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BETTER POLICIES FOR BETTER LIVES

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Table of contents

Tables

Figures

Boxes

The Survey *is published on the responsibility of the Economic and Development Review Committee, which is charged with the examination of the economic situation of member countries. The economic situation and policies of the United States were reviewed by the Committee on 18 May 2018. The draft was revised in the light of the discussion and given final approval as the agreed report of the whole Committee on 31 May 2018.*

This Survey *was prepared in the Economics Department by Douglas Sutherland under the supervision of Patrick Lenain. Damien Azzopardi provided the statistical research assistance and Stephanie Henry provided editorial support. The* Survey *also benefited from contributions by Julien Daubanes, Ola Eltoukhi, Octavio Escobar, Fozan Fareed, Aimi Abdul Ghani, Stephanie Guichard, Nirosha Varghese and Pierre-Yves Yanni.*

The previous Survey *of the United States was issued in June 2016.*

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BASIC STATISTICS OF UNITED STATES

(Data refer to 2017 or latest available. Numbers in parentheses refer to the OECD average)*

LAND, PEOPLE AND ELECTORAL CYCLE					
Population (million)	323.13		Population density per km²	35.3	(37.5)
Under 15 (%)	19.0	(18.0)	Life expectancy (years)	78.8	(80.7)
Over 65 (%)	15.0	(16.5)	Men	76.3	(78.1)
Foreign-born (%)	13.5		Women	81.2	(83.3)
Latest 5-year average growth (%)	0.7	(0.6)	Latest general election	November 2016	
ECONOMY					
Gross domestic product (GDP)			Value added shares (%)		
In current prices (billion USD)	19,390.6		Primary sector	0.9	(2.4)
Latest 5-year average real growth (%)	2.2	(2.1)	Industry including construction	19.1	(26.7)
Per capita (000 USD PPP)	59.5	(43.8)	Services	80.0	(70.9)
GENERAL GOVERNMENT Per cent of GDP					
Expenditure	37.7	(40.6)	Gross financial debt	105.4	(110.2)
Revenue	34.1	(37.7)	Net financial debt	80.3	(71.2)
EXTERNAL ACCOUNTS					
Exchange rate EUR per USD	0.9		Main exports (% of total merchandise exports)		
PPP exchange rate (USA = 1)	1.0		Machinery and transport equipment	34.9	
In per cent of GDP			Chemicals and related products, n.e.s.	13.6	
Exports of goods and services	12.1	(29.1)	Commodities and transactions, n.e.s.	12.5	
Imports of goods and services	15.0	(28.8)	Main imports (% of total merchandise imports)		
Current account balance	-2.40	(0.34)	Machinery and transport equipment	43.2	
Net international investment position	-40.5		Miscellaneous manufactured articles	16.9	
			Manufactured goods	10.8	
LABOUR MARKET, SKILLS AND INNOVATION					
Employment rate for 15-64 year-olds (%)	69.4	(67.0)	Unemployment rate, Labour Force Survey (age 15 and over) (%)	4.9	(6.5)
Men	74.8	(74.8)	Youth (age 15-24, %)	10.4	(12.9)
Women	64.0	(59.4)	Long-term unemployed (1 year and over, %)	0.8	(2.0)
Participation rate for 15-64 year-olds (%)	73.0	(71.7)	Tertiary educational attainment 25-64 year-olds (%)	45.7	(35.7)
Average hours worked per year	1 783	(1763)	Gross domestic expenditure on R&D (% of GDP)	2.7	(2.3)
ENVIRONMENT					
Total primary energy supply per capita (toe)	6.7	(4.1)	CO_2 emissions from fuel combustion per capita (tonnes)	15.5	(9.2)
Renewables (%)	7.1	(9.7)	Water abstractions per capita (m^3)	1582	(804)
Fine particulate matter concentration ($PM_{2.5}$, µg/m^3)	9.2	(14.9)	Municipal waste per capita (kilogrammes)	738	(523)
SOCIETY					
Income inequality (Gini coefficient)	0.39	(0.32)	Education outcomes (PISA score, 2015)		
Relative poverty rate (%)	16.8	(11.6)	Reading	497	(493)
Median disposable household income (000 USD PPP)	32.1	(23.0)	Mathematics	470	(490)
Public and private spending (% of GDP)			Science	496	(493)
Health care, current expenditure	17.2	(9.1)	Share of women in parliament (%)	19.2	(28.7)
Pensions	7.0	(9.1)	Net official development assistance (% of GNI)	0.18	(0.39)
Education (primary, secondary, post sec. non tertiary)	3.6	(3.6)			

Better life index: www.oecdbetterlifeindex.org

* 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 29 member countries.

Source: Calculations based on data extracted from the databases of the following organisations: OECD, International Energy Agency, World Bank, International Monetary Fund, Inter-Parliamentary Union, BEA.

EXECUTIVE SUMMARY

The economy is growing steadily, unemployment is low and material wellbeing is high

The current expansion is now one of the longest on record. Economic growth since the financial crisis has also been amongst the strongest in the OECD. However, similar to other countries, productivity growth has been sluggish and below the growth rates recorded during previous expansions. As a result, the expansion has also been one of the weakest over the past half century. In part, weak investment growth - also by State and local governments - has contributed to this outcome.

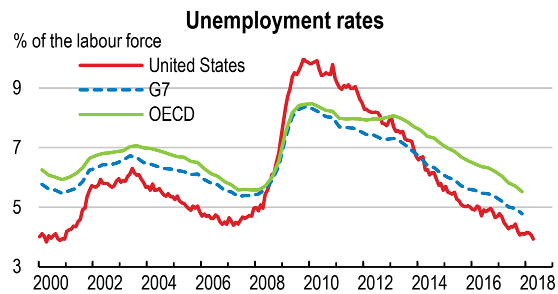
The expansion has been one of the longest on record

Source: OECD Analytical Database.

StatLink http://dx.doi.org/10.1787/888933731605

Robust job growth has helped bring people back into employment and has reduced the unemployment rate. Employment growth above the rates needed to account for new entrants into the labour force has reduced unemployment to historically-low levels, which has resulted in tight labour markets for fast-growing locations and occupations. Together with stronger wage gains, these trends have helped partially reverse the decline in real median household income since the recession. However, employment as a share of the population has still not fully recovered from the crisis.

Unemployment is now very low



Source: OECD Analytical Database.

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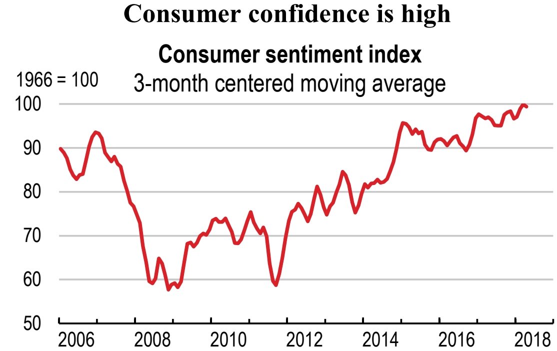
Material wellbeing is high and Americans are doing well on average in comparison with residents of other OECD counties. The United States performs favourably in comparison to the rest of the OECD, particularly for measures of disposable income and household wealth, long-term unemployment and housing conditions. And the recovery from the crisis has led to marked gains in consumer confidence. On the other hand, gains in life expectancy since the 1960s have been moderate in comparison with other OECD countries and attaining a good work-life balance appears a particular issue for American workers.

Consumer confidence is high



Source: Surveys of consumers, University of Michigan.

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The near-term outlook is strong. Private consumption remains solid, buttressed by the strong labour market, wealth gains and high levels of consumer confidence. In the business sector, confidence is also robust, and business fixed investment is picking up. Business investment will be further boosted by tax reforms, which will contribute to a substantial fiscal loosening. Inflation has moved toward the Fed's target and monetary policy has been removing accommodation.

Risks to the outlook remain sizeable. The projected pick-up of investment may support even stronger productivity growth going forward. On the other hand, there are also a number of financial market risks, notably elevated leverage ratios in the corporate sector. Rising trade tensions represent another potential threat to the outlook. In the longer term, increases in government spending and accompanying rising debt levels pose a risk. The United States should take advantage of the strong economy to align spending and revenues.

Economic growth is set to increase

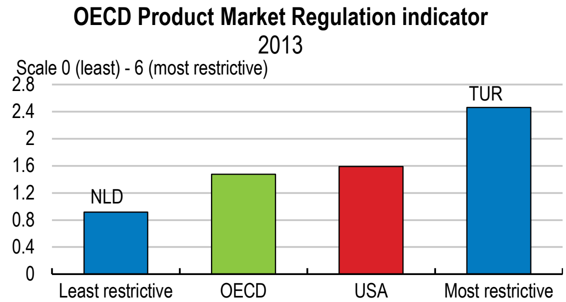
	2017	2018	2019
Gross domestic product (GDP)	2.3	2.9	2.8
Private consumption	2.8	2.5	2.2
Government consumption	0.1	2.2	4.3
Gross fixed capital formation	3.4	4.9	4.7
Exports of goods and services	3.4	4.8	4.4
Imports of goods and services	4.0	5.3	5.3
Unemployment rate	4.3	3.9	3.6
Personal consumption expenditures deflator	1.7	2.2	2.2

Note: annual growth rates, with the exception of the unemployment rate, which is % of the labour force.
Source: OECD Economic Outlook 103 database.

Sustaining growth needs productivity and bringing people back into employment

Improving the business environment would help sustain growth, reanimating firm creation and growth. In comparison with other OECD economies the restrictiveness of business regulations is around average, while restrictions on trade in services are more marked. Weaker competition tends to undermine innovative activity and action may be needed to strengthen anti-trust enforcement. Occupational licensing, affecting one quarter of employees, is another feature hindering competition. The recent tax reforms that cut corporate income tax rates and temporarily include full expensing of capital outlays will likely give a substantial boost to investment activity. Investing in infrastructure to remove bottlenecks would further enhance the business environment.

Business regulation restrictiveness is on a par with the OECD



Source: OECD Product Market Regulation database.

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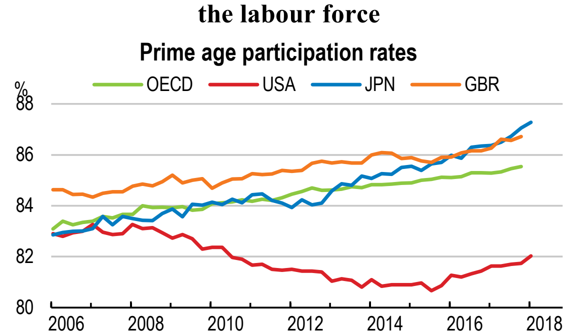
Participation rates have declined since the crisis and are only recently beginning to recover for prime-age workers. As the labour market has tightened, the participation of women has increased, but males have remained out of the labour force. This is especially the case for young men with no more than high school education. In some regions, participation rates are very low indeed, falling to just 53% in West Virginia. Such areas also tend to be places where disability rates are high. Reducing the disincentives for people receiving disability benefits to work and providing tax credits for lower skilled workers might help bring these groups into the labour force. The United States provides less support to workers to find new employment opportunities than other OECD countries.

Many Americans appear to have dropped out of the labour force



Note: OECD refers to a simple average.
Source: OECD Employment and Labour Market Statistics.

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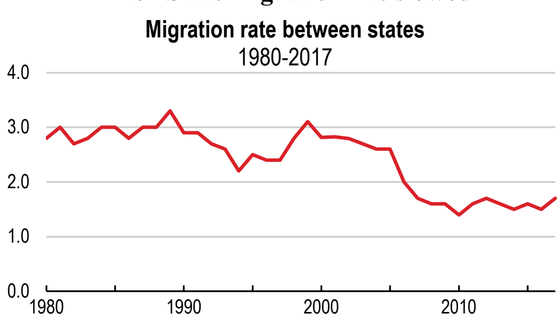
The legacy of the great recession, as well as globalisation and automation shocks, remains visible across the country

Job losses have become more persistent in areas hit by structural shocks, contributing to the decline in participation. Globalisation and automation have displaced workers, especially in the industrial heartland, and many of these workers have experienced difficulties in finding new employment. As the economy adjusts to these supply shocks, this has led to the development of areas of high unemployment, non-participation and poverty. The inter-State migration response to employment shocks appears to have diminished during the past decade relative to earlier decades. Furthermore, these migration patterns show less of a trend shift of the population to urban agglomerations then elsewhere in the OECD.

Inter-State migration has slowed



Source: U.S. Census Bureau, Current Population Survey.

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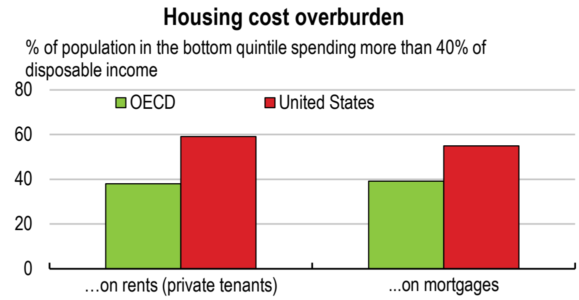
Changing jobs has become more difficult over time. One of the constraints on inter-State migration has been the availability of affordable housing, particularly in booming areas. Housing costs are an important part of poorer households' spending. Restrictive zoning policies appear to be hindering the provision of more affordable housing, limiting employment opportunities and ultimately undermining growth. Sprawling cities can also make accessing jobs by public transport very difficult. Improving mass transit systems where appropriate would help improve accessibility and federal spending could be used to encourage States and localities to move towards mixed-use planning permissions to address housing affordability concerns.

Affordable housing is hard to come by



Source: OECD Affordable Housing Database.

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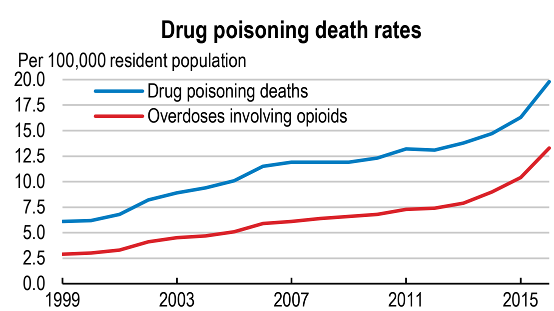
Opioid addiction costs many lives, harms livelihoods, depresses labour market participation, and entails significant public healthcare spending. Death rates have surged in the past decade, particularly as (illicit) synthetic opioids have become more available around the country. The correlation with non-participation in areas most beset by opioid addiction suggests that addiction ultimately impairs participation. This contributes to costs to the economy of lost wages and productivity, as well as fiscal costs from foregone revenue and spending on emergency care and the treatment of addiction. Expanding support to prevent deaths and provide treatment for addiction will need to be complemented by actions to re-integrate former drug abusers into employment.

Drug-overdoses have become a major cause of death



Source: National Center for Health Statistics.

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MAIN FINDINGS AND KEY RECOMMENDATIONS

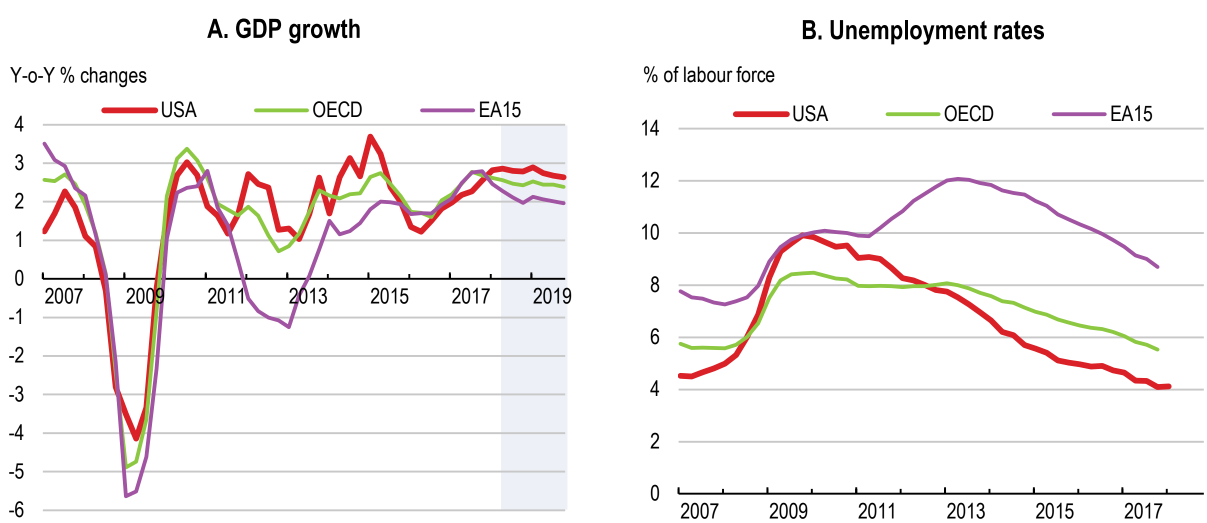
POLICY CHALLENGES	KEY RECOMMENDATIONS
Sustaining economic growth	
Output growth is strong, but investment has been weak. Tax reform aims at boosting business dynamism	Implement the recently-passed corporate tax reform and make permanent investment incentives set to expire. Ensure long-term sustainability by reining in spending growth, particularly by reforming entitlement programmes, where appropriate.
Inflation is moving up; unemployment is low; employment rates are well below pre-crisis levels	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.
Boosting productivity with more competition and investment	
Regulatory burdens and federal, state and local government restrictions hinder the business environment	Privatise state-owned utilities and transport authorities. Ease restrictions in services trade. Encourage state and local governments to deregulate occupational licensing and recognise credentials granted by other States.
Competitive pressures have declined in several sectors, due to heavy regulation and increased market concentration.	Remove exemptions from anti-trust law, including in the digital economy. Broaden merger analysis to ensure greater competition.
Infrastructure is under-supplied and often in a poor state and usage fees generally do not incorporate health or environmental costs borne by third parties	Roll out initiatives to invest more in infrastructure, making use of greater private-sector financing, user fees and flexible risk-sharing arrangements. Ensure that harmful emissions, such as carbon and particulate matter, are priced appropriately.
Improving employment opportunities	
Despite large job gains, participation remains low, especially among male workers	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.
For low-wage workers, jobs are difficult to access due to congestion and long commuting times	Improve mass transit systems. Use seed money to encourage States and localities to remove zoning restrictions or move to multi-use zoning.
High housing prices in metropolitan areas hinder geographic mobility	Reform housing finance, including the government sponsored enterprises, to better target housing affordability measures to the rental market. Support the provision of affordable housing for low-income families.
Disability rolls remain high	Offer pathways, such as retraining, for those receiving disability benefits to re-enter the labour market more fully.
Addressing the opioid crisis	
Opioid addiction costs many lives, harms livelihoods, depresses labour market participation, and entails significant public healthcare spending.	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.

1. Key policy insights

1.1. The expansion is now one of the longest on record

1. The current expansion is now one of the longest on record and amongst the strongest recoveries in the OECD. Only the expansions during the 1960s and 1990s are of comparable length since records began in 1854. The expansion has been job rich and has helped bring people back into the labour market, but the rate of output growth has been modest (Figure 1.1). While well-being has benefited from job growth, the legacy of the great recession and past structural shocks - such as globalisation and automation - remains painfully visible across the country, notably in the industrial heartland. Joblessness, non-participation and poverty are concentrated in distressed cities, notwithstanding robust job growth in coastal areas and well-connected metropolitan areas (Weingarden, 2017[1]; Austin, Glaeser and Summers, 2018[2]). This has been exacerbated by fewer opportunities to thrive irrespective of one's origin, which is central to the American social model. The dislocation of opportunities is also associated with the opioid epidemic, which tends to be most pronounced in areas suffering from employment loss. In addition, not all families have enjoyed the benefits of economic growth and workers are worried about the impact of automation on their lives (Smith and Anderson, 2017[3]).

Figure 1.1. The economy has grown steadily and unemployment has fallen



Source: OECD Analytical Database; and OECD Economic Outlook 103 database.

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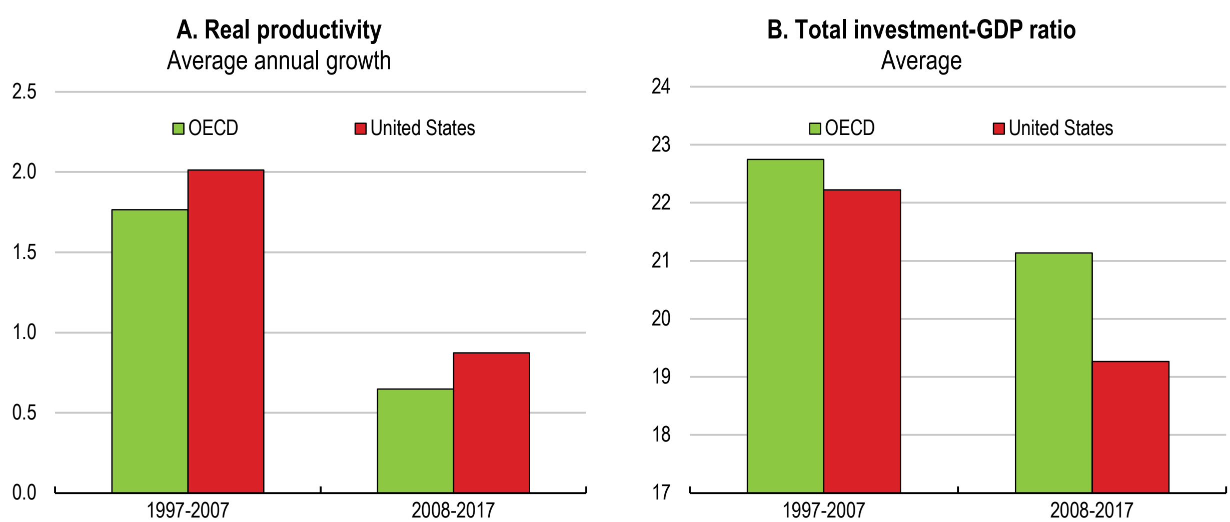
2. In a rapidly changing global environment, competitiveness remains a challenge. Measures to support faster productivity growth, boost investment, raise labour force participation and improve skills will be important for sustaining the expansion in the future. As the labour force ages and the baby boom generation retires, bringing people currently on the side-lines into employment could mitigate some of the demographic pressures and further boost incomes, particularly of lower-income households.

3. After a long period of monetary accommodation, a number of concerns have accumulated with debt in the non-financial corporate sector elevated relative to historical norms and by various measures house prices are high in some cities (though not nationally). Bloated levels of public debt are a legacy of the financial crisis and the federal government continues to run a deficit. Finally, the current account records a deficit, reflecting low national savings. Although none of these factors is currently a problem, they could be problematic in case of a severe shock.

4. With little remaining observable labour slack, sustaining future growth in living standards will require stronger productivity growth (Figure 1.2). In the current expansion, labour productivity growth has averaged only 1.2%, well below those observed in the previous expansion (2.6%) and over the past half century (around 2%). Why productivity is anaemic despite the abundance of digital innovation is not fully understood; contributing factors include the slow pace of non-residential investment, weak rates of business entry and exit, tighter regulations and the lack of knowledge spillovers among firms.

Figure 1.2. Labour productivity growth remains weak



Source: OECD Economic Outlook database.

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5. In view of these challenges, the Administration has focused on a new set of priorities intended to improve the business environment, boost productivity and improve work opportunities. The priorities set out by the Administration in the Economic Report of the President include initiatives to reform taxes, reduce the regulatory burden and boost the supply of infrastructure (CEA, 2018[4]). The initiatives

also target the labour market to improve opportunities for workers as well as to combat opioid addiction. Against this background, this report focusses on:

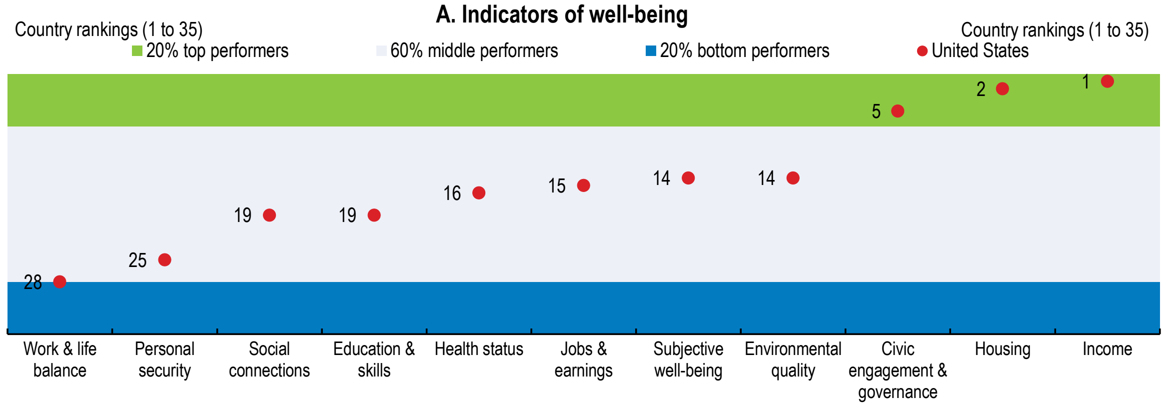
- How to rebalance macroeconomic policy as monetary policy is gradually tightened and fiscal policy loosens while ensuring that financial market risks remain contained.
- How to raise living standards by bringing workers into the labour force and boosting productivity growth;
- How to improve the employment opportunities for workers facing adverse shocks and prevent dislocations in outcomes;

1.1.1. The expansion is supporting wellbeing

6. Wellbeing is high and Americans are doing well on average in comparison with residents of other OECD countries (Figure 1.3), particularly for disposable income and household wealth, long-term unemployment and good housing conditions. On the other hand, housing represents a substantial cost for lower-income families. Work-life balance remains a weakness of the U.S. ranking, particularly when measured by time off from work. The United States also ranks relatively poorly for life expectancy (Box 1.1) and the personal security measure with the third highest age-adjusted homicide rate after Mexico and Latvia.

Figure 1.3. Well-being rankings

A. Indicators of well-being



B. United States well-being sub-indicators selected rankings

	Sub-indicator	Rank	Measure	USA	OECD average
Highest rankings	Household net adjusted disposable income	1	US dollars at 2015 PPPs per capita	41 071	29 016
	Household net financial wealth	1	US dollars at 2015 PPPs per capita	163 268	84 547
	Rooms per person	2	Ratio	2.4	1.8
	Personal earnings	2	US dollars at 2016 PPPs	57 139	40 974
	Stakeholder engagement for developing regulations	2	Average score	3.2	2.4
	Self-reported health	3	% of population who report "good" or better health	88	69
	Housing expenditure	4	% of the household gross adjusted disposable income	19	21
Lowest rankings	Employees working very long hours	25	% of dependent employed working 50 hours or more per week	11.69	13.02
	Life expectancy	26	Years	78.8	79.9
	Time devoted to leisure and personal care	27	Hours per day	14.47	14.91
	Homicide rate	33	Age-standardised rate per 100,000 population	5.2	4.1

Source: OECD Better Life Index 2017.

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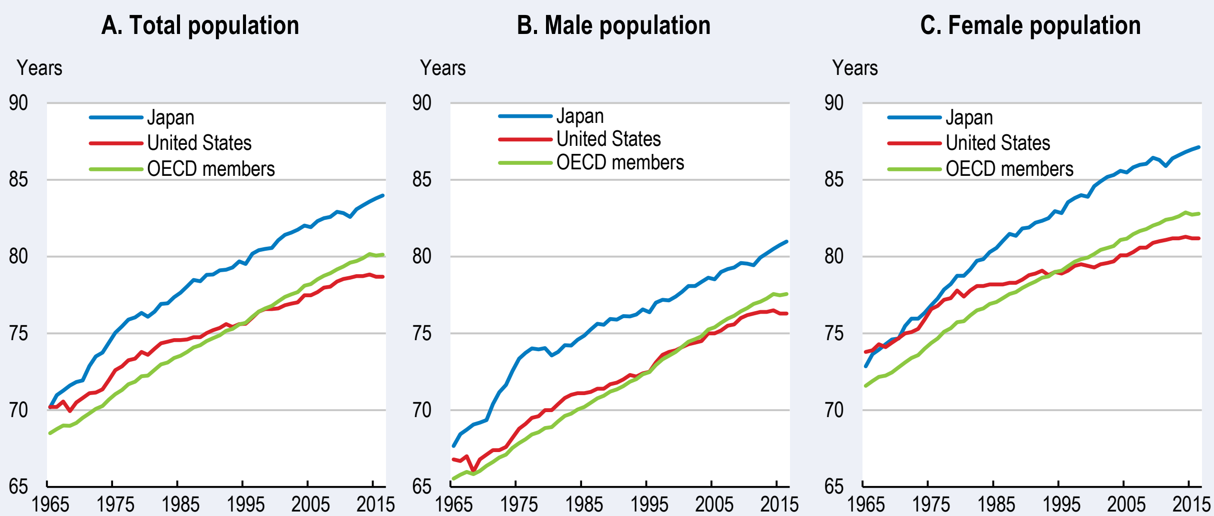
Box 1.1. How's life expectancy?

Gains in life expectancy since the 1960s have been moderate in comparison with other OECD countries. Life expectancy at birth is now around 79 years, but that is one year below the OECD average, whereas it was over a year and half above the average in the 1960s (Figure 1.4). The relative slide in longevity is particularly true for women, who have experienced weaker life expectancy increases since the 1970s. In part, the relative performance is linked to weaker progress in improving child health outcomes (Thakrar et al., 2018[5]). However, life expectancy at later ages has also not improved as much as in many other countries. Absolute, albeit small, declines in life expectancy in 2015 and 2016 continue these developments.

Figure 1.4. Gains in life expectancy have stalled recently



Source: World Bank Development Indicators (WDI).

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There is some evidence suggesting that the relatively modest gains in life expectancy is linked to developments in the non-Hispanic white population (Case and Deaton, 2017[6]), particularly amongst women (Gelman and Auerbach, 2016[7]). Relatively sluggish gains in life expectancy appears to be linked to weaker progress in reducing mortality from metabolic diseases and rising drug-related mortality (Masters et al., 2017[8]). Unintentional poisonings rates have increased nine-fold between 1980 and 2015 for non-Hispanic whites (and slightly less for indigenous American Indian or Alaskan Native populations). The opioid epidemic has contributed to sharp upticks in overdose deaths since the beginning of the decade, which was initially concentrated in the white population but is now affecting other demographic groups.

