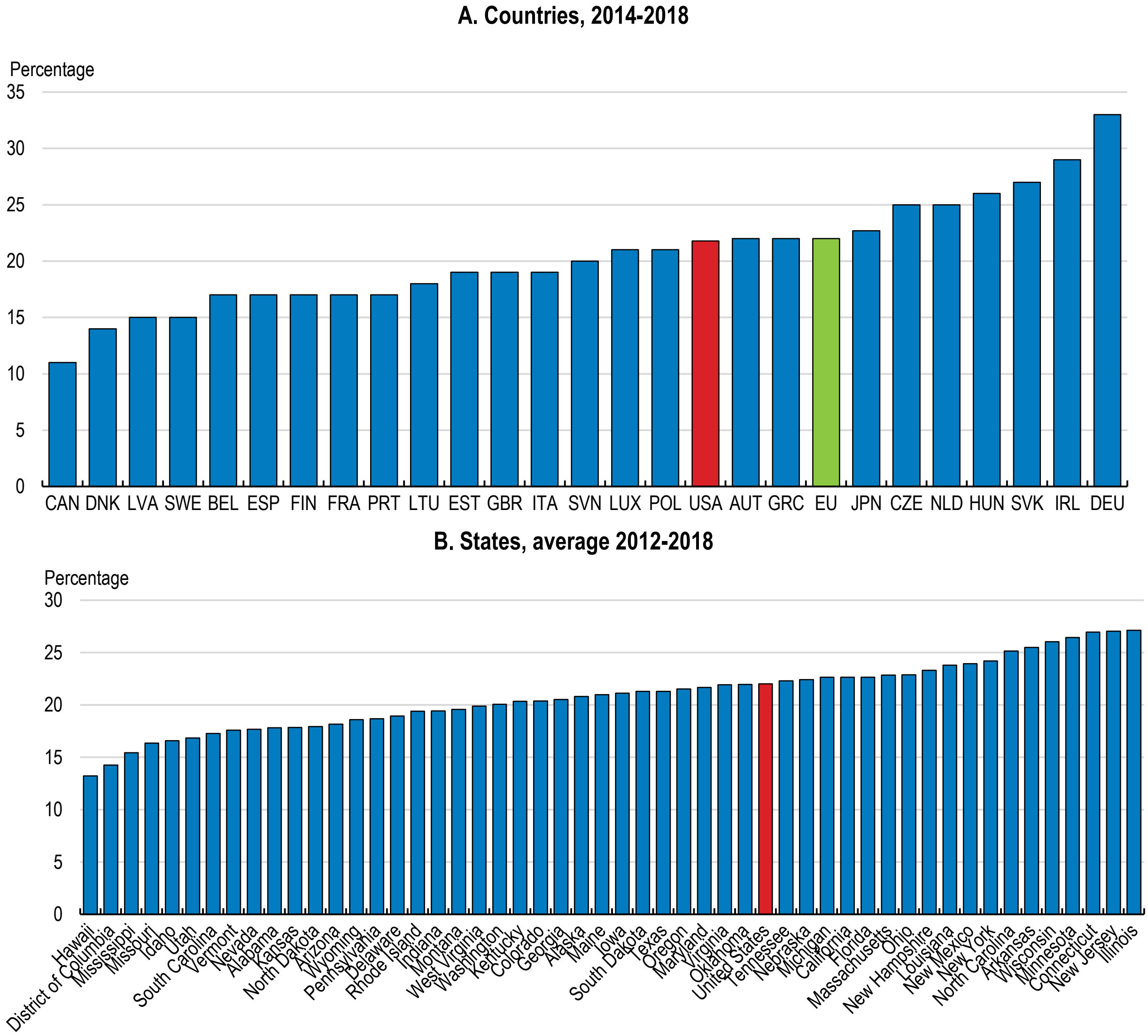
Percentage of workers holding an occupational licence



Note: Based on various different sources and includes licences issued at all levels of government. The peak around 2008 may reflect methodological differences as well as cyclical factors (unlicensed workers laid off disproportionately during the recession).
Source: White House (2015); BLS.

The coverage of occupational licensing in the United States is very similar to the European Union (EU) and Japan with close to 22% of workers licensed, but lower than in some countries, including Germany with the highest observed share (Figure 3.3, Panel A). Most of the licensing in the United States is imposed at the State or local government level. Unfortunately, the United States does not produce statistics of licensing coverage at the State level. Estimates prepared for this *Survey* suggest that the variation within the United States is almost as large as across the European Union (Figure 3.3, Panel B), ranging from 15% in some States (Hawaii and Mississippi) to almost 30% in others (Illinois and New Jersey).

Figure 3.3. The coverage of licensing and variation across States are similar to the EU



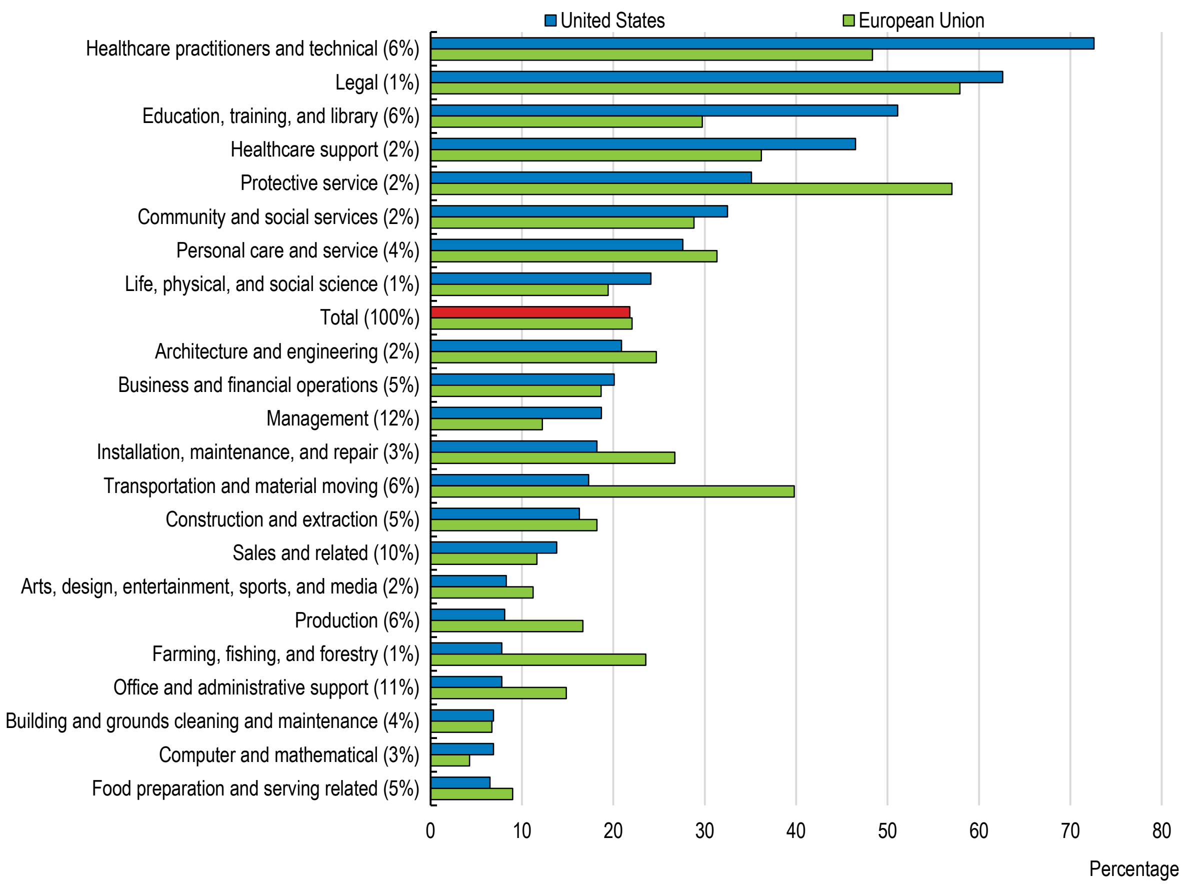
Note: Panel A shows the share of workers holding a licence as a percentage of total employment in the country, including licences issued across all levels of government. Data refer to 2014 for Canada; 2015 for EU countries; 2016 for Japan; and 2018 for the United States. Panel B shows an estimated share of workers holding a licence issued at the State level only and is based on a mapping of licences to occupational employment statistics, cf. Hermansen (2019).
Source: Current Population Survey, BLS; Koumenta and Pagliero (2017) based on the EU Survey of Regulated Occupations; Morikawa (2018); Zhang (2019); Hermansen (2019) based on careeronestop.org and Occupational Employment Statistics from BLS.

Regulating occupations plays a legitimate role in protecting consumers and as a way to ensure markets work effectively. This is particularly important in certain fields where consumers may not be able to observe the quality of the services even after receiving the service (a credence good; Dulleck and Kerchbamer, 2006). For example, in healthcare, patients may be unable to resolve whether an adverse medical outcome is the result of a challenging case, bad luck or poor medical practice; or the reverse in case of a good outcome. Such concerns are pronounced in high-stakes, one-off transactions and when practitioners can inflict serious harm on consumers. Healthcare and legal occupations are typical examples and are among the most licensed occupations in both the United States and the EU (Figure 3.4). However, licensing in healthcare, as well as in education, in the United States is substantially more widespread compared to the

EU, whereas transportation and production occupations have a comparably lower share of licensed employment in the United States relative to the EU.

Figure 3.4. The United States licenses health and education occupations more than the EU

Percentage of workers with an occupational licence by occupation, 2015 (EU) and 2018 (USA)



Note: The proportion of total employment in each occupation is reported in parentheses for the United States. For comparison, occupational classification codes used in the EU (ISCO-08) have been converted to occupational codes used in the United States (SOC 2010). In cases when the ISCO-08 code links to more than one main SOC group, the group with the highest employment share is used.
Source: Current Population Survey, BLS; Calculations produced by Maria Koumenta (Queen Mary University of London) based on the EU Survey of Regulated Occupations.

Proponents of occupational licensing point to better quality of services from the professionalization, entry requirements and standards imposed by licensing an occupation. However, evidence of improved quality and higher consumer welfare is mixed. The few available studies of the initial adoption of licensing laws have found positive effects, for instance on maternal and infant mortality when midwives became licensed in the early 20th century (Anderson et al., 2016). Likewise, the quality of physicians improved as a result of licensing restrictions introduced in the late 19th century, according to another study (Law and Kim, 2005). By contrast, studies of more recent changes in licensing coverage and strictness have generally not been able to find significant effects of licensing on the quality of services (White House, 2015; Kleiner, 2017). Presumably, the most valuable licensing rules were implemented first, while the benefits of licensing additional professions today are likely to be much lower or even negative (Kleiner and Soltas, 2019). For some occupations, digitalisation may also be reducing the information advantage of having a government verified licence since consumers now increasingly rely on digital access to online reviews when making choices (Farronato et al., 2020).

The benefits of licensing for some consumers may come at costs to others who face higher prices, reduced employment opportunities and are disadvantaged by weaker aggregate productivity growth. By restricting entry to professions, occupational licensing policies can reduce competitive pressures, allowing incumbents to raise prices and wages. Entry barriers from licensing can be particularly large for foreign firms and foreign workers (e.g. from domestic training and local exam requirements) and thus effectively imposes a non-trade tariff barrier. Reduced job mobility – both within and between States – is not only a concern for productivity, but is also particularly important for groups with low labour market experience, such as young and low-skilled workers, to climb the job ladder (Haltiwanger et al., 2018).

Designing an effective regulatory system that strikes the right balance can present a challenge since efforts to promote quality and consumer welfare through overly stringent licensure requirements can produce unwarranted constraints on competition. Practices differ substantially across States, not only in which occupations are licensed (Figure 3.3, Panel B), but also in the requirements imposed to obtain and renew an occupational licence. A simple assessment of these requirements suggests that there are substantial differences across States in the strictness of occupational licensing regulation (Box 3.1). Regulatory differences can influence economic outcomes, such as employment flows discussed below.

Box 3.1. An indicator for strictness of occupational licensing regulation across States for certain low- and middle-income occupations

Requirements to obtain and renew an occupational licensure can be summarised with a composite indicator for each occupation, ranging from 0 (no licensing) to 6 (licensed with the strictest requirements observed across States). The National Council of State Legislatures (NCSL) collected detailed information on occupational licensing regulation for 31 occupations across all States in 2017, covering mostly low- and middle-income occupations such as cosmetologists, plumbers, nurses and real estate agents (NCSL, 2017). Using this information, Table 3.1 proposes a simple composite indicator with four sub-indicators for i) entry restrictions, ii) education and training requirements, iii) renewal requirements and iv) restrictions for ex-offenders. In the first step, all the listed variables are rescaled to the 0-6 interval, with 6 being the most restrictive requirement observed across States for each occupation and 0 being no regulation or a lower bound (e.g. 15 for minimum age). Second, the rescaled variables are aggregated using the weights reported in Table 3.1 for each occupation. To obtain an indicator for each State, a simple average is computed across the 31 available occupations (see Hermansen (2019) for an employment-weighted average).

Table 3.1. Structure of the composite indicator for strictness of occupational licensing regulation

Dimensions and weights applied to each occupation to compute an indicator for the strictness of regulation

Entry restrictions		Education and training requirements		Renewal requirements		Restrictions for ex-offenders	
25%		25%		25%		25%	
No recognition of out-of-State licensures	25%	Education level requirement	25%	Renewal years	33%	Blanket ban on licensure for some offenses	25%
Minimum age	25%	Number of exams	25%	Hours of continued education	33%	No limitations on the scope of inquiry on previous convictions	25%
“Good moral character” clause	25%	Training hours	25%	Renewal fee	33%	No requirements to only consider convictions related to the occupation	25%
Initial fee	25%	Experience hours	25%			Board not required to consider rehabilitation when issuing licence	25%

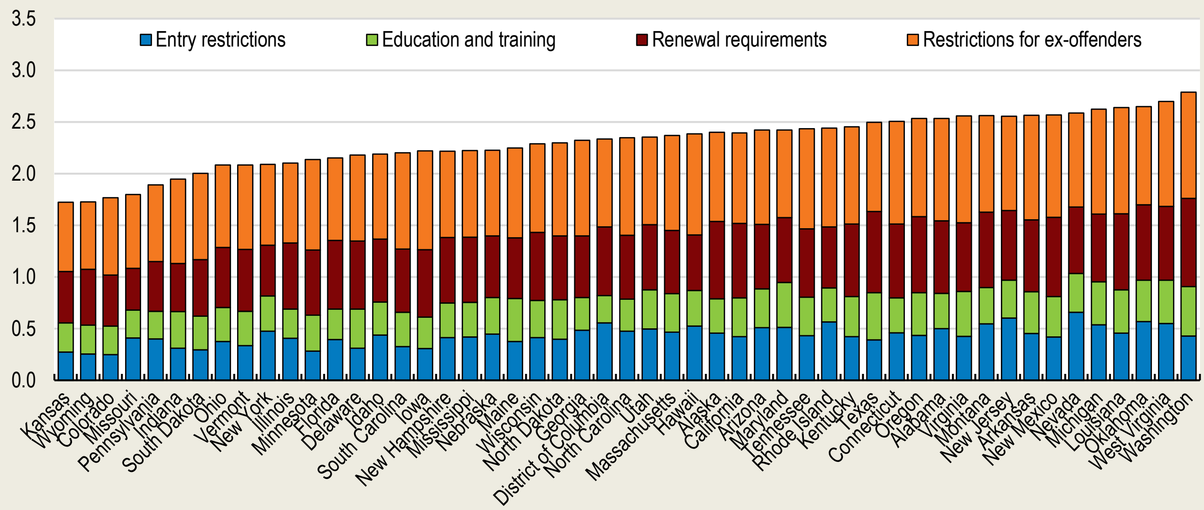
Note: The 15 variables applied are rescaled to the interval 0-6, with 0 being no licensing or no restrictions applied and 6 being the highest observed restriction across States (for each occupation). Missing values are replaced with the median across States (for a few occupations a limited number of variables was dropped due to missing information and weights adjusted accordingly).
Source: Occupational Licensing Database from the National Conference of State Legislatures.

Radiologic technologists in Virginia has the most stringent regulation among the observed occupations, scoring 5.1 by the indicator. Massage therapists in Maryland and veterinary technicians in Nevada are next with a 4.4 score. Among licensed occupations, HVAC (heating, ventilation and air conditioning) contractors in Tennessee and barbers in Maryland have the lowest score with 1.1.