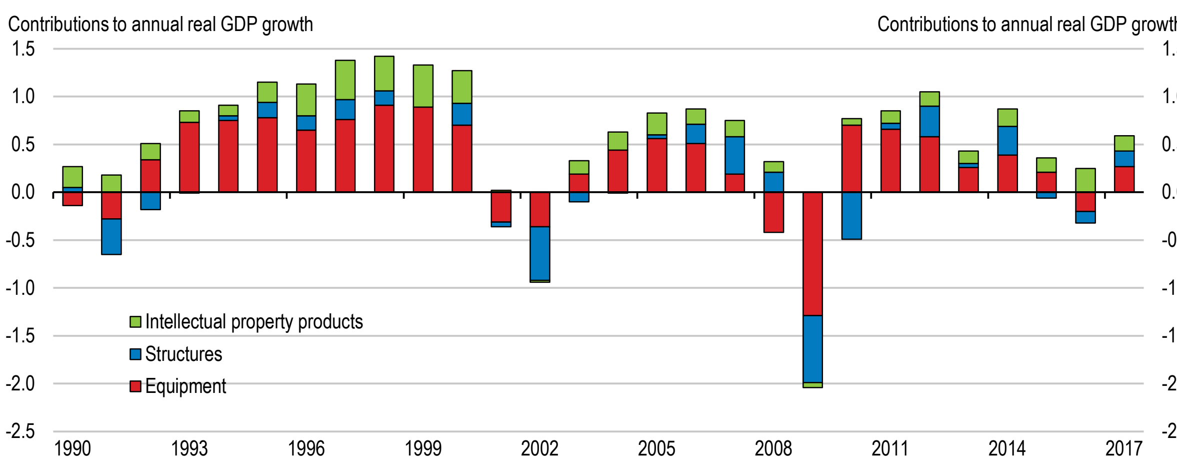
1.1.2. The near-term outlook is for continued solid growth

7. The near-term outlook is strong. Private consumption remains solid, driven by strong job gains and buttressed by wealth gains from buoyant asset prices and high levels of consumer confidence. Financial conditions generally remain supportive, though they have been tightening more recently. The strengthening of growth in the world economy is supporting export growth.

8. In the business sector, confidence is also robust and business fixed investment is picking up. Business investment began to pick up partly due to oil exploration and drilling activity recovering with the oil price rising, but the recovery now appears more broadly based, particularly for equipment (Figure 1.5). Residential investment remains relatively subdued though it began to strengthen in late 2017.

9. After 35 quarters of recovery, the policy mix is supportive. The fiscal stance after the introduction of tax reform and higher spending ceilings for 2018 and 2019 has become expansionary. Monetary policy remains accommodative though this is being reduced as the Federal Reserve raises interest rates and gradually reduces the size of its balance sheet.

Figure 1.5. Business fixed investment is picking up



Source: Bureau of Economic Analysis.

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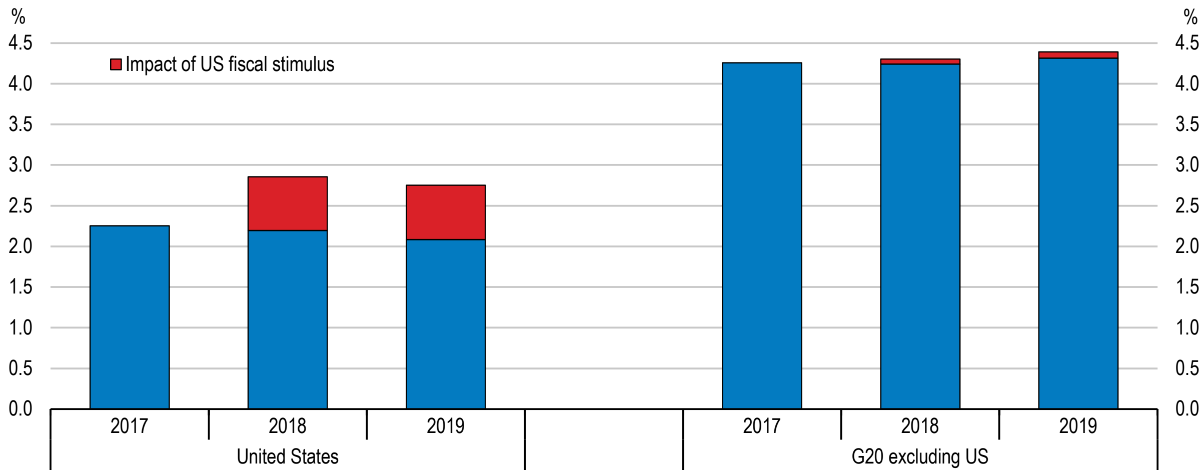
10. Against this backdrop, economic growth is projected to increase in 2018 and 2019. The newly introduced tax cuts will spur business investment and raising the spending ceilings will lead to a sizeable fiscal impulse, which will give a modest boost to other countries (Figure 1.6). Federal government fiscal positions over the next few years will weaken and government debt will rise. Stronger wage growth as the labour market tightens further and the impact of tax reforms will raise real disposable income supporting consumption growth. Robust output growth and tighter labour markets will create inflationary pressures, and the Federal Reserve will have to reduce the degree of support accordingly. The supply-side effects of the tax reform will act to offset the inflationary pressures. To the extent that the demand-side effects of the tax reform and

raising spending ceilings give a pro-cyclical impulse, macroeconomic policy needs to rebalance with the reduction of monetary policy accommodation.

Figure 1.6. The fiscal stimulus is boosting growth



Source: OECD Economic Outlook 103.

StatLink http://dx.doi.org/10.1787/888933731852

11. Risks to the outlook remain sizeable. A sustained and widespread global upturn could lift activity further, underpinning stronger export growth and investment. Stronger business investment may support a stronger-than-projected pick-up in productivity growth and boost wages further. In these cases, even stronger labour market tightening may stoke inflationary pressures, ultimately requiring the Federal Reserve to tighten more rapidly. On the other hand, there are a number of financial market risks. Elevated leverage ratios in the corporate sector need careful monitoring and action to ensure that these risks are contained. Emerging interest rate differentials between the United States and other major currency areas may contribute to an appreciation of the dollar and possibly increased financial market tensions and turbulence due to unpredictable currency flows. Finally, a rise of trade protectionism could disrupt global supply chains and dent growth (Box 1.2).

Table 1.1. Macroeconomic projections

Annual percentage change, volume (2009 prices)

	2014 Current prices (USD billion)	2015	2016	2017	2018	2019
Gross domestic product (GDP)	**17 428**	**2.9**	**1.5**	**2.3**	**2.9**	**2.8**
Private consumption	11 864	3.6	2.7	2.8	2.5	2.2
Government consumption	2 563	1.3	1.0	0.1	2.2	4.3
Gross fixed capital formation	3 433	3.5	0.6	3.4	4.9	4.7
Housing	570	10.2	5.5	1.8	2.9	4.2
Business	2 268	2.3	-0.6	4.7	6.0	5.0
Government	594	1.6	-0.2	0.1	3.0	3.9
Final domestic demand	17 859	3.3	2.1	2.5	2.9	3.0
Stockbuilding[1]	78	0.2	-0.4	-0.1	0.1	0.0
Total domestic demand	17 937	3.5	1.7	2.4	3.0	3.0
Exports of goods and services	2 374	0.4	-0.3	3.4	4.8	4.4
Imports of goods and services	2 883	5.0	1.3	4.0	5.3	5.3
Net exports[1]	- 510	-0.8	-0.2	-0.2	-0.2	-0.3
Other indicators (growth rates, unless specified)						
Potential GDP		1.7	1.6	1.5	1.6	1.7
Output gap[2]		-1.7	-1.8	-1.1	0.1	1.2
Employment		1.7	1.7	1.3	1.4	1.2
Unemployment rate		5.3	4.9	4.3	3.9	3.6
GDP deflator		1.1	1.3	1.8	2.0	2.2
Consumer price index		0.1	1.3	2.1	2.7	2.3
Core consumer prices		1.3	1.8	1.5	2.0	2.2
Household saving ratio, net[3]		6.1	4.9	3.4	3.7	4.7
Trade balance[4]		-4.2	-4.0	-4.2	. .	. .
Current account balance[4]		-2.4	-2.4	-2.4	-2.8	-3.1
General government fiscal balance[4]		-4.3	-5.0	-3.6	-5.5	-6.1
Underlying government primary fiscal balance[2]		-1.0	-1.2	-1.4	-2.4	-3.4
General government gross debt [4]		105.1	107.0	105.4	107.1	109.3
General government net debt[4]		80.4	81.3	80.3	82.1	84.3
Three-month money market rate, average		0.5	0.9	1.3	2.3	3.2
Ten-year government bond yield, average		2.1	1.8	2.3	3.1	4.1
Memorandum items						
Federal budget surplus/deficit[4]		-2.4	-3.2	-3.5	-4.0	-4.6
Federal debt held by the public[4]		73.3	77.0	76.5	78.0	79.3

1. Contribution to changes in real GDP.
2. As a percentage of potential GDP.
3. As a percentage of household disposable income.
4. As a percentage of GDP.

Source: OECD Economic Outlook 103 database; and Congressional Budget Office.

Box 1.2. Vulnerabilities to the outlook

Vulnerability	Possible outcome
Financial market difficulties	Systemically-important financial institutions are creating too-big-to-fail problems for the regulators.
Intensified weather variability and storm activity	Coastal areas are already heavily 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.
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	While countries share the objective of lowering barriers to trade in goods and services, differences have emerged in strategies, with many countries stressing multilateral frameworks. The recent announcement of trade measures, if unsuccessful in leading to a lowering of trade barriers, may give rise to increased protectionist behavior. Retaliatory actions could lead trade to shrink and jeopardise economic growth.
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.

1.2. Keeping the expansion on track

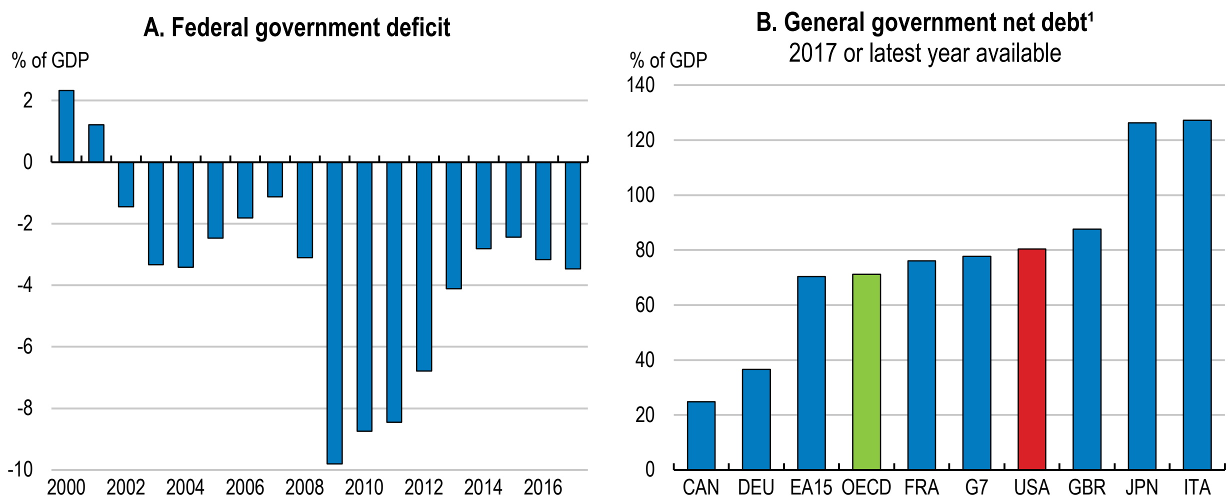
12. Fiscal policy has generally been less expansionary than monetary policy in recent years, but that is changing as fiscal policy has begun to relax while monetary policy is removing accommodation gradually. The changing stances should help act against some of the high valuations seen in the financial markets.

1.2.1. Ensuring fiscal sustainability

13. Reflecting the gravity of the financial crisis, general government net debt-to-GDP (which includes State and local government debt) remains high in comparison with other OECD countries (Figure 1.7). Fiscal policy did gradually rein in deficits until 2014. Subsequently, the federal government deficit relative to GDP has remained relatively stable.

14. Fiscal policy relaxed substantially in early 2018. Tax reform combined with Congress raising spending ceilings in 2018 and 2019 provides a considerable fiscal stimulus of around 1% of GDP in both years and gives a sizeable short-term boost to growth. The official scoring of the Joint Committee on Taxation see the effects of the bill reducing revenues with a cumulative cost over the next decade of a little over $1,000 billion. Even with macroeconomic feedbacks boosting tax revenue, the tax reform will contribute to a higher deficit. As such, federal debt held by the public would rise (Figure 1.8). The economic assumptions underlying the Administration's budget projections see growth being sustained at around 3% for the next ten years, which would begin to stabilise federal government debt (OMB, 2018[5]).

Figure 1.7. Deficits have begun to rise and debt levels are quite high



1. 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 76.5% of GDP for the 2017 fiscal year.
Source: Congressional Budget Office; and OECD Analytical Database.

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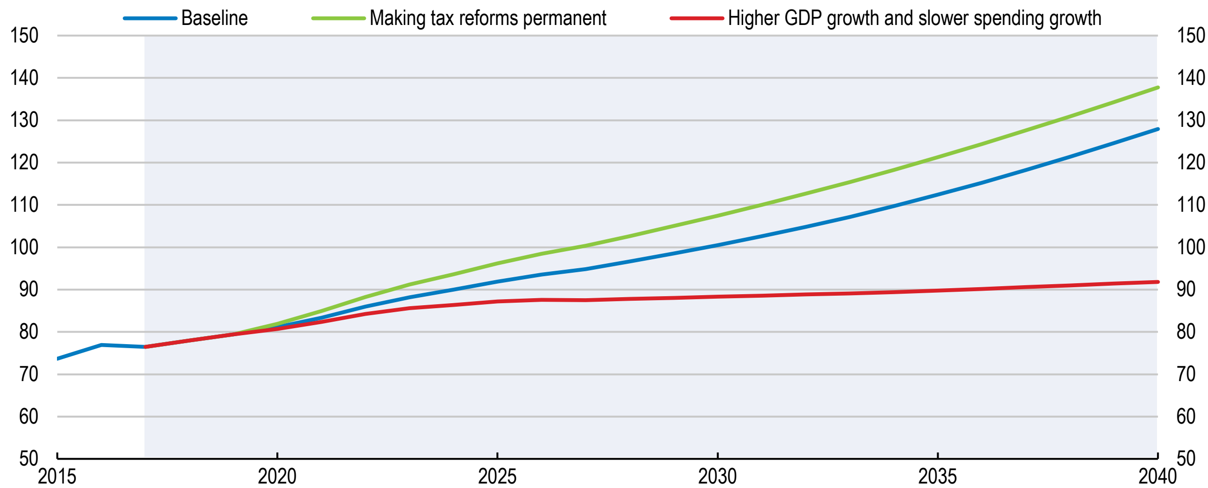
15. In the longer-run, pressures are emerging from rising mandatory spending. Between 2018 and 2028 spending on health (primarily Medicare, Medicaid) is expected to rise by 1.3 percentage point of GDP and Social Security by 1.1 percentage point of GDP. These pressures are offset partially by expected declines in other areas of spending, mainly discretionary spending. Health spending has been affected by successfully expanding population coverage, notwithstanding underlying healthcare price inflation slowing. Further efforts to rein in spending growth, such as the recent initiative to reform pharmaceutical pricing, are advisable and actions to relax regulations that raise drug prices for Americans will help in this regard (CEA, 2018[6]).

Figure 1.8. Higher growth is needed to stabilise debt levels

Federal debt held by the public, % of GDP, fiscal years



Note: The Baseline scenario is the CBO's projection from April 2018, which is augmented beyond 2027 using the assumptions from the 2017 long-term projections. The making reforms permanent scenario reduces the tax share aby 0.8 percent of GDP relative to the baseline. The scenario raises the spending ceilings for 2018 and 2019 by around $150 billion in each year. These reforms are assumed to raise real GDP growth to 3% in both 2018 and 2019. The path thereafter takes the Barro and Furman (2018) calculations that the tax reforms will raise annual growth by 0.12 percentage points over the rest of the scenario with respect to the CBO GDP projection. The higher output growth and slower spending growth scenario builds on the previous scenario, raising the average growth rate over the scenario to 3.4% and constraining the rise in non-interest spending to 1.6% of GDP over the simulation.
Source: OECD calculations.

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16. The growth effects of the fiscal stimulus are expected to boost revenues and the taxation on the deemed repatriation of foreign profits will give a temporary boost to revenues. In addition, the tax reform may attract inward investment and reduce corporate inversions and outward investment. However, if revenue and spending growth fail to attain the rates underpinning the Administration's budget forecasts, action will be needed to ensure fiscal sustainability. The policy recommendations made in this Survey would also entail additional fiscal costs (Box 1.3). The CBO has identified opportunities to reduce spending by increasing efficiency (CBO, 2016[7]). If additional revenue is required, moving to sources that are more growth friendly, such as consumption taxes, or acting against environmental externalities, would be preferable.

Box 1.3. Quantifying fiscal policy recommendations

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

Table 1.2. Illustrative fiscal impact of recommended reforms

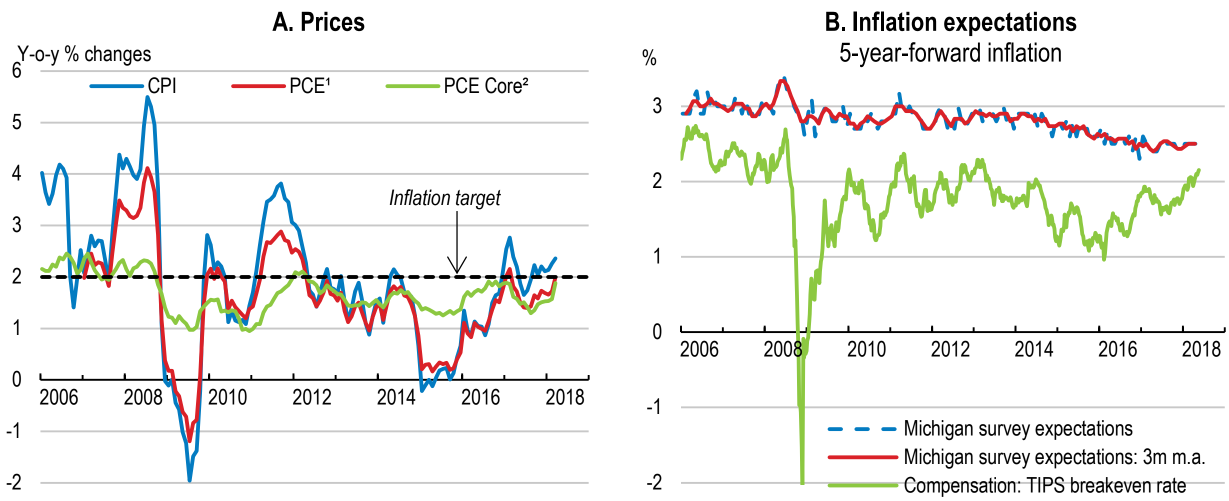
Policy	Measure	Impact on the fiscal balance, % of GDP
EITC	Expand the earned income tax credit to the childless poor with weak labour force attachment (permanent increase)	0.03%
Infrastructure investments	Boost investment in infrastructure, including mass transit (temporary increase over 10 years)	0.10%
Active labour market policies	Increase spending on job placement services (permanent increase)	0.02%
Treatment of opioids	Expand access to life-saving drugs and support medically assisted treatments for addiction(temporary increase)	0.02% - 0.10%
Tax reform	Make expensing permanent	0.2%
	Possible offsetting measures	
Subsidies	Reduce crop insurance subsidies	0.01%
Fees	Raise Fannie Mae's and Freddie Mac's guarantee fees and decrease their eligible loan limits	0.01%
Indexation	Use an alternative measure of inflation to index social security and other mandatory programmes	0.09%
Tax	Increase excise tax on motor fuels by 35 cents and index for inflation	0.24%
Tax	Increase the excise tax on cigarettes by 50 cents per pack	0.02%

1.2.2. Normalising monetary policy

17. After almost 10 years of exceptional support, monetary policy remains supportive, though is in the process of normalising. The Federal Reserve began to raise policy rates in December 2015 and started to reduce slowly the size of its balance sheet in October 2017. The Federal Reserve is projected to continue to remove policy accommodation at a gradual pace as the labour market tightens further and stronger wage growth becomes more apparent. As monetary policy normalises, care is needed to manage some areas of risk, such as in the corporate debt market and elevated asset prices.

18. Even with the unemployment rate dipping below what observers previously estimated was the natural rate, at which point inflationary pressures should begin to mount, price inflation has run below target. In part, this outcome appears to reflect a number of idiosyncratic and transitory shocks, one-off factors such as reforms to mobile phone pricing plans. In OECD empirical estimates of the link between unemployment and inflation, the impact of the unemployment rate and the estimated natural rate on inflation is estimated to be relatively weak, even compared to other OECD countries. However, the unemployment gap does have an influence on core inflation (Rusticelli, Turner and Cavalleri, 2015[1]). In the estimates of factors determining inflation, expectations of future inflation play an important role in explaining developments. In recent years, measures of inflation expectations have remained relatively steady and measures of inflation compensation have risen somewhat but remain low in comparison with historical norms (Figure 1.9).

Figure 1.9. Inflation is returning to target but expectations remain lower than the past



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

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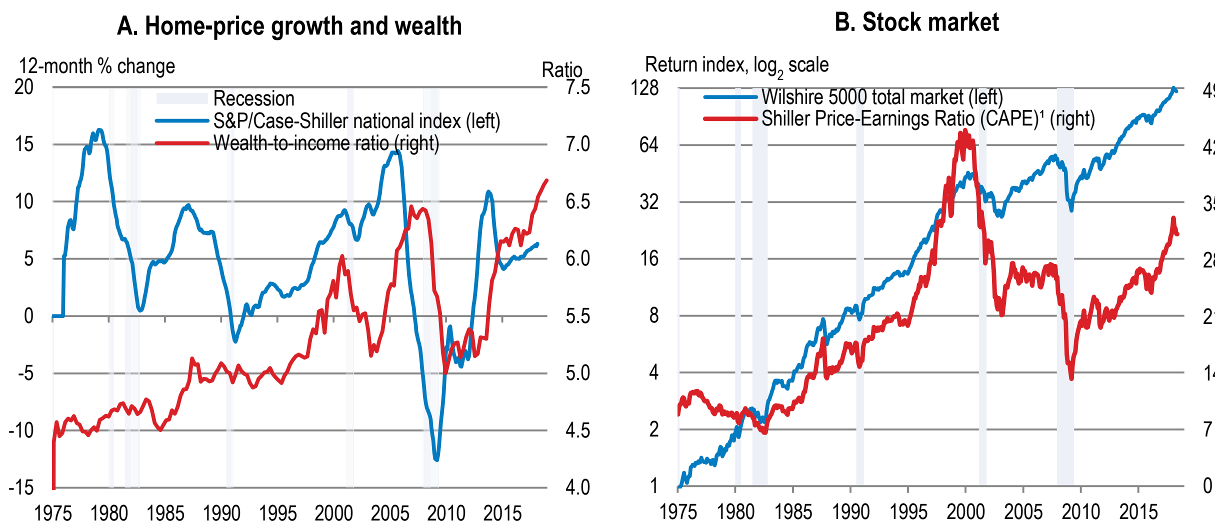
19. The Federal Reserve faces challenges in managing raising interest rates as inflation returns to target. Moving too quickly could further entrench weak inflation expectations, making the attainment of the target more difficult if it is perceived as a ceiling rather than a symmetrical target over the medium term. Furthermore, critics have called for more aggressive interest rate hikes over the past few years on the basis of the labour market tightness. Following that course would have choked off payroll growth and put a halt to the rise in the employment-to-population ratio. As the ratio of employment to population remains below past norms an argument can be made that more people can be drawn back into the labour force and employment. However, sustained low interest rates could lead inflation to move undesirably higher and may exacerbate existing financial distortions requiring attention from prudential regulation. In particular, leverage in the corporate sector has increased and in some vulnerable firms it is close to historic highs.

20. As the normalisation of monetary policy proceeds, there has been discussion about reforming the monetary policy framework. Part of the backdrop has been providing monetary room to act against future shocks. Expectations of long-run policy interest rates are currently only around 3%, whereas in the past rates of around 6% were common. Given that policy interest rates have typically been lowered by 5 percentage points during a downturn, this implies that the Federal Reserve will have limited room to react to future shocks. Proposals addressing this include raising the inflation target from its current 2%. An alternative approach is to switch the monetary policy target temporarily to a price-level target during harsh downturns (Bernanke, 2017[8]). In essence, this approach would strengthen forward guidance by buttressing commitment to meeting the medium-term inflation target more symmetrically.

1.2.3. Addressing financial market risks

21. Partly as a consequence of sustained very low interest rates, asset prices are elevated and risks have built up in a number of areas, such as the corporate sector (Figure 1.10). Cyclically-adjusted price earnings ratios are now at levels not seen since the financial market crisis. This has led to increasing talk about overvaluation and bubbles, though currently these do not appear to be a major risk to the expansion (Box 1.4).

Figure 1.10. Asset prices are elevated



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

StatLink http://dx.doi.org/10.1787/888933731928

22. On the other hand, some risks appear less pronounced or the transmission is likely to be more muted in current conditions. For example, the recovery of asset prices combined with households on aggregate not building up consumer credit too rapidly has led to household balance sheets improving significantly. The ratio of household net worth relative to disposable income reached 6.7 years in 2017, a ratio not seen since 1947. On the flip side, the rise in asset prices may mean that non-homeowners face greater difficulties in purchasing a house. In addition, financial stability is protected by the capital buffers held by financial firms and regulation and measures of risk premia are declining as interest rates are rising.

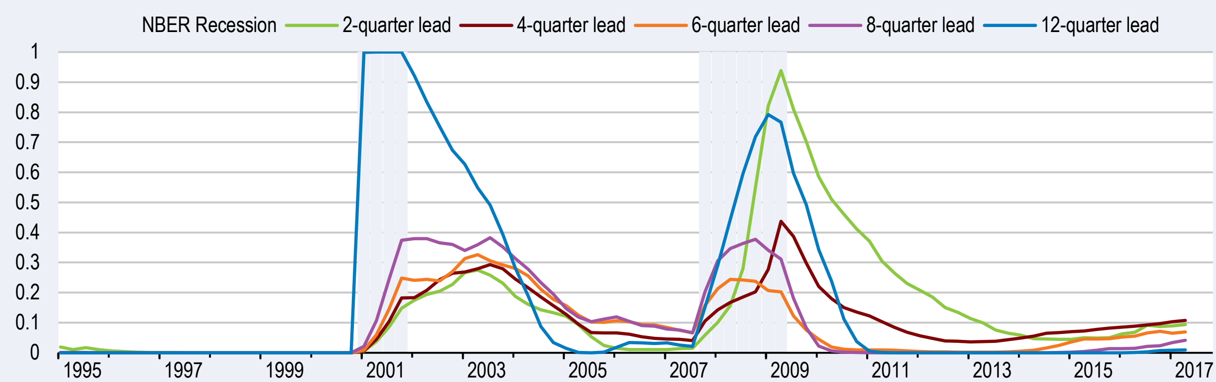
Box 1.4. Recession probabilities

While risks are present, they do not seem to be threatening the outlook (Azzopardi and Sutherland, 2018[13]). Recession probabilities have been rising slightly recently using data from the OECD resilience database. These data consist of variables that have proven to be associated with past cyclical downturns across OECD economies (Hermansen et al., 2016[14]). Several models were estimated using principal components of the resilience data to assess the probabilities of recessions at different horizons using quarterly data (Figure 1.11, Panel A). The recent rises in recession probabilities remain below previous downturns.

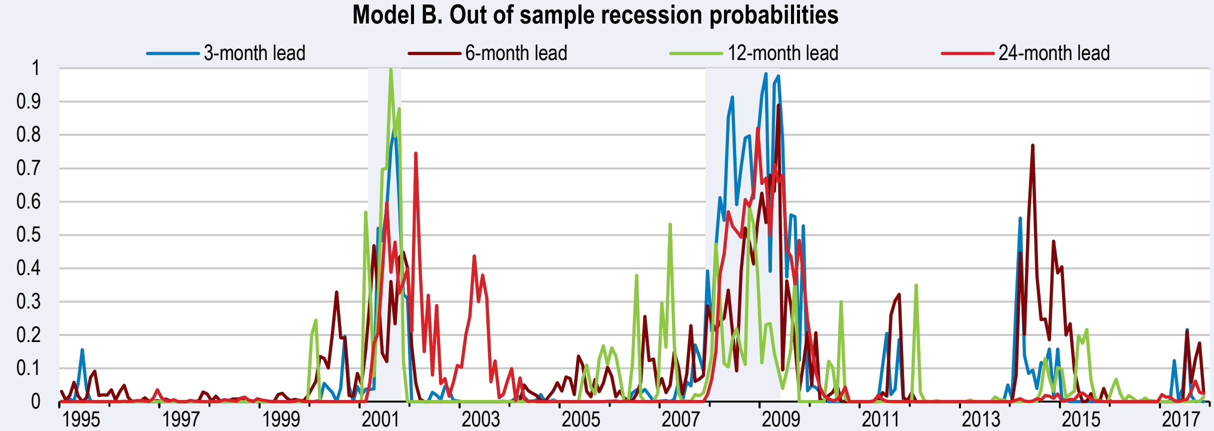
Higher-frequency data and a data set more tailored to the United States may give better warnings of emerging risks. Using a wide set of monthly indicators used in previous studies (Hatzius et al., 2010[15]), estimated recession probabilities again show some sign of a recent uptick but they remain inconclusive and not indicative of a mounting threat to the expansion (Figure 1.11, Panel B). A complementary approach exploring the possibility of a downturn using quintile regressions can capture increasing downside risks (Adrian, Boyarchenko and Giannone, 2017[16]). Again the latest estimation using this approach is inconclusive (Figure 1.11, Panel C).

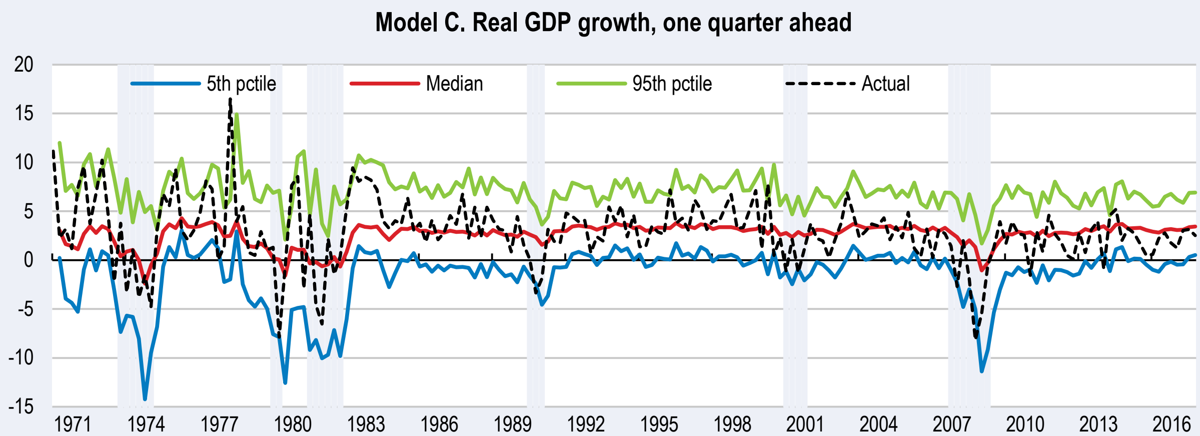
Figure 1.11. Early warning indicators

Model A. Out of sample recession probabilities



Model B. Out of sample recession probabilities





Model A: Probability that the U.S economy is in recession based on real-time quarterly data.
Model B: Probability that the U.S economy is in recession based on real-time monthly data.
Model C: Full sample real GDP growth prediction. Quantile regression of 1-quarter lead GDP growth against current GDP growth and NFCI indicator (National Financial Conditions Index).
Shaded regions: dates of recessions as determined by NBER
Source: OECD calculations.

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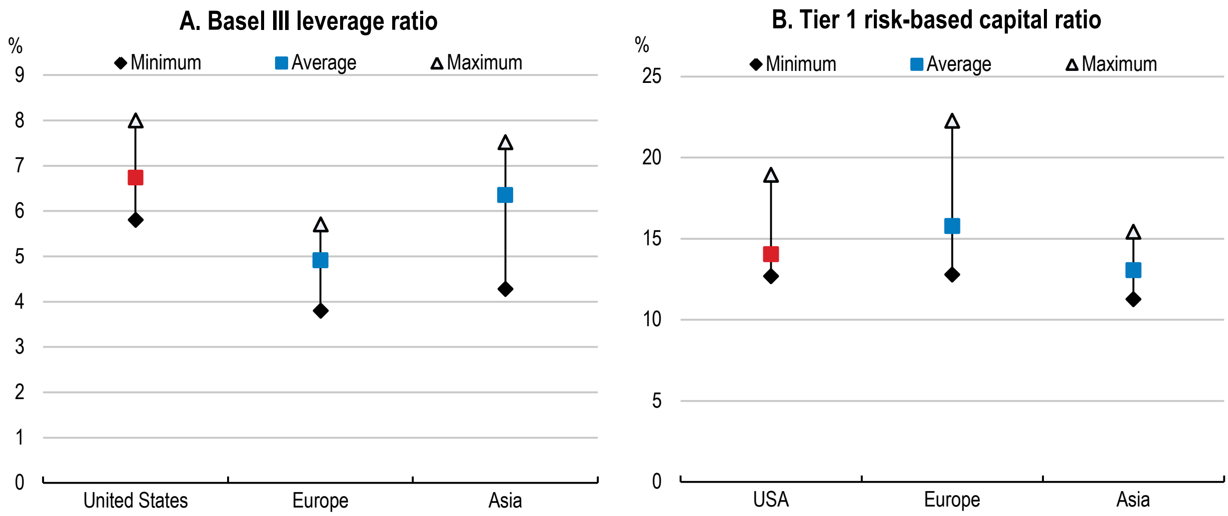
23. Overall, the banking system, in part as a consequence of the reforms implemented under the Dodd-Frank Act, seems healthy. Leverage in the financial sector is at historically low levels. Large banks overall have sufficient capital levels to resist a severe crisis without disrupting credit provision (Figure 1.12). Indeed, regulatory capital at large banks is now at multi-decade highs. Tier 1 common equity capital more than doubled from early 2009 to 2017. Annual stress-testing has contributed to improvements in capital and risk management procedures amongst participating banks.

Figure 1.12. Banks are better able to withstand shocks



Note: The Basel III leverage ratio is a non-risk-weighted leverage ratio also taking into account off balance sheet exposure. The minimum requirement is 3%. Tier 1 risk-based capital ratio is the relationship between a bank's core equity capital and total risk-weighted assets.
Source: Federal Deposit Insurance Corporation (FDIC): Global Capital Index of capitalization ratios for Global Systemically Important Banks (as of December 31, 2017).

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24. Vulnerabilities associated with liquidity and maturity transformation appear to have decreased. Large banks have cut their reliance on short-term wholesale funding essentially in half and hold more high-quality liquid assets. In addition, the Securities and Exchange Commission (SEC) has reformed money market mutual fund regulations. The market will need to be monitored to ensure that substitutes for the money market mutual funds do not emerge creating similar risks.

25. On the other hand, vulnerabilities in the non-banking financial sector, or shadow banking, could ultimately undermine banks that are heavily connected to non-banks through derivatives and other financial instruments. For example, credit risk appears elevated in nonfinancial corporate debt. In addition, tools for the orderly resolution of systemic non-bank financial firms, such as central counterparties or insurance companies, are not well developed. The treatment of derivatives obligations of a failing financial firm presents a conundrum for policymakers seeking to balance contagion and run risks against moral hazard concerns.

Reform initiatives

26. A legacy of the financial crisis is that the largest banking groups became larger. Financial supervision has strengthened prudential regulation for these institutions. However, such a complex piece of legislation as Dodd-Frank creates unintended side-effects and efforts to address unwarranted regulatory burdens are appropriate. In particular, concern has been expressed about the regulatory burden on small community banks. Nonetheless, efforts to reduce regulatory burdens should be mindful not to re-introduce vulnerabilities. Any financial market reform, particularly those affecting larger financial institutions, needs to be cautious. The ongoing process launched by the Financial Stability Board to evaluate post-crisis regulatory reforms provides a suitable

framework to assess prudential regulation currently in place and a timetable to move ahead with further reforms that are deemed appropriate.

27. Despite stronger resilience associated with improved regulation, there is room to limit even more possibilities of systemic risk associated with the failure of the largest financial institutions. Notably, the resolution process under either U.S. bankruptcy law or a special resolution authority has potential weaknesses for handling global systemically important bank (G-SIB) failures. Given their importance and the risks of too-big-to-fail an important question is whether current capital and liquidity regiments are sufficient. A number of recent studies suggest that optimal capital levels are somewhat higher than those currently observed in the United States, though uncertainties about these estimates are large (Firestone, Lorenc and Ranish, 2017[9]; The Federal Reserve Bank of Minneapolis, 2017[10])

28. The government sponsored enterprises (GSEs) Fannie Mae and Freddie Mac were subject to severe stress during the 2008 financial crisis and had to be put under temporary conservatorship and recapitalised. While some reforms were introduced to bolster risk sharing with the mortgage originators when they purchase loans and to impose tighter prudential standards for the loans they can purchase, the GSEs remain essentially unreformed. In addition, the Federal Housing Administration creates another set of liabilities from their loan portfolio. As a result, the federal government still plays a leading role in housing finance as the overwhelming majority of new mortgages are issued with government backing through these agencies. This continues to entail very large risks both in terms of contingent liabilities and financial stability (Powell, 2017[11]).

29. The GSEs have not been subject to the tighter prudential requirements imposed on large banks, notably higher equity capital requirements, rigorous annual stress tests, and the mandatory filing of resolution plans. The rebound of the housing market and fall in mortgage loan defaults helped the GSEs return to profitability and pay the Treasury large dividends. However, the tax reform enacted in late-2017 will put once again the GSEs under financial pressure because the reduction in the corporate tax rate will trigger a large write-down on their tax-deferred assets. In order to normalize housing finance, the last *Economic Survey* recommended leaving the securitisation of mortgages to the private sector. This would entail privatising the GSEs, cutting off their access to preferential lending facilities with the federal government, subjecting them to the same regulation and supervision as other issuers of mortgage-backed securities, and dividing these entities into smaller companies that are not too big to fail. While promoting affordable housing is a key role played by the GSEs, this should use more targeted instruments, aimed at low-income households, and include the funding of rental properties, rather than homeownership. This would bring the US home mortgage market in line with the practices of other OECD countries. The Senate is preparing a bill that goes in this direction.

30. A final area where reform initiatives are warranted is to support regulatory experimentation for new financial technology initiatives. These technologies may offer credit to groups who have traditionally found access difficult (Fareed et al., 2018[12]). There are large differences in access to banking services between metropolitan areas and more isolated locations, largely reflecting differences in population densities. Other factors leading to individuals not using banking services are insufficient funds to save, trust in banks and the fees banks charge. Individuals without traditional banking relationships are not necessarily cut off from credit as FinTech is creating opportunities

as well as challenges (Box 1.5).

Box 1.5. Blockchain technologies and financial stability

Innovations in the financial sector using new technologies "FinTech" are creating new opportunities that may transform the sector. For example, the development of blockchain, or distributed ledger technology, promises to introduce considerable efficiency gains by amongst other benefits allowing transactions to occur without the need for a trusted intermediary. Automation of services can cut the needs for back-office personnel. Furthermore, traditional banks will face threats to their existing business models as new companies will potentially attract clients to faster and cheaper services.

Yet, while FinTech will challenge traditional financial institutions, it may also create new markets for financial services or broaden existing ones. Innovations create new possibilities for individuals who have hitherto lacked access to traditional financial institutions, thereby enhancing financial inclusion. For example, online lenders make use of machine learning and big data to evaluate credit risk for personal unsecured loans rather than using existing standardised credit scores (Jagtiani and Lemieux, 2017[21]). In this light, innovation can help reduce barriers to access credit for groups - either individuals or firms – that have had limited access in the past.

The development of these potentially disruptive technologies raises concerns about privacy. Recent cyber thefts also underline issues surrounding digital security. Innovative uses of artificial intelligence to financial services also create challenges for the regulators in assessing risk.

Regulators will need to find ways to ensure a level playing field between traditional financial institutions and the new entrants. To the extent that increasing returns to scale are important and that firms may want to remain outside the regulatory environment (and thus operate as shadow banks) the task of the regulator will be complicated. Regulators will need to underwrite trust in the financial system in the face of an increasingly fissured financial sector. Against this background, other countries are preparing the regulatory framework cautiously. The regulatory sandbox in the United Kingdom (allowing businesses to test innovative products, services or delivery mechanisms in a controlled regulatory environment) is one approach to facilitate innovation while developing the framework to manage risks when these technologies are ready to challenge existing financial institutions. A sandbox should encourage innovation with the ultimate aim of better financial services for consumers.

Table 1.3. Past OECD recommendations on monetary and financial policy

Recommendation	Actions taken since the 2016 Survey
Raise policy interest rates at a pace that gradually tightens financial conditions so as not to jeopardise the recovery and to promote a return of inflation to the Fed's target.	Interest rates have been increased gradually and inflation is returning to target
Continue to implement Dodd Frank and Basel III requirements.	The financial regulators have implemented Dodd Frank and Basel III requirements.

1.3. Sustaining higher growth rates

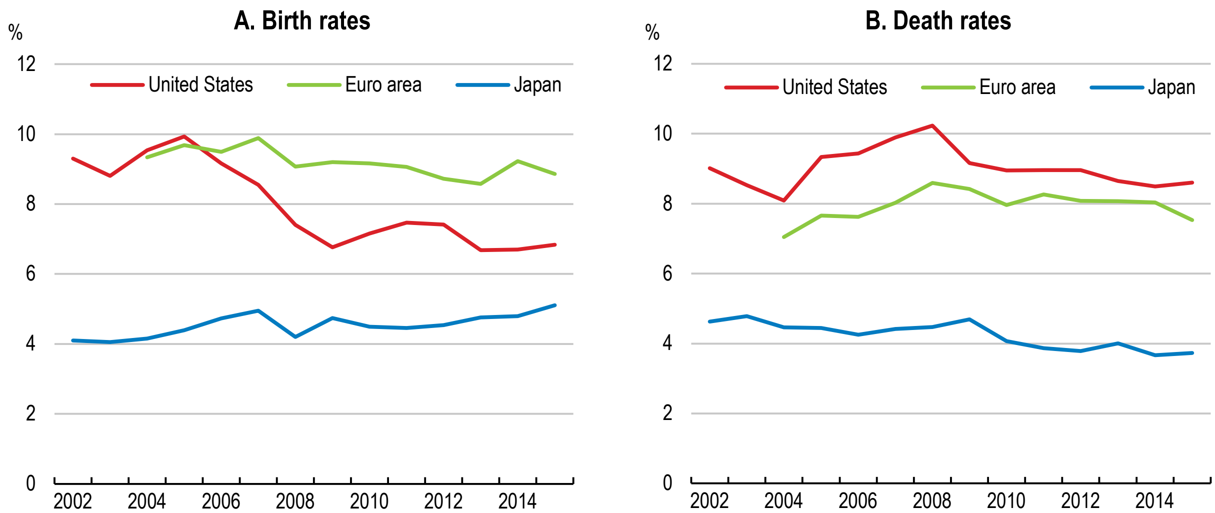
31. Sustaining the expansion will require actions to offset slowing employment growth and to boost productivity. Sluggish productivity growth has been a consequence of various factors such as limited capital deepening and onerous regulations. While employment gains have been robust, a slowdown of employment gains due to ageing and slowing labour force growth is projected and also as people with relatively strong attachment have already returned to the labour market.

1.3.1. Deregulation and boosting investment to support productivity

32. Boosting productivity through polices that improve the business environment would also help to sustain the recovery. This should include enhancing competition, freeing up resource allocation and raising investment (including in infrastructure). The Administration has launched an initiative to reduce the regulatory burden and government agencies are now highlighting and proposing to remove cumbersome regulation. Progress is complicated by the interaction of Federal, State and local regulations.

33. Improving the business environment by reducing the regulatory burden could help reanimate firm creation and their subsequent growth. This is not only related to slower start-up rates (as well as exit rates), which have declined toward the OECD average (Figure 1.13). Firms and sectors have become less responsive to productivity shocks, whereas in the past a firm would tend to grow rapidly after a boost to productivity (Decker et al., 2018[13]). As discussed in the last *Economic Survey*, this contributes to sluggish productivity growth.

Figure 1.13. Business dynamism has slowed

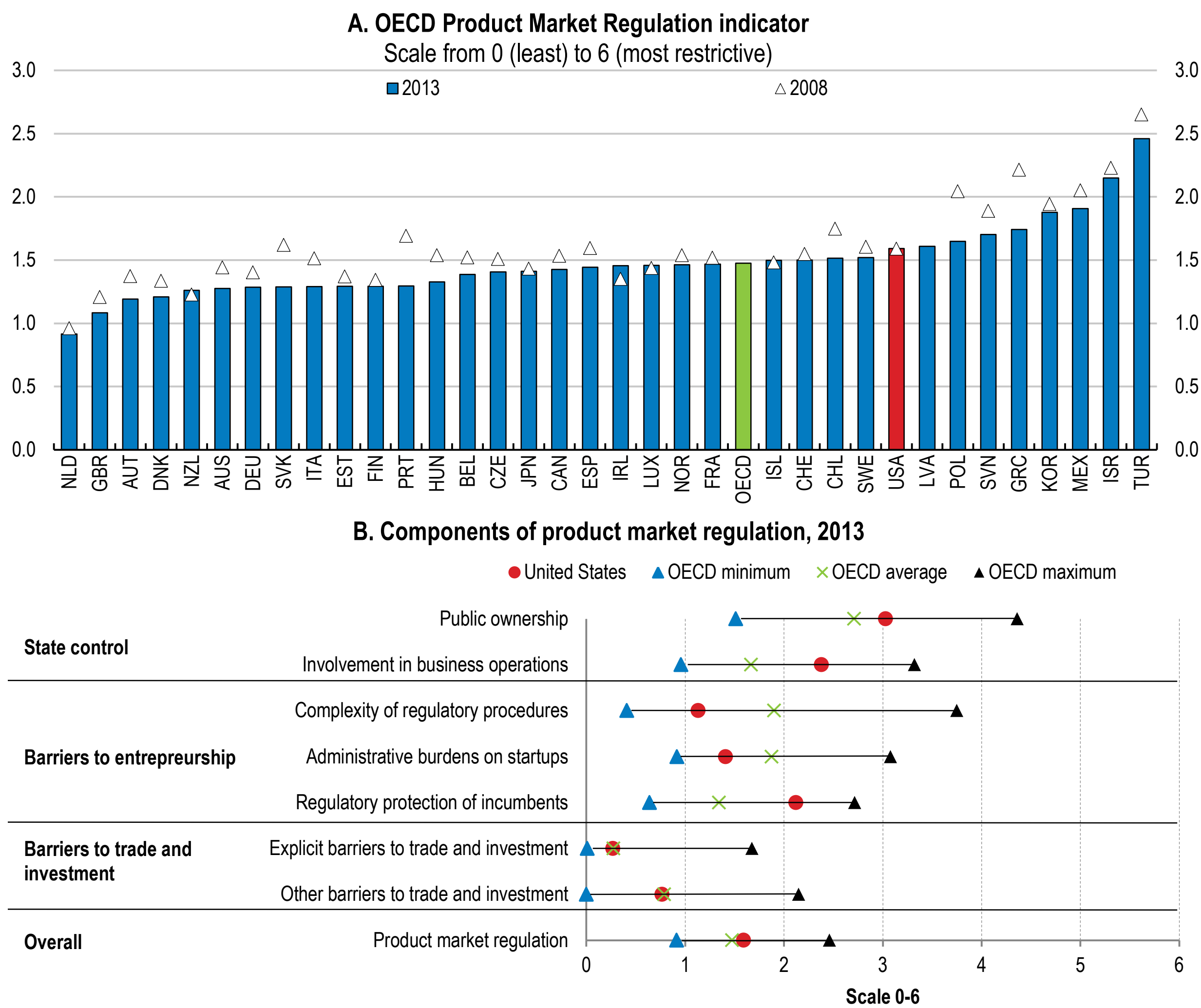


Notes: Number of enterprise births and deaths in year *t* over number of active enterprises in year *t*. Data for the United States are estimated in 2013-15, using separate data from the US Census Bureau. The Euro Area estimates are an unweighted average of birth and death rates in member states.
Source: OECD Economic Outlook, Volume 2017 Issue 2.

StatLink http://dx.doi.org/10.1787/888933731985

34. In several domains of product market regulation, the United States is amongst the less restrictive in the OECD. Measures of barriers to trade and investment are low and administrative burdens on start-ups are light. However, the overall measure is around average for the OECD (Figure 1.14). Regulatory protection of incumbents is high, almost completely due to exclusions or exemptions from anti-trust law for publicly-controlled firms or undertakings. Removing such exemptions and exclusions for abuse of dominance and horizontal cartels or vertical restraints would level the playing field for existing firms and new entrants. Other major areas where regulations are more restrictive than on average elsewhere in the OECD include direct control over business enterprises (either where the government has special voting rights in a private enterprise or restraints on sales of stakes in publicly-controlled firms) and governance of state-owned enterprises, which either insulate them from market discipline or influence their management. These arise due to State-level ownership of firms in the energy and transportation sectors (which in the indicators reflects the situation in New York State and may not be representative for the whole country). OECD analysis of the impact of structural reforms suggests that reforms in these areas could improve performance and boost productivity (Égert and Gal, 2017[14]) (Box 1.6).

Figure 1.14. Product market regulation is around average



Source: OECD Product Market Regulation database.

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Box 1.6. Quantification of structural reforms

Reforms that are 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 some structural reforms to be gauged. These estimates assume swift and full implementation and are based on cross-country estimates, not 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 estimates are illustrative.

Table 1.4. Potential impact of structural reforms on per capita GDP

Reform	10 year effect	Long-run effect
Product market Regulations		
Governance of state owned enterprises	0.7%	1.4%
Direct Control over business enterprises	0.3%	0.7%
Labour market policies		
Enhancing job placement for workers	0.1%	0.2%
Tax reform		
Making corporate tax reforms permanent	0.8%	2.2%
Infrastructure spending		
Raising infrastructure spending	0.9% -2.0%	

Notes: The policy changes that are assumed for the scenarios in the table are:

1. Reducing direct control over business enterprises to the top quartile of OECD economies;
2. Reducing direct control over business enterprises to the top quartile of OECD economies;
3. Enhance job placement for workers involves raising spending on active labour market programmes to help workers back into employment equivalent to 0.02% of GDP;
4. The tax reform scenario is based on making the reforms to the corporate tax reform permanent, such as full expensing for investment;
5. The infrastructure spending scenario is based on the assumptions used in the Economic Report of the President.

Source: OECD calculations based on (Égert and Gal, 2017[14]), (Barro and Furman, 2018[15]), (CEA, 2018[4]).

On the basis of other cross-country empirical relationships moving to best practice by reducing the costs of closing a business could potentially raise the level of productivity by around one percentage point in the long run (Adalet McGowan and Andrews, 2017[24]).

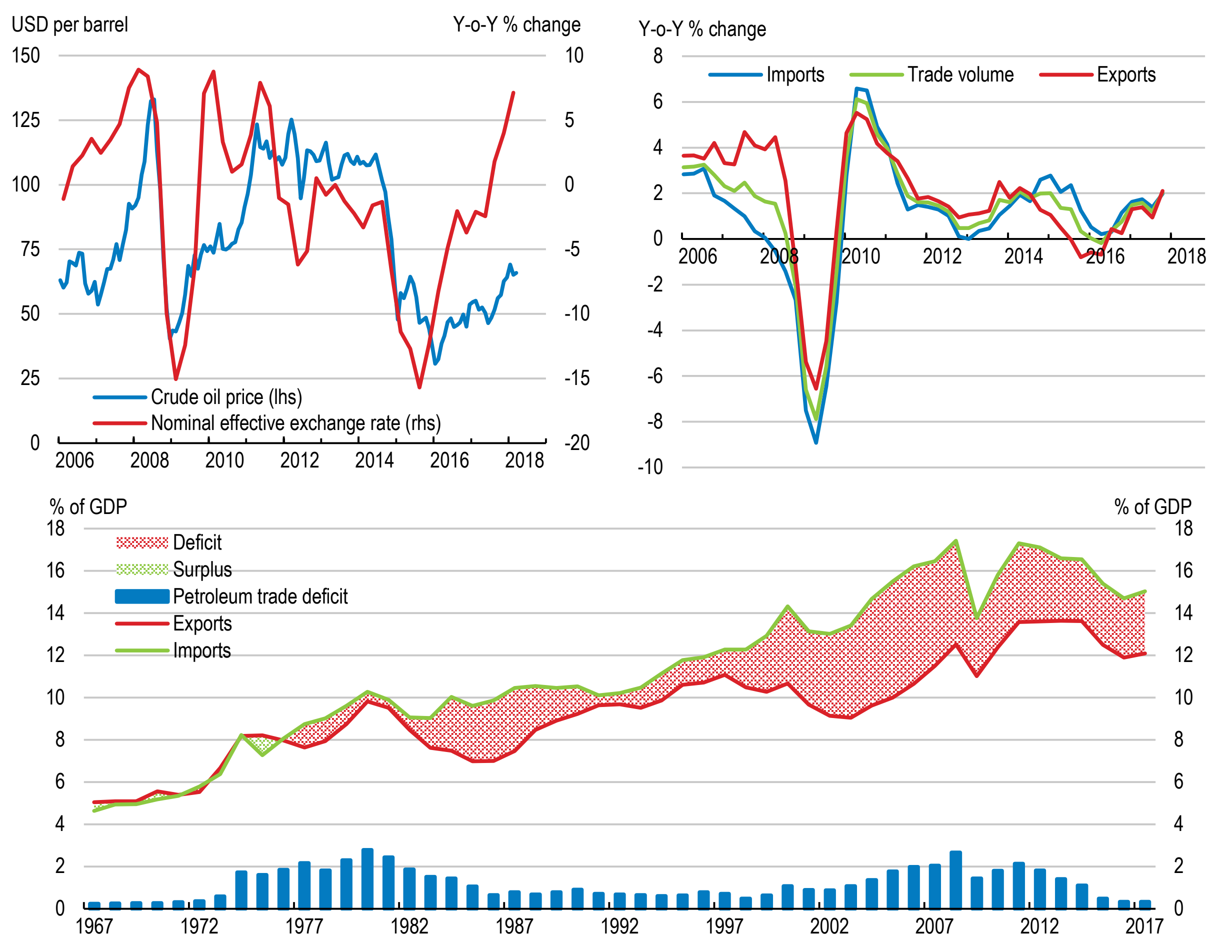
35. The spread of occupational licensing at the State and local level creates another set of regulations that can inhibit business dynamism. In 2017, around one quarter of workers possessed certification or a licence. Occupational licensing is often based on public interest grounds, but this is not always the case. Furthermore, the local specificity of licensing can effectively create a barrier to entry and inhibit the ability of workers to move to employment opportunities elsewhere as they may have to incur significant costs in acquiring new licences. Empirical evidence suggests that there are means to protect the public interest while easing the deadweight losses they impose on the economy. For example, mutual recognition of licenses by different States, as

encouraged by the Administration in its recent infrastructure initiative, appears to promote inter-State migration (Abdul Ghani, 2018[16]).

International trade

36. Trade volumes have grown relatively modestly since the great recession, reflecting weaker growth rates in major trading partners as well as exchange rate and oil price developments. The development of hydraulic fracturing technologies in oil production has boosted domestic production in recent years and brought the trade balance on petroleum products close to balance as exports have increased strongly and imports have declined (Figure 1.15). Around two-thirds of world trade involves global value chains, with products crossing borders during production. The expansion of global value chains has brought large benefits to consumers and workers through economies of scale, comparative advantages, technology spillovers, and job creation – including indirect job gains in the services sector (OECD, 2016[17]).

Figure 1.15. Trade growth has been sluggish since the crisis



Source: OECD Analytical Database; and Bureau of Economic Analysis.

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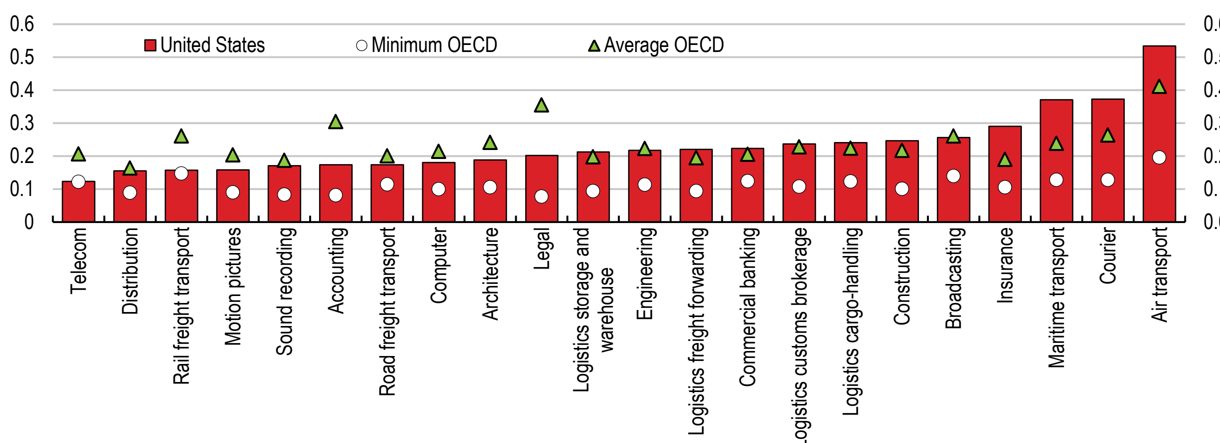
37. The United States' global value chains are strong with NAFTA partners and have been strengthening over time (Escobar, 2018[18]). These value chains are particularly important in sectors such automobiles, which are organised around hubs (Criscuolo and Timmis, 2018[19]). Global value chain linkages are also strong with some Asian countries. When measured by trade in value added the importance of Canada, Mexico and China diminish in comparison with gross exports. This arises due to large shares of US value-added being embodied in their exports to other countries. The trade deficit in manufacturing for the United States shrinks by 60% when considering value added, due to large contributions of services to trade.

38. Reducing barriers to trade in goods has outstripped progress in reducing barriers to trade in services. Measures of trade restrictions in services are relatively high in the United States (Figure 1.15). The United States would benefit more given that the composition of exports in many advanced countries has shifted towards a greater role for services. In the United States services already account for over half of valued added exported. Countries tend to specialise more in tradable services when high-skilled labour is relatively plentiful and digital infrastructure is more developed. As the U.S. economy has moved towards greater importance of services, knowledge-based capital has risen in importance, including in international trade (Box 1.8). Against this background, making further progress multilaterally in reducing trade impediments would benefit the United States and the world economy (Box 1.7).

Figure 1.16. Trade in services is not very open

The indices take values between zero and one (the most restrictive)[1], 2017.



1. The index includes regulatory transparency, barriers to competition, other discriminatory measures, restrictions on movement of people and restrictions on foreign entry.

Source: OECD Services Trade Restrictiveness Index (STRI).

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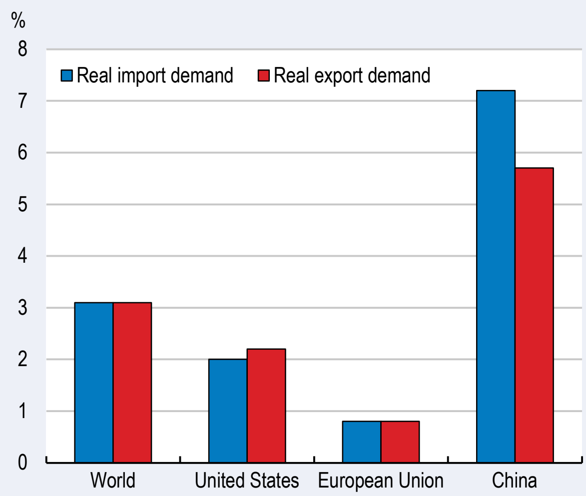
Box 1.7. Reducing barriers to trade would boost the global economy

The effects of multilateral tariff liberalisation are explored in a scenario where tariffs were reduced to the lowest level applied across G20 economies for each sector examined using the OECD METRO model (2015a). The majority of sectors have the minimum rate of 0%, with other foods (1%) and textiles (2%) being the exceptions. If such a reduction were adopted, (which is equivalent to a weighted average reduction of 2% for all economies) global trade would expand by more than 3% (Figure 1.17). China experiences the largest increases in trade, having relatively higher initial tariffs. Its imports (where the relatively greater benefits are found) increase slightly more than exports. Both the US and EU experience an increase as well, with the US experiencing greater increases in trade.