The State of Washington has the strictest regulation and Kansas the most lenient regulation according to the simple average across occupations (Figure 3.5). Restrictions for ex-offenders make the largest contribution to the indicator for most States, while entry restrictions and education and training requirements make the smallest contribution on average. The latter partly reflects the substantial variation in training and experience requirements, implying that one State with a very high requirement will put the bar for the most restrictive level (score 6) high. However, in terms of differences across States, entry restrictions display the largest variation, while restrictions for ex-offenders has the lowest variation.

Figure 3.5. Some States have more restrictive licensing regulation than others

Average occupational licensing strictness across 31 occupations (0-6 scale), 2017



Note: The 31 occupations are mostly low- and middle-income occupations licensed in at least 30 States. See Hermansen (2019) for details.
Source: OECD calculations based on the Occupational Licensing Database from the National Conference of State Legislatures.

Licensing requirements vary widely across States

A complete picture of occupational licensing requirements across States is only available for a subset of occupations. States define licensed occupations at their discretion and obey no occupational classification scheme, which complicates comparison. Tentative figures suggest that less than 50 occupations are licensed in all States and the District of Columbia (Kleiner and Xu, 2019), while more than 400 occupations are licensed in at least one State. In the absence of major differences in health, safety or quality of outcomes, it is hard to justify such regulatory differences and better data to document State differences could help to facilitate reform towards best practice.

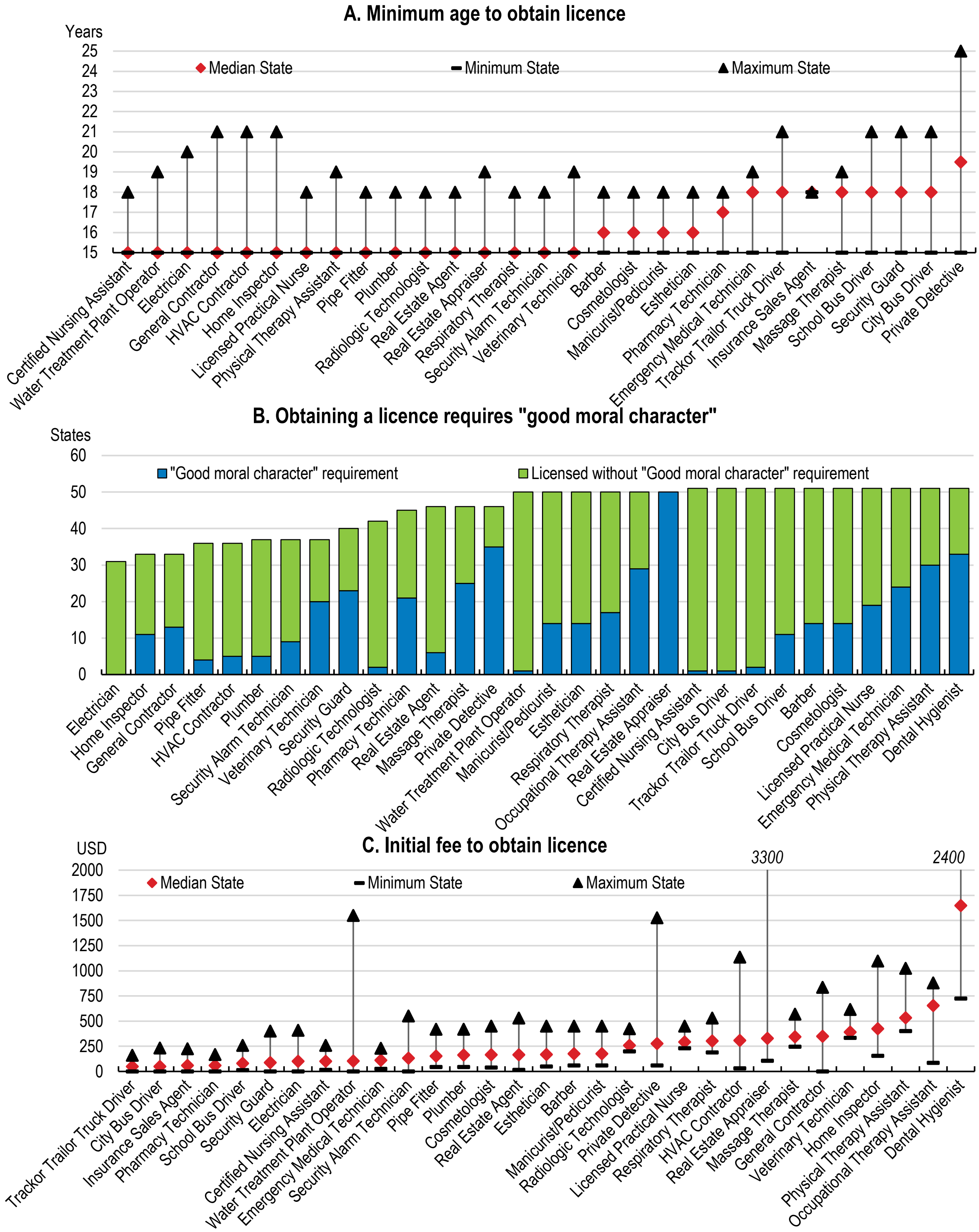
A jobseeker assistance tool sponsored by the Department of Labor, CareerOneStop.org, contains more than 21,000 State licences. It spans from traditional doctor and lawyer licences to specialised titles such as art therapist, beekeeper, bingo operator, boxing timekeeper, concert promoter, fish packer, librarian, rental car agent, seaweed harvester, tv and radio dealer and wrestler. However, not all States provide complete and updated information to the database. The European Commission has similarly launched the Regulated Professions Database, providing information on 600 regulated professions across countries and with contact points to facilitate labour mobility. The federal government should support initiatives to systematically collect and analyse data on licensing regulation and labour market outcomes to help job seekers and inform policymakers on best practices.

A consortium of the National Council of State Legislatures (NCSL), the Council of State Governments and the National Governors Association Center for Best Practices is currently producing research and delivering technical assistance to States (NCSL, 2017; 2019a). The project was able to collect detailed information for 31 occupations, all licensed in at least 30 States, reviewed below. Still, a tremendous effort is required to document the full picture of occupational regulation across States and not least changes in regulation over time.

Entry restrictions to obtain an occupational licensure take many forms (Figure 3.6). Some States set a minimum age of 21 for certain occupations and even as high as 25 to become a private detective in Pennsylvania (Panel A). Often licensing regulation also requires the applicant to maintain a “good moral character” (Panel B), which has usually been interpreted as a ban on individuals with any criminal record (Craddock, 2008; Rhode, 2018). However, this clause provides licensing boards with substantial discretion to decide if the applicant is fit for a licensure. Several States, including Indiana and Kentucky, have recently passed legislation to disallow the use of vague terms like “good moral character”.

Sizeable fees to acquire a licence can also be an important entry barrier. Fees are often the main revenue source for licensing authorities to finance the administrative work, but some States also rely on fees to finance other activities (NCSL, 2019b). The median State charge around USD 250 for a licence across most of the occupations studied here (Panel C), but going as high as USD 3300 for a real estate appraiser licence in Texas or USD 2400 for a dental hygienist licence in Arizona. Other States apply much lower fees and Florida recently implemented a licensing fee waiver for low-income households and military families.

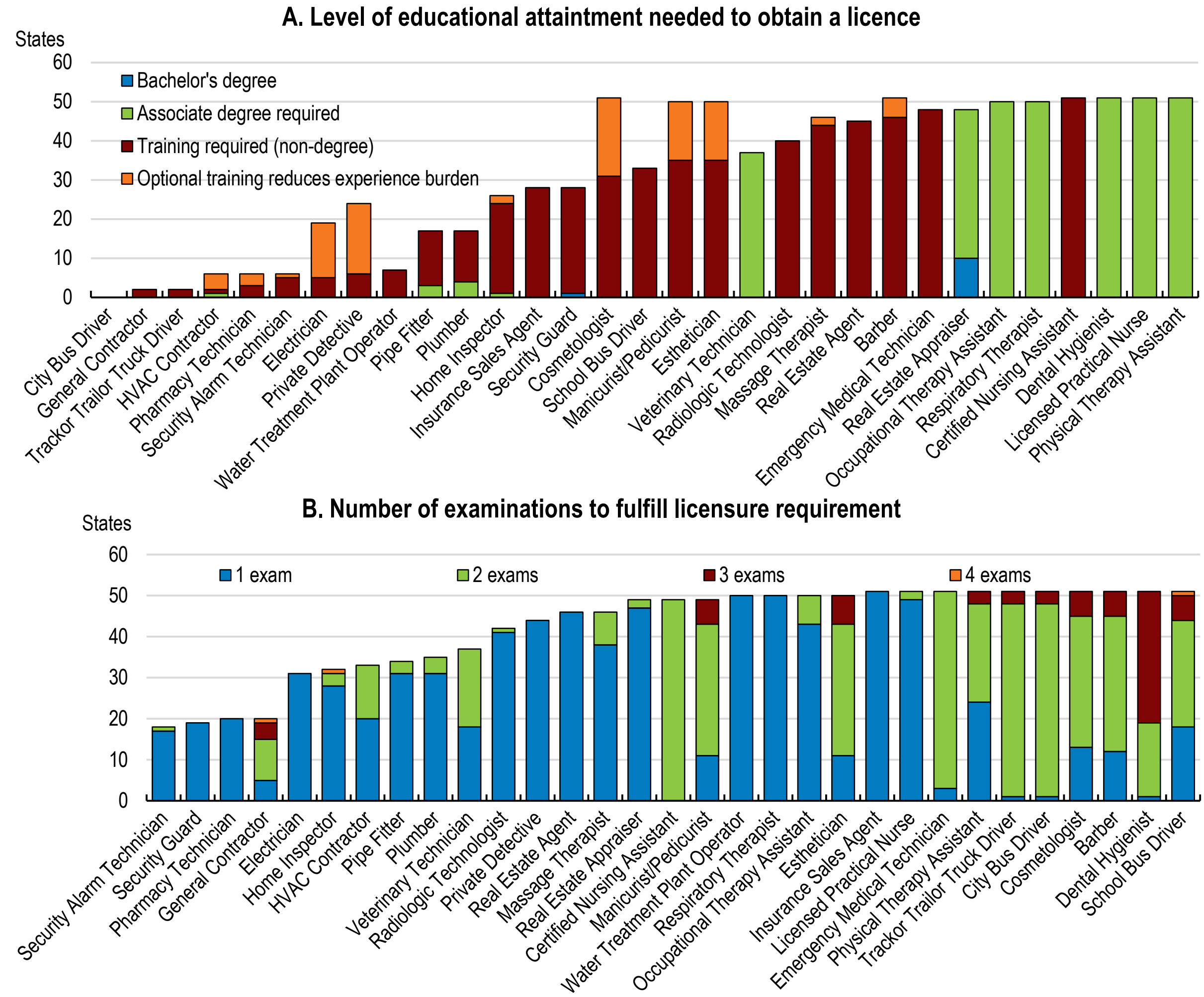
Figure 3.6. Barriers to enter occupations take many forms and vary across States



Note: The minimum age is set to 15 for States with no restriction. "Good moral character" means that the licensing authority determines the moral turpitude of the applicant, often with broad statutory discretion.
Source: Occupational Licensing Database from the National Conference of State Legislatures.

Qualifying for a licensure can require a certain level of educational attainment and passing a number of exams (Figure 3.7). Completing a number of training hours and documenting hours of experience are also required for many occupations (Figure 3.8). These requirements also vary substantially across States. For instance, a real estate appraiser licence requires a bachelor's degree in 10 States, an associate degree in 38 States and no degree in three States. A home inspector licence requires passing four exams in Alaska, while only one exam is required in 28 States and 19 States do not license.

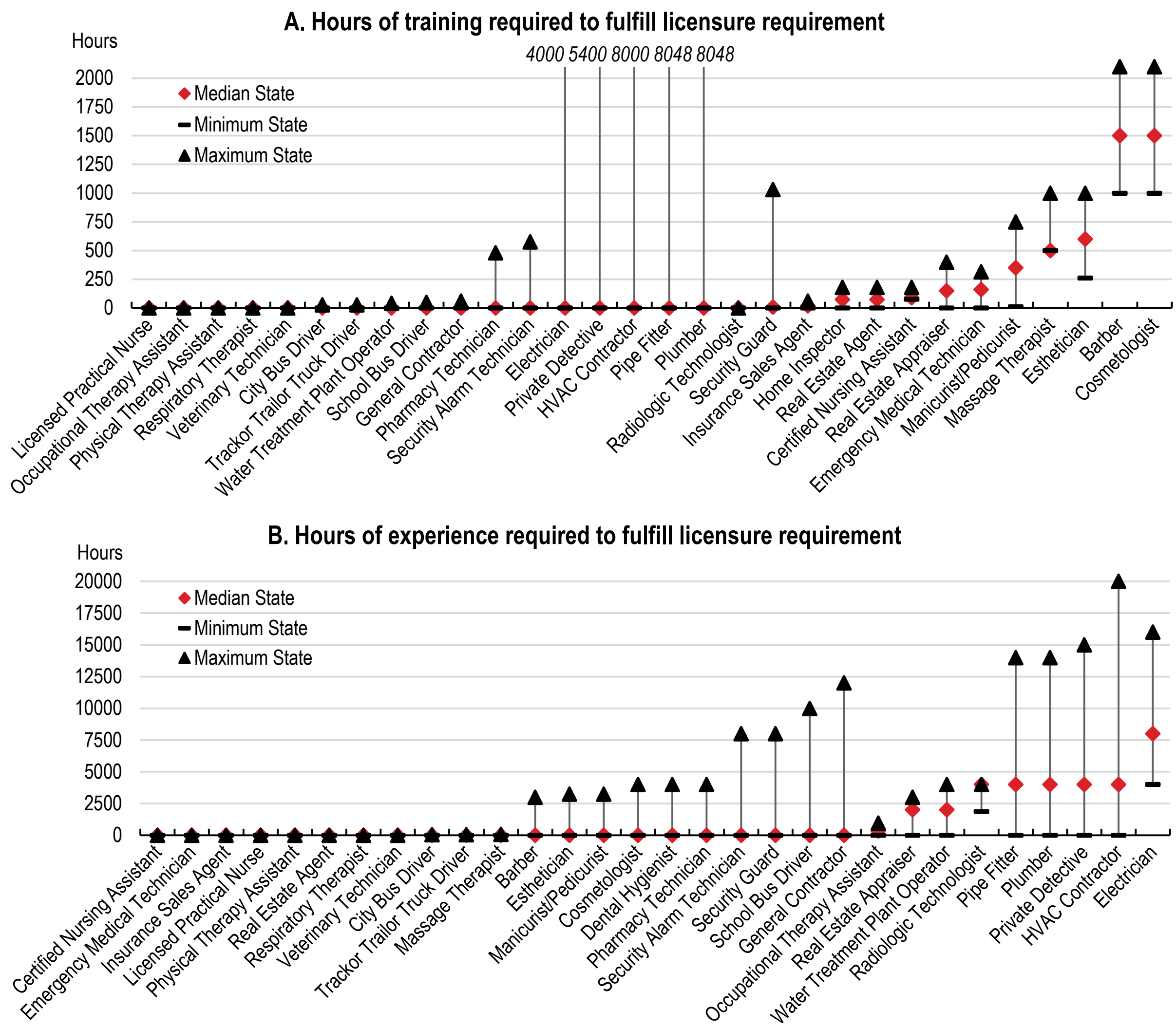
Figure 3.7. Educational requirements can be sizeable



Note: For some occupations, a few States with missing information are not recorded.
Source: Occupational Licensing Database from the National Conference of State Legislatures.

Cosmetologists and barbers have the longest training requirements across the reviewed occupations with a median of 1500 hours across States (Figure 3.8, Panel A). Yet, Massachusetts, New York and Vermont only require 1000 hours for cosmetologists, while 2100 hours is required in Iowa and 2000 hours in Idaho. The need for training is usually justified as a means to ensure public health, safety and quality. Nonetheless, training requirements are much lower for e.g. emergency medical technicians (median of 160 hours) directly tasked to save lives. Experience requirements and their variation across States can be even larger (Figure 3.8, Panel B). Electricians are only licensed in 31 States, but among those the median experience requirement is four years. Virginia requires ten years of experience to acquire an HVAC contractor licensure, while six States license without any training and experience requirements and 15 States do not license.

Figure 3.8. Training and experience requirements vary substantially across States

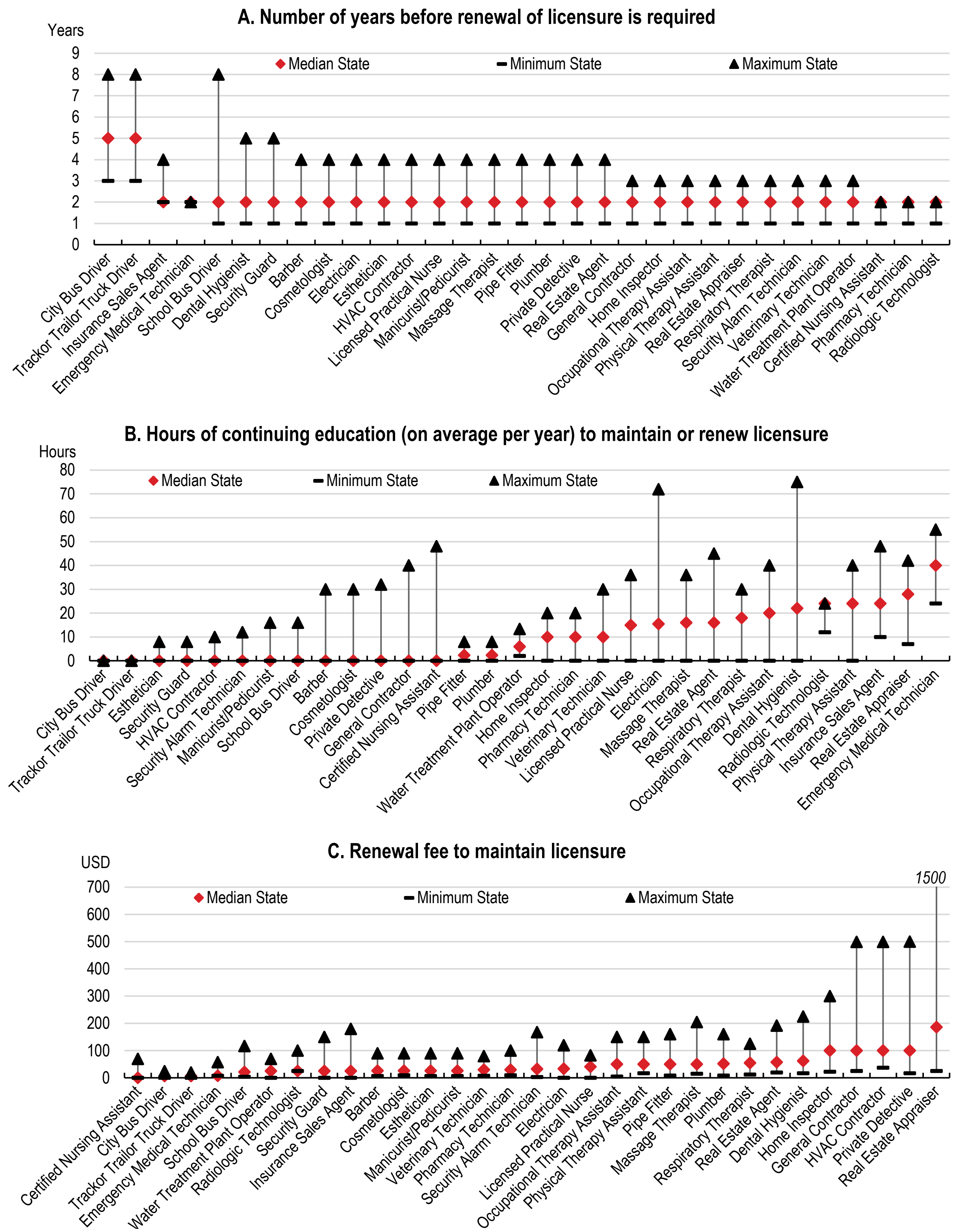


Note: All training and experience requirement are converted to hours (1 week = 40 hours, 1 month = 2000/12 hours; 1 year = 2000 hours). For some occupations, a few States with missing information are not recorded

Source: Occupational Licensing Database from the National Conference of State Legislatures.

Most States require renewal of the majority of occupational licences studied here every two years (Figure 3.9, Panel A). This usually involves continuing education of 10-30 hours on average per year and paying a renewal fee of USD 25-50. Again, some States only require renewal every four years and no ongoing training. For many occupations, upholding frequent renewal may not be necessary to ensure quality and could function as an effective entry barrier.

Figure 3.9. Renewal requirements to maintain a licensure can be substantial

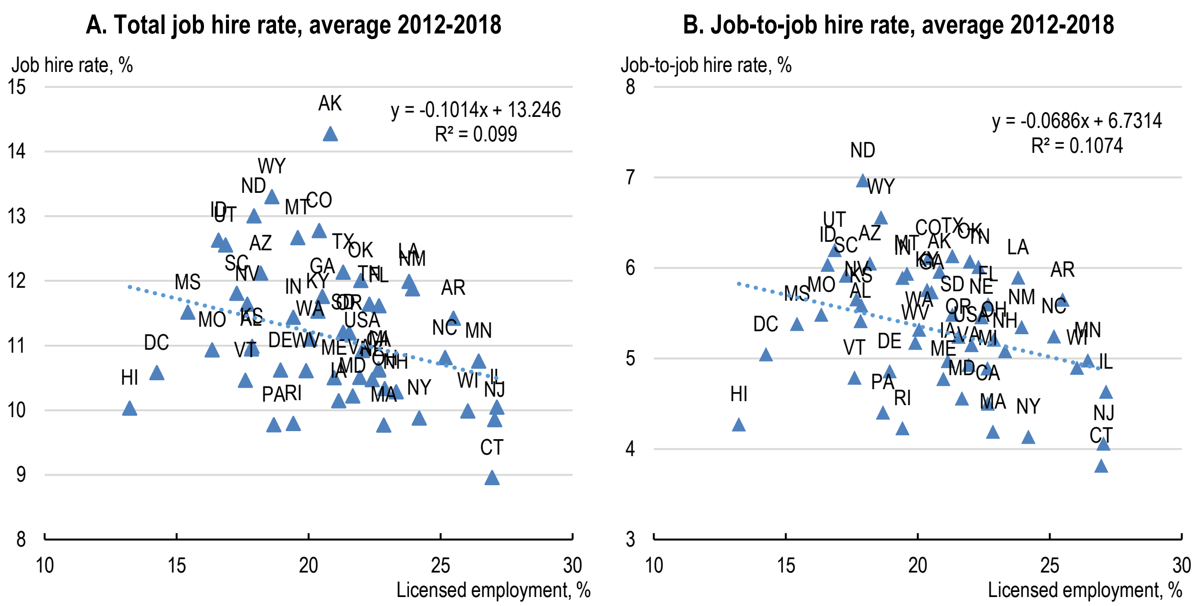


Note: States with no renewal requirements are not included. Continuing education is converted to hours (1 week = 40 hours, 1 month = 2000/12 hours; 1 year = 2000 hours). For some occupations, a few States with missing information are not recorded.
Source: Occupational Licensing Database from the National Conference of State Legislatures.

Occupational licensing reduces job mobility

States with higher coverage of occupational licensing tend to have lower job mobility (Figure 3.10). A simple plot of the share of licensed employment against the total job hire rate, measured as the number of job hires in a quarter relative to employment, shows a negative, albeit weak association (Panel A). Job hires include both hires from non-employment and job-to-job hires (Panel B), which reflect job moves with no or only a short non-employment period. The entry barriers from occupational licensing are likely to affect both types of hiring. Lower hire from non-employment raises concern for reduced employment and labour market participation, while lower job-to-job hire is a key concern for labour reallocation and productivity growth.

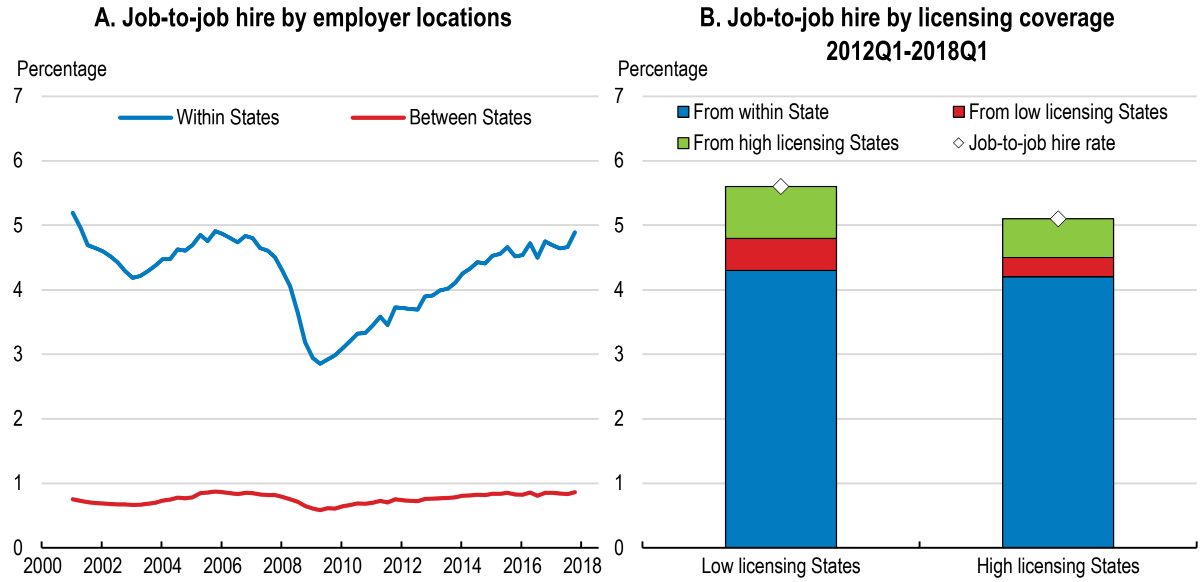
Figure 3.10. Labour market fluidity tends to be lower in States with more licensed employment



Note: Licensed employment by State is computed by mapping information on licensing regulation to occupational employment statistics and aggregating across States, cf. Hermansen (2019).
Source: OECD calculations based on data from careeronestop.org and Occupational Employment Statistics, BLS; Job-to-Job Flows database, Census Bureau.

The patterns of job-to-job moves between States also appears to be linked with licensing coverage (Figure 3.11). The majority of job-to-job moves takes place between employers in the same State, whereas job-to-job moves across a State border amounts to around 1% of employment per quarter and has been fairly stable since the early-2000s (Panel A). However, a split of States in two groups with low and high licensing coverage indicates that high licensing States tend to attract considerably fewer job-to-job hires from other States compared to low licensing States (Panel B). Job-to-job mobility within high licensing States does not differ much from low licensing States, suggesting that reduced interstate mobility resulting from occupational licensing is the key driving factor.

Figure 3.11. High occupational licensing coverage depresses job-to-job hire between States



Note: Panel A is based on an unbalanced number of States over time; a balanced version using only 34 available States shows a qualitatively similar trend. Panel B shows simple averages across 25 low and high licensing States, classified according to the share of licensed employment in Figure 3.3. See Hermansen (2019) for an employment-weighted decomposition.
Source: OECD calculations based on Job-to-Job Flows database, Census Bureau; careeronestop.org and Occupational Employment Statistics, BLS.

New empirical analysis produced for this *Survey* has examined these correlations in detail using a novel and comprehensive Job-to-Job Flows database from the U.S. Census Bureau (Hermansen, 2019; Box 3.2). The results indeed suggest that occupational licensing reduces job mobility. This holds for hires from non-employment to employment and for job-to-job moves. Moreover, differences in occupational licensing regulation across States are found to be particularly detrimental for job-to-job hires that involves crossing a State border.

Using these results in a counterfactual reform simulation suggests that reducing the burden of licensing could boost labour market fluidity (Figure 3.12). The exercise asks what would have happened to the job hire and separation rates if overall licensing coverage had been 5 percentage points lower in 2018 compared to the observed level (21.8% of employment) with a gradual implementation during 2000-2018 (Panel A). This would be a sizeable reform, roughly corresponding to all States lowering licensing coverage to the levels in Idaho and Utah (Figure 3.3). The simulation finds that the 5 percentage points reduction in coverage could increase the job hire rate by 0.1-0.6 percentage point (1-5% increase) (Panel B); increase the job-to-job hire rate by 0.1-0.3 percentage point (1-6% increase) (Panel C); and increase the job separation rate by 0.1-0.6 percentage point (1-6% increase) (Panel D). These are all economically important effects. For instance, the counterfactual increase in the job hire rate corresponds to up to a quarter of the decline observed from 2000 to 2018 (Panel B).

Box 3.2. Empirical analysis of occupational licensing and job mobility in the United States

New empirical analysis of occupational licensing and job mobility has been prepared for this *Survey* (Hermansen, 2019). In contrast to the majority of existing studies, the analysis includes licensing coverage of almost all occupations and uses administrative data for the near universe of job transitions in the United States. The results are thus close to macro-level estimates of the implications of occupational licensing.

Both larger coverage and higher strictness (defined in Box 3.1) of occupational licensing are found to be associated with lower job mobility (Table 3.2, upper half). This holds for job-to-job hire and separations as well as for transitions in and out of non-employment. For job-to-job moves across States, but within the same industry, larger coverage and higher strictness compared to other States is found to reduce the inflow of job-to-job moves (see Hermansen (2019) for results and methodology).

The sub-indicators of strictness are also analysed in a joint regression to assess their relative importance for job mobility (Table 3.2, bottom half). Higher entry restrictions and renewal requirements are associated with lower job-to-job mobility, while longer education and training requirements is found to be positively associated with job-to-job mobility. This may reflect that such requirements can enhance skills, which can lead to better job opportunities. Lastly, higher licensing restrictions for ex-offenders is found to be associated with lower hiring from non-employment.

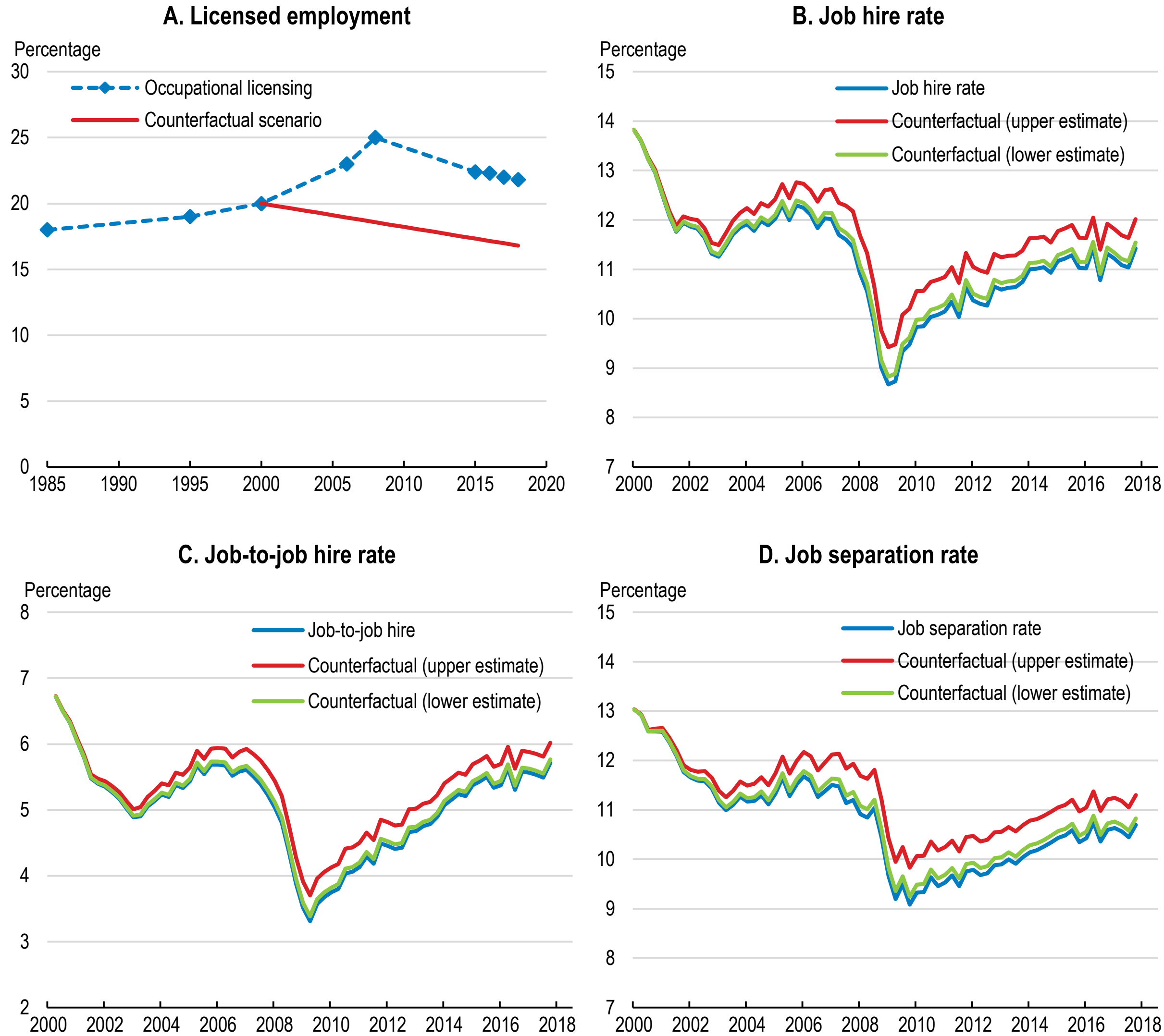
Table 3.2. Job mobility is estimated to be negatively associated with occupational licensing

Estimated association between occupational licensing indicators and job mobility measures

	Job hire			Job separation		
Occupational licensing indicator	Job hire rate	Job-to-job hire rate	Non-employment hire rate	Job separation rate	Job-to-job separation rate	Non-employment separation rate
Coverage of licensing regulation	–	–	–	–	–	–
Strictness of licensing regulation	–	–	–	–	–	–
Subcomponents of strictness						
Entry restrictions	–	–	0	–	–	0
Education and training	0	+	0	+	+	0
Renewal requirements	–	–	0	–	–	0
Restrictions for ex-offenders	–	0	–	–	–	0

Note: "–" refers to a negative association; "+" refers to a positive association; and "0" refers to no statistical significant association at the 5% level. The reported results are based on cross-sectional estimations across States and industries with sex/age or sex/education as controls.
Source: Hermansen (2019) based on Job-to-Job Flows data, Census Bureau; Occupational Licensing database, NCSL; careeronestop.org; Occupational Employment Statistics, BLS.