Figure 1.17. Increase in trade from tariff reductions



Note: Simulation results on trade are from the OECD's METRO model, a global computable general equilibrium model of trade with a high degree of sectoral disaggregation. The increase in trade is the medium term effects
Source: Arriola and Stone, (2018 [forthcoming]).

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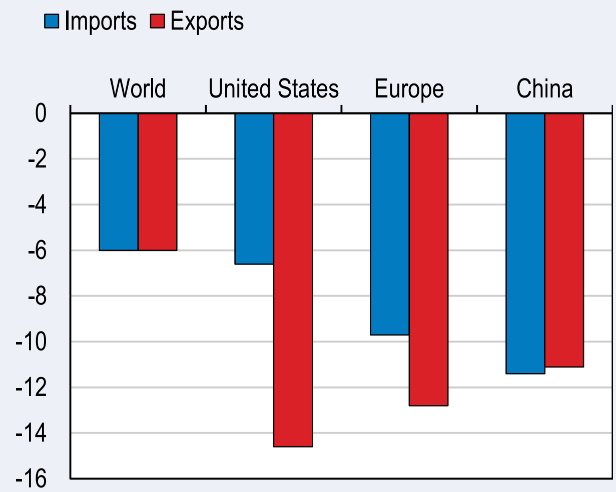
The benefits from multilateral reductions in trade barriers can be contrasted with the trade-reducing effects of implementing wide-ranging new trade restrictions. In this hypothetical scenario China, Europe and the United States are assumed to increase trade costs against all partners on all goods (but not services) by 10 percentage points. The effects would have a major adverse impact on trade, with those countries that imposed new trade barriers being the most severely affected (Figure 1.18).

While the change in protection shown here is illustrative, changes of a different magnitude might be expected to have correspondingly smaller or larger macroeconomic effects, although some likely adverse effects may not be captured here. For example, retaliatory actions could generate additional adverse effects on trade from disruption to global value chains, and the uncertainty introduced by protectionist trade policies would likely result in a slowdown of investment, leading to further drops in incomes and productivity.

Figure 1.18. The effect of increased trade costs on trade



Note: Effect of a rise in trade protection by the United States, China and European Union which raises trade costs by 10 percentage points. Europe includes the European Union, Switzerland and Norway. Trade results for Europe exclude intra-European trade. Simulation results on trade are from the OECD's METRO model, a global computable general equilibrium model of trade with a high degree of sectoral disaggregation (OECD 2015d).
Source: OECD Economic Outlook, November 2016, Box 1.3.

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Beyond tariffs, important policy levers for trade liberalisation include lifting actionable non-tariff measures and reducing services trade costs. Given that multilateral and regional liberalisation has proceeded at a slower pace for services and non-tariff measures than for tariffs over the past decades, the scope for gains from liberalising trade in these areas is expected to be large. Besides pure market access effects, regulatory reforms that reduce related trade costs would also be expected to result in significant competition-enhancing effects and productivity gains in the economies concerned – both in the sectors being liberalised and in downstream sectors in local and global value chains.

Box 1.8. Knowledge-based capital is increasingly important for international trade

Business investment in knowledge-based capital is linked to growth and higher productivity (OECD, 2015[30]). That link exists for two main reasons. First, in contrast to physical capital, once the initial cost of developing some types of knowledge is borne, the cost is not re-incurred when the knowledge is used again (in other words, knowledge-based capital is "non-rivalrous"). That feature can create substantial economies of scale in production. Second, investments create knowledge spillovers, which allow the benefits from an original investment to reverberate throughout multiple sectors of an economy. Studies have shown that business investment in knowledge-based capital contributes one-fifth of average labour productivity growth in the European Union and the United States.

Knowledge-based capital is becoming a more tradable asset that is taking over the core of the global economy. Most of the value in technology products and medicines is not in the physical materials with which those goods are made, but in the continuum of activities around the research, testing, and innovation required to develop them. Even manufacturing staples like apparel can include substantial knowledge-based capital, such as the design, in their value. As globalisation continues, the knowledge based capital inherent in those products is reaching, as well as emanating from, more and more markets. In countries such as Australia, Canada, Japan, the United Kingdom and the United States, the significance of investment in knowledge-based capital relative to investment in tangible capital has been steadily increasing over time.

While intellectual property's prominence has been growing, a number of developments have been significantly changing the way intellectual property is created, disseminated, appropriated and used. Some of those developments, such as advances in digital technologies, have helped to make information more abundant, easier to access, and easier to store and copy. Those developments have also made it easier to obtain and distribute intellectual property illegally. That accentuates the fact that intellectual property rights are now more important than ever, as it is in everyone's long-term interest for stakeholders who create knowledge and artistic works to have well-defined, enforceable rights to exclude third parties from appropriating their ideas or the expression of their ideas without permission.

Competition policy

39. Attention is needed regarding competition policy. While there are concerns that the economy is becoming less competitive, evidence based on rising concentration at the industry level are not convincing (Shapiro, 2018[20]).Recent empirical work suggests that merger and acquisition activity tends to result in higher markups and not increases in firm-level productivity (Blonigen and Pierce, 2016[21]), which may bear closer scrutiny.

40. A particular challenge in ensuring competitive outcomes and protecting consumer welfare arises with technological change allowing firms and markets to transform themselves rapidly. The potential for new entrants in some dynamic areas to capture markets should keep firms innovating to maintain their position. However, companies with access to big data from their customers can create more targeted market segments. These innovations have hitherto increased consumer welfare, but may have the potential to be used anti-competitively, especially in the presence of network effects

(which make it difficult for new entrants to attract customers away from established incumbents). In this light, the competition authorities may have to act or promote tools that will allow consumers to counter abusive market dominance, such as portability of customer ratings. Some commentators have suggested rethinking how to define "monopolists" and "potential entry" to prevent incumbent dominant firms creating barriers to entry (Mcsweeny and O 'Dea, 2018[22]; Shapiro, 2018[20]).

41. More recently concern has been growing over the use by firms of non-compete contracts for employers (which prevent employees working for competing firms) and firms agreeing amongst themselves no poaching agreements of employees in these firms. These actions undermine labour market competition and hinder workers' ability to move to better paying jobs (Krueger and Posner, 2018[23]). The competition authorities have begun to act, bringing cases against healthcare and technology companies, amongst others, issuing guidance to ensure hiring practices comply with antitrust laws. A number of States are also acting to limit the ability of firms to impose non-compete clauses in contracts.

Table 1.5. Past OECD recommendations on competition policy

Recommendation	Actions taken since the 2016 Survey
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.
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.
Use federal funding to remove unnecessary occupational licensing requirements and 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.

Infrastructure investment

42. Public investment in infrastructure has slowed from the beginning of the 2000s and the growth rate of the capital stock, such as highways and streets, has not kept pace with the economy and changing demands on infrastructure, leading to rising congestion and bottlenecks. Furthermore, deferred maintenance of existing infrastructure has led to deteriorating quality, prompting calls for investment to upgrade infrastructure assets, such as roads and bridges (ASCE, 2017[24]).

43. The administration has unveiled plans for raising infrastructure investment by making better use of private sector investment to leverage Federal spending of $200 billion over ten years to $1.5 trillion. However, the appropriations have not yet been made to push this plan forward. A second strand of the Administration's efforts to boost investment is through streamlining the permitting process with the aim of reducing the length of time between project initiation and completion.

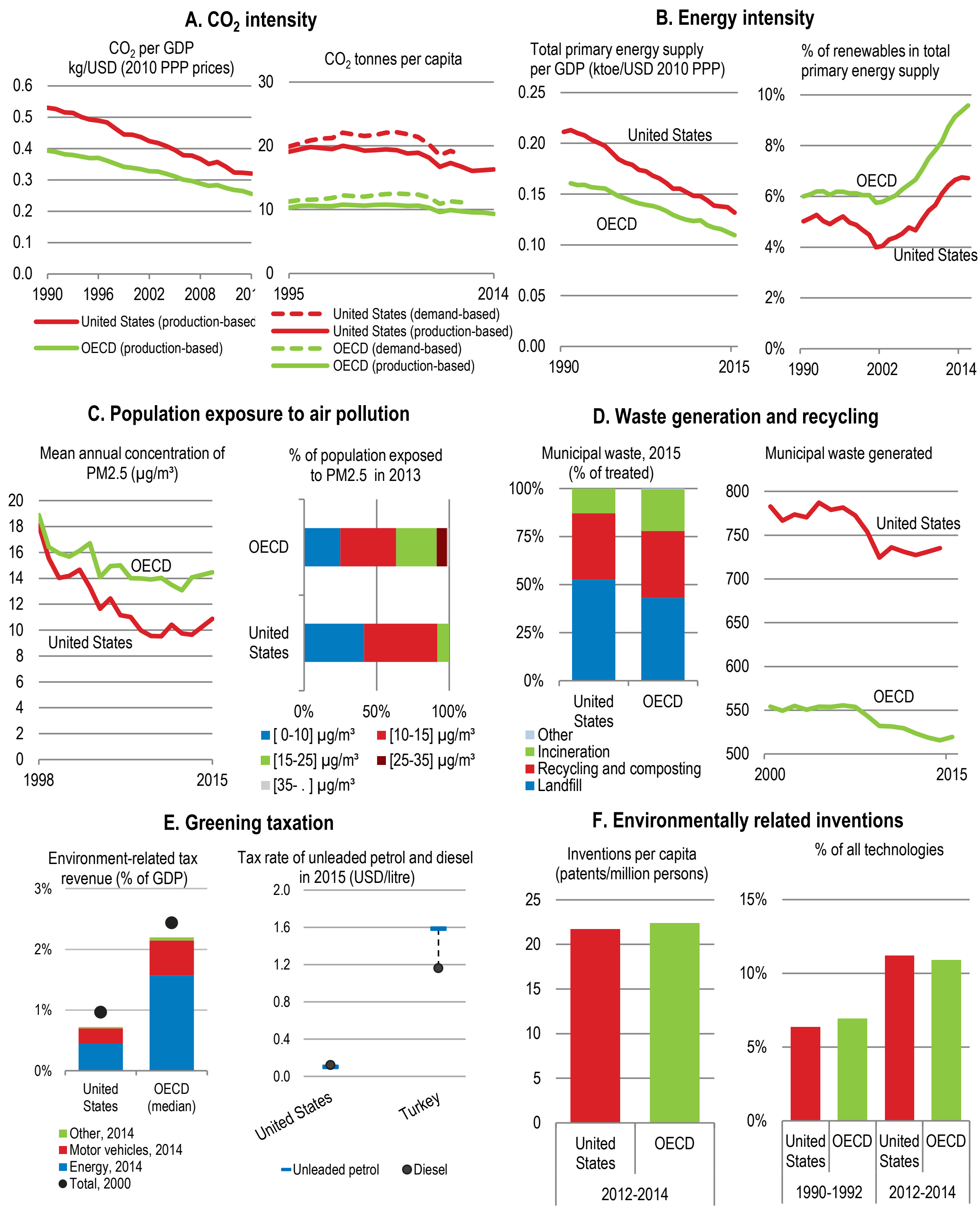
44. Improving the investment climate and boosting the provision of infrastructure should support higher productivity. The CBO and CEA estimate that improvements to core infrastructure could in some circumstances generate a marginal return on public capital in the range of 8 % to 13% (CEA, 2018[4]). Given the current financing of key infrastructure, it is also important that conditions ensure sustainability by supporting the

ongoing maintenance of infrastructure assets. In the road transportation sector, in particular, quality can be poor and backlogs of maintenance work have built up. Deferred maintenance is also an important issue for other infrastructure sectors, including mass transit and drinking water and wastewater treatment.

45. Financing for the road transportation network has been insufficient to ensure the necessary expansion and maintenance of existing structures. Notably, the gasoline tax is the major source of dedicated revenue for the Highway Trust Fund, which supports highway and intermodal infrastructure assets as well as mass transit. The gasoline tax has proven resistant to uprating and remains amongst the lowest in the OECD (Figure 1.19); as a result, revenues have fallen short of outlays, threatening the Fund's solvency. More fuel efficient cars and electric vehicles exacerbate the situation by undermining the tax base, while still causing wear and tear and contributing to congestion. Funding infrastructure spending with user fees, more common in OECD countries than in the United States, may help to ensure that investment corresponds to transportation needs and reduce the risk of projects with negative expected value.

46. An important element of the Administration’s infrastructure initiative is attracting private investors to participate in public infrastructure projects; this may require the use of flexible risk- and profit-sharing arrangements that go beyond the basic user fee or availability payments models typically used in public-private partnerships. Particularly when future demand is highly uncertain, flexible incentive structures that incorporate sharing of risks and rewards at both the low and high-end of the demand spectrum can create additional options for private investors that benefit both taxpayers and private sector investors.

Figure 1.19. Environment-related taxation is low in comparison with the OECD average



Source: OECD Green Growth Indicators database.

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47. Furthermore, moving towards greater use of user fees, congestion pricing, and pricing based on distance travelled encourage users to take into account the costs of congestion and road wear and tear, while providing information on where infrastructure is needed as well as financing. Greater reliance on user fees and congestion charges will also impact on locational choices and ultimately make urban areas more compact by reducing the amount of sprawl. This not only potentially affects the emissions of greenhouse gases (which are typically larger in less dense urban areas) but improve the accessibility of jobs to American workers. These objectives would be further promoted by urban development taking into account the needs for mass transit systems and accessibility. There is also scope for Federal programmes to encourage greater co-ordination across State and local jurisdictions, the absence of which can undermine city-level productivity and potential economies in large multi-jurisdictional infrastructure projects.

48. Another infrastructure challenge is improving access to fixed broadband, particularly in rural areas (OECD, 2018b). This is important not only in rolling out modern technology that can better integrate localities into wider economic networks, but can also provide access to healthcare and education in the most remote locations. The Federal Communications Commission (FCC) has allocated $2 billion in 2018 to use in competitive bidding auctions to expand access to nearly 1 million homes. Municipal networks have also been created in some cities, often using existing infrastructure to cut costs. These initiatives have been supported by the FCC, which is also identifying unreasonable regulatory barriers to broadband deployment. A recent Executive Order also promotes the deployment of rural broadband.

Table 1.6. Past OECD recommendations on environmental policy

Recommendation	Actions taken since the 2016 Survey
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

Tax reforms are changing the business environment

49. Tax reforms in late 2017 introduced significant changes, which had been discussed for many years and advocated in previous Economic Surveys (Table 1.7). The main thrust of the reforms reduced marginal statutory tax rates for personal and corporate income, which combined with simplification will reduce distortions embedded in the tax system and spur greater investment (Box 1.9).

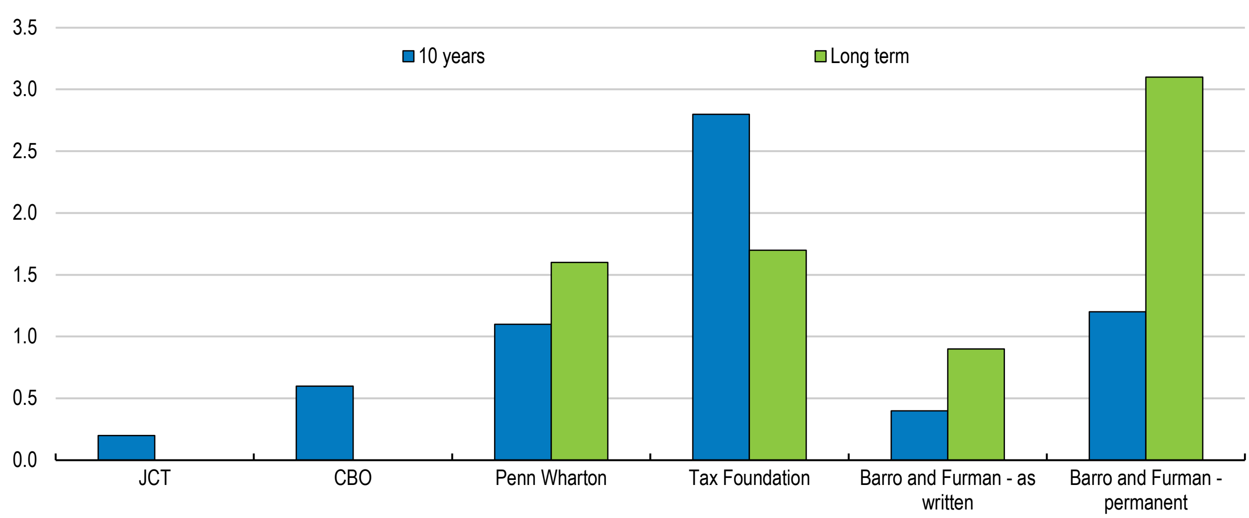
50. Assessments of the impact of the reforms on corporate taxation suggest they will boost capital investment and raise the level of GDP (Figure 1.20). Official scoring by The Joint Committee on Taxation suggests the reforms will raise the level GDP by around 0.7% on average over the next decade though falling to just 0.1-0.2% by the end of the decade (JCT, 2017[25]). In part this is due to the removal of 100% expensing on investment (and rising interest rates). If on the other hand these provisions were permanent, the estimates made by Barro and Fuman (2018[15]) suggest that the impact on the level of GDP could be substantial, particularly when taking into account dynamic feedback. One concern is that the structure of the tax reform will reduce incentives to invest in research and development as the R&D amortisation provision is set to expire.

51. The tax reform introduces important innovations, particularly on the international side (Box 1.10). The shift towards a semi-territorial tax system and the associated measures to discourage moving intellectual property to book profits in low-tax jurisdictions should reduce aggressive tax planning and discourage corporate inversions. The extent to which these moves contribute to multinationals increasing capital investment in the United States is less certain given that these are major changes and past experience gives little guidance. A review of the literature suggests that in some cases the effects could be sizeable (CEA, 2018[4]).

52. Bearing in mind the uncertainty over the impact on investment decisions, the tax reforms is estimated to lead to budget shortfalls. These could see deficits expand by 0.6-0.8 percentage point and see Federal government debt rising by up to six percentage points over the next ten years, other things being equal. The distributional consequences are complex, in particular as under current law many of the provisions are set to expire, and will only be known over time.. In the near term, the increase in the standard allowance and the Child Tax Credit will provide a boost to low-income households while the reduction of some regressive tax expenditures, such as mortgage interest deduction, will tend to have a larger negative impact on higher-income households. On the other hand, the absolute average net tax reductions are larger for high-income households (Auerbach, Kotlikoff and Koehler, 2018[2]).

Figure 1.20. Estimated impact of tax reforms on GDP

Effect on the level of GDP



Note: The JCT and CBO estimates are based on the tax reform act as written in law. The Penn Wharton estimate embody assumptions that the sunset clauses occur unexpectedly. The Tax Foundation estimate takes into account that provisions expire. The Barro and Furman estimates make assumptions that the corporate tax reforms expire as planned or remain in place.
Source: OECD compilation.

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Box 1.9. The 2017 tax reform

A major tax reform was signed into law at the end of December 2017. The Act is a complex mixture of permanent and temporary elements. The main domestic elements are:

- Personal income tax rates are reduced from 2018, but changes expire in 2025. The top marginal rate is reduced from 39.6% to 37%. Tax rates are lowered for most of the remaining tax brackets. The standard deduction is increased and the Child Tax Credit is expanded. The threshold for the estate tax is doubled to $22 million. A change in the method of indexation of personal income tax brackets to reflect inflation more accurately will see people moving into higher brackets more quickly
- The reform eliminates personal exemptions, and limits State and Local tax deductions to $10,000. Mortgage interest deduction is capped at interest on $750,000 worth of loans (down from $1 million). Deductions for education and medical expenses are reduced.
- Changes to the taxation of business income include cutting the federal government's statutory corporate income tax rate from 35% to 21%. The rate of bonus depreciation is increased to 100% in 2018 to 2022, after which it is phased out by 2026.
- Individuals receiving income from pass-through businesses can deduct 20% of that income from their taxable personal income tax. In line with other changes to personal income taxation, this will expire in 2025.
- Business interest deductions are disallowed for interest in excess of 30% of measures of business income (EBITDA until 2021 and EBIT thereafter). A carryback treatment of the net operating loss deduction is repealed.
- A tax on un-repatriated foreign earnings will be levied at either 8% or 15.5%, depending on whether the earnings are illiquid or liquid.

Table 1.7. Past OECD recommendations on fiscal policy

Recommendation	Actions taken since the 2016 Survey
Cut the marginal corporate income tax statutory rate and broaden its base, notably by phasing out tax allowances.	Significant reforms were introduced in 2018
Boost public investment spending with long-term benefits: infrastructure, skills, innovation, health and environmental protection.	Plans have been announced
Boost investment in, and maintenance of infrastructure; in particular, promote mass transit. Use federal programmes to encourage co-ordination across State and local jurisdictions.	Plans have been announced
Make R&D tax credits refundable for new firms.	No action taken

Box 1.10. Tax reform and international taxation regimes

The Act contains a number of international tax provisions that will align the US tax system with international standards and practice. The Act incorporates multiple recommendations of the OECD/G20 Base Erosion and Profit Shifting (BEPS) project. Important anti-BEPS measures include provisions enhancing controlled foreign corporations rules (CFC) to expand the circumstances in which a foreign corporation will be treated as a CFC, including in situations where a US person owns "low vote" stock that represents at least 10% of the value of the foreign corporation. The Act also includes provisions against hybrid mismatch arrangements, and limitation of interest deductibility.

The tax reform introduces a minimum tax on "global intangible low-taxed income" (GILTI); this regime requires US shareholders that are 10% owners of CFCs to include in income excess returns earned by those CFCs, but allows a 50% deduction and a partial foreign tax credit that reduces the effective US rate on GILTI. The GILTI is intended to stop US corporations from shifting assets to low-tax jurisdictions.

The Act includes a "base erosion and anti-abuse tax" (BEAT), which is an anti-base erosion rule in the form of an alternative minimum tax that requires US corporations and permanent establishments of foreign corporations to pay an additional amount of tax to the extent their liability computed on a "modified taxable income" base (which disallows foreign-related party deductions) with a reduced BEAT rate exceeds their regular CIT liability. The BEAT only applies to large taxpayers with average annual consolidated US gross receipts of greater than $500 million. Additionally, the BEAT only applies if a taxpayer's base erosion payments exceed 3% of all deductible payments (2% for banks and securities dealers). The BEAT would apply to US corporations that make deductible payments (other than cost of goods sold) to related foreign corporations. The BEAT generally would not have a significant effect on foreign MNEs selling goods to related US distributors, as the cost of goods sold is not included in the modified tax base. It could, however, have a significant effect on foreign MNEs selling services or licensing intangibles in the US market through a US distributor.

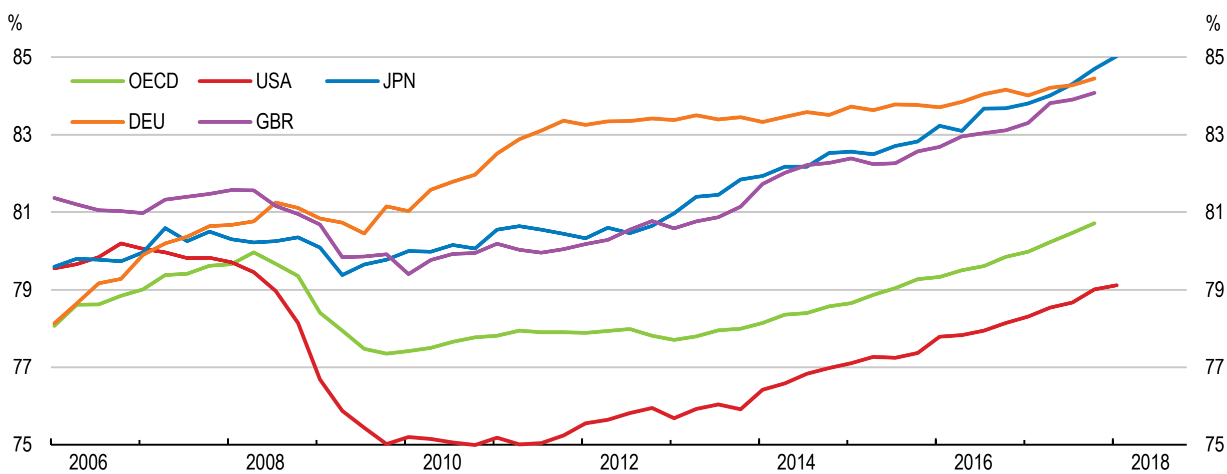
In addition to the GILTI rule, which provides a minimum tax on intangible income, another provision included in the Act provides for a reduced rate on "foreign-derived intangible income" (FDII). US corporations may deduct an amount equal to 37.5% (until 2025; 21.875% afterwards) of its FDII from taxable income that US companies earn from serving foreign markets; the FDII is calculated by multiplying the U.S. corporation's "deemed intangible income", or excess returns, by the fraction of its deduction-eligible income that is foreign-derived, resulting after deductions in an effective tax rate of 13.125% on the FDII, compared with the 21% corporate income tax rate. The FDII is a special regime designed to keep US companies' intellectual property in the US, as the FDII rate is similar to the effective rate on CFC income from mobile factors under the GILTI regime. The FDII regime will be reviewed in 2018 by the OECD's Forum on Harmful Tax Practices to determine whether it is compatible with BEPS Action 5 on harmful tax practices.

The US has gone a long way in implementing the BEPS measures. Importantly, the US tax reform shows that the US is serious about providing a competitive tax system while at the same time protecting its tax base.

1.3.2. Improving employment opportunities

53. The current expansion has reversed past job losses and has brought many people back to employment. Although unemployment is historically low, this does not mean that all available workers are employed. In fact, employment-to-population rates remain below the pre-crisis peak in 2007, which in turn remained below the pre-2000 crisis peak. As the population ages, the retirement of the baby boomers continues and the inflow of new workers slows, the prospects for employment-led growth correspondingly weaken (Lacey, Toossi and Dubina, 2017[26]). While the employment to population ratio is around the OECD average for prime age workers it is lower than many other high-income countries notably Germany, Japan and the United Kingdom (Figure 1.21), suggesting scope to increase employment further. In this context, policies that assist people back into employment could help offset demographic pressures and further boost incomes, with potentially significant effects on lower-income households.

Figure 1.21. The employment to population rate is relatively low, though recovering



Note: Prime age adults are those aged 25-54 year-old. The employment rate for a given age group is measured as the number of employed people of a given age as a ratio of the population in that same age group. OECD refers to a simple average.
Source: OECD Employment and Labour Market Statistics.

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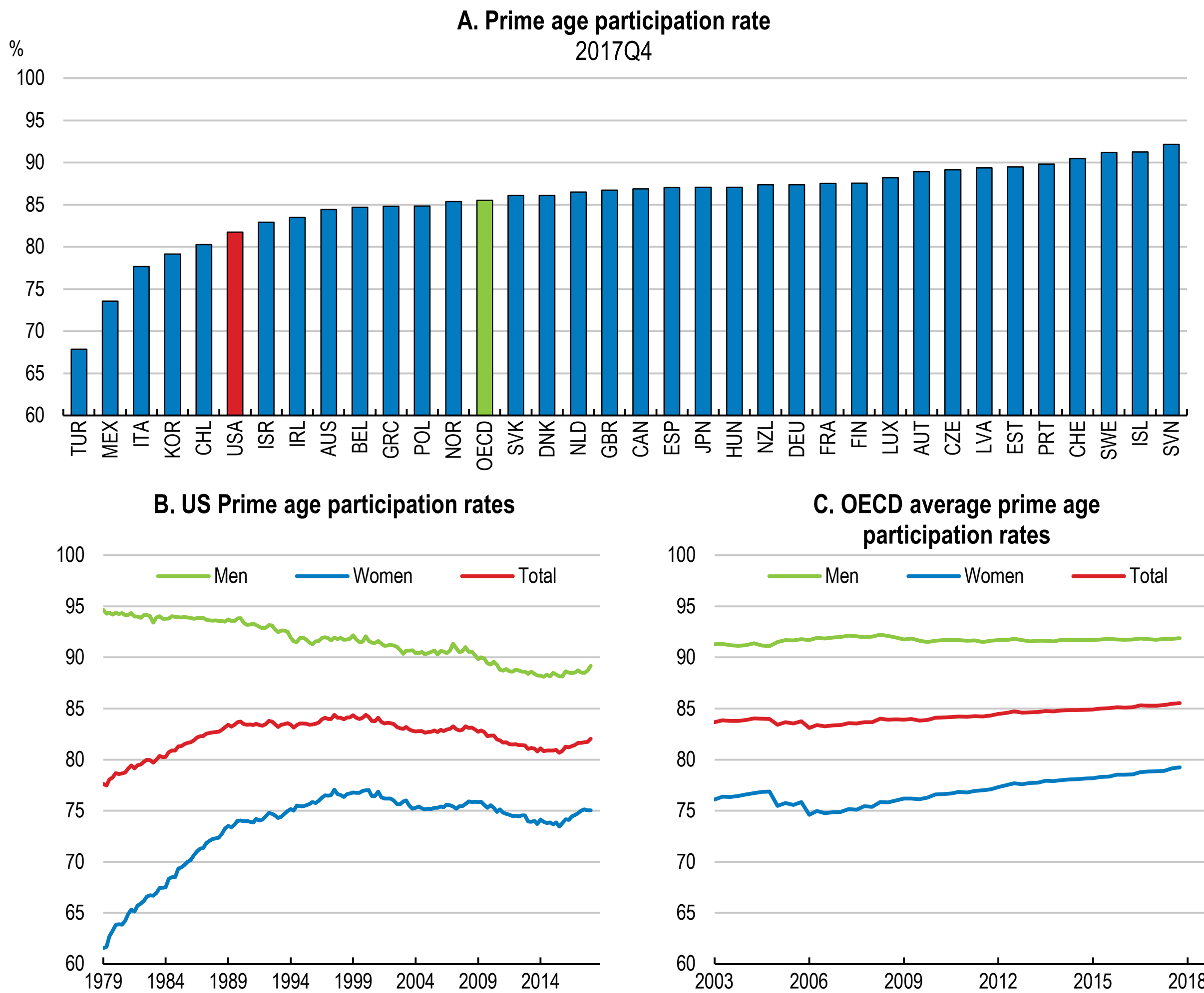
54. In comparison with many other OECD countries, a large share of the population remains at the fringes of the labour market (Figure 1.22). Participation is particularly low for some groups, including those with lower educational attainment. There are also demographic differences with participation amongst black men and Hispanic women lower than other groups. Non participation is also regionally quite heterogeneous (Figure 1.23) (Guichard, 2018[27]). A worrying dynamic has been declining participation of prime age workers, especially men. The participation of women has recovered somewhat recently, while males that are no longer participating tend to remain out of the labour force (Varghese and Sutherland, 2018[28]). A number of factors behind this drop have been advanced, including the pay-off from job experience becoming more muted over time for some lower-skilled individuals (Elsby and Shapiro, 2012[29]) to young men living with close relatives and occupying themselves by playing video

games (Aguiar et al., 2017[30]). This is especially the case for young men with no more than high school education.