Figure 3.12. How would job mobility look like if licensing coverage had been reduced in the 2000s?

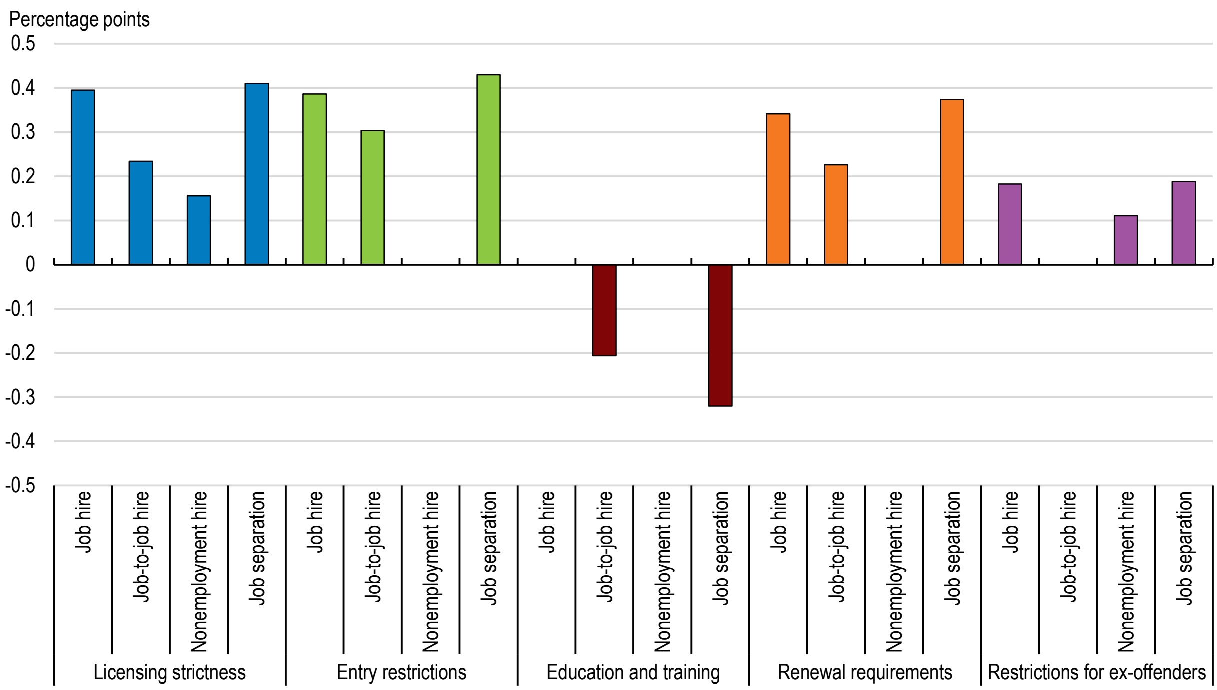


Note: Upper and lower bound estimates reflect the estimates from the cross-sectional estimation with control for sex/age or sex/education using the indicators based on the NCSL database and the careeronestop database, respectively (Hermansen, 2019).
Source: OECD calculations based on Job-to-Job Flow database from the Census Bureau.

Making licensing regulation less strict among the analysed low- and middle-income occupations would also boost job mobility considerably according to the results (Figure 3.13). A back-of-the-envelope calculation suggests that if the State of Washington, which has the strictest regulation, deregulated to a median level as in District of Columbia, Georgia and North Dakota, the job hire rate could increase by 0.4 percentage point (3.6% increase) (blue bars). The next four blocks in the figure repeat the simulation for the sub-indicators of licensing strictness. If Nevada, the State with the highest entry restriction score, reduced its score to Virginia's level, the job hire and job separation rates would increase by around 0.4 percentage point (around 4% increases) (green bars). Reducing education and training requirements from the highest level in Washington to Minnesota's level, could have reverse effects and reduce the job-to-job hire rate by 0.2 percentage point and the separation rate by 0.3 percentage point (both more than 3% declines) (brown bars). Loosening renewal requirements in Washington to Utah's level would also have an economically important impact on the job hire and job separation rates (orange bars). Lastly, easing restrictions for ex-offenders in Virginia to California's level could have a minor, but still economically important effect of 0.1 percentage point on the non-employment hire rate (2.2% increase) (purple bars).

Figure 3.13. What could reduced strictness of occupational licensing do to job mobility?

Simulated effect of the most regulated State in each dimension moving to the median State regulation level

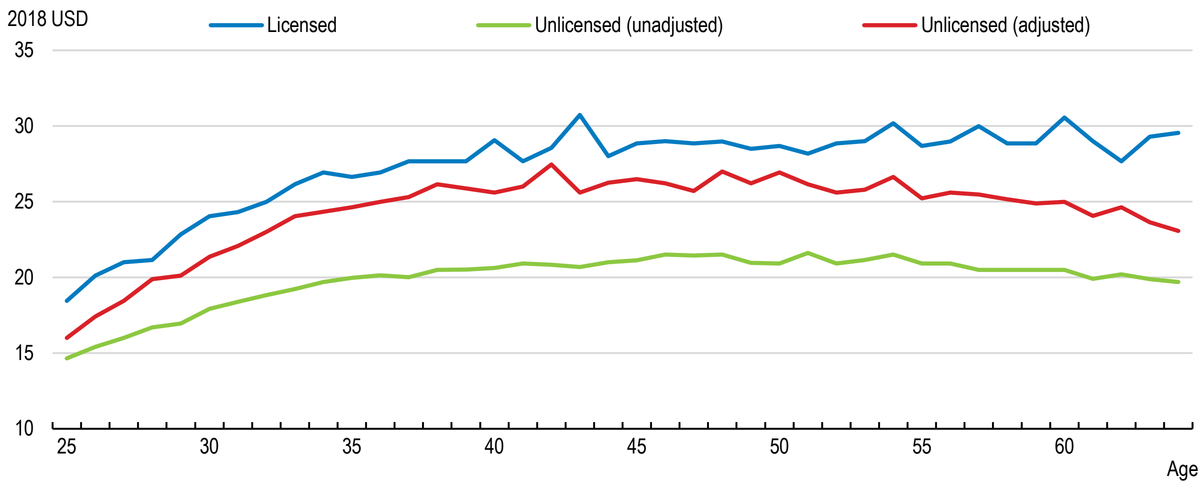


Note: The five policy experiments are based on the constructed strictness indicator (Box 3.1) and its subcomponents (Hermansen, 2019). Licensing strictness reflects Washington reducing the indicator from 2.8 to the median level of 2.3 in District of Columbia. Entry barriers reflects Nevada reducing the sub-indicator from 2.6 to the median level of 1.7 in Virginia. Education and training reflects Washington reducing the sub-indicator from 1.9 to the median level of 1.4 in Minnesota. Renewal requirements reflects Washington reducing the sub-indicator from 3.4 to the median level of 2.5 in Utah. Restrictions for ex-offenders reflects Virginia reducing the sub-indicator from 4.1 to the median level of 3.5 in California. The calculations apply estimates from the cross-sectional estimations with control for sex/age or sex/education. Insignificant estimates at the 5% level are set to zero. For simplicity, the share of licensed employment is set to the national level at 21.8% in all calculations.
Source: Hermansen (2019).

Not only does occupational licensing affect job flows but also earnings. In fact, most of the literature on occupational licensing have focused on wage effects, generally finding a premium of 5-10% (Kleiner and Krueger, 2013; Gittleman et al., 2018; Blair and Chung, 2018), with a notable exception by Redbird (2017). Calculations across workers of different ages suggest that this premium exist at all ages and tends to increase throughout workers' careers (Figure 3.14). A licensing earnings premium is likely to arise from two effects. First, the entry barrier and requirements on job takers reduce employment in licensed occupations and hence competition, driving up prices of goods and services for consumers. Licensed employees benefit from this through higher earnings, unless the profit flows to e.g. licensing authorities through fees. Second, workers excluded from licensed occupations experience reduced earnings as they may be forced to work in less well-paid occupations or remain unemployed and since supply of workers in unlicensed occupations increases and drives down wages.

Figure 3.14. Licensing wage differences tend to increase throughout workers' careers

Median wage for licensed and unlicensed workers by age, 2016-2018



Note: Estimates for the "unlicensed (adjusted)" series are derived from a DiNardo, Fortin, and Lemieux reweighting with controls consisting of gender, race, quadratic expressions of both age and years of education, union coverage, self-employment status, region, and public sector status. Sample weights are used throughout. The sample consists of 25-64 years old employed workers with wages between USD 5 and USD 100 per hour, excluding observations with Census-allocated wage and earnings. Earnings are deflated using the CPI-U-RS.
Source: Nunn (2018) based on the Current Population Survey.

A licensing earnings premium need not imply stronger earnings growth over time. In the short term when an occupation becomes licensed, earnings may rise fast as employees benefit from the new entry barrier that can drive up prices and wages. In the longer term, reduced competition and weaker labour mobility will tend to reduce productivity growth (von Rueden et al., 2020), reducing the scope for earnings growth relative to unlicensed occupations and States with more lenient regulation. The background work produced for this *Survey* also analysed earnings and found some evidence of reduced earnings gain from job-to-job moves towards States with larger coverage or higher strictness of licensing regulation in the same industry (Hermansen, 2019). This could reflect spatial differences in productivity growth because of licensing. Nevertheless, more comprehensive data of licensing and outcomes are needed to draw firmer conclusions on the link between occupational licensing and earnings growth.

Deregulating and harmonising requirements to improve mobility

Occupational licensing reform could boost job mobility and productivity growth by critically reviewing the numerous licences with less than universal coverage. If not all States license an occupation, a stronger empirical case and arguments beyond general concerns for public health and safety should justify licensing in the States that choose to do so. Delicensing or using alternative systems such as voluntary certification (Box 3.3) are then available to regulate in a more growth-friendly manner.

Evaluations of licensures should rely on careful and comprehensive cost-benefit analysis. Notably the degree to which particular licensure requirements are mitigating a quality information or health and safety problem in the marketplace and the degree to which licensure is reducing supply of qualified professionals. Only 12 States have legislation that requires cost-benefit analysis of new licensing proposals ("sunrise" review), while 28 States maintain some sort of "sunset" process to licensing laws in place for some time (Council of Licensure, Enforcement & Regulation). However, the administration of reviews and the dimensions included vary much across States. Colorado has established a unifying and nonpartisan Department of Regulatory Agencies (DORA) responsible for conducting reviews, which many observers view as a best practice approach (e.g. Kleiner, 2015). Moreover, specifying whose benefits and costs should be counted (standing) is a crucial step in licensing cost-benefit analysis. Not only should implications for competition, employment and productivity ideally be quantified, but a strictly State-level perspective may also leave out vital implications at the national level (Dobes, 2019). Using a standardised approach across States could help to address such concerns. In Australia, a Competition Principles Agreement between the federal government, states and territories essentially subjects all legislation to cost-benefit and necessity analyses, including occupational licensing.

Box 3.3. Alternative forms of occupational regulation

There are many approaches to regulate services and balance trade-offs between not restricting competition and ensuring quality and protection of consumer health and safety. Moreover, occupations that do not have their own discrete regulatory regime are not necessarily unregulated, as they can still be regulated by the general law.

Direct regulation of firms and licensed supervisors

For some occupations, monitoring and inspecting firms directly can be more effective and less burdensome to ensure safety and quality for consumers than licensing. Licensing boards assess entry requirements, but may not have the capacity to monitor and discipline licensed practitioners. A related approach is to only require licensing of a supervisor and allow employees without proven qualifications to perform duties, although this has the disadvantage of imposing a certain business structure. In some States, such as Arizona and Georgia, (journeyman) electricians do not need an occupational licence as long as they work for a licensed electrical contractor. In many European countries, licensing of "masters" only are common for plumbers, electricians and similar professions (von Rueden et al., 2020).

Certification

A certified profession is a restriction on the use of title. Anyone can perform the services of the profession, but only those who have been certified are allowed to use the title. This approach is thus less restrictive than licensing, but offers a means to inform consumers on quality of providers. Voluntary certification can be administered by a government agency or a professional association, managing minimum requirements and examinations. Typical examples are car mechanics and travel agents. In practice, certification also brings together active market participants and when widely adopted, the seal of approval can become a de facto entry barrier for meaningful market participation.

Registration

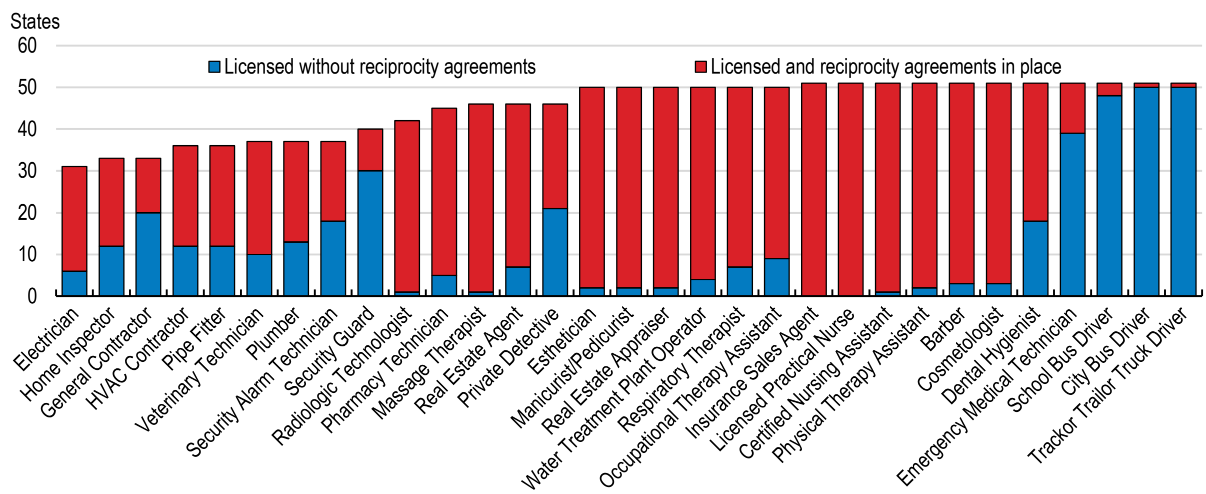
Maintaining registration for a profession simply implies keeping a list of practitioners. This allows consumers to access information on supply and easily reach providers in the event of a complaint. Registration can be combined with minimum standards, such as providing documentation for qualification. However, if quality is hard to observe, registration may not help consumers feel confident in acquiring certain services.

Licensing or not licensing is just one aspect of evaluations. Reviewing and harmonising the large variation in licensing requirements across States is an equally important area for reform, which could produce sizeable efficiency gains and ease job mobility across States. This is likely to require federal initiatives and support to overcome resistance and coordination challenges at the State level, which is discussed below. However, inconsistencies are also present within States. Occupations where quality is not difficult for consumers to observe are frequently more regulated than occupations where quality is hard to observe and where consumers face genuine risks to their welfare.

A licensure obtained in one State is not automatically recognised in other States, effectively imposing internal non-tariff trade barriers. This can be an important obstacle for mobility across States if workers have to repeat the process of applying for a licensure and redo education and training (Johnson and Kleiner, 2017). To facilitate portability of licensures, States have made reciprocity agreements, covering more than half of the State licensures studied here (Figure 3.15). Nonetheless, even among occupations licensed in all States, such as dental hygienists and bus drivers, reciprocity agreements are not in place in all States, suggesting still much scope for reform.

Figure 3.15. Occupations licensed in most States do not always have reciprocity agreements

Number of States with occupational licensing among 31 selected occupations, 2017



Note: States with reciprocity agreements have statutory language allowing reciprocity or endorsement agreements to recognise licenses or credentials obtained in other States.
Source: Occupational Licensing Database from the National Conference of State Legislatures.

Reciprocity can be made easier through interstate compacts, a formal binding contract between two or more States, or by the use of model laws and model rules to harmonise regulation and facilitate good practice across States (FTC, 2018; CSG, 2019). So far, mainly health professions have adopted interstate compacts (nurses, physicians, physical therapists, emergency medical technicians and psychologists). The Nurse Licensure Compact was the first (implemented in 1999, currently adopted by 34 States) and has been shown to increase job movements of nurses from one compact State to another (Abdul Ghani, 2018). It relies on a mutual recognition/multistate licence model, which allows nurses licensed by one compact State to practice in other member States without giving notice or obtaining another licence. By contrast, the Interstate Medical Licensure Compact (adopted by 31 States) requires physicians to be licensed in each State of practice, but expedites licensure. Most of the other health profession compacts rely on a mutual recognition model similar to that of the Nurse Licensure Compact, but were activated in recent years and have been adopted by fewer States. While effective, interstate compacts are mainly relevant for large occupations licensed in almost all States since they require time and resources to form. States must adopt the proposed legislation and all compact States must agree to any modifications. Model laws are more flexible than compacts, and licence portability provisions in some model laws, such as the Uniform Accountancy Act, have been adopted by all U.S. jurisdictions. It relies on a mutual recognition model that allows accountants to practice across State borders without notice (FTC, 2018).

Conversely, nothing prevents a State from recognising licences obtained in other States, which corresponds to a unilateral removal of a trade barrier. Recently Arizona became the first State to automatically grant occupational licences to anyone who moves there with a licence from another State (House Bill 2596). This extends a widespread practice for military spouses that typically must move multiple times during their careers (NCSL, 2019b). The automatic recognition does not eliminate all reciprocity barriers though, since it only applies to residents and does not allow commuters to work with an out-of-State licence. Moreover, no other States have indicated they would follow the radical and welcoming move of Arizona, which leaves cumbersome State-by-State reciprocity agreements or nationwide initiatives based on model laws or instate compacts as the main tools to ease cross-border job mobility.

Other federal OECD countries have addressed the mobility challenge in different ways (Box 3.4). Canada has implemented an internal free trade agreement to facilitate recognition of licences across provinces, Australia attempted to form a national licensing system, but reversed to rely on mutual recognition agreements, while Germany has a mix of regulation at both the federal and Länder level.

Box 3.4. Regulation of occupations in other federal countries

Canada

In 2014, approximately 11% of Canadian workers could be identified as licensed (Zhang, 2019). Occupational regulation is highly decentralised, mainly at the provincial level. 106 occupations are licensed in at least one province, varying from 47 in Newfoundland and Labrador to 98 in Quebec. Although there is no specific centralised regulatory body, several occupations (e.g. aviation inspectors, pilots and immigration consultants) are regulated at the federal level.

An internal free trade agreement between the federal government and provinces and territories (signed in 1995 and updated in 2009) encourages labour mobility while respecting local governments' right to regulate. Workers can generally move freely with their existing licence or certification without having to do significant additional training, work experience or examination. In a few cases of very different standards, exceptions are made, but requires a legitimate objective such as protecting public safety or the environment. Four provinces have gone further and established full mutual recognition of all regulated occupations (New West Partnership).

Australia

In 2011, around 18% of workers in Australia worked in an occupation subject to regulation (Productivity Commission, 2015). States and territories regulate occupations, covering as much as 180 occupations in total. In 2008, an attempt was made to establish a national occupational licensing system to allow licensed workers to work throughout Australia. However, in 2013, the majority of states and territories rejected the reform because of concerns with the proposed model and potential costs. Decentralised reforms to enhance flexibility and mobility of workers are being pursued based on a mutual recognition act from 1992. This was further extended to include both Australia and New Zealand through the Trans-Tasman Mutual Recognition Act from 1997. Mobility through mutual recognition allows workers to apply for a licence for the same occupation in a second state or territory, which will be granted if the authority assess the two to be equivalent. However, the approach has drawbacks since it requires each state and territory to put in place their own legislation to support mutual recognition (as for reciprocity agreements). Indeed a recent committee report to the Australian senate characterised the system as complex, duplicative and burdensome (Select Committee on Red Tape, 2018).

Germany

With 33% licensed workers, Germany has the highest licensing coverage across countries with available data (Figure 3.3). There are 150 regulated professions; some are regulated at the federal level (e.g. doctors, nurses and physiotherapists) and others at the Länder level (e.g. architects, engineers and teachers). Sector-specific business chambers in the professional services and crafts are largely self-regulating (OECD, 2016).

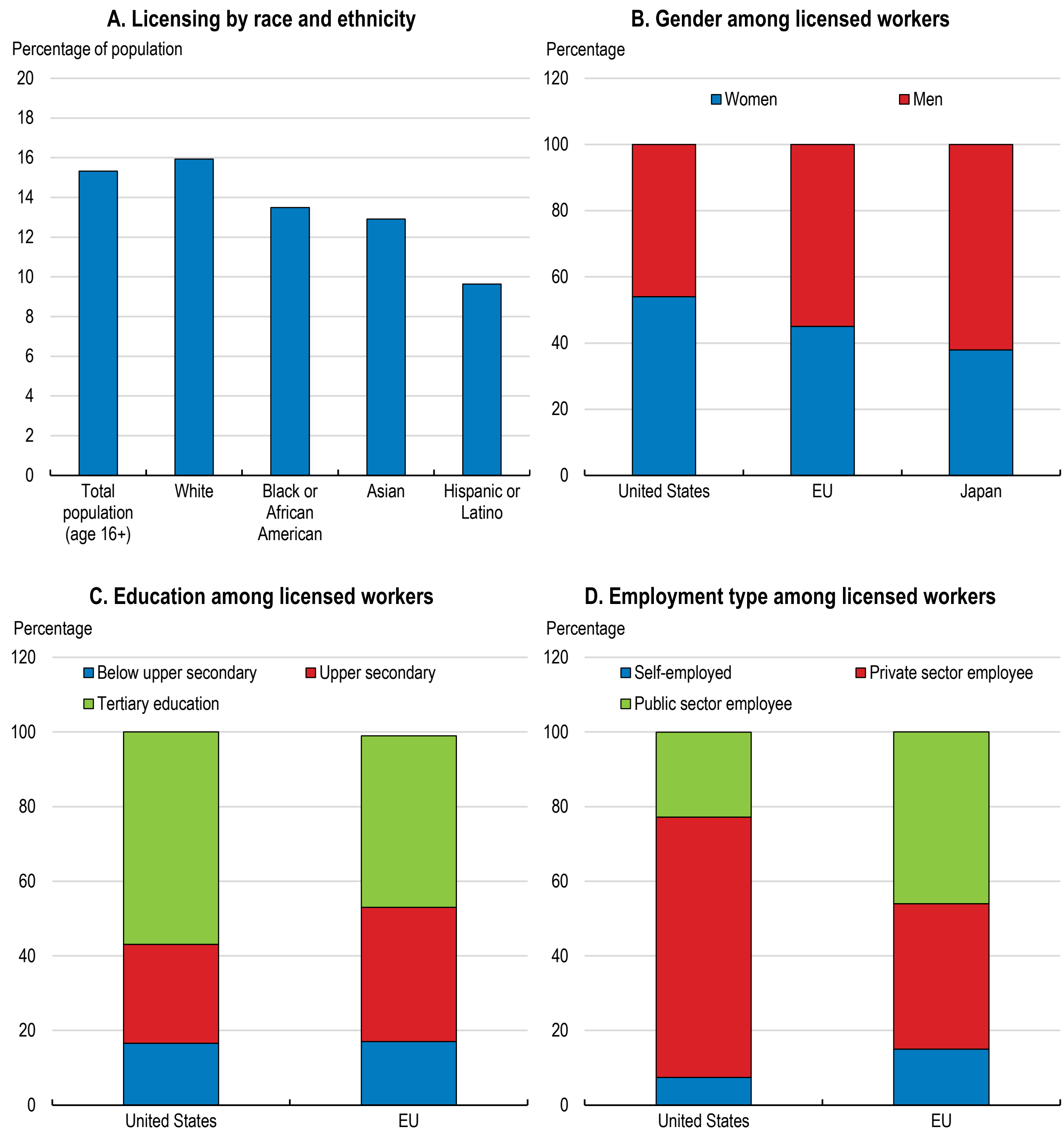
A federal reform in 2004 replaced occupational licensing requirements with a certification regime in 53 out of 94 crafts professions. This resulted in an increase in entrepreneurship, measured as higher entry into self-employment and mainly among untrained workers (Rostam-Afschar, 2014). Nevertheless, parts of the reform were recently reversed, relicensing 20 crafts from 2020.

Making substantial progress on mutual licensing recognition across States will likely require intervention by the federal government. States should retain the main responsibility of occupational licensing to ensure alignment with the broader set of State labour market policies. However, federal law could require States to recognise licences obtained in other States by default, allowing States to set stricter standards only if they can prove this is needed to protect public safety. This would allow States to maintain their current regulation standards, but shift the burden from workers to meet licensure standards onto States to justify higher requirements. Such legislation is justified by the apparent cross-border aspect of practising on the market and the growing evidence of licensing restraining competition, raising prices and not improving quality (Kleiner, 2017). Nevertheless, such a proposal would be drastic and require pre-empting State law, which usually requires a clear cross-border aspect to justify federal intervention. At least one attempt has been made along these lines (Scheffler, 2019). The 1993 Clinton health care plan included a provision stating: “No State may, through licensure or otherwise, restrict the practice of any class of health professionals beyond what is justified by the skills and training of such professionals” (Health Security Act, 1994). Alternatively, the federal government could act as a broker between States to reach broader reciprocity agreements for sectors or major occupations. Ultimately, this could lead to an internal free trade agreement covering all occupations as in Canada (Box 3.4).

Addressing licensing restrictions affecting specific populations

Entry barriers from occupational licensing sometimes affect specific population groups, which can give rise to inequalities. Holding a licensure is more frequent among whites than other race and ethnic groups (Figure 3.16, Panel A). In contrast to the EU, licensed workers in the United States are dominated by women and higher educated (Panels B and C). This reflects the larger licensing coverage in female-dominated occupations such as health and education (Figure 3.4). The large majority of licensed workers are private sector employees, while licensed workers in the EU are much more likely to work in the public sector or to be self-employed (Panel D). By and large, this reflects structural differences in the size of the public sector and prevalence of self-employment. Nevertheless, the concentration of licensing among whites with higher education in the private sector may add to income inequality because of the earnings premium associated with licensing.

Figure 3.16. White, women, well-educated and wage workers are comparatively more licensed

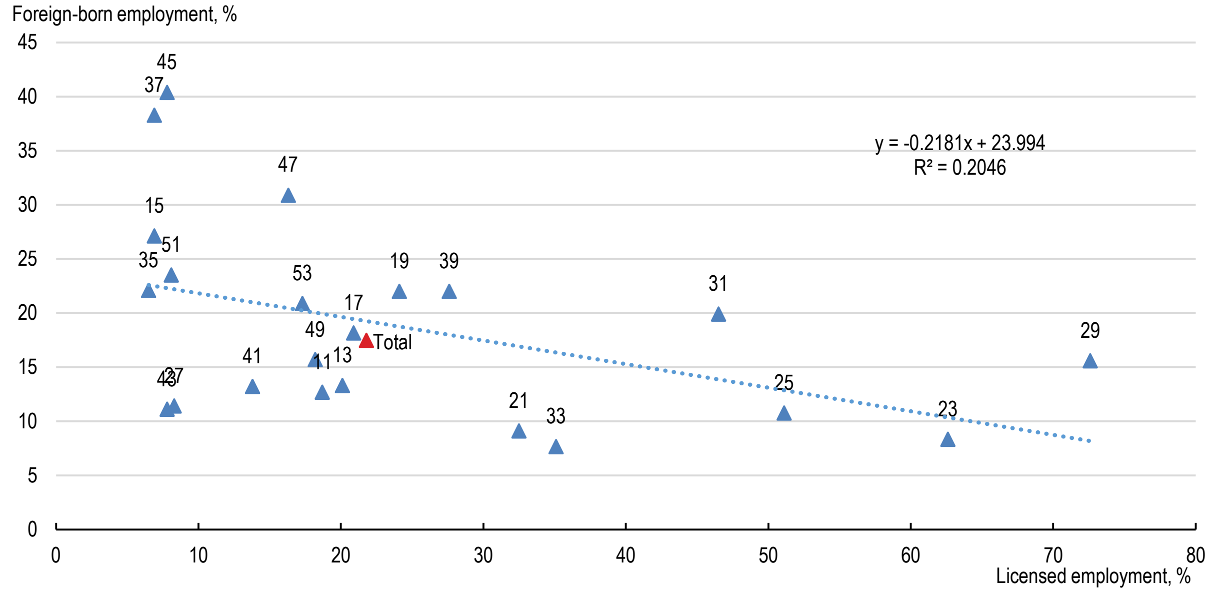


Note: Hispanic or Latino ethnicity is also included in the categories by race.
Source: Current Population Survey, BLS; Koumenta and Pagliero (2017) based on the EU Survey of Regulated Occupations; Morikawa (2018).

Improving access to licensed occupations for disadvantaged groups would not only increase their employment and income prospects; reducing protective measures would also strengthen competition from abroad. The share of foreign-born workers is lower in occupations with high licensing coverage (Figure 3.17), supporting the view that licensing work as a non-tariff trade barrier on service provision. States usually require domestic work experience and apply local exam and language requirements for obtaining a licensure. Evidence from the EU finds that the proportion of foreign-born workers is about one-third lower among licensed workers compared to unregulated workers after accounting for differences in worker characteristics (Koumenta and Pagliero, 2017). Noteworthy, this difference disappears for licensed occupations with automatic recognition of qualifications obtained abroad and for certified workers. This suggests that policies to reduce mobility costs in the European Union have been effective in promoting labour mobility (Box 3.5). Extending interstate compacts and reciprocity agreements in the United States to also include qualifications obtained abroad should be a next step for reform.

Figure 3.17. Occupations with higher licensing coverage tend to have fewer foreign-born workers

Foreign-born and licensed employment by occupation (age 16+), 2018



Note: Labels refer to occupational codes: 11 Management; 13 Business and financial operations; 15 Computer and mathematical; 17 Architecture and engineering; 19 Life, physical, and social science; 21 Community and social service; 23 Legal; 25 Education, training and library; 27 Arts, design, entertainment, sports, and media; 29 Healthcare practitioners and technical; 31 Healthcare support; 33 Protective service; 35 Food preparation and serving related; 37 Building and grounds cleaning and maintenance; 39 Personal care and service; 41 Sales and related; 43 Office and administrative support; 45 Farming, fishing, and forestry; 47 Construction and extraction; 49 Installation, maintenance, and repair; 51 Production; 53 Transportation and material moving
Source: Current Population Survey, BLS.