Figure 1.22. Prime age labour force participation is low



Note: Prime age adults are those aged 25-54 year-old. The labour force participation rate is calculated as the active population (employed plus unemployed) divided by the population in that same age group. OECD refers to a simple average.

Source: OECD Labour Force Statistics.

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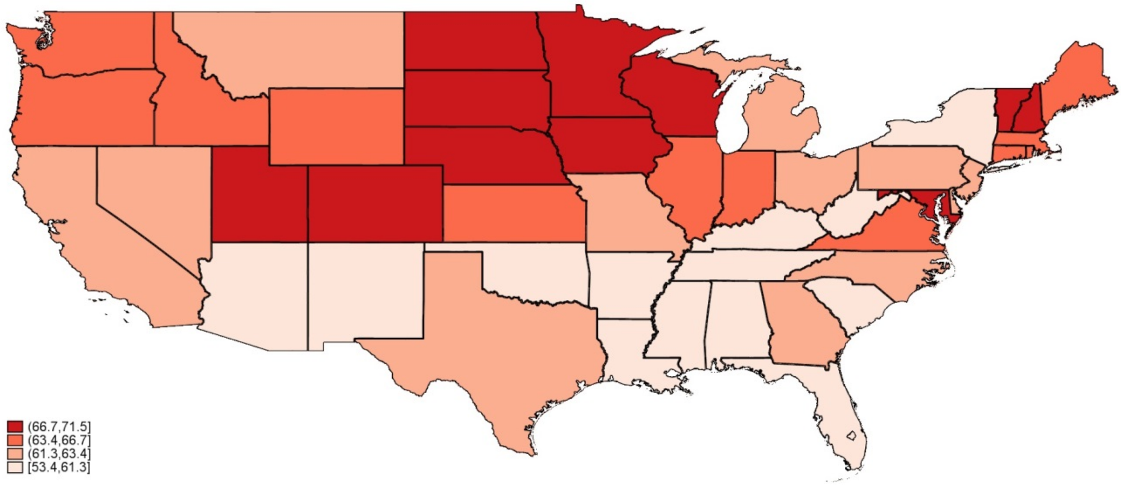
Figure 1.23. Participation varies significantly across States

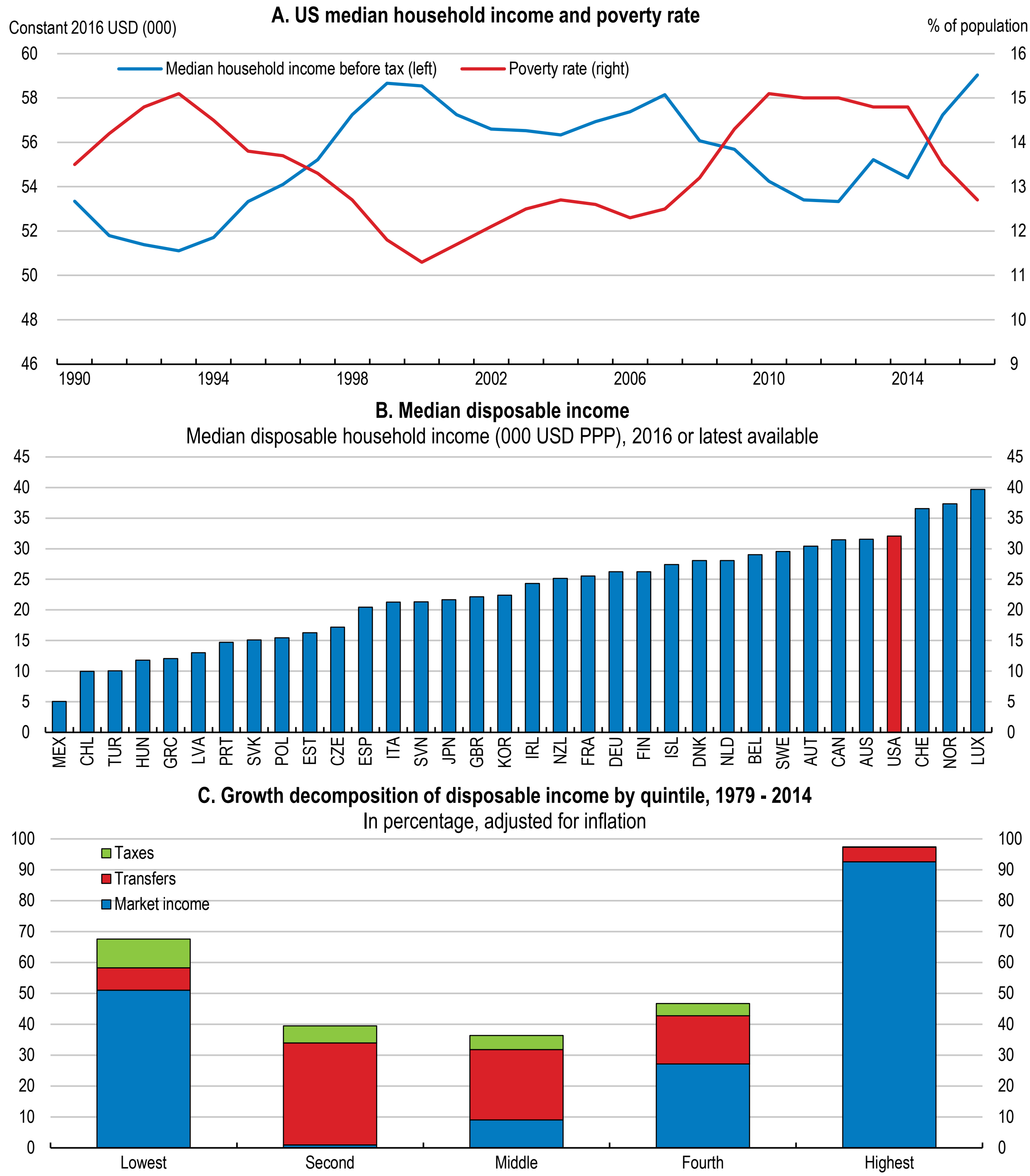


Note: Civilian noninstitutional population ages 16 and older.
Source: Bureau of Labor Statistics.

55. Robust employment growth above the rates needed to account for new entrants into the labour force has reduced unemployment near historically-low levels, which has resulted in tight labour markets for fast-growing locations and occupations. Together with stronger wage gains, these trends have helped reverse the decline in real median household income after the recession. At the same time, the share of the population below the official poverty line declined in both 2015 and 2016. The OECD measure of relative poverty of disposable income also fell in 2015, the latest year for which data are available. Over a longer period, gains in the middle of the income distribution have been modest in comparison to those at the bottom and top (Denk et al., 2013[31]) (Figure 1.24).

56. The acceleration in wage growth foreseen over the next few years will be important in inducing additional inactive workers to return to work, boosting incomes further. Helping more vulnerable groups into employment would likely lower costs to government budgets, through reduction in spending on benefits, healthcare and in some cases criminal justice, while raising additional tax revenue. Success will also help mitigate shocks from automation, when there is a danger of unemployment leading to non-participation (Daubanes and Yanni, 2018[32]) (Box 1.11). Getting people into employment needs to work on several margins, including reattaching discouraged workers that are currently out of the labour force, reducing the disincentives due to disability and other government programmes, and helping overcome drug addiction.

Figure 1.24. Median disposable income is high and is recovering



Note: The official poverty definition (panel A) uses money income before taxes and does not include capital gains or noncash benefits (such as public housing, Medicaid, and food stamps). In panel C, households are ranked by "income before transfers and taxes" and not "before tax income" as in (Denk et al., 2013[31]).
Source: CBO; OECD IDD database; and Thomson Reuters.

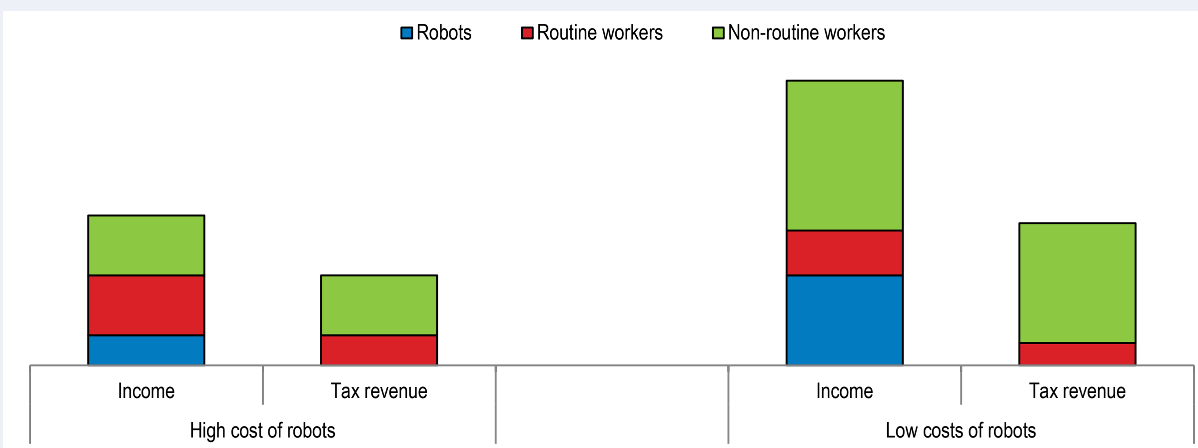
StatLink http://dx.doi.org/10.1787/888933732175

Box 1.11. Taxing robots

Concerns about how robots can displace workers and lead to heightened inequality have given rise to arguments to slow down technological progress, including by imposing taxes on robots. In addition to the direct effect on employment, others have worried about the ability of the government to raise revenue and the scope it can give for tax avoidance.

Examining these issues in a simplified model (Daubanes and Yanni, 2018) shed some light on mechanisms and possible outcomes. Standard economic models would argue against taxing an intermediate input, such as a robot, and use the tax and transfer system to address inequality. In a model with "routine" workers, who are at risk of being replaced by robots, and "non-routine" workers, who are not, a fall in the price of robots will raise tax revenue (Figure 1.25). However, income of the "routine" workers falls as these workers are displaced by robots. In this context, the threat of job loss can be mitigated by improving workers' skills so that robots are complements rather than substitutes for workers. In this environment, technological change can leave everyone better off.

Figure 1.25. Progressive income taxation revenues



Source: Daubanes and Yanni, 2018.

StatLink http://dx.doi.org/10.1787/888933732194

Labour market policies

57. Policy already plays an important role in encouraging labour force participation. The Earned Income Tax Credit (EITC) is a long-standing tool encouraging greater labour force participation of targeted groups, such as mothers with children, and has proven to be an effective anti-poverty instrument. There is scope to extend the Earned Income Tax Credit to other groups, particularly low-income individuals without children. As there is a fiscal cost to such an expansion, targeting the roll out to the places with weakest labour force participation would limit the cost and would likely have a larger effect at the margin. In addition, 29 States complement the Federal EITC

with their own programmes. In those States, the participation rate is on average almost two percentage points higher at 64%. In this light, the remaining States could consider the merits of introducing similar piggy-back schemes to foster greater labour force attachment.

58. Reforms to passive labour market policies, such as unemployment insurance, can also offer a way to encourage better employment outcomes. Unemployment insurance is relatively weak in promoting and monitoring active job search of beneficiaries, mainly due to a lack of funding. Integrating the administration of the unemployment insurance with local (one-stop-shop) employment services, as is the case in many European countries, offers a means to strengthen job search (OECD, 2016[33]). The experience from European countries suggests that stronger job search requirements can help reduce joblessness duration.

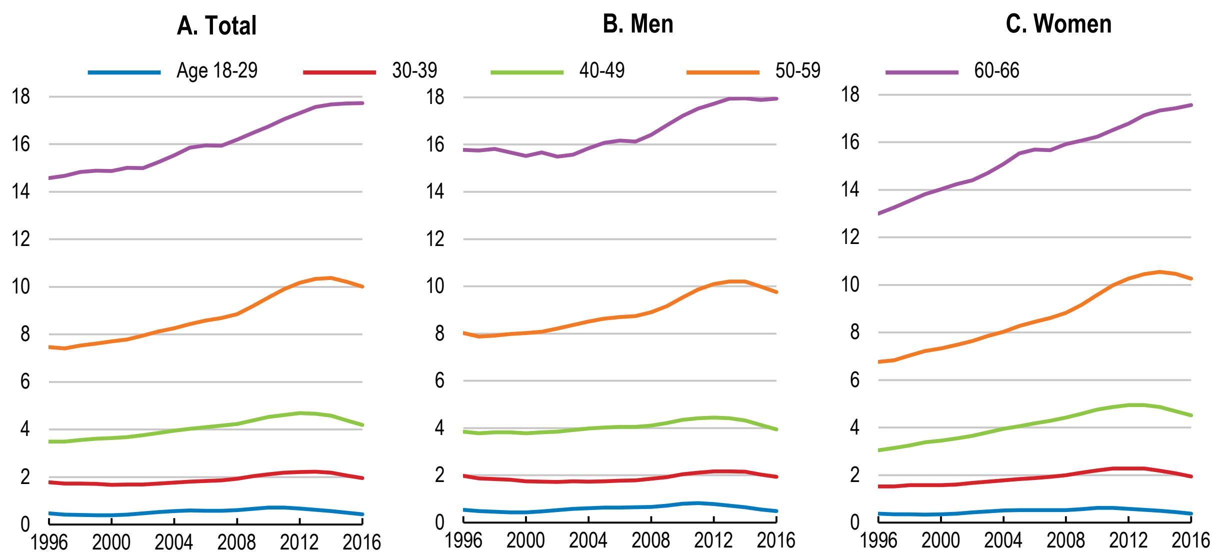
59. The United States spends relatively little on active labour market policies, just 0.1% of GDP in 2015 whereas the unweighted average for the OECD was 0.55%. These policies - ranging from training to job placement services and providing employment subsidies - are designed to help workers back into employment. Evidence from a programme providing job-search assistance in Nevada suggests successful schemes can have marked outcomes in raising employment and incomes while reducing collection of unemployment insurance (Manoli, Michaelides and Patel, 2018[34]). The Administration is promoting increased use of apprenticeships, which are not as common as in many other OECD countries. Apprenticeships together with vocational education, such as practised in Germany and Switzerland, can facilitate the transition from school to work, which is linked to subsequent greater labour force attachment amongst younger cohorts.

Making disability insurance more work friendly

60. Since 1990, self-reported illness or disability has been the principal reason prime age men have been out of the labour force (women are more likely to report care of children or relatives). Disability rolls have grown over time partly as the number of people eligible to receive disability benefits has grown and the types of conditions were extended to those that are more difficult to evaluate. Incidence has been rising for all cohorts until recently (Figure 1.26). Change to eligibility over time - including often difficult to assess conditions - has contributed to the rises. The effects of these changes should be re-evaluated. Presumably the recent decline is partly related to the tightening labour market beginning to induce workers to remain in or re-enter employment. As recommended in the previous *Economic Survey*, maintaining labour force attachment during the claims process and offering pathways for disability insurance recipients who have capacity and who wish to work would help reduce the very strong disincentives currently embedded in the design of disability insurance. Successful trial programmes, such as retaining and continuing cash benefits or medical benefits for a period of time should be extended to other recipients.

Figure 1.26. Disability rolls have stopped rising

Disabled workers to insured workers ratio, % of age category



Note: Figures exclude people at or above normal (or full) retirement age because they are not eligible to receive disability benefits.
Source: Social Security Administration.

StatLink http://dx.doi.org/10.1787/888933732213

Increasing skills

61. Long-standing pressures on particular segments of the labour market include declines in military employment (which had been an important employer for young men without high school diplomas) and the impact of minimum wages, which tends to affect those with limited educational attainment. Even those who subsequently complete their General Educational Diploma after failing to finish high school appear to be at a disadvantage, as their employment status is closer to that of those without a high-school diploma than those with one (CBO, 2016[35]). Progress in raising high school graduation over the past decades implies that those failing to complete are likely suffering the greatest obstacles to learning and subsequently finding stable employment. In this light, early interventions to build up both non-cognitive and cognitive skills in these disadvantaged groups are likely to be a more effective policy option (Heckman, 2006[36]). Indeed, the return to non-cognitive skills appears to have been growing over time, increasing earnings and the likelihood full-time employment (Schanzenbach et al., 2016[37]).

Supporting caregivers

62. Non-participation can also arise due to caregiving responsibilities, which tends to impact prime-age female participation. However, around the time of the recession female participation rose as other members of the household lost their jobs. Boosting the provision of affordable and high-quality childcare has been advocated in previous Economic Surveys (OECD, 2016[38]; OECD, 2014[39]) (Table 1.8). This is supported by the current Administration.

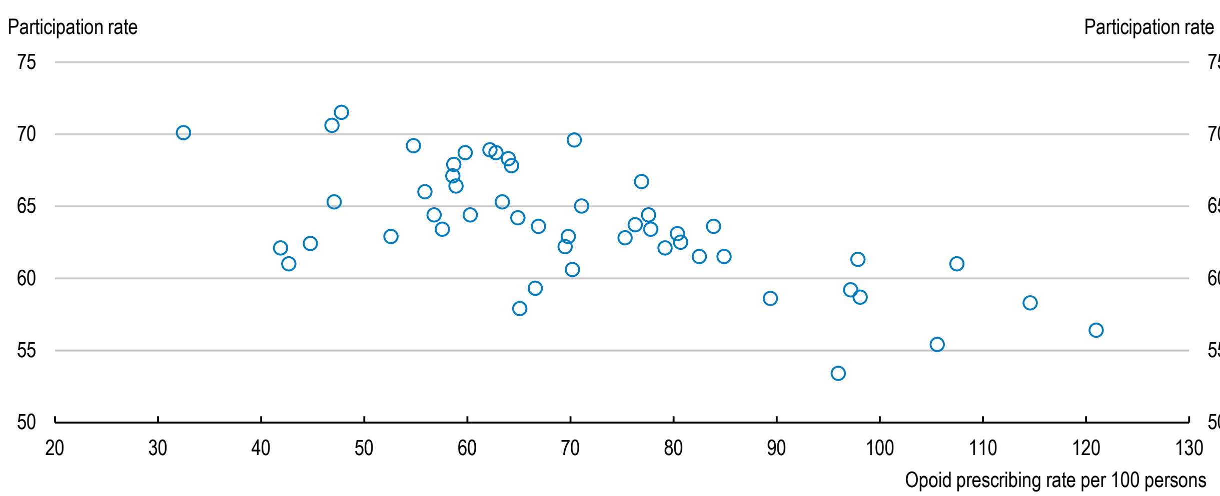
63. Given demographic pressures and the rising share of the elderly in the population considering ways to augment care arrangements to look after the elderly also needs to be considered. Increasing longevity puts more pressure on adult children to care for their parents (rather than their parents providing care for their children, which has been the dominant reason in the past). Children provide around one-half of daily care for those over 75 years old. As with childcare, caring for the elderly potentially makes finding suitably flexible work difficult and the reliance on family networks for caregiving inhibits moving to employment opportunities elsewhere.

Addressing opioid addiction

64. Opioid use appears to be connected to labour market conditions. Prescription rates appear to be higher where labour force participation is lower (Figure 1.27). Krueger (2017[40]) found that around one-fifth of the non-participating prime age males were also regularly taking opioid painkillers. This would account for around 0.6 percentage point of the decline in the male prime age participation rate. However, the link with participation may be overstated as poor prescribing practice was also prevalent in these areas.

Figure 1.27. Labour market participation is correlated with opioid use

By state, 2016



Source: Bureau of Labor Statistics, Centers for Disease Control and Prevention.

StatLink http://dx.doi.org/10.1787/888933732232

65. Estimates of the costs of opioid dependence are substantial, reaching over $78 billion in 2013. These costs range from lost productivity, health care and addiction treatment and criminal justice. The consequences of the opioid epidemic are more substantial than these costs. Deaths from drug overdoses exceeded 64,000 in 2016. Valuing these deaths in terms of the value of statistical life would greatly outweigh the other costs. The (CEA, 2017[41]) estimates that taking into account the human element would take the costs of the opioid crisis to over $500 billion in 2015.

66. In dealing with the opioid crisis, a first step is to reduce the avoidable loss of life by making drugs that can reverse overdoses more readily available. Public policies can limit the emergence of further opioid abuse, by addressing the potential for creating

opioid dependence by adopting best practice in prescription practice and removing unused drug from circulation. Recommendations in this direction were made by the President's Commission on Combatting Drug Addiction and the Opioid Crisis. In addition the Administration has introduced regulations to curb opioid abuse among Medicare beneficiaries. Curbing the supply of illicit drugs will also help reduce the risks of addiction and overdose. A second set of policies to address opioid dependence is through expanding the availability of medically-assisted treatments for addiction. Successfully treating addiction will require complementary policies to reap the full benefits. These need to work on re-integrating individuals into work and ensuring housing to minimise the risk of relapse and recidivism.

67. Anecdotal evidence suggests that widespread reliance on drug testing as an employment screening device is hampering employers finding workers. Drug testing became widespread in the 1980s with the aim of deterrence and to make workplaces drug free. Introducing drug testing in some industries has had positive effects, such as in the trucking industry where it is associated with a decline in fatal accidents (Jacobson, 2003[42]). The impact of drug testing may also have had some positive unintended consequences. For example, Wozniak (2015[43]) argues that employment chances improved for black men as the drug testing overcame previous discrimination by demonstrating that they were not taking drugs. As the labour market continues to tighten (and State laws have begun to legalise cannabis use), employers may begin to alter their approach. Some lessons may be applicable from other countries where drug testing programmes target identifying employees creating safety risks rather than undertaking blanket pre-screening (Macdonald et al., 2010[44]).

Migration

68. Labour force growth has benefitted from immigration. Since the beginning of the 2000s, around one million migrants have arrived annually (slightly above 0.3% of the population). The inflow of immigrants has slowed somewhat over that period, though annual variation can be quite volatile. Immigration is largely family-sponsored, accounting for almost two thirds of persons granted Lawful Permanent Resident (LRP) status in 2015 (OECD, 2017[45]). Employment-based and refugee status or asylum accounted for another 14% of LRPs each. A remaining 5% were granted LPR status through the diversity visa programme. Reforms to attract skilled workers have been occurring in a number of countries recently (Box 1.12). In the case of Canada, immigration has had a number of beneficial impacts, such as increasing educational attainment of the working-age population, making the country more culturally diverse and helping to grow cities and thereby achieve agglomeration economies (OECD, 2018[3]).

Box 1.12. Changing approaches to economic migration

A number of countries - such as the Czech Republic, Estonia and Italy - have been working to facilitate immigration of skilled workers, either by loosening entry conditions on existing schemes or creating new ones (OECD, 2017[45]). In Japan, the waiting period for permanent residence has been reduced for top-scoring foreigners in its points-based system. Further recent changes have been introduced to attract investors and entrepreneurs in Australia, Canada, Chile, France, Korea, Spain and New Zealand.

In other countries, legislation has been altered to make skilled migration policy more selective, such as in New Zealand where the number of points a prospective migrant needs has been raised. In Canada, the Comprehensive Ranging System scoring was reformed in 2016 to enhance long-term economic outcomes (OECD, 2018a). In Denmark and the United Kingdom, salary thresholds were raised in recent years.

Table 1.8. Past OECD recommendations on social and labour market policy

Recommendation	Actions taken since the 2016 Survey
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.
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.
Expand the Earned Income Tax Credit and raise the minimum wage. Make tax expenditures less regressive. Continue to roll out the Affordable Care Act.	The tax reform of 2017 increased the standard deduction.
Reduce pre-screening for employment on criminal records.	No action taken. States and municipalities have required the removal of questions on criminal records from application forms.
Develop reskilling programmes with established effectiveness in helping people back to work.	The Department of Labor is working to expand use of apprenticeships.

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Annex A. Progress in structural reform

This Annex reviews actions taken on recommendations from previous Economic Surveys that are not covered in tables within the main body of the Key Policy Insights. Recommendations that are new to this Survey are listed at the end of the Executive Summary and the relevant chapter.

Recommendation	Actions taken since the 2016 Survey
A. Monetary and financial polices	
Raise policy interest rates at a pace that gradually tightens financial conditions so as not to jeopardise the recovery and to promote a return of inflation to the Fed's target.	Interest rates have been increased gradually and inflation is returning to target
Continue to implement Dodd Frank and Basel III requirements.	The financial regulators have continued to implement Dodd Frank and Basel III requirements.
Implement the OECD Common Reporting Standard on automatic exchange of financial account information.	The United States has undertaken automatic information exchanges pursuant to FATCA from 2015 and entered into intergovernmental agreements (IGAs) with other jurisdictions to do so. The Model 1A IGAs entered into by the United States acknowledge the need for the United States to achieve equivalent levels of reciprocal automatic information exchange with partner jurisdictions. They also include a political commitment to pursue the adoption of regulations and to advocate and support relevant legislation to achieve such equivalent levels of reciprocal automatic exchange.
Reform the housing finance system to ensure access to mortgage credit by creditworthy homebuyers while providing better guarantees of financial stability and avoiding again exposing taxpayers to costly bailouts.	To reduce taxpayer risk during their conservatorships, the GSEs, at FHFA's direction, have implemented an aligned risk measurement framework for evaluating business decisions and performance, reduced the size of their retained mortgage portfolios, and transferred to private credit investors a portion of the credit risk on their guarantees. Additionally, the GSEs continue to explore products and programmes to support access to mortgage credit where prudent to do so.
Leave the securitisation of mortgages to the private sector. This would entail privatising the Government Sponsored Enterprises, cutting off their access to preferential lending facilities with the federal government, subjecting them to the same regulation and supervision as other issuers of mortgage-backed securities, and dividing these entities into smaller companies that are not too big to fail.	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.
B. Fiscal policy	
Cut the marginal corporate income tax statutory rate and broaden its base, notably by phasing out tax allowances.	Significant reforms were introduced in 2018
Boost public investment spending with long-term benefits: infrastructure, skills, innovation, health and environmental protection.	Plans have been announced
Boost investment in, and maintenance of infrastructure; in particular, promote mass transit. Use federal programmes to encourage co-ordination across State and local jurisdictions.	Plans have been announced
Make R&D tax credits refundable for new firms.	No action taken
Increase reliance on consumption taxes	No action taken
Make the personal tax system more redistributive by restricting regressive income tax expenditures	2017 tax reform reduced income tax expenditures.
C. Competition policy	
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.
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.
Use federal funding to remove unnecessary occupational licensing requirements and 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.
D. Environmental policy	

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
E. Social and labour market policy	
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.
Expand the Earned Income Tax Credit and raise the minimum wage.	The tax reform of 2017 increased the standard deduction.
Reduce pre-screening for employment on criminal records.	No action taken. States have municipalities have required the removal of questions on criminal records from application forms
Develop reskilling programmes with established effectiveness in helping people back to work.	The Department of Labor is working to expand use of apprenticeships.
Continue to roll out the Affordable Care Act.	Uninsured rates remain around 14% of the population of ages between 19 and 64.
Work with employers in preventing the negative effects of job strain on mental health, prolonged sick leaves, job loss and disability-benefit claims.	No action taken
F. Innovation policy	
Establish a national innovation office to increase coherence and continuity in implementation of the national innovation strategy.	The President has signed a Presidential Memorandum establishing a White House Office on American Innovation.

2. Addressing labour-market disruptions from trade and automation

Box 2.1. Abstract

The US labour market has been exposed to repeated disruptions in the past two decades, and a wave of change stemming from the rise of automation is looming large. Although unemployment is at an historical low, many displaced workers remain inactive and wages have been stagnant for occupation affected by these disruptions. The upcoming automation of tasks with robots, artificial intelligence and machine learning will bring many benefits, but it will also lead to employment losses and wage pressures for workers whose tasks will be automated. While the US labour market had traditionally the capacity to absorb these shocks, labour market fluidity has slowed in the past two decades, hindering the reallocation of labour and contributing to high unemployment and weak participation, with some locations particularly affected by these social troubles. Lessons from these past trends are helpful to formulate future policies helping improving opportunities for displaced workers.

1. OECD labour markets normally experience considerable dynamism. On average each year, one-fifth of jobs are created and/or destroyed and one third of workers are hired or separate from employers (DELSA/ELSA/WP5(2018)2). This is part of the normal reallocation of resources to their most productive uses in response to shocks. It also allows workers to improve their incomes by moving to new higher-paying jobs.

2. Despite this dynamism of creating new jobs, workers who have become unemployed have often struggled to find employment quickly and can experience a significant earnings loss. While the substantial globalisation shock during the 2000s has largely run its course, the prospect of greater automation and novel applications of artificial intelligence to a wider array of jobs - including in services - create a need to strengthen policies that can mitigate the negative consequences for affected workers.

3. The potential for further automation and artificial intelligence applications has given rise to dystopian outlooks with technological unemployment arising as workers lose their jobs. For example, some authors estimate that up to one half of jobs in the United States may be vulnerable to computing innovations (Frey and Osborne, 2017[1]). However, the outcomes are likely to be more nuanced due to various complementarities between workers and machines and the consequence of rising productivity making widespread redundancy unlikely (Nedelkoska and Quintini, 2018[2]). What seems more likely is that the nature and type of job will change.

4. Against this background, continuing technological innovation - with further automation and the impact of artificial intelligence on the horizon - is not necessarily grounds for pessimism about labour market opportunities. But there will be disruption

requiring workers to move in reaction to technological change and acquire different skills. The experience of the U.S. economy during the global trade shock suggests that some workers experienced greater difficulties in making the transition and were left behind even though on aggregate the labour market was resilient and has created significant numbers of new jobs. This chapter discusses issues that may help mitigate similar difficulties in adapting to future shocks.

2.1. Labour market impacts of technological change and globalisation

5. Technological change brings benefits through the introduction of new and better products, increased variety and gains from higher productivity raising living standards. With the spread of information communication technologies in recent decades, labour markets have been profoundly affected. Particular types of jobs - often routine ones - are increasingly performed by machines and workers have needed to acquire new skills. For other workers however, the introduction of new technologies has complemented their existing skills and made them more productive.