Box 3.5. Efforts to increase labour mobility for regulated professions in the European Union

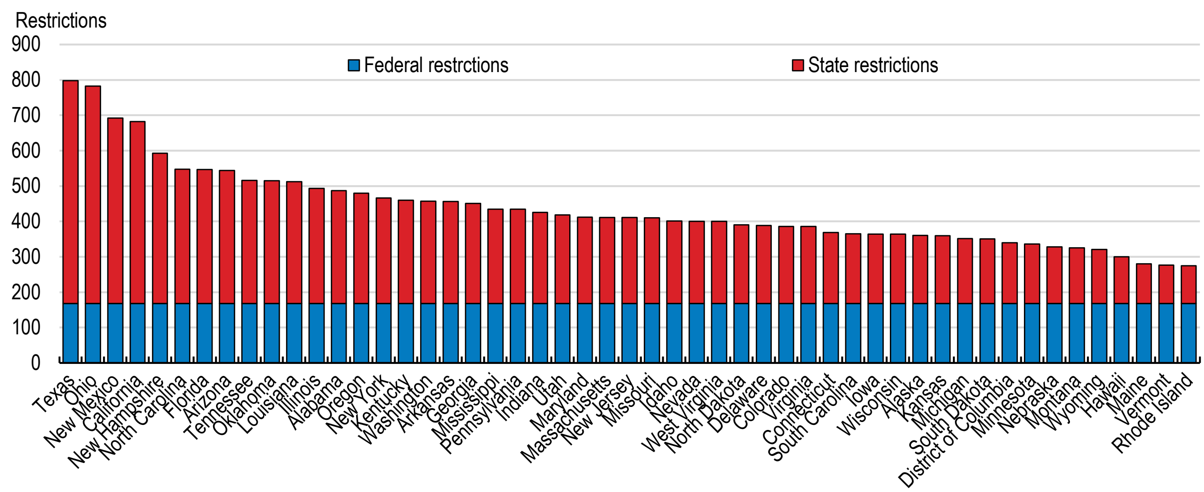
As part of the effort to establish a single market for services, the European Commission issued the Professional Qualifications Directive in 2005 (amended in 2013). The Directive sets clearly defined principles and processes for professional qualification recognition across EU Member States with the aim to reduce mobility costs. To have a comprehensive overview the Regulated Professions Database was established, with information on the 600 regulated professions across countries and national contact points. EU countries were also invited to conduct a mutual evaluation of the respective barriers they have in place limiting access to certain professions.

In 2017, a Services Package was launched to further enhance mobility and help Member States to reform regulated professions. In order to introduce new regulations, countries are now mandated to pass a proportionality test to avoid excessive regulation. Moreover, analysis and country-specific reform recommendations were issued for seven groups of professions.

Americans with a criminal record are often the ones facing the hardest barriers from occupational licensing. Background checks can result in automatic disqualification if the applicant has committed serious crime (felony convictions). Yet, less serious offenses (misdemeanours) and arrests that did not lead to a conviction can also result in denial of a licensure (NCSL, 2019c). Some restrictions serve legitimate public safety functions, such as prohibiting people convicted of assaults or abuse from working with children or excluding people convicted of fraud from law and accounting occupations. The key objective is to make sure the conviction is relevant for the occupation sought, so as not to make re-entry more difficult than necessary. However, Texas and Ohio imposes more than 600 specific restrictions related to criminal convictions in the regulation of occupations, much higher than in Vermont and Rhode Island with just around 100 specific restrictions (Figure 3.18).

Figure 3.18. Some States impose many regulatory restrictions for individuals with criminal records

Number of legal restrictions that limit or prohibit people convicted of crimes from occupational licensure, 2019



Note: Restrictions refer to collateral consequences that are legal and regulatory restrictions that limit or prohibit people convicted of crimes from occupational and professional licensing and certification.
Source: National Inventory of Collateral Consequences of Conviction, Council of State Governments.

Such restrictions can exclude a large group of people from many jobs and generate mismatch problems. Estimates suggest that 3% of the adult population has ever been in prison and 8% has a felony conviction (Shannon et al., 2017). Among African-Americans, the corresponding numbers are as high as 15% and 33%. Background checks thus effectively constrain their employment opportunities substantially. This is emphasised by evidence showing that African-American men who do manage to get a licensure enjoy the largest positive wage benefits across race and gender groups, reflecting that a licence can work as a signal of no-criminal history (Blair and Chung, 2018).

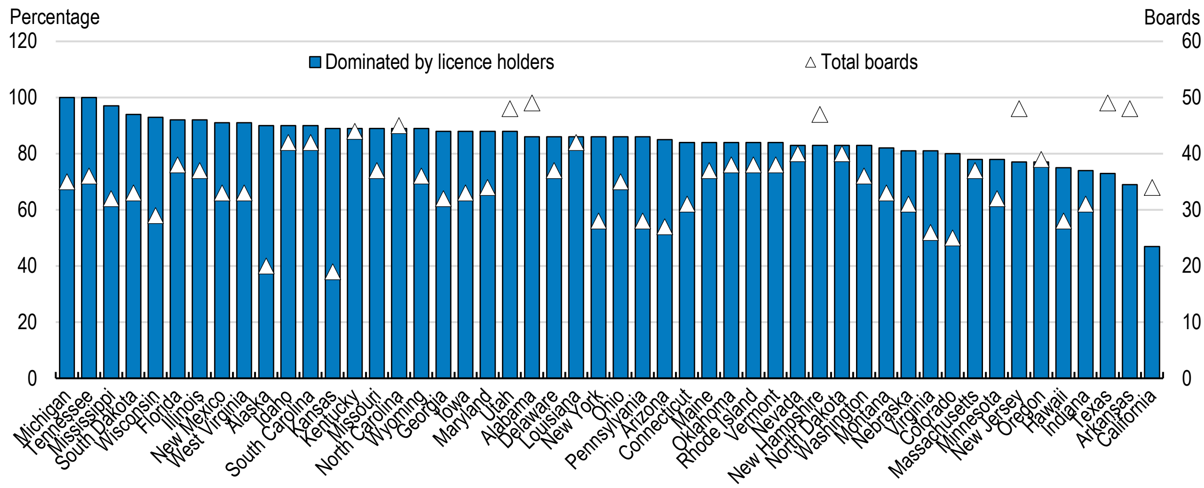
States can set standards for licensing boards' background checks as a way to reduce barriers for individuals with a criminal record. In many States, licensing boards are allowed to ask and consider arrests that never led to a conviction when making their decision. Licensing boards may also deny granting a licence, regardless of whether the conviction is relevant to the occupation sought or how recent it was. A reform in Indiana now requires licensing boards to explicitly list all disqualifying crimes and to exclude any arrest records not resulting in convictions from their consideration (House Bill 1245). Certificates of rehabilitation is another means to improve employment options for ex-offenders, but only used by few occupations and States (NCSL, 2019c).

Ensuring the proper functioning of licensing boards

For most occupations, States have delegated the task to set and enforce licensing restrictions to an occupational licensing board. The vast majority of boards have direct rulemaking authority, while all boards typically serve as an influential advisory unit to other State regulators. This institutional framework can lead to conflicts of interest since 85% of the total 1790 boards in the United States are required by statute to have a majority of licensed professionals, active in the profession the board regulates (Allensworth, 2017). The average State has 36 boards and except for California, active licensure holders dominate more than 70% of boards in all States (Figure 3.19).

Figure 3.19. Licensing boards are strongly dominated by active licensure holders

Percentage of boards with a majority of active licensure holders as members, 2017



Note: Some boards issue more than on kind of licence, in which case the board is coded as dominated if all the various licensure holders forms a simple majority. Excluding these mixed dominated boards, reduces the national share of dominated boards to 69%.
Source: Allensworth (2017).

Professional board members have expertise in the training, practice and business of their fields and originally they almost exclusively populated the licensing boards. However, as market participants they are also more likely to implement burdensome entry requirements to protect themselves from competition. Evidence is scarce, but among lawyers, one study found that a larger number of persons attempting to acquire a licence was associated with more difficult exams, suggesting that boards respond to increased supply by raising entry barriers (Pagliero, 2013). Reviews have also found that public seats on boards do not always have full voting rights and are often left vacant for considerable time, both of which increase the control of professionals (Allensworth, 2017; McLaughlin et al., 2017). Moreover, it is common that statutes dedicate public seats to consumer members and reserve seats to represent the elderly, groups that are unlikely to possess sufficient expertise to voice competition concerns. Appointing members from State competition authorities, experts in economics or advocates of consumer rights would help to balance the interests of the public on licensing boards.

A 2015 Supreme Court case (Box 3.6) put the spotlight on potential anti-competitive behaviour of licensing boards and forced some States to take action. The ruling clarified that licensing boards are not automatically exempted from federal antitrust scrutiny, although it is still unclear how much the decision in practice will increase boards' exposure to antitrust actions and constrain regulation. States have several options to comply with the ruling. In California, all non-health licensing boards have had a majority of public members for many years, albeit there is little empirical evidence on the effectiveness of this approach.

Alabama, Delaware, Louisiana and Mississippi reacted to the Supreme Court case by establishing committees or commissions tasked with actively supervising the licensing boards controlled by active market participants. Other States assigned the task to existing State agencies such as the Department of Consumer Protection in Connecticut. A third alternative would be to remove specific regulation that violates competition policy and leave boards subject to antitrust scrutiny; a solution that would substantially limit the power of licensing boards to set entry restrictions (Pagliero, 2019).

Box 3.6. The North Carolina Board of Dental Examiners v. Federal Trade Commission case

The 2015 Supreme Court case was about immunity of occupational licensing boards from antitrust law. It originated from non-dentists offering tooth whitening services and sale of teeth whitening kits in North Carolina. The Board of Dentists claimed that the teeth whiteners were practicing dentistry without a licence and threatened them with criminal liability. Members of the Board had a clear interest in restraining competition since State legislation required six of the eight members of the Board to be licensed and practicing dentists. The Federal Trade Commission investigated the case and sued the Board for violating federal antitrust law. The Board claimed to be immune from antitrust laws as it was acting in accordance with State licensing regulations. Nevertheless, the Supreme Court ruled that State licensing boards that are controlled by market participants are not immune from federal antitrust scrutiny, unless they act in accordance with a clearly articulated State policy and are subject to active supervision in the State.

Reviewing licensing board regulation should also consider the organisation of boards and the tasks reserved for each occupation. Some States have almost 50 different boards regulating specific occupations with overlaps in services provisions, especially in healthcare, giving rise to conflicts over scope-of-practice restrictions. For instance, nurse practitioners and dental hygienists are often prevented from offering services that are fully within their competency or require supervision by a physician to do so (Adams and Markowitz, 2018; FTC, 2014; 2019). Such restrictions create barriers to productivity growth and should be balanced against the benefits of licensing health professions. The Ontario province in Canada implemented a radical reform of healthcare providers in 1991 to address problems of scope-of-practice and conflicts of interest (Safriet, 2002; Scheffler, 2019). A profession-specific licensing system controlled by members much like in the United States was transformed to one common regulatory regime for all health professions largely controlled by public appointees. In addition, an advisory council was charged with continually revisiting whether professions should be regulated or not and updating the regulatory framework.

The influence of professionals on licensing boards and on regulation, also through lobbying, may explain the modest reform action observed across States (Table 3.3). The push for licensing reforms has been strong for several years, not least from the federal level. Yet, cases of delicensing have been very rare and typically include licences with very limited use such as citrus fruit packers in Arizona and abstractors in Nebraska. A committee in Michigan reviewed 87 licensed occupations and recommended to delicense 20, but in the end only six occupations were delicensed. An earlier study identified only eight instances of delicensing in 40 years (Thornton and Timmons, 2015). Nevertheless, the limited action masks many failed attempts to reform (Kilmer, 2018; Rege et al., 2019). For instance, the House of Representatives in Florida passed a bill to delicense 24 occupations in 2011, but the Senate refused it as well as a number of subsequent bills. The resistance to delicensing emphasises the need for comprehensive sunrise reviews to avoid excessive licensing in the first place. Professionals tend to view licensing as the last step to raise the status of their profession, which can be a motivation to be licensed beyond the potential monetary benefits.

Table 3.3. Recent occupational licensing reforms at the State level

Selected reforms

State	Year	Reform
29 States	2015-19	Reduction of barriers to obtain a licensure for people with a criminal conviction.
17 States	2014-19	Exemption of natural hair braiders from a requirement to obtain a cosmetology, hairstyling or barber licensure.
13 States	2015-18	State agency established or assigned task to actively supervise licensing boards.
13 States	2015-18	Easing of licensing restrictions for military personnel and their families.
7 States	2014-18	Sunset review process implemented, typically with annual review of 20% of licensed occupations.
Arizona	2016	Delicensing of five occupations (assayers, citrus fruit packers, fruit and vegetable packers, driving instructors and yoga instructors).
	2017	Right to Earn a Living Act shifted the burden of proof to the government to justify that licensing is needed.
	2019	Automatic granting of occupational licensure to new residents with an out-of-State licensure.
Arkansas	2019	Broad licensing reform to reduce entry barriers and red tape (83 bills considered, 45 approved).
Indiana	2018	Local governments prohibited from imposing licensure requirements on State-licensed professions.
Florida	2017	Lower-income workers exempted from licensing fees.
Michigan	2013-14	Delicensing of six occupations (auctioneers, community planners, dieticians and nutritionists, immigration clerical assistants, ocularists and proprietary school solicitors), following a review of 87 occupations and recommendations to delicense 20 occupations.
Nebraska	2018	Delicencing of abstractors.
New Mexico	2018	Executive order requiring overhaul of all licences, including new reciprocity agreements and reduced fees.
Ohio	2019	All licensing boards set to expire every six years unless the legislature explicitly reauthorizes them.
Tennessee	2017	Delicensing of shampooing hair and licensure to massage animals made temporary.
Utah	2017	Licensure requirements reduced for electricians, plumbers and contractors.
Wisconsin	2017	Licensure requirements reduced for barbers, cosmetologists, aestheticians, electrologists and manicurists.

Source: Kilmer (2018); Rege et al. (2019); Scheffler (2019); Institute for Justice; National Council of State Legislatures.

Successful reforms are often driven by the governor (Kilmer, 2018), as in the case of delicensing in Michigan and out-of-State licensure recognition in Arizona. Making licensing reform a legislative priority and appointing commissions to do the ground work can overcome resistance against reform. Arkansas achieved large-scale licensing reform during 2019 by appointing working groups involving many stakeholders and collecting good data to inform policymakers (Rege et al., 2019). Outside groups such as think tanks and consumer organisations have also helped to inform legislators and the public in some States, paving the way for reform. Some governors have used their power to act unilaterally through executive orders, for instance by mandating reviews of licensing requirements. However, a comprehensive order issued by the New Mexico governor in 2018 to bring regulation below the national average and increase reciprocity has so far had little effect. The federal government and State associations can support occupational licensing reform by sharing the successful experiences.

The federal government has several options to nurture occupational licensing reform, while largely preserving States' control over the system. However, action at the federal level has been limited in recent years (Table 3.4) and more should be done to drive reform forward. As discussed above, federal intervention would be justified to remove barriers from lack of reciprocity across States. The European Union has achieved some success in this direction through a mixture of pre-emptory regulation, coordination of Member State efforts and judicial intervention (Box 3.5). In the context of competition policy, experience from the European Union also suggests that countries opted for a more independent and forceful regulator at the supranational level than any individual country ever did (Gutiérrez and Philippon, 2019). Correspondingly, the federal government may be less likely to be politically captured by licensure holders and lobbyists than State-level regulators. Under current legislation, the federal government has several available measures to promote licensing reform (Scheffler, 2019):

- *Reform licensing regulation within federal authority*: The federal government has some limited authority over State licences for providers employed at federal agencies, such as military hospitals and the Department of Veterans Affairs. This power has been used to ease licensing restrictions to improve mobility and increase telehealth in recent years (FTC, 2017). While small in impact, it could set standards for States to adopt or pave the way for further federal regulation. Relatedly, States have taken significant action to reduce restrictions for people with a criminal record, which follows initiatives to reduce such restrictions from the federal administration.
- *Use fiscal support*: Congress has provided targeted fiscal support to incentivise States to reform in specific areas. The Licensure Portability Grant Program supported the work on interstate compacts in healthcare, while licensing reciprocity for military spouses have been supported through the National Defense Authorization Act. In recent years, federal funding has been allocated directly to support broad occupational licensing reform in a number of States, although with limited amounts. Such fiscal incentives can help, but are unlikely to have a major impact without becoming costly and more or less prescriptive.
- *Step up antitrust enforcement*: Intensifying the focus of the Federal Trade Commission and the Antitrust Division of the U.S. Department of Justice on occupational licensing laws is a more promising avenue to remove barriers from licensing. As discussed above, the North Carolina Supreme Court case (Box 3.6) showed that States are not immune to antitrust scrutiny. Both agencies have advocated against excessive licensing regulation for a long time and recently stepped up efforts on scope of practice issues. This should be continued and if needed antitrust law should be clarified and strengthened to ensure unwarranted occupational licensing or unduly stringent licensing does not compromise competition, especially across State borders.
- *Use other federal programmes to generate additional pressure*: The Affordable Healthcare Act increased the demand for healthcare providers and helped to push reforms to expand scope of practice for nurse practitioners. Reforming other federal programmes may similarly help to push States to take action.

Table 3.4. Recent occupational licensing reforms at the federal level

Selected reforms

Year	Reform
2011; 2016; 2018	Expansion of existing licensing reciprocity for military healthcare providers (federal employees), including through telehealth irrespective of location.
2016	Reduction of federal licensing restrictions for people with criminal records (executive order).
2016	USD 7.5M grant to fund research and technical assistance for improving geographic mobility of licensed workers (lead by NCSL).
2018	USD 7M grant to support occupational licensing reform (allocated to 10 States and two associations of State governments).
2018	States allowed to use federal education funds to review licences for unwarranted entry barriers.
2019	USD 2.5M grant to ease licensing barriers for veterans and transitioning service members with military education and training.

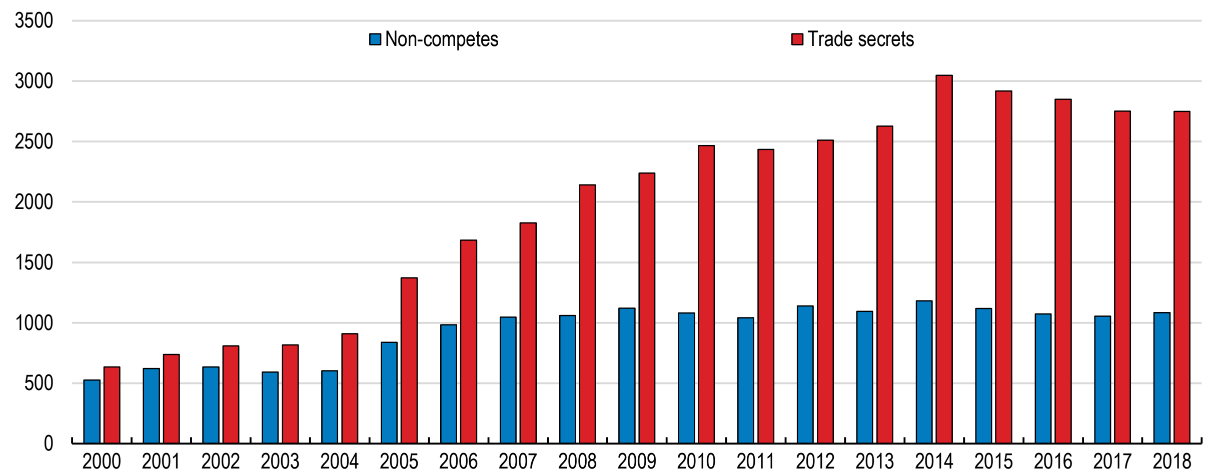
Source: Scheffler (2019); Institute for Justice; National Council of State Legislatures.

Non-competition agreements are often a bad deal for workers

Non-competition covenants (non-competes) in employment contracts is another restrictive measure that hinders labour mobility. By signing such a clause, employees are prohibited from moving to a competitor company or starting up a competing firm after they separate from the employer. The use of these types of clauses has been growing when measured by legal decisions (Figure 3.20). The number of cases has doubled since the early 2000s and the recourse to courts over trade secrets has jumped even further (trade secrets laws can also be used to restrict employee mobility, e.g. Contigiani et al., 2018). There are arguments for non-competes, particularly when on-the-job training is costly and building client relationships are important. In such circumstances, the employee should normally be compensated for agreeing to a non-compete. On the other hand, non-competes may hinder workers finding better quality jobs and deter entrepreneurship, with the risk that these contracts are used in an anticompetitive manner by some firms. Stringent use of restrictive clauses in employment contracts can thus depress both lifetime earnings and potentially productivity growth.

Figure 3.20. Court cases suggest a jump in the use of non-competition agreements

Estimates of federal and state court decisions on non-competes and trade secrets

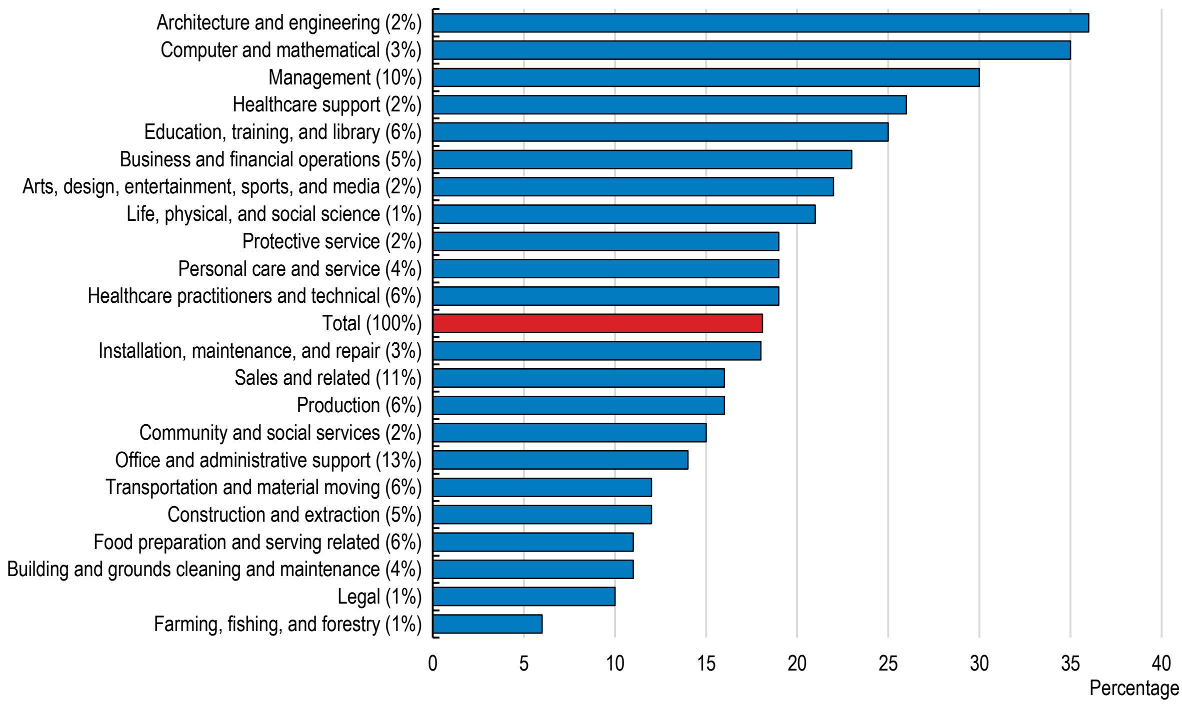


Note: The latest years may be depressed by lags in reporting cases.
Source: www.faircompetitionlaw.com based on Westlaw database.

Estimates suggest that 18% of American workers are covered by a non-compete in their current job (Starr et al., 2019a). Usage is more frequent in high-skill occupations such as engineering, ICT and management (Figure 3.21), which are more likely to possess valuable firm-specific knowledge. Yet, 10-15% of workers in office support, transportation and food preparation report being restricted by non-competes, typically occupations with low income and no access to information of value to competitors. Reported cases concerning hairstylists and sandwich makers have added to concerns that firms may use non-competes to effectively limit alternative job options for their workers and suppress wage increases (Dougherty, 2017). Other research suggests the possibility of the increasing use of non-competes among low-income workers may partly be a response to increases in minimum wages (Johnson and Lipsitz, 2019). In jobs with compensation largely based on tips, firms may use a non-compete to claim bargaining power and reduce the risk of quits, which can make it worthwhile to employ a worker at the minimum wage. However, allowing non-competes will still have economic costs since other firms not bound by the minimum wage will also use them.

Figure 3.21. Non-competition agreements are more frequent in high-skill occupations

Estimated per cent reporting to be working under non-competition agreements by occupation, 2014



Note: Coverage of noncompetes is measured with substantial uncertainty because many survey respondents are not sure if they have signed a noncompete. The reported shares are from multiple imputation incidence estimation, see Starr et al. (2019a) for details. Employment by occupation in per cent of total employment reported in parenthesis.
Source: Starr et al. (2019a); American Community Survey.

Enforcement of non-competes differs across States

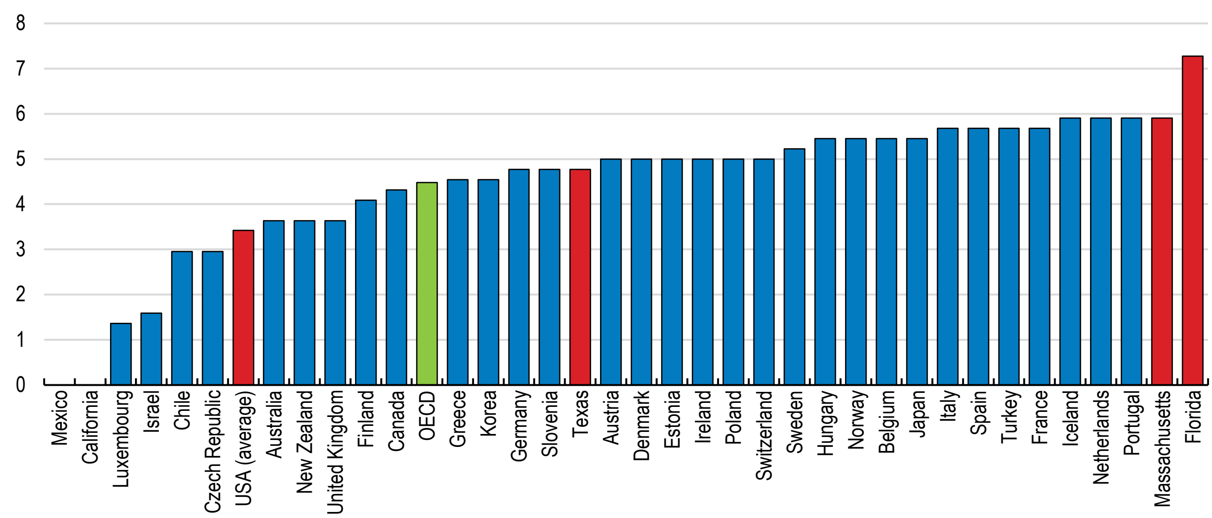
The regulation of non-competes is a State matter with substantial variation in the United States. Three States – California, North Dakota and Oklahoma – will generally not enforce such agreements (Beck Reed Riden, 2019), although this has not stopped employers including clauses in contracts. In other States, enforcement is based on different versions of the "reasonableness doctrine", which balances the protection necessary for the firm against the costs to the worker and society. Only 26 States have statutes governing the use of non-competes, the remaining 23 States rely on the common law and navigate based on a complex set of federal and State court decisions (White House, 2016).

Courts can react quite differently when restrictions included in a covenant are judged excessive. In a few States, courts will throw out the entire covenant if it is deemed overbroad along any dimension ("red-pencil" States). Other States allow courts to remove the offending clauses (such as excessive geographical scope) and enforce the remaining conditions ("blue-pencil" States). However, the majority of States permit courts to rewrite the covenant to make it enforceable with the original intent ("reformation" States). The balance between employee and employer interests also vary, with States such as Montana and Virginia enforcing contracts in a worker-friendly matter, while at the other extreme, Florida is more employer friendly and e.g. uses a broad definition of interest that can be protected, including investment in training (Posner, 2019). Differences in enforcement may nevertheless have little impact if workers are unaware and fear costly lawsuits from employers. A large employee-survey across all States found few differences in the use of covenants, including in the States that do not enforce them (Starr et al., 2019a).

Diverse approaches are also apparent internationally. An experimental OECD indicator was constructed in 2012 to quantify the enforceability of non-competes (Galindo-Rueda, 2012), summarising features such as broadness of protected interests, time limit, compensation and modifications permitted. The variation in approaches within the United States roughly matches the variation across OECD countries (Figure 3.22). For example, Mexico has made non-competes unenforceable, as is the case in California. Australia, New Zealand and the United Kingdom enforces non-competes but under rather restrictive circumstances. In most continental European countries, non-competes that are more permissive are enforceable but typically requires payment of compensation to the employee (Meritas, 2017). At the other extreme, non-compete enforceability in Portugal and the Netherlands was as restrictive as in Florida.

Figure 3.22. Countries and States differ much in legal enforcement of non-competition covenants

Experimental index for the legal enforcement of non-compete covenants, scale 0-10, 2012

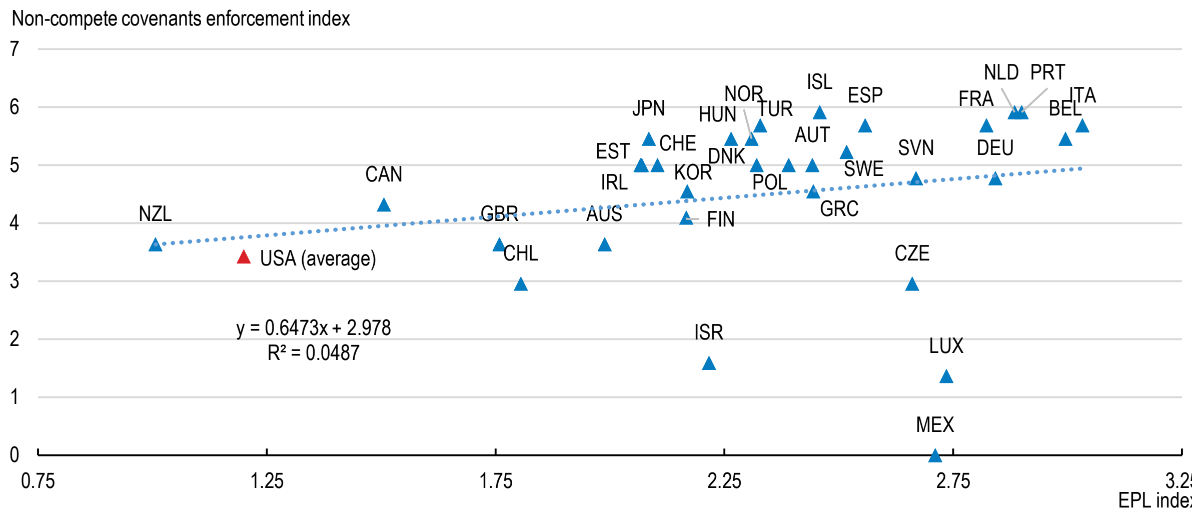


Note: The enforcement score is experimental and based on an assessment of the restrictiveness of 10 aspects of non-compete contracts. Some countries have reformed the use of non-competes since 2012, cf. Box 3.7.
Source: Galindo-Rueda (2012).

The cross-country variation in non-competes enforcement to some extent mirrors the varying approaches to employment protection legislation (EPL, Figure 3.23). Countries such as Italy, Portugal and France scored high both for EPL and for non-competes enforcement, while New Zealand, Canada and the United Kingdom had lower levels in both dimensions. This could be interpreted as a way to preserve symmetry between the rights of employees and of employers. If workers are safeguarded by restrictions on firms to hire and fire (high EPL), they may accept restrictions from a non-compete, which can safeguard firms. This reading disregards the implications for employment and productivity and needs to be supported by rigorous analysis. Nevertheless, it adds to the concern for a growing imbalance in the power relationship between workers and employers, especially in States with high non-competes enforcement and low EPL.

Figure 3.23. Countries with high EPL also tend to have high enforcement of non-competes

EPL for regular contracts and experimental non-compete covenants enforcement index, 2012



Note: USA is an employment-weighted average of California, Florida, Massachusetts and Texas. EPL for individual and collective dismissals (regular contracts).
Source: Galindo-Rueda (2012); OECD Indicators of Employment Protection.