6. Trade remains essential for underpinning productivity and economic well-being. Gains from trade accrue from the ability to allocate resources to the sectors and locations where they can be most efficient. In particular, global trade integration has facilitated the efficient production of intermediate goods thanks to the organisation of fragmented supply chains. More open economies tend to grow faster and participation in global value chains is associated with better knowledge diffusion and stronger productivity growth. In the United States, more than 40% of imports are intermediate goods. These inputs can be essential to global value chains and ensuring the competitiveness of exports (OECD, 2017[3]). The structure of the economy is affected by trade, notably the demand for different types of skills, which imply a reallocation of workers across sectors.

7. Discerning the relative impacts from technological change and trade on labour markets is hard due to their inter-relation. The deeper integration of labour and product markets that has marked globalisation has accompanied and facilitated the introduction of new technology. Empirical work tends to suggest that technological change has had bigger measurable impacts than international trade (Goos, Manning and Salomons, 2014[3]). The impact of technology shocks on the wage premium, labour shares, job polarisation and deindustrialisation have been found in a range of studies (e.g., Schwellnus et al, 2018). That is not to deny the impact of trade, particularly for a local labour market where the employment and earning impacts can be substantial and persistent.

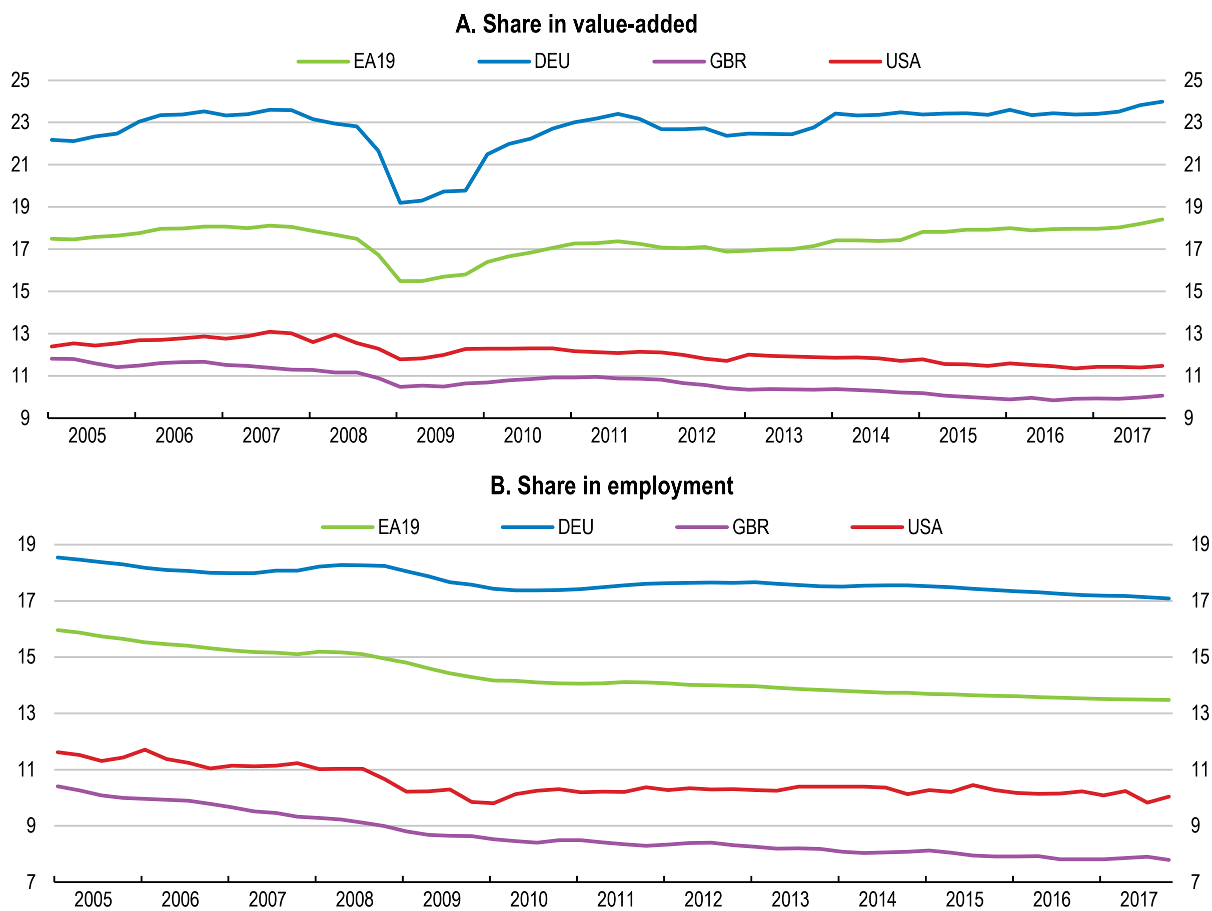
2.1.1. Technological change and globalisation

8. Technological progress and globalisation are having impacts on OECD labour markets through de-industrialisation of employment and polarisation of jobs (OECD, 2017[5]). Technology complements "non-routine" cognitive tasks and substitutes for the routine cognitive tasks, while having little effect on manual labour (Autor, Katz and Kearney, 2006[6]). In part, the dynamic is driven by technologies being able to perform tasks that are easy to codify - the routine cognitive tasks.

9. The impacts of technological change, along with changes in demand, have contributed to a shift in employment from manufacturing towards services in OECD economies. Real manufacturing output has continued to increase, driven by significant

productivity gains, but its share in value added and total employment has fallen (Figure 2.1). There is some variation across countries in the extent of the decline. Notably, Germany has managed to buck the relative fall in output experienced elsewhere, but even there the employment share has still fallen.

Figure 2.1. Manufacturing is a smaller share of the economy



Source: OECD National Accounts Statistics, OECD Main Economic Indicators (MEI) database, and Thomson Reuters.

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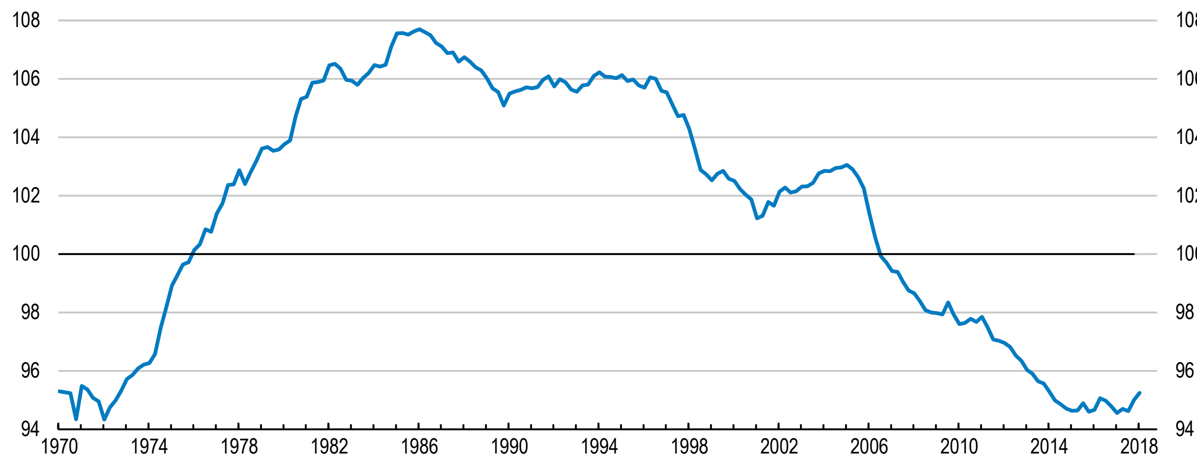
10. The share of employment in the middle of the skill distribution has declined since the early 1980s across most of the OECD (OECD, 2017[5]). On average across the OECD, the share of workers in low-skilled and high-skilled occupations rose by 2.5 and 4.3 percentage points respectively between 1995 and 2015. In North America, the polarisation has seen high-skilled jobs largely absorb the losses experienced in the middle of the distribution.

11. While polarisation holds overall, within particular sectors the picture can be slightly different. For example, in the United States, the share of university graduates has been rising in manufacturing and the share of workers with at most high school attainment shrinking. This is largely a result of production in this sector shifting away

from physical work in the production process, which is increasingly automated. Empirical work by Acemoglu and Restrepo (2017[7]) suggests that an additional robot can reduce employment in a local labour market by around six workers. Despite the shift in employment towards higher skilled workers, wages in the manufacturing sector have been declining relative to the economy-wide average since the early 1980s (Figure 2.2).

Figure 2.2. Manufacturing wages have been falling relative to the rest of the economy

Manufacturing average hourly earnings ratio to private sector average hourly earnings



Source: OECD Main Economic Indicators (MEI) database.

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12. The second major influence on the labour market in OECD economies has been the rise of emerging economies as major players in international trade flows. China's successful development strategy and accession to the WTO created a significant shock to other economies. Increasing trade openness adversely affected employment in competing sectors in other counties. Standard trade theory predicts that the less-abundant factor of production is harmed by openness to international trade, which in most OECD countries concerns lower-skilled employment.

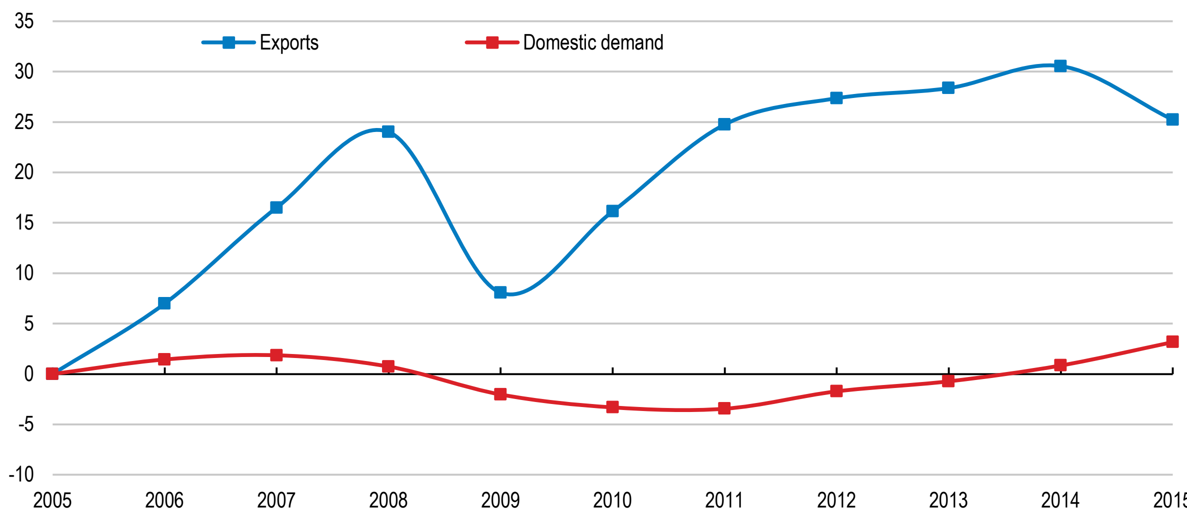
13. Recent evidence has emerged suggesting that globalisation through import competition had direct and persistent negative employment effects in some parts of the United States, whereas increasing exports have boosted employment elsewhere. Some evidence points to the globalisation shock mainly having its effect by inducing plant closure, rather than downscaling (Asquith et al., 2017[8]). Acemoglu *et al.*, (2016) estimate that around 16% of manufacturing job losses between 1991 and 2011 (almost 1 million out of around 6 million) can be attributed to China's rising importance in international trade. Knock-on effects from the initial shock to manufacturing though upstream and downstream linkages had an adverse employment effect of a similar magnitude. In total, this globalisation shock accounts for almost 2 million job losses. To put this into perspective, aggregate payroll employment rose by around 30 million over the same period.

14. Globalisation has not been all bad news for workers. A complementary approach to the globalisation shock has looked at the consequences of increasing the size of the

export market. The United States remains a key partner country in global trade and increased opportunities for its exporters support new job creation. Empirical estimates based on impacts in local labour markets suggest that the number of new jobs created (2.2 million between 1991 and 2011) offset a similar number of jobs lost due to the globalisation shock (Feenstra, Ma and Xu, 2017[9]). Since 2005, trade in value added statistics suggest that employment embedded in export activities outstripped employment embodied in domestic demand by some margin (Figure 2.3).

Figure 2.3. Export-related employment has been growing strongly in the United States

U.S. employment embodied in exports and domestic demand, accumulated growth



Source: OECD Inter-Country Input-Output (ICIO) tables.

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15. While jobs were created, local labour market developments suggest employment adjustment has been weak in the most adversely affected areas (Autor, Dorn and Hanson, 2016[10]). Workers displaced from employment in commuting zones most exposed to the China trade shock have found re-employment relatively slowly with knock-on effects on other segments of the local labour market. The spatial correlation between export-related job gains and import job losses declined over time (Feenstra, Ma and Xu, 2017[9]), suggesting it become harder for displaced workers to find new employment opportunities. The adjustment frictions to reallocation have played a role in creating localised pockets of unemployment and ultimately, when persistent, to heightened inequality.

16. In the past, pockets of unemployment dissipated relatively quickly with inter-State migration being an important adjustment mechanism to asymmetric regional shocks. However more recent empirical evidence suggests that workers in industries exposed to import competition suffered significant losses in earning capacity subsequently in comparison with similar workers in other industries (Autor et al., 2014[11]). Losing firm-specific skills account for some of the earnings declining, but churning between employment and in some cases movement onto disability rolls also play a role, especially for those with weaker labour force attachment. Higher-skilled workers tend to move out of manufacturing and subsequent earnings losses are smaller.

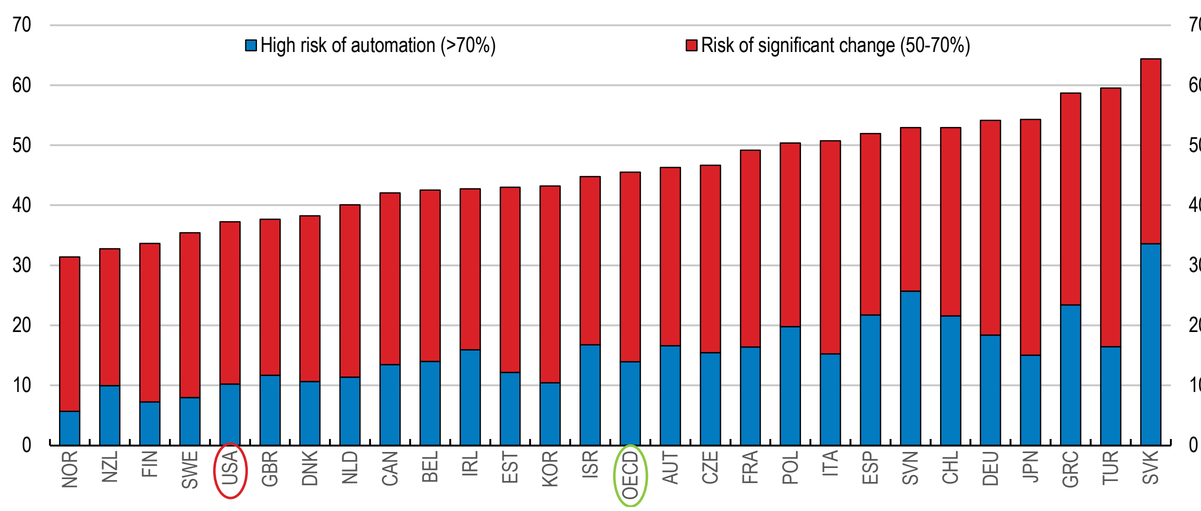
On the other hand, low-income workers appear to suffer more frequent job losses, greater subsequent earning losses, and more cycling between precarious manufacturing employment and spells out of unemployment.

Possible shocks in the future

17. The globalisation shock appears to have largely run its course and future impacts on labour markets are likely to be more modest than experienced during the rapid integration of China into international trade and global value chains. On the other hand, technological change is likely to continue impacting labour markets. While technological change is difficult to predict, possible shocks on the horizon are related to automation.

18. One way to assess the future dangers of technological change to various jobs is to consider their task content and the proportion of jobs that are potentially automatable. By this metric, the share of jobs most at risk from automation account for around about one-tenth for the United States and very close to the OECD average (Figure 2.4). The threat of automation is most keenly felt by workers with the least education, whose job tasks are often the most repetitive. Another 25% of jobs have a substantial share of tasks that are potentially automatable, implying that the nature of these jobs may change dramatically. Nonetheless, job losses for this group will be smaller than the more exposed jobs. Even though the number of jobs threatened is potentially limited, the effects on particular industries are likely to be dramatic. Road transport is one example where technologies making automation feasible are on the cusp of widespread adoption, although current concerns are about truck driver shortages (Box 2.2).

Figure 2.4. The risk of automation in OECD countries



Note: Jobs are at high risk of automation if the likelihood of their job being automated is at least 70%. Jobs at risk of significant change are those with the likelihood of their job being automated estimated at between 50 and 70%.
Source: OECD calculations based on the Survey of Adult Skills (PIAAC) 2012, 2015; Nedelkoska and Quintini (2018).

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Box 2.2. Automation in trucking

Automated inter-urban trucking is approaching feasible implementation once remaining technological and regulatory issues are resolved (ITF, 2017). Driving within urban areas is more complex and as a result automated transport is further from implementation. The expected operational savings for inter-urban transport are estimated to be substantial, reducing costs by around 30%. Such savings will grant tremendous cost advantages to early movers and is thus likely to see the industry rapidly converting to driverless trucks.

In the European Union and the United States, drivers of heavy trucks (mainly middle-aged men) account for 1½-1¾ per cent of total employment. To some extent, automation's effects on employment will be mitigated because future driver numbers are already projected to fall short of expected demand. Furthermore, automation will alter the nature of the job, such as creating new remotely-located drivers, who would take control of trucks when on-board systems encounter difficulties. Nonetheless, in some disruptive scenarios - when new technology is rolled out rapidly - job losses could account for around one half of potential drivers in Europe. On the other hand, if automation is introduced gradually, allowing for potential drivers to be dissuaded from a driving career choice, job losses could be relatively small. In this context, issuing permits for introducing driverless vehicles would offer one approach to controlling the pace of adoption if the negative externalities on drivers were judged to be excessive. These externalities will need to be balanced with wider societal benefits of automated trucking, stemming from fewer crashes reducing loss of life and injury, and environmental benefits from lower emissions.

19. Automation affects employment directly though worker displacement, when the introduction of a robot or machine replaces a human performing a specific task. On the other hand the introduction of automation can have positive consequences by boosting demand for labour (Acemoglu and Retrepo, 2018[12]). For example, improving productivity of existing automated tasks will feed through to increasing demand for non-automated tasks. In addition, as with past technological innovations the nature of work changes, including through the creation of new jobs. Even within a sector that is automating, task reorganisation could enhance complementarities between machines and tasks that are less easy to automate, increasing the complexity of the human task. Some jobs may become more attractive to a wider range of people. As such the overall effect on employment depends on the direct and more subtle indirect effects of automation on the labour market.

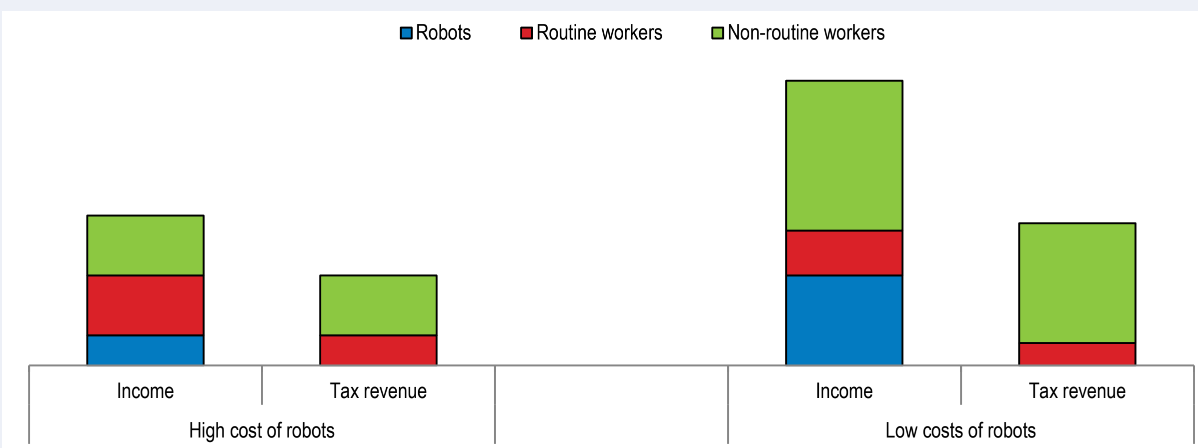
20. The rapid pace of technological change displacing workers from automatable tasks has given rise to calls to slow or halt the process. This has given rise to calls to remove regulatory and tax biases that give incentives to replace workers by machines, or even to tax robots (Box 2.3).

Box 2.3. Taxing robots

Concerns about how robots can displace workers and lead to heightened inequality have given rise to calls to slow the pace of technological progress. In addition to the direct effect on employment, others have worried about the ability of the government to raise revenue and the scope it can give for tax avoidance (Abbott and Bogenschneider, 2018[13]). For example, Bill Gates has raised concern about taxation shortfalls when robots replace workers. The South Korean government has recently reacted by removing tax incentives for businesses investing in automation.

Examining these issues in a simplified model (Daubanes and Yanni, 2018) shed some light on mechanisms and possible outcomes. Standard economic models would argue against taxing an intermediate input, such as a robot, and use the tax and transfer system to address inequality. In a model with "routine" workers, who are at risk of being replaced by robots, and "non-routine" workers, who are not (Guerreiro, Rebelo and Teles, 2017[14]), a fall in the price of robots will raise tax revenue (Figure 2.5). As such, concerns about tax erosion appear misplaced. A further consequence of the results of this stylised model economy is that the threat of job loss can be mitigated by improving the skills of workers so that robots are complements rather than substitutes for workers. In this context, efforts to boost the skills of workers can help ensure everyone is better off from the rise of robots.

Figure 2.5. The rise of robots



Source: Daubanes and Yanni, 2018.

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2.2. Helping workers into employment

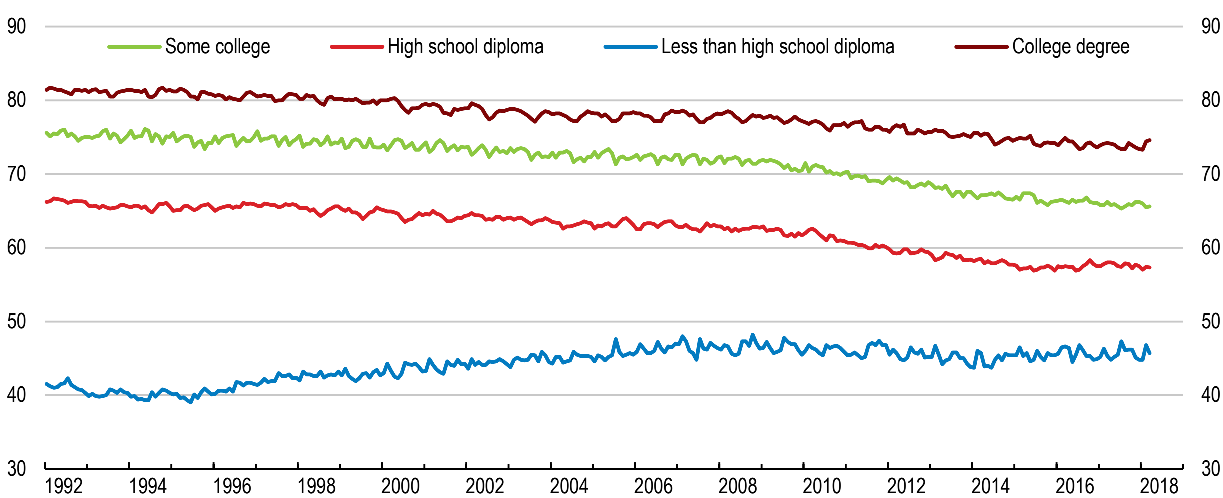
21. Economic growth is a primary engine of job creation. Indeed, during the current upswing in employment payroll growth has averaged almost 200,000 per month. But not everyone and not all locations have seen their prospects improve during the general recovery. A number of structural impediments appear to be at play. Even before the

crisis, employment prospects and participation in the labour force differed noticeably across groups and the country.

22. Examining transition rates from unemployment to employment using data from the Current Population Survey reveals a few differences across the population. Males have had less success in making the transition from unemployment to employment, whereas following the recession, married women have been more successful in finding employment. Age and education have expected relationships, with older individuals experiencing greater difficulties in finding employment, while persons with higher levels of education attainment are more likely to move back into employment. The duration of unemployment has a statistically significant relationship with the likelihood of moving into employment, highlighting the importance of helping the unemployed back into employment quickly.

23. At the bottom end of the wage distribution in employment, jobs tend to become more precarious, including more temporary work. This is linked to lower earnings and higher job strain and can reduce opportunities for on-the-job training and learning. Workers in this type of employment are also the most likely to experience job losses in a downturn. Declining traditional employment in manufacturing appears to affect low-skilled men particularly badly. While the labour force participation of those with the lowest level of education attainment is lower than other groups it has increased somewhat, whereas other groups appear to have followed a secular decline in participation (Figure 2.6).

Figure 2.6. Participation rates are lower for those with less educational attainment



Source: Bureau of Labor Statistics.

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24. One of the lessons many OECD countries have learnt is that early interventions can be important in preventing job displacement leading to persistent employment or income loss. Income losses in the United States are relatively large in comparison with other OECD countries. Early interventions include acting before workers become unemployed as job-to-job transitions can be easier to facilitate. In this context, public employment services may create a temporary office in a firm where mass lay-offs have been announced. Some of the initial contact with the workers is to document their skills

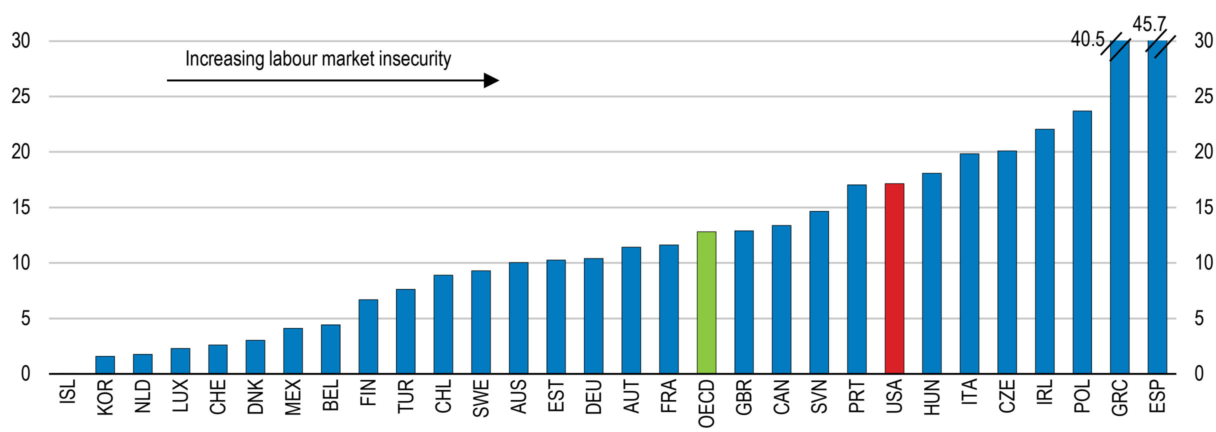
and assessing how they match local and national employment opportunities and to provide counselling about opportunities and possible needs for reskilling.

25. A final way countries have tried to preserve employment is using short-term working schemes. When well designed, such schemes can preserve viable jobs without imposing large efficiency costs as shown by the experience of Germany and Japan during the global financial crisis. The evidence from Finland on the other hand suggests that when schemes are poorly targeted jobs are subsidised for the duration of the scheme but then end with the finish of the programme (DELSA/ELSA/WP5(2018)2).

26. In the United States, the policy environment for job displacement relies largely on unemployment insurance and a set of smaller specific programmes, many of which are provided by the States. Income loss associated with losing employment is relatively large (Figure 2.7). The operation of unemployment insurance has a counter-cyclical aspect in that the duration of unemployment benefits is typically extended when the labour market is performing poorly. On the other hand, the job search requirement targets full-time employment. As this can lead to extended breaks when employment opportunities are limited, this has led to calls for the requirement to be relaxed to allow part-time work or self-employment (Alden and Taylor-Kale, 2018[17]).

Figure 2.7. Income loss on becoming unemployed is quite large

Labour market insecurity: Expected earnings loss associated with unemployment, percentage, 2013



Note: 2012 for Australia, Korea, Mexico, the Netherlands, Turkey and the United States. 2011 for Chile. "Labour market insecurity" consists of unemployment risk and unemployment insurance. "Unemployment risk" is defined as the proportion of time that a worker is expected to spend on average in unemployment and calculated by the monthly probability of becoming unemployed multiplied by the average expected duration of unemployment spells in months. "Unemployment insurance" is measured by the coverage of the unemployment insurance and replacement rates of public transfers received by the unemployed.
Source: OECD (2017), "Job quality", OECD Employment and Labour Market Statistics (database).

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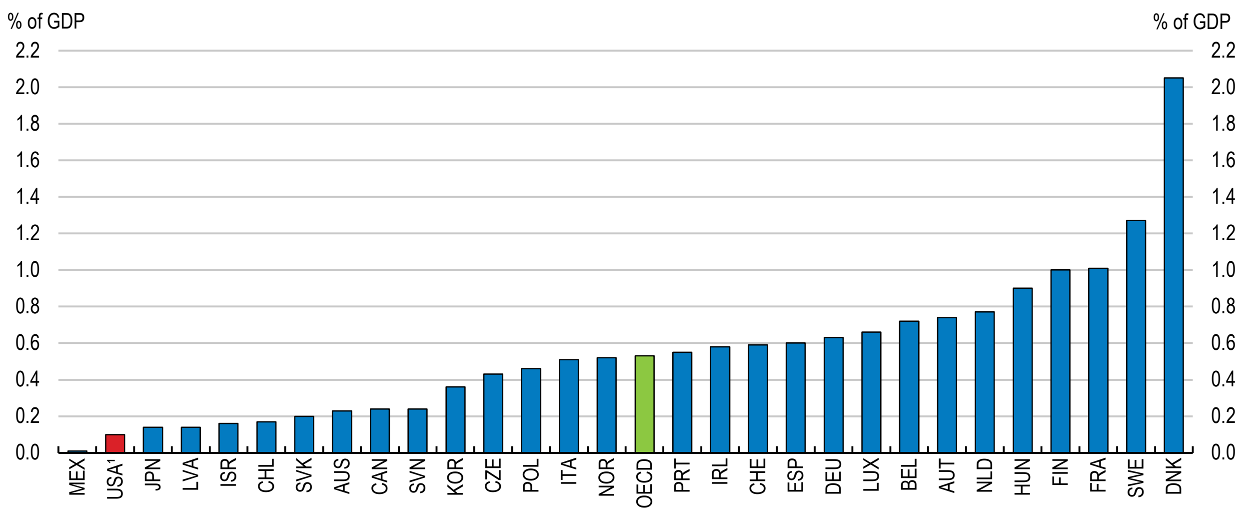
27. The main federal government programme to address worker dislocation specifically is the Trade Adjustment Assistance programme. Workers who are certified as being displaced are eligible for training, job-search assistance, salary subsidy for older workers and modest relocation support. Delays in determining whether job losses are eligible for support have undermined the programme's effectiveness. This programme is narrowly defined to address the specific challenges faced by those losing

their jobs as a consequence of international trade and will play a limited role in addressing dislocations arising from technological change.