There are sizeable costs and only modest benefits

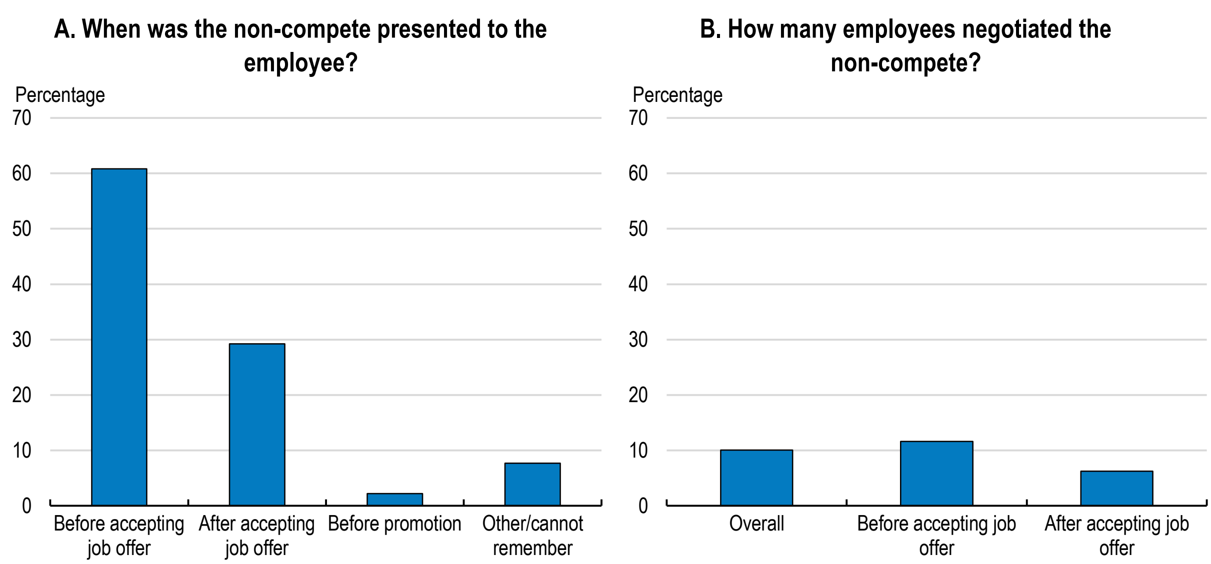
Market power of employers is receiving more widespread attention and recent studies suggest that in some OECD countries a significant fraction of employment is in highly concentrated labour markets (OECD, 2019a; 2019b). Employers with market power (monopsony) suppress wages and evidence suggest that the link is stronger among lower-income workers, which may also be less likely to benefit from employer-sponsored health insurance. A study based on online job postings found that the average local labour market in the United States is highly concentrated and would trigger concerns for lack of competition according to the merger guidelines for firms (Azar et al., 2018). Defining local labour markets is nevertheless difficult and other studies using broader definitions have found lower, but still sizeable, degrees of concentration, while the few available studies of trends find evidence of decreasing local labour market concentration over time (Rinz, 2018). The high levels of concentration in some places nevertheless warrants reviewing antitrust policies and labour market regulations. Regulation of non-competition clauses is one important aspect, but also includes merger control and colluding arrangements among firms such as no-poaching agreements (OECD, 2019b). On mergers, the United States authorities have confirmed their willingness to systematically scrutinise the effects of mergers on labour markets, but so far no merger has ever been challenged because of labour market concerns (Naidu et al., 2018).

Non-competes can in some cases play an important role in protecting businesses and promoting innovation, in particular when investments in knowledge cannot be protected through patents or other types of contracts. They can also encourage employers to invest in training for their employees. However, the evidence of positive benefits from non-competes is scarce and inconclusive. Recent studies for the United States have found higher enforcement of non-competes to be associated with a higher investment-to-labour ratio in incumbent firms (Jeffers, 2019) and more training (Starr, 2019), but at the cost of lower wages. There is also some evidence of more risky R&D in States with non-competes enforcement (Conti, 2014) and higher firm value and likelihood of firm acquisition (Younge et al., 2014; Younge and Marx, 2016).

By contrast, there is growing evidence that non-competes have sizeable costs in terms of lower mobility, reduced wages and less entrepreneurship, ultimately weighing on productivity growth. For instance, employees with a non-compete on average have 11% longer job tenure after accounting for differences in worker characteristics (Starr et al., 2019b). Workers in technology industries, which are an important source for knowledge spillovers and have a high incidence of non-competes, have lower job mobility and lower wage growth in States with higher enforceability (Balasubramanian et al., 2019). Moreover, constrained workers also tend to redirect their job search to different fields in fear of breaching the non-compete (Starr et al., 2019b; Marx, 2011), which can result in career detours. Entrepreneurship and innovation thus declines because fewer employees leave an employer to create a spinout firm (Starr et al., 2017) or start new knowledge sector firms (Jeffers, 2019). In other research, an increase in venture capital has a bigger impact on stimulating entrepreneurship, patenting activity and employment in States with lower enforcement of non-competes (Samila and Sorenson, 2011).

The evolving evidence supports the view that some firms may be using these clauses in an anticompetitive manner, suppressing workers' opportunities and wages. One indication is that the non-compete is often presented after the employee has accepted a job offer and few workers report to have negotiated their non-compete, especially after accepting the job offer (Figure 3.24). The late notice is particularly a concern among low-income workers for which a non-compete often is a take-it-or-leave-it proposition (Starr et al., 2019a).

Figure 3.24. The non-compete is often presented after job acceptance and few workers negotiate it



Note: Based on 2014 Noncompete Survey Project with 11,505 respondents.
Source: Starr et al. (2019a).

Some States have reformed, but federal action is also needed

In recent years, several States have or are considering to ban the use of non-competes for low-income or low-skilled workers. Oregon was the first State to introduce a minimum earnings threshold in 2008, which resulted in a wage increase by up to 6% among the affected group (Lipsitz and Starr, 2019). Several other measures are available to make non-competes more employee friendly, but only a few States have taken action in recent years (Table 3.5):

- *Limits on duration and geographical coverage*: Some States implemented or clarified the time limit of non-competes, but the vast majority of States have no explicit regulation of duration. Likewise, it is usually also left to courts to decide what constitutes a reasonable geographical coverage.
- *Prior notice*: A few, but growing number of States have adopted policies to protect workers from being asked to sign a non-compete after accepting a job offer. New Hampshire was first to make non-competes provided after a new job is accepted unenforceable.
- *Compensation*: A non-compete can have a "garden leave" clause, meaning that the employee is entitled to compensation during the period of its validity after separating from the employer. This can help to force employers to use non-competes for crucial employees only. Few States have legislation requiring compensation, whereas "garden leave" clauses are common in European countries (White House, 2016; Meritas, 2017). More than 30 States accept continued employment as sufficient compensation to current employees being asked to sign a non-compete. Recently, Washington introduced legislation to require compensation of laid-off workers if the employer wishes to enforce the non-compete (around half of the States enforce non-competes against employees discharged without cause).

Table 3.5. Recent reforms of non-competition covenants in the United States

Selected reforms at the State level

State	Year	Reform
7 States	2016-19	Non-competes not enforceable for low-income or low-skill workers.
4 States	2015-19	Restriction on maximum duration of non-compete (between one and two years).
Hawaii	2016	Non-competes banned for employees of technology businesses.
Massachusetts	2018	Regulation to make non-competes more employee-friendly (duration, prior notice, compensation, low-incomes).
New Hampshire	2014	Non-competes required to be provided prior to acceptance of job offer.
New Mexico	2016	Non-competes generally banned for employees in health care.
Oregon	2015	Offer letter required to state if signing a non-compete is expected and agreement to be provided at least two weeks before job start.
Washington	2019	Non-competes not enforceable in case of a layoff, unless employee receives compensation.

Source: White House (2016); Marx (2018); Posner (2019).

Restricting enforcement of non-competes may however have little effect if employers continue to use unenforceable contracts and workers behave as if they were valid. Non-competes have generally not been enforceable in California since 1872, but still an estimated 19% of workers have signed one in their current job (Starr et al., 2019a). Research have found similar negative effects on mobility in States that do not enforce non-competes, with workers turning down job offers at a higher rate as the main driver across States (Starr et al., 2019b). States like Illinois and New York, have released public guidelines explaining in simple language under which conditions a non-compete is enforceable, which can help to increase workers' awareness on their rights (OAGI, 2019; NYAG, 2018).

Uncertainty regarding enforcement could also be reduced by not allowing courts to redraft unlawful covenants to make them enforceable, i.e. a more widespread adoption of the "red-pencil" doctrine (OECD, 2019a). The option to delete or rewrite gives employers an incentive to draft unreasonable broad non-competes as there is a low risk of courts rejecting them outright. Even so, employees may still be reluctant to take an employer to court for fear of losing and because of the potential costs. In that case, authorities should take a leading role to ensure an adequate deterrence against abuse of non-competes. Attorney generals of the States of Illinois and New York have recently been very active in investigating unreasonably broad or unlawful covenants, often reaching settlements with significant sanctions for companies. Other States should clarify who has the initiative and right to take legal action on unreasonable use of non-competes. Consideration could also be given to empower enforcement agencies with the right to use administrative sanctions in cases when non-competes contain clauses that are explicitly banned (OECD, 2019a).

Strengthening regulation of non-competes across the United States is likely to require federal action. While several States have pursued reforms in recent years, opposition and lobbying from businesses have also halted many attempts as in the case of occupational licensing. Several bills to regulate non-competes at the federal level have been proposed. Currently, proposals to ban non-competes nationwide or exempt entry and low-income workers are under consideration. Limiting the use of non-competes to particular high-skill workers only would be welcome (OECD, 2019a) and go in the direction taken by a number of OECD countries in recent years (Box 3.7).

Box 3.7. Recent reforms of non-competition agreements in OECD countries

Denmark

The government limited the use of restrictive clauses in 2014 after a Productivity Commission had pointed to frequent and likely costly use of them. An agreement between the social partners formed the basis of the new regulation. With the reform, non-competes can only apply to employees in particularly trusted positions with confidential information, requires compensation and the duration cannot exceed one year. Non-solicitation clauses, which includes no-poaching agreements between employers, also became much restricted.

Norway

Regulation of the use of restrictive clauses was reformed in 2016 from a regime with few limitations to being regulated under the Working Environment Act. Non-competes are only enforceable if the employer has a particular need for protection, they may not exceed one year and requires compensation of the employee. Non-solicitation clauses restricting employees' customer relations also became subject to similar regulation, while no-poaching agreements generally became prohibited.

Netherlands

A reform to improve the position of flexible workers generally prohibited non-competes in fixed-term contracts from 2015. Regulation for open-ended contracts still allows wide use of non-competes (cf. Figure 3.22).

United Kingdom

The 2015 Small Business, Enterprise and Employment Act made exclusivity clauses for zero hour contracts (no guaranteed hours, no obligation to accept work) unlawful, effectively ruling out non-competes for these type of contracts.

Federal labour law (Fair Labor Standards Act) could be amended to ban non-competes in most situations and stipulate punishment for employers for including banned clauses in employment contracts. However, the widespread use of non-competes in States that do not enforce them suggest that stronger measures may be needed to change practice. In that case, the federal government could outlaw non-competes in general and only allow use in special cases where employers can prove benefits to workers. This would shift the burden of proof from the employee to employers, which is attractive from the perspective of employees, but may come with the risk of triggering numerous court cases.

Regulating non-competes under federal antitrust law could also be considered as a way to achieve strong deterring effect on firms (Posner, 2019). The growing empirical evidence suggests that non-competes causes anticompetitive harm by restricting worker mobility, thus limiting entry to labour markets and reducing wages. The Department of Justice has traditionally taken the lead to fight collusive and anti-competitive practices, including no-poaching and wage-fixing agreements (OECD, 2019b). In principle, non-competes are also covered by federal antitrust law, but the employee's burden of proof is excessive under current legislation (Posner, 2019). A single employee trying to escape a non-compete would need to demonstrate that the employer possesses market power and that the particular non-compete has reduced competition. This is almost impossible as evidenced by the absence of any successful cases ever. Federal antitrust law could be strengthened to make non-competes presumptively illegal, while still allowing employers to use a non-compete if they can prove the covenant would benefit the worker. Sanctions under antitrust law are much larger than under common law and could thus be effective in disciplining firms in their use of non-competes.

FINDINGS	RECOMMENDATIONS (key recommendations in bold)
Occupational licensing	
Complete and comparable data on occupational licensing regulation across States are not available.	Set up a centralised database with easily accessible information on licensing requirements across all government levels to inform job seekers and policymakers.
Cost-benefit analyses of new regulation ("sunrise" reviews) as well as licensing laws in place for some time ("sunset" reviews) are only required in some States.	Require standardised cost-benefit analysis of any proposed legislation to license an occupation as well as for introducing additional requirements. Establish a process for ongoing reviews of all licensed occupations to harmonise licensing requirements across States.
Less than 50 occupations are licensed in all States, while more than 400 occupations are licensed in at least one State. Empirical analysis suggest that larger coverage and strictness of licensing regulation is associated with lower job mobility.	**Encourage States to delicense occupations with very limited concerns for public health and safety and act against anticompetitive behaviour.** Consider shifting the regulatory approach to (voluntary) certification if incomplete information for consumers remains a concern.
Licensures obtained in one State are not automatically recognised in other States. Procedures to implement mutual recognition across States can be cumbersome, e.g. interstate compacts. Empirical evidence suggest comparatively larger coverage and stricter requirements are associated with lower job-to-job inflows.	**Use federal law to impose recognition of out-of-State licensures, allowing States to set stricter requirements only if they can prove it is necessary to protect the public.** Consider using broader mutual recognition agreements at the sectoral level or for major occupational groups.
Some population groups are particularly exposed to excessive licensing requirements. Individuals with a criminal record are often excluded from obtaining a licensure. Immigrants with foreign credentials often have to redo training, which also applies to military personnel and their families moving across States often.	**Address excessive employment barriers that create obstacles for ethnic minorities and foreign nationals.** Require boards to set specific restrictions on disqualifying criminal offenses. Limit licensing restrictions to occupations directly related to the offense.
More than 85% of all licensing boards has a majority of active licensure holders with potential conflicts of interest. Public members on boards often have little expertise in competition issues.	Increase the share of public members with relevant expertise on licensing boards, e.g. from State competition authorities. Make a state agency responsible for active supervision of licensing boards.
Many attempts to implement broad licensing reforms have failed because of stiff opposition from licensed professions.	Encourage governors to take leadership in driving reform. Use commissions or task forces to do the groundwork. Involve think tanks, consumer organisations and other outsiders to broaden information among legislators and the public.
Non-competition agreements	
Evidence suggest that non-competes cause anti-competitive harm in the form of lower wages to workers. Current antitrust law is insufficient to scrutinise non-competes because of excessive burdens of proof.	**Outlaw the use of non-competes except where employers can prove benefit to workers.**
Usage of non-competes have become more widespread among low-skilled and low-income workers, who are unlikely to have access to protectable interests of the employer.	**Set a minimum earning or minimum skill threshold for using non-competes to protect low-income workers.**
Enforcement of non-competes varies from not being enforced in three States to strict enforcement in other States, allowing employers to include a broad set of activities, e.g. investment in training.	Restrict the scope and duration to make no-competes more employee friendly.
Employees do not always receive compensation for signing a non-compete. Evidence suggest that around a third of all non-competes are presented after the employee has accepted the job offer and that few negotiate the covenant.	Require firms to give prior notice if a non-compete is expected to be signed. Require compensation to employees for signing a new or revised non-compete.
In the majority of States, courts are allowed to rewrite unlawful covenants to make them enforceable, giving firms incentive to use overly restrictive covenants.	Ban State courts from redrafting unreasonable or unlawful covenants in order to make them enforceable.
Unenforceable covenants are widely used and often workers respect them in fear of retaliations.	Empower State attorney generals to take legal action on anti-competitive use of non-competes. Provide easily accessible information to employees on their rights.

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OECD Economic Surveys

UNITED STATES

The coronavirus pandemic has hit the US economy hard. Fiscal and monetary support measures were rapidly deployed and there remains space for further policy support, if needed. However, with the shuttering of many businesses, unemployment has surged and many have left the labour force. Bringing people back into work quickly is important as the recession risks leaving behind a long-lasting negative economic impact. Occupational licensing and non-compete agreements are impediments to moving to new employers. Low-skilled workers and disadvantaged groups tend to be particularly affected by these barriers. A further barrier to labour mobility is housing market regulation. Reforms are also essential to boost productivity and ensure that all have the opportunity to benefit from future growth, especially strictly enforcing competition policy. Environmental performance has continued to improve along some dimensions, with greenhouse gas emissions falling since 2005, and energy security being strengthened.

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