28. Finally, the Workforce Innovation and Opportunity Act of 2014 introduced reforms to assisting job seekers by better matching them to growing sectors. The initiative aimed to build regional partnerships, between employers, education and training providers and public stakeholders in providing training and job placement in high-demand sectors. Overall, the United States spends relatively little on active labour market programmes that target getting persons into employment whether through helping with job search and placement or through providing training (Figure 2.8).

Figure 2.8. The United States spends relatively little on helping workers find new jobs

Public spending on Active labour market policies (ALMPs), 2015



1. Includes Temporary Assistance for Needy Families (TANF) work-related activities. Other TANF expenditure (0.20% of GDP) is not included.
Source: OECD Labour Market Programme Database.

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2.2.1. Differential impacts across the country

29. The combined consequences of technological change and globalisation on local labour markets have led to job losses and growing divergences between large metropolitan areas and smaller ones and non-metropolitan areas. Job growth has become more concentrated than in the past as many smaller cities have struggled in the wake of the decline of manufacturing employment. Larger cities, on the other hand, appear to be more resilient and have attracted more high-skilled workers, widening the disparities between large urban areas and the rest of the country. In part, the different experiences of workers in urban and more rural settings appear to be linked to agglomeration benefits. Thicker labour markets in urban areas allow workers to find new jobs more easily. On the other hand, finding employers in less dense areas may mean specific skills fall into disuse when other suitable matches are few (Bleakley and Lin, 2012[14]).

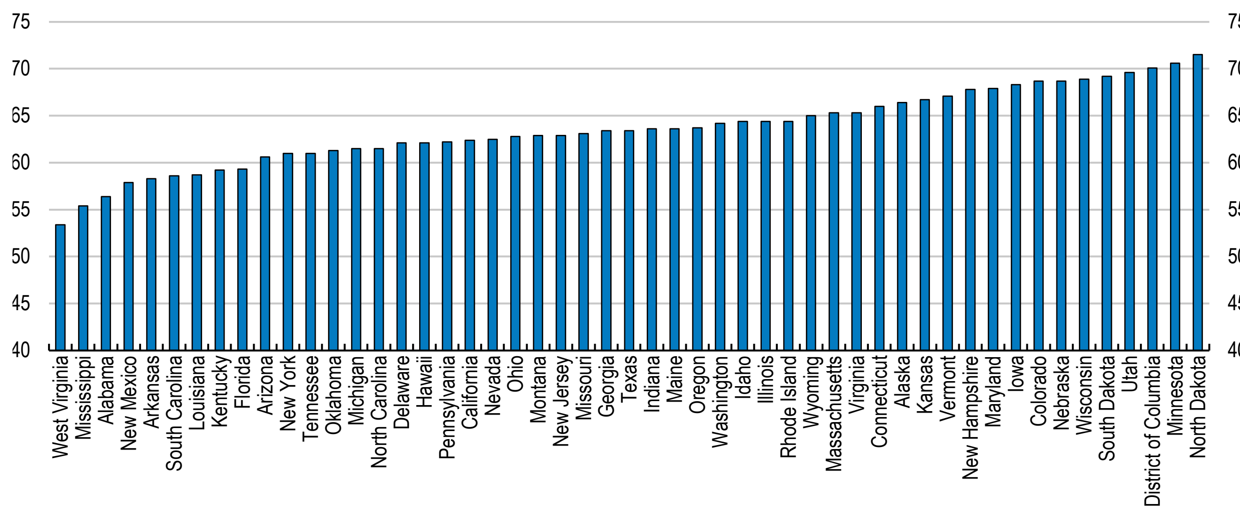
30. These dynamics have been compounded by the impact of the financial crisis. The aftermath of the crisis saw large increases in unemployment rates across the United

States. In comparison with previous expansions, subsequent job creation has been more concentrated in the larger urban areas (Brainard, 2017[15]). Furthermore, labour force participation is stronger in the larger metropolitan areas as well. After 2015, further disparities have emerged between large metropolitan areas, where unemployment rates have continued to decline, and other parts of the country. These dynamics create special problems for crafting appropriate policy responses as quite different labour market conditions can coexist across relatively short distances.

31. There are sizeable differences across the United States in labour force participation rates (Figure 2.9). At the State level in December 2017, the participation rate ranged from just 53% in West Virginia to over 71% in North Dakota. Similar differences hold for unemployment, ranging from just 1.7% in Hawaii to 7.3% in Alaska. At the metropolitan area level the rates vary from 1.5% in Ames, Iowa to almost 18% in El Centro in California (where the State-wide rate is close to the national average at 4.2%).

Figure 2.9. Labour force participation varies substantially across the United States

State-level participation rates, December 2017



Source: BLS.

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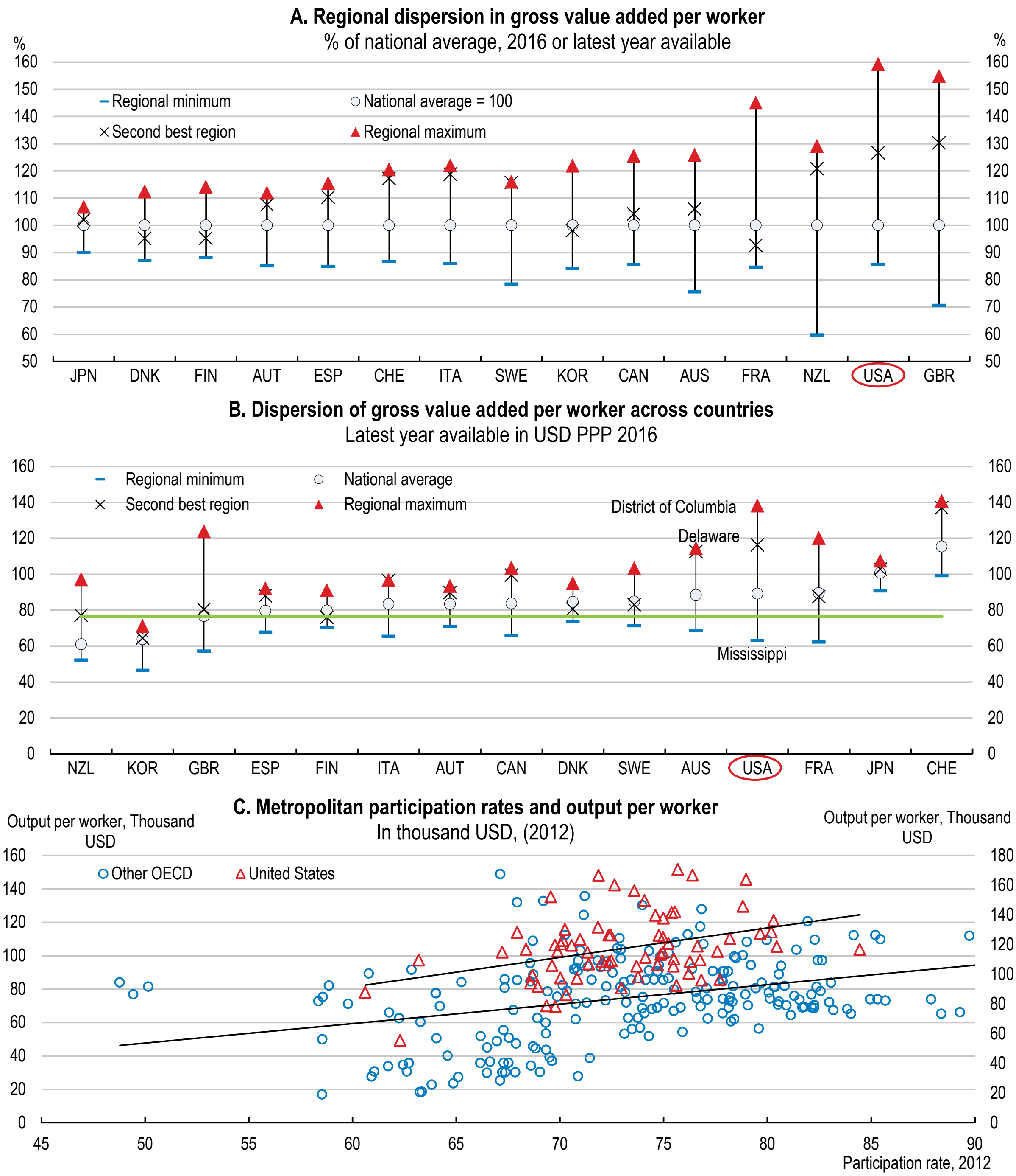
32. The decline in labour force participation rates outside metropolitan areas was marked after 2007 and whilst recovering remained over three percentage points lower at the end of 2017. By contrast participation rates in metropolitan areas were only around one percentage point lower than before the crisis and there is a correlation with local labour market participation and the measured productivity of cities (both in the United States and across other OECD cities) (Figure 2.10). Differences in productivity across regions and cities are sizeable in the United States. Partly as a result of declining participation outside larger metropolitan areas, some local labour markets are becoming tighter, despite employment growth remaining relatively sluggish. Thus while wage acceleration has been quiescent during the recovery, more recently these development have begun to push up wages and to narrow the wage premia enjoyed by urban workers

(Weingarden, 2017[16]). However, large numbers of individuals remain on the fringes of the labour market.

Figure 2.10. Productivity varies widely with participation higher in more productive cities



Note: Panels A and B: Data refer to 2016 for USA, CAN, FRA; 2015 for AUS, SWE, DNK, AUT, ITA, FIN, ESP, GBR, KOR; 2014 for NZL, 2013 for CHE, and 2012 for JPN.
Source: OECD Regional and Metropolitan areas databases.

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33. One approach to assessing local economic conditions on the basis of several labour market indicators suggests that 52 million Americans live in distressed communities (Economic Innovation Group, 2017[17]). These are areas where the number of jobs and businesses has continued to fall during the national recovery from the crisis. Unemployment duration tends to be longer when there are concurrent job losses or when they are more localised, with smaller metropolitan and non-metropolitan areas being more vulnerable. These areas also have low participation rates and also a large share of the population has only limited educational attainment. Most of these communities are in the South or Midwest.

34. Regions with stronger productivity growth across the OECD tend to be better integrated into global value chains, particularly in tradeable services. Integrating urban areas, which attract more knowledge-intensive firms, into global value chains presents opportunities to boost productivity. Promoting interactions between manufacturing and services and building up forward and backward linkages boosts productivity within the sector. Furthermore increasing the accessibility of urban centres can have positive spillovers to surrounding areas, boosting economic growth (Ahrend and Schumann, 2014[18]). A case in point is Chattanooga, a mid-sized city that is growing rapidly. The area is developing on the back of successfully attracting foreign direct investment coupled with the installation of ultra-fast broadband infrastructure. This in turn has induced the development of a tech sector in the city, which further helps in propelling local economic growth (CFR, 2018[13]).

35. The 2017 tax reform introduced tax credits for regional development. The tax benefits aim to encourage long-term investment in Opportunity Zones, which are low-income urban and rural communities. Other approaches to addressing the particular location specific problems facing communities includes tailoring federal support (Austin, Glaeser and Summers, 2018[19]). For example, in the spirit of unemployment insurance, earned income tax credits could be boosted in particularly distressed areas for a limited period of time with the aim of maintaining labour market attachment. The implementation of such a scheme by the Federal government poses considerable administrative difficulties for the Internal Revenue Service, which may be difficult to overcome. As such State-level initiatives may be preferable.

36. Improving access to fixed broadband, particularly in rural areas, is a potentially important means of helping distressed areas (OECD, 2018b). Rolling out modern technology that can better integrate localities into wider economic networks and expand the job finding and education opportunities for rural residents. Better broadband coverage can also provide access to healthcare and education in the most remote locations. The Federal Communications Commission (FCC) has allocated $2 billion in 2018 to use in competitive bidding auctions to expand access to nearly 1 million homes, which should minimise the risk of the infrastructure investment having little impact. Municipal networks have also been created in some cities, often using existing infrastructure to cut costs. These initiatives have been supported by the FCC, which is also identifying unreasonable regulatory barriers to broadband deployment. The Administration has also acted with the Rural Broadband Executive Order to support deployment.

Improving job accessibility

37. Cities in the United States often suffer from poor integration that hinders productivity gains that can arise by making better matches. Poor co-ordination of spatial

planning and service delivery across administrative boundaries can contribute to this outcome. Making cities more accessible, both for residents within the city and the surrounding commuting zones offers a way to increase the chances for displaced workers and others to find employment. Particularly in sprawling cities, access to jobs by public transport is often very limited. For example, in Atlanta just 3% of jobs accessible by car within one hour are accessible by public transport within the same time. This can be a considerable barrier to low-income groups of potential workers. In San Diego county, the workforce development agency considers transport availability and expense as a major barrier for the young in accessing employment and training (Guichard, 2018). Large house price disparities can lead to trade-offs emerging between housing and access to jobs. In this regard, better provision of mass transit where appropriate is one possible solution, though in the longer run better integration of spatial and transport planning is desirable to improve the functioning of urban and surrounding labour markets.

38. A second way to enhance urban mobility is to address spatial segregation that blights some cities and may contribute to persistent inequality (Fogli and Guerrieri, 2017[20]). Even in very prosperous cities, pockets of the population can struggle (Glaeser, Resseger and Tobio, 2009[21]). For example, in Minneapolis the unemployment rate gap between the black and white populations is amongst the highest in the country despite the local labour market being very tight. In some cases, such problems can reflect information asymmetries and actions such as promoting local populations with limited labour force attachment to surrounding employers can help raise employment possibilities. In other cases, addressing spatial segregation may require action to improve opportunity by strengthening non-cognitive skills and raising educational attainment of the population as well as to improve access to important public services.

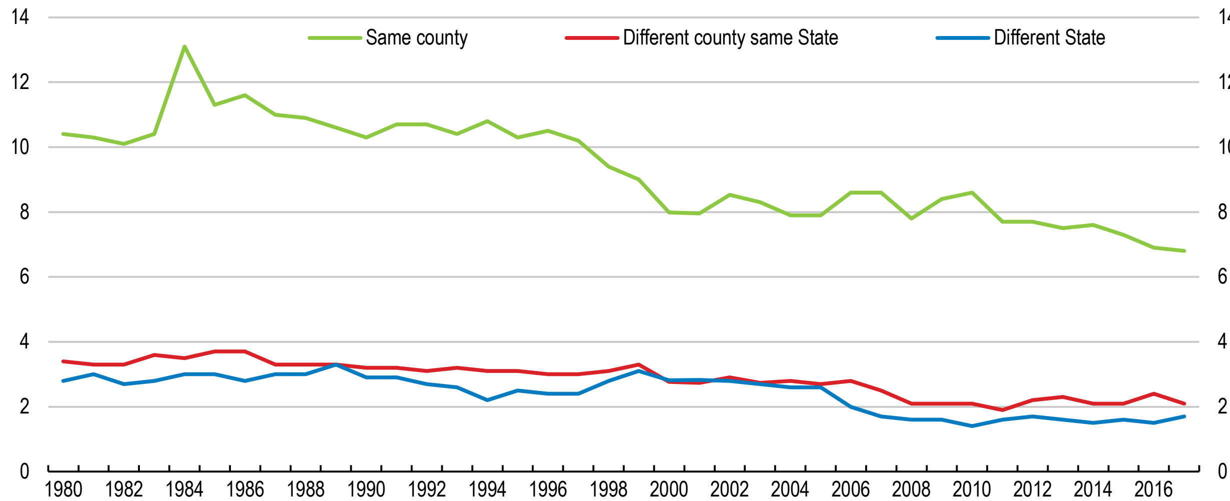
2.2.2. Inter-State migration in response to shocks

39. One finding of recent studies looking at technological and trade change is that local labour market shocks appear to be quite persistent. In part this is related to vulnerable regions being repeatedly buffeted by adverse shocks. There is an inter-State migration response with people leaving areas with high unemployment rates, particularly higher-skilled workers, but this outflow of workers is not in large enough numbers to return local labour markets to equilibrium quickly enough to prevent persistent unemployment and workers dropping out of the labour force altogether.

40. Migration has played an important role in reaction to economic shocks in the past. For example, Blanchard and Katz (1992[22]) found that States experiencing negative shocks tended to adjust by workers leaving the State in response to rising unemployment rates, rather than falling wages. However, migration rates have been slowing since the early 1980s and in particular around the early 2000s until the financial crisis. The slowdown affects migration between States, between counties in the same State and even within counties in the same State (Figure 2.11). Household mobility is now at an all-time low, with the mover rate 11% of the population in 2017.

Figure 2.11. Migration rates have slowed

Annual mobility rates, per cent



Source: Census Bureau.

StatLink http://dx.doi.org/10.1787/888933732441

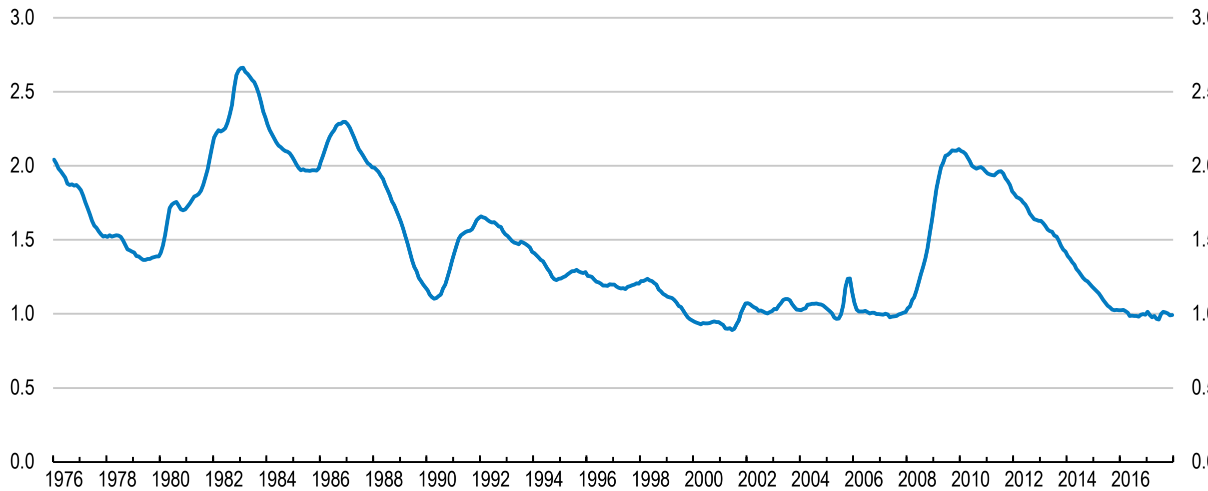
41. The factors underlying declining U.S. migration trends are not well understood. Past strong inter-regional migration flows have declined, partly due to ageing as older people typically move residence less frequently. Declining willingness of workers to undertake job transitions is another factor inhibiting this adjustment mechanism (Molloy, Smith and Wozniak, 2014[23]). This underlines the importance of boosting business dynamism and reducing barriers to job transitions as complements to efforts to boost employment.

42. Other factors are at play in slowing moving rates. As more households have two main earners than in the past, migration becomes more complicated in ensuring matches. This affected migration choices of younger people (who are more likely to migrate than more established families). Young couples are more likely to move to larger cities, which offer greater employment opportunities. As a consequence, the structure of American urban areas has been changing with younger college-educated individuals concentrating in large urban centres since the early 2000s. Over the same period the suburbanisation of cities continues with other groups moving to the peripheries. Part of this is due to the presence of amenities, as measured by the concentration of non-tradeable services in larger cities (Couture and Handbury, 2017[24]). One consequence of this dynamic is increasing spatial segregation.

43. Besides these factors, migration may also have fallen as smaller differences in local labour markets across the United States provide weaker push and pull incentives. For example, the variation of State unemployment rates fell dramatically in the lead up to the great recession, but spiked up sharply and remained pronounced for several years (Figure 2.12). The secular decline in migration did abate around the time of the crisis but low migration rates arguably hindered adjustment to heterogeneous spatial employment shocks.

Figure 2.12. Differences in unemployment rates have declined outside crisis periods

Standard deviation of State-level unemployment rates



Source: Bureau of Labor Statistics

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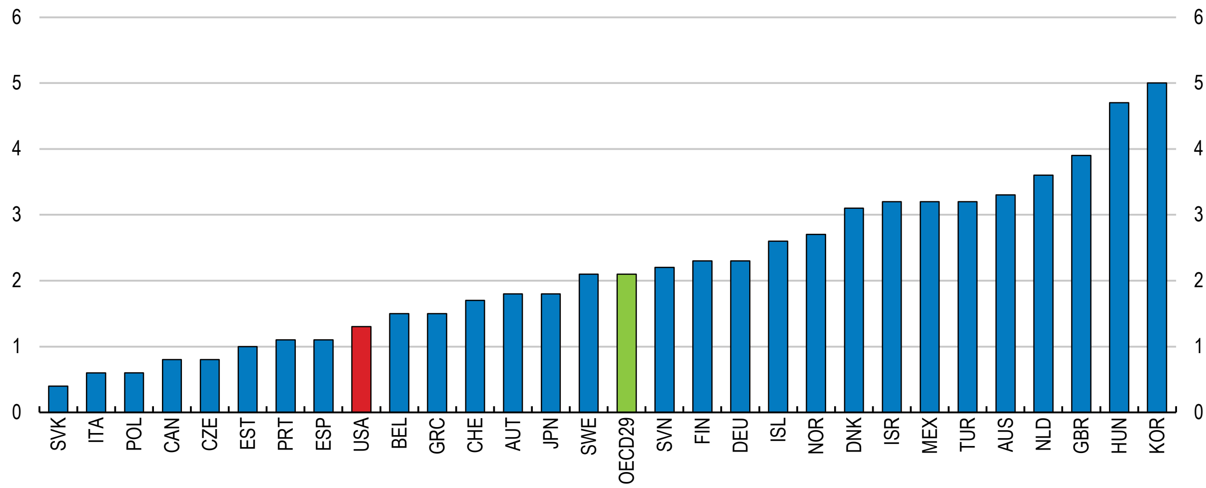
44. While inter-State migration patterns tend to be less responsive to labour market conditions in the United States, in other OECD countries migration appears to be increasingly responsive. Some evidence suggests that migration patterns in the European Union are becoming more reactive to local labour market conditions than in the United States (Jauer et al., 2014[25]). Mover rates remain higher in the United States - at around 11% of the population - than those in the European Union, where annual mover rates affects around 6% and are within the same country. Although gross flows appear larger, net migration flows are relatively small (Figure 2.13). Elsewhere in the OECD, underlying migration patterns tend to be from rural and intermediate regions to urban agglomerations, particularly from rural regions with poor accessibility to cities. A similar pattern is less obvious for the United States (OECD, 2016[26]). In part, this may reflect muted income differentials between households in metropolitan and non-metropolitan areas when compared with other OECD economies (Boulant, Brezzi and Veneri, 2016[27]). But it may also reflect housing market frictions can make finding affordable housing a challenge, particularly in booming cities. In addition, occupational licensing can increase the costs of moving. These are addressed in the next sections.

Figure 2.13. Net migration flows are modest

Flows across territorial units, % of total population, average 2011-13



Note: The territorial units are the TL3 units used for international comparison. The data for the United States are based on aggregates of counties that are smaller than States.
Source: OECD (2015), OECD Regional Statistics database.

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Housing market frictions

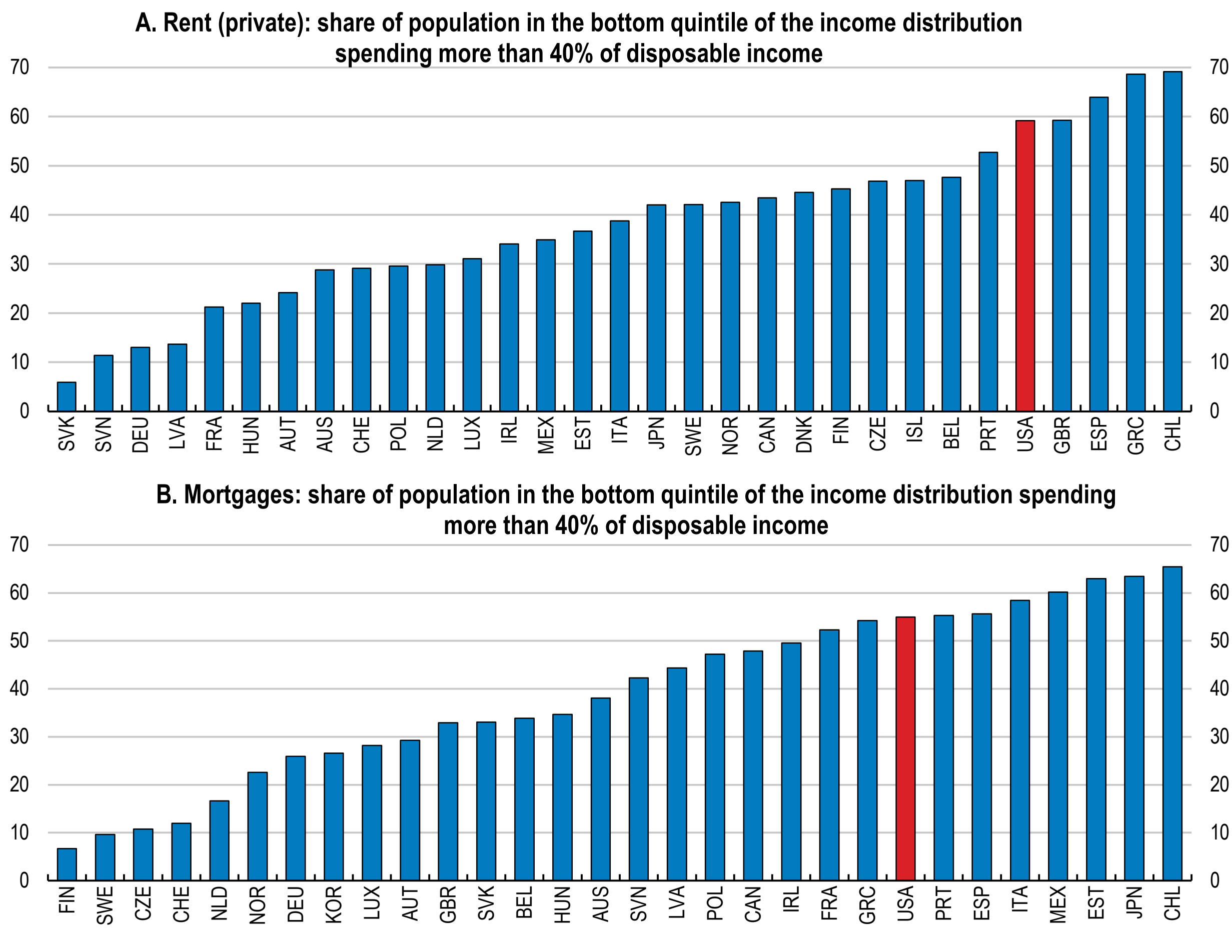
45. Changes in the housing market have contributed to lower labour market fluidity, but also to the functioning of the housing market creating barriers to migration (Ganong and Shoag, 2016[28]). As a result, workers and families hit by adverse shocks from technological change or globalisation arguably face greater difficulties in moving to areas where employment opportunities are better.

46. The barriers to mobility do not appear to be related to rising homeownership, which does not appear to have made a material difference on labour market flows. Empirical evidence points to negative equity leading to lock in and higher homeownership rates being associated with higher unemployment, but these findings are either economically small or contested in other studies (Goodman and Mayer, 2018[29]). Interestingly, homeownership is not a barrier to inter-metropolitan moves, though the moves tend to be in pairs of cities with co-varying home prices (Sinai and Souleles, 2013[30]). As such, migration between declining areas and more prosperous metropolitan areas is likely damped, and contribute to the low net-migration rates. In any case, the recent decline in household mobility appears to be related to lower mover rates for renters. In 2017, just over one-fifth of renters moved whereas in the late 1980s almost one third of renters moved accommodation. Difficulties in finding suitable accommodation in more prosperous cities may be related to this dynamic.

47. In comparison with other OECD countries, housing is expensive for low-income households in the United States (Figure 2.14). Housing cost burdens are large for private renters and low income private house owners with a mortgage. Furthermore, rental housing affordability has deteriorated. Social housing accounts for only a small fraction of the housing stock (4.5%). In comparison with many other OECD countries, the amounts spent on social housing are modest. The main Federal programme is

administered by Housing and Urban Development using vouchers, which are distributed by lottery, that cover part of the cost. However, these are undersupplied given demand. Cities can support social housing by requiring new developments include affordable housing units (or by levying a fine when affordable housing units are not included in the development).

Figure 2.14. Housing is expensive for lower income households



Source: OECD Housing Affordability Database.

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48. Part of the different dynamics in house prices across the country relates to housing supply. The housing supply response in the United States has been amongst the strongest in the OECD. Over the past few decades the higher elasticity of housing supply in the South has enabled the relative shift of the population to more temperate locations (the Sun Belt) from the Frost Belt in the North East and Midwest.

49. However, it appears that the supply elasticity has been more muted following the crisis (Box 2.4). Whereas the supply response helped move the housing market back to equilibrium in the pre-crisis period, since the crisis the supply response has been muted, but the price response has continued to move to equilibrium, putting upward pressure

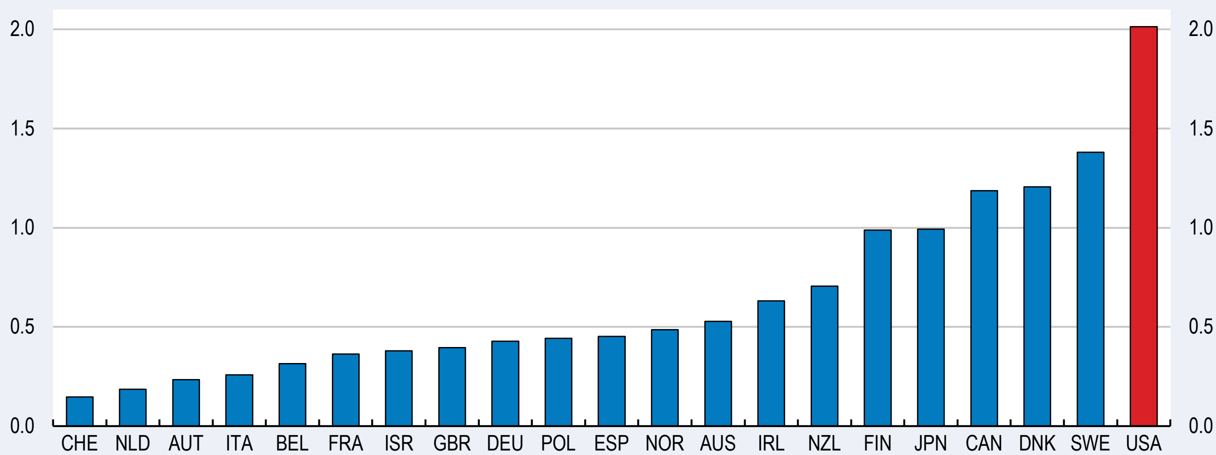
on housing prices. Coastal areas where the economy is booming, such as San Francisco and Seattle, have limited topological scope to expand horizontally. This is compounded by zoning regulations that hinder the densification of cities.

Box 2.4. Housing supply estimates

In comparison with other OECD countries the price responsiveness of new housing supply in the United States is one of the strongest (Caldera Sanchez and Johansson, 2011[33]). The long-run price elasticity of around 2 was strong (Figure 2.15).

Figure 2.15. Price responsiveness of housing supply is high in the United States

Long-term price elasticity



Source: (Caldera Sanchez and Johansson, 2011[33]).

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Over time however the price responsiveness to supply appears to have weakened, but the link to prices of income demand remains. Re-estimating the equations yields similar elasticities for a sample from 1970 to 2015. Splitting the sample in half suggests that supply was more responsive in the first half but not the second, when the coefficient was statistically insignificant and economically less powerful. These estimates need to be taken with caution since the second half of the sample included the global financial crisis and developments in local housing markets across the United States exhibit very different dynamics.

50. One source of housing market friction arises from local regulation. Furman (2015) and Gyourko and Molloy (2014[31]) note that land use regulation adversely impacts economic activity. Estimates of how land use regulation hinder productivity in major cities suggests that it may reduce GDP by up to 2 percentage points in some calculation (Glaeser and Gyourko, 2018[32])and rising to as much as 9 percentage points in others (Hsieh and Moretti, 2015[33]). There is only limited information on the nature of regulation with the Wharton Land Regulation Index providing a detailed snapshot for 2007. The index reveals that minimum lot sizes are common and that "development fee extraction programs" are also very common. The approval process can vary markedly

across localities from around 3 months to 10 months and that more groups are involved in project approval in the more regulated areas.

51. Housing regulation can help correct externalities, which may reflect different local preferences. Such preferences appear markedly different between California and Texas, for example, but are generally not enough to justify the large differences between prices and construction costs. Additional factors contributing to house price differentials across cities include amenity values, with certain cities being far more attractive to live in due to for example higher cultural and environmental quality. In some cases, the tightness of some local zoning requirements reflects house owners' desire to protect house prices to the detriment of potential movers to these areas.

52. Restrictive land use regulation raising housing prices may undermine cities in the longer run. Limiting housing supply can reduce population density and thus potential agglomeration effects (complementarities between population density and productivity). Existing property owners, typically older people, enjoy wealth gains from higher housing prices, but at the cost of making housing less affordable for younger adults and people wanting to relocate to the cities where employment probabilities are higher.

53. Other OECD countries do not experience the same degree of local-level land-use regulation, mainly because land-use authority resides at a higher level of government, which mitigates co-ordination problems. Nonetheless, many OECD countries confront similar challenges. Restrictive land use regulations have limited sufficient new housing construction and hindered densification, particularly in low density areas close to city centres and along mass transit routes. Densification in these areas is typically needed to keep housing affordable for low- and middle-income households.

54. Options to make land-use regulation more flexible include moving from single use zoning to zoning based on the nuisance externalities. In this context, local preferences can be respected in core planning objectives while at the same time allowing mixed-use developments. Spatial planning for housing should not occur in isolation and take into account transport, network utilities and other land uses. These are important to encourage city form that allows greater accessibility, reduces congestion and local air pollution, as well as mitigating climate change. These considerations call for metropolitan bodies that can co-ordinate policies across the metropolitan area (and foster links outside) and avoid potential undersupply or supply in inappropriate areas (Ahrend et al., 2014[34]).

55. A related feature of metropolitan governance fragmentation contributing to housing undersupply can occur with business and sales taxation. In cases where local governments within a metropolitan area retain this tax base, an undersupply of housing can occur as localities chase revenue sources. An exception is the Minneapolis metropolitan area which pools sales tax revenues and then redistributes on a per capita basis (Metcalf, 2018[35]).

Licensing barriers to employment and migration

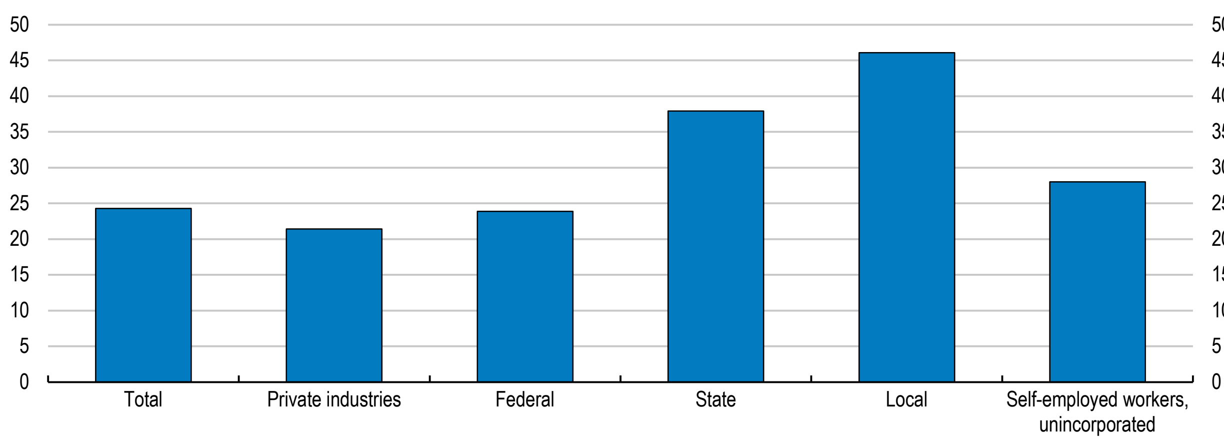
56. Occupational licensing is used to ensure public health and safety amongst other policy objectives. As such there are good reasons, particularly in the medical sector and in occupations such as civil engineering. This is reflected in the coverage of licensing of the workforce. Licensing is most common in education and health services and is also widespread in government, particularly for local government where teaching is likely

an important employer (Figure 2.16). However, there is also licensing which is harder to justify on public policy grounds and rather appears to have morphed from its original purpose to protect local rents (Kleiner and Vorotnikov, 2017[36]). Ultimately, from the perspective of workers in regions being hit by negative technological or globalisation shocks, the spread of occupational licensing creates additional frictions. As households have increasingly multiple breadwinners the growth of occupational licensing affects a growing share of households. In this context, the costs of moving to make a better employment match is made more complex if other members of the household need to acquire new licences to continue their employment. This is also likely to contribute to problems of mismatch if workers are constrained to search in local labour markets.

57. The impact of occupational licensing on income appears to be most pronounced for workers with relatively low educational attainment. Wages are approximately one-fifth higher for workers that did not finish high school who also hold a certification or an occupational licence. There is essentially no wage difference for workers who completed college and hold an occupational licence. Licensed workers tend to earn higher wages in transportation, construction and legal services.

Figure 2.16. The share of workers with certification or licences is high

% of employed with a certification or licence



Source: Bureau of Labor Statistics.

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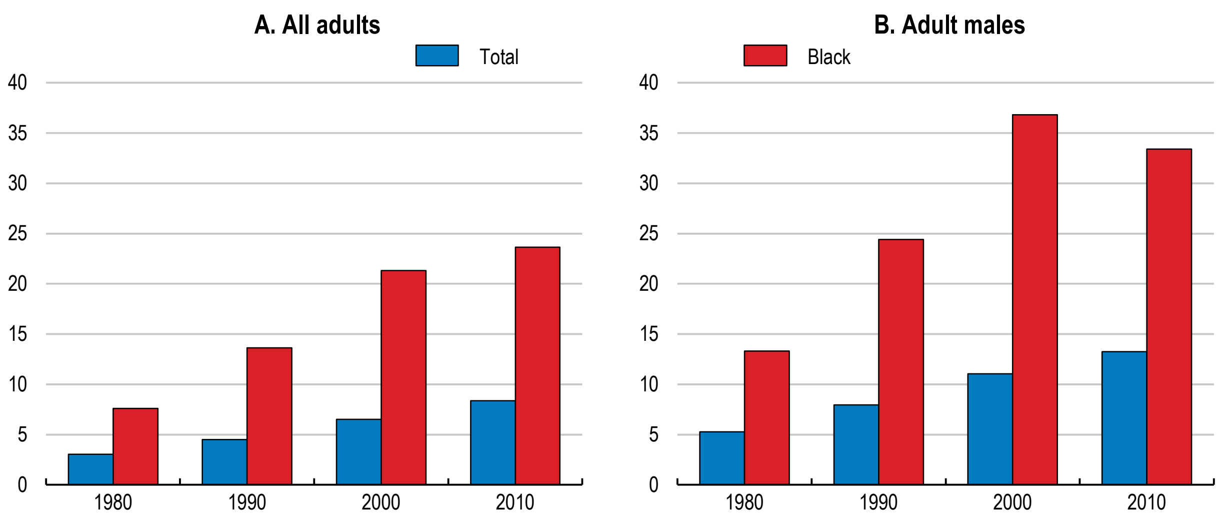
58. Occupational licensing can have negative effects on employment by hindering job movements. Job-to-job flows in the U.S. have exhibited a net decline over the past decade, which is a source of concern given that job transitions is a source of opportunity for workers (OECD, 2016). One factor that has been attributed to this decline is the prevalence of regulatory barriers, notably occupational licensing. State-level licensing can result in requirements that are heterogeneous across states. Workers, therefore, are obliged to obtain separate licences with varying levels of requirements for each state, which can imply significant commitments in terms of time, effort and financial resources when relocating. This hinders workers from reaping the advantages of career opportunities elsewhere and can subsequently result in a mismatch between the demand and supply of talents. Nevertheless, the extent to which licensing contributes to the decline in labour market fluidity remains quantitatively unclear.

Recent evidence does suggest it has played a role in reducing inter-state migration (Johnson and Kleiner, 2017[37]).

59. A consequence of licensing is that it can block access to particular jobs for a large share of the population. This arises through requirements to pass a criminal background check in order to obtain a State licence. There are an estimated 27,254 State occupational licensing restrictions for those with a criminal record. Estimates of the size of the population with a criminal record suggests that a sizeable share of the population may be affected by these restrictions and due to the over-representation of black and African American men with criminal records, these background checks effectively constrain their employment opportunities (Figure 2.17).

Figure 2.17. The share of felony convictions in the population has increased



Source: (Shannon et al., 2017[38]).

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60. Occupational licensing is also an important issue elsewhere in the OECD. Surveys in the European Union show that the share of regulated professions in the total labour force is a little over 20% on average, but with substantial variation across countries. For example, the share in Denmark is under 15%, whereas in Germany it rises to over 35%. The variation in the number of regulated professions is substantial ranging from just 76 occupations in Lithuania to 545 in Hungary. Economic analysis of the impact across Europe suggests that employment in these professions could be up to 9% higher and that the aggregate wage premium in these sectors is 4%. Furthermore, related analysis suggests that making barriers less onerous resulted in improved business dynamism, encouraging new firm creation and the development of innovative services.

61. There are a number of strategies to minimising the costs of licensing, although successful experience in the United States is scarce. One study only uncovered 8 instances of States de-licensing an occupation over 40 years (Thornton and Timmons, 2015[39]). The approaches include sunset clauses, reviews, switching to voluntary registration or certification, and mutual recognition:

- Sunset clauses have proven largely ineffectual in reducing unnecessary licensing. While 36 States since the 1970s have introduced sunset laws that require periodic "performance audit" of occupational licensing schemes to determine whether they should be maintained around one half of the States subsequently repealed or suspended the laws. Furthermore, most audits recommended continuing the licensing and in the few cases where de-licensing was proposed the State legislature ignored the recommendation.
- When the public interest objective is not well served by occupational licensing, switching to a voluntary scheme is one way to minimise the economic burden of the law. For example, Texas switched its scheme for interior designers to a voluntary scheme in 2009. An alternative approach to reform is to reduce the scope of licensing. For example a number of states have exempted hair braiding from barber of cosmetologists occupational licensing.
- Another approach is to pursue mutual recognition to reduce barriers to inter-state migration. New evidence for this survey suggests that this approach does appear to relax some of the constraints on inter-State migration (Box 2.5). Incentives for States to pursue reciprocal recognition were contained in the Administration's infrastructure initiative.

62. The European Union has been grappling with similar issues for the movement of professionals. Given the diversity of regulatory approaches across the European Union, the 2013 Professional Qualifications Directive introduced a mutual evaluation exercise which required member countries to review all regulated professions. This process garnered information on the regulation in place and how the level of regulation varied across countries, notwithstanding the same underlying rationale. On the basis of this information, countries then were required to produce National Action Plans that would justify when regulations were maintained or amended. The European Commission is working to improve mobility for specific professions by creating "services passports" and introduce a proportionality test which provides a framework for countries to assess the extent to which their occupational licensing induces harmful economic consequences.

63. Technological change also has the potential to modify regulation. For example, the Productivity Commission in Australia note that online rating of companies could potentially reduce the need for government regulation to ensure consumer protection.

Box 2.5. Mutual recognition of State-level licensing

The Nurse Licensure Compact (NLC) whereby States recognise the licences of other States that join the Compact offers a way to study its impact on interstate job mobility within the relevant sector. Membership of the NLC has gradually expanded over time since its creation in 1999 and now covers 26 States.

This expansion of coverage can be used to help understand whether the adoption of the Nurse Licensure Compact increases job-to-job flows in the healthcare and social assistance industry from a given Compact state. The econometric approach adopted to study this was estimating difference-in-differences regressions. The empirical work done for this Survey exploits a relatively new dataset of job-to-job flows released by the U.S. Census Bureau that has not yet been used to study the effects of occupational licensing and job mobility.

The results of the difference-in-differences estimation suggest an approximately 11% increase in job outflows within the health and social assistance industry (significant at the 1% level) following the implementation of the NLC (see Table 2.1, column 1). By contrast the empirical specifications examining whether the result is potentially spurious by checking job-to-job flows that are not between Compact States do not show any meaningful increase in inter-regional migration between States on joining the Compact.

Table 2.1. Regression results of impact of mutual recognition on migration

	Compact to compact states	Compact to non-compact states	Compact to an states
VARIABLES	(1) logj2j	(2) logj2j	(3) logj2j
Treat	-0.0326	0.442***	0.00907
	(0.0255)	(0.0543)	(0.0292)
Post	0.00883	0.0112	0.00952
	(0.00813)	(0.00814)	(0.00824)
Treat X Post	0.111***	-0.108*	0.0205
	(0.0342)	(0.0612)	(0.0330)
Observations	439,672	439,672	439,673
R-squared	0.142	0.143	0.142
Outcome mean	0.978***	0.979***	0.978***
	(27.93)	(0.0349)	(0.0350)

Robust standard errors in parentheses
***p<0.01, **p<0.05, *p<0.1
Source: Abdul Ghani (2018).

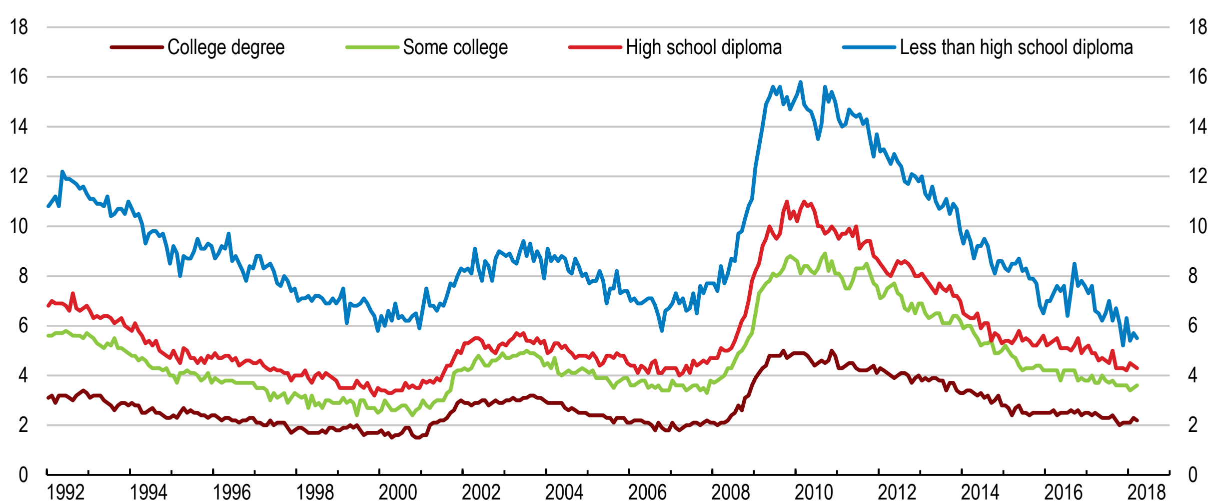
2.2.3. Skills and labour market opportunities

64. Beyond the importance of ensuring high quality pre-primary and compulsory (K12) education to provide strong foundations, workers acquire needed skills in

preparation for joining the labour force or when moving between jobs and occupations from 2 and 4 year colleges and on-the-job training.

65. Over time, the proportion of students attending colleges has been rising from around one quarter of 18-24 year olds in the 1980s to almost two-fifths in the mid-2000s. Most students attend four year colleges, where the individual returns to investment in education have been substantial. Furthermore, unemployment rates amongst those with bachelor degrees are typically noticeably lower than those finishing two year programmes or those with high school graduation (Figure 2.18). Enrolment in post-secondary career and technical education has also been rising. This part of the system is highly decentralised and has strengths in its diversity and flexibility in meeting the needs (OECD, 2015[40]).

Figure 2.18. Unemployment rates amongst those with college education are lower



Source: Bureau of Labor Statistics.

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66. While formal education settings can play a major role in providing workers with requisite skills, experience across the OECD also suggests that work-based learning opportunities are valuable complements. This is probably particularly appropriate for students who are less suited to continuing in formal education but would benefit from acquiring additional skills to enhance their employability.

67. As work-based training is linked directly to employers' needs it can provide needed skills and build the soft skills valued in the work environment (OECD, 2017[5]). There are three conditions that help boost the effectiveness of work-based learning. First, quality needs to be assured and employers engaged in the programmes. Second, the courses need to be affordable and attractive to workers. Third, the competencies gained need to be recognised. In achieving the first two criteria, support for businesses and students likely entail a fiscal cost. The recognition of skills has created obstacles to movement in some professions (either due to occupational licensing or qualifications not being portable from one State to another, either due to differences in curricula or lack of understanding in what the qualification signifies). In this context, the Credential Transparency Initiative is a potentially useful approach to helping prospective students

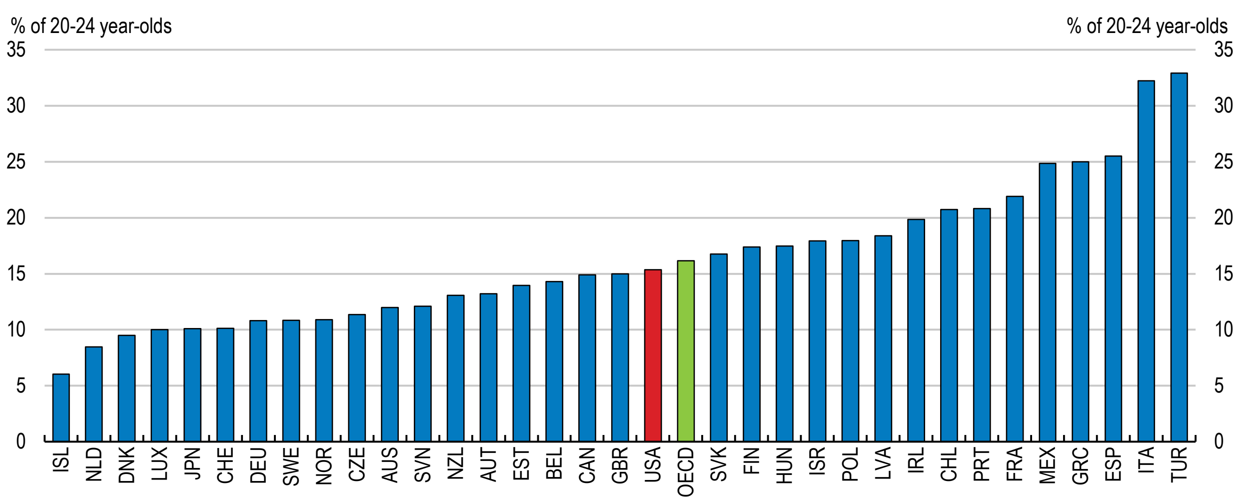
understand what different courses are offering and what employers are demanding (CFR, 2018[13]). Instituting a voluntary hallmark scheme would be another approach to clarifying the bewildering array of options.

68. The Economic Report of the President recommends allocating resources to promoting apprenticeships and building partnerships between education institutions and employers as a means to promote greater labour force participation among younger cohorts (CEA, 2018[41]). Apprenticeships play a relatively small role in the workplace in comparison with other countries. Data for 2011 reveals that in the United States there were fewer than 15 apprenticeships per 1000 workers. In Canada this figure was closer to 30, whereas in Switzerland it was around 45 (OECD/ILO, 2017[42]).

69. Apprenticeship programmes can help facilitate the transition to work. This is important as young people who disengage from the labour market subsequently tend to experience more difficulties in finding stable employment in the future (OECD, 2010[43]). The share of young adults not in employment, education and training is around the average of the OECD, and noticeably higher than in Germany and Japan (Figure 2.19). Building basic and transferable skills into these types of education facilitates workers moving between jobs, particularly when the economy reacts to technological change or other shocks. A variety of models exist with different focus, such as ones targeting the school to work transition, as in Germany, to designs that take into account location such as apprenticeship hubs in cities in the United Kingdom to apprenticeships serving rural areas in Norway (OECD/ILO, 2017[42]). Successful apprenticeship training programmes, such as those in Australia, Austria, Germany and Switzerland, are founded on strong collaboration between employers and other stakeholders combining on-the-job and off-the-job training. The strong role of the employers helps ensure the training provides relevant skills.

Figure 2.19. Young adults face difficulties in entering the workforce

20-24 year-olds not in employment, education or training (NEET), 2016 or latest year available



Source: OECD Education at a Glance: Transition from school to work database.

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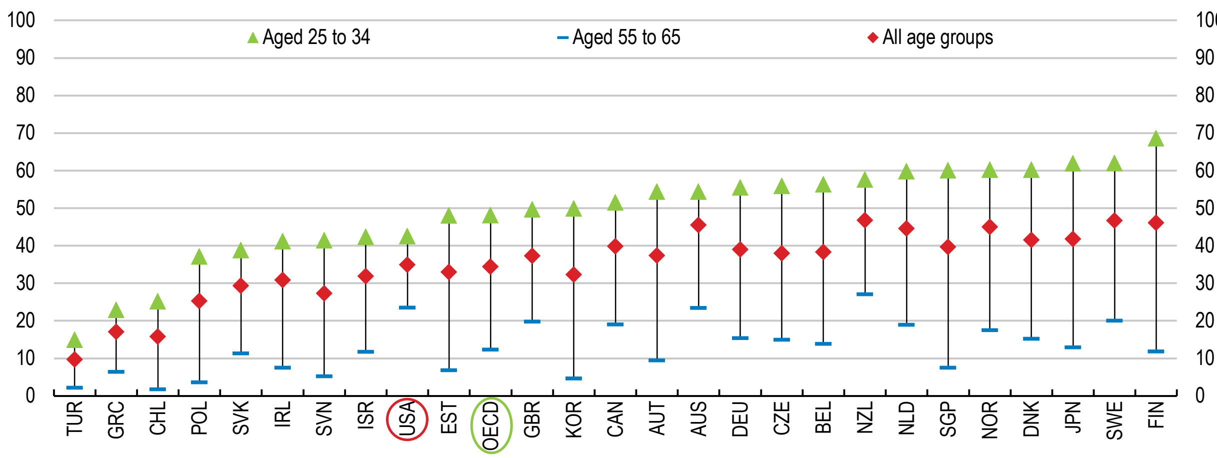
70. The traditional education system and expansion of work-based training, such as apprenticeships, meet an important part of education needs, mainly targeting those entering the labour market. For those already working, the prospects of structural shocks implies that workers need to become more resilient and able to adapt to changing demands for skills. With respect to the increasing use of technology, improving digital skills possessed by the adult population in the United States suggests one way life-long learning could boost employment opportunities. Older cohorts of workers already possess greater aptitude than older workers in many other OECD countries, but the younger population appears to be less equipped with digital skills in comparison with other OECD countries (Figure 2.20).

Figure 2.20. Digital skills are relatively less developed amongst younger cohorts

Share of 25-34 and 55-64 year-olds performing at Level 2 or 3 in problem solving in technology-rich environments



Note: Individuals in Level 2 or Level 3 have more advanced ICT and cognitive skills to evaluate problems and solutions than those in Level 1 or below. The OECD average is the simple unweighted average across countries.
Source: Survey of Adult Skills (PIAAC) 2015.

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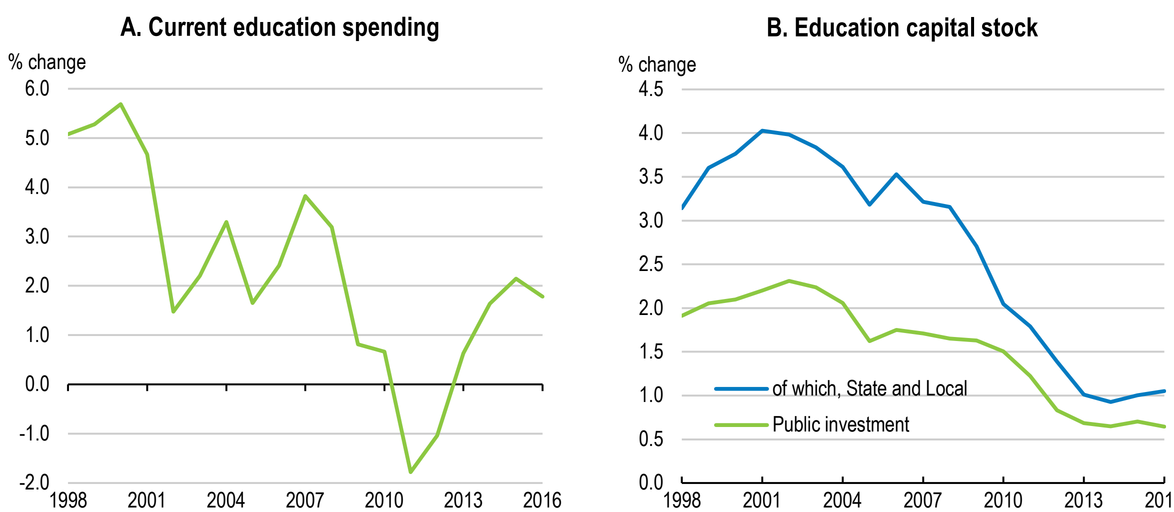
71. In comparison with other OECD countries, adult Americans are more willing to participate in further education (both formal and non-formal learning activities). Survey evidence suggests that over one third of American adults want to participate, whereas the unweighted OECD average is about one quarter (OECD, 2017[44]). Barriers to participation include caregiving responsibilities and the pressure of work, which are cited in about the same frequency as in other counties. On the other hand, the expense of adult education creating a barrier to participation was cited more frequently in the United States than the OECD on average, 24% and 15% of respondents, respectively.

72. Educational spending tends to be pro-cyclical at the State and local level, which is the main source of financing. As such, when labour markets experience large negative shocks, current education spending has been restrained (Figure 2.21). This can limit opportunities for displaced workers, including through programmes offered by community colleges, which have felt the squeeze in the recent downturn. Furthermore, public investment in education has stalled since the beginning of the century (Figure 2.20). This has occurred at both the Federal and the State and local levels especially after the financial crisis. Current spending and investment has only begun to recover

somewhat after 2013. More spending does not necessarily translate into better outcomes, yet the past experience of education spending raises concerns about whether training provision will be sufficient to address skills challenges during periods when workers most need retraining.

Figure 2.21. Current spending and investment in education has slowed



Source: Bureau of Economic Analysis.

StatLink http://dx.doi.org/10.1787/888933732631

73. With some - often low-skilled - workers on more precarious types of contracts or participating in the gig economy that preclude on-the-job training opportunities, enhancing skills becomes difficult. However, reaching these groups has proven difficult, including due to the cost of the training. The low-skilled, in particular, are often not well prepared for further learning (OECD, 2016[45]).

74. The prospects of harnessing technology through the use of massive open online courses and open education resources potentially offers a means to reduce costs and increase accessibility. Efforts are needed to ensure quality and qualification recognition to become an effective complement to other educational approaches. In addition, as these resources require familiarity with digital technologies, the continued rollout of broadband infrastructure (as recommended in the previous *Economic Survey* and the current Administration) and helping students and workers acquire these skills acquires considerable importance (OECD, 2017[5]).

75. Finally, ensuring workers are well prepared for work also requires that they learn appropriate skills. As technological change continues apace, the types of skills required on the labour market are likely to change. The duration of courses means that reactivity to current demands can only be met with some lag. In this light, education and training need to anticipate demands for skills. Forecasting the demand for particular types of skills is inherently difficult. However, using big data (from online job openings) may help signal where changes in demand for skills are emerging. Ultimately, however, all stakeholders need to co-operate to ensure that changes in curricula are responding to actual needs.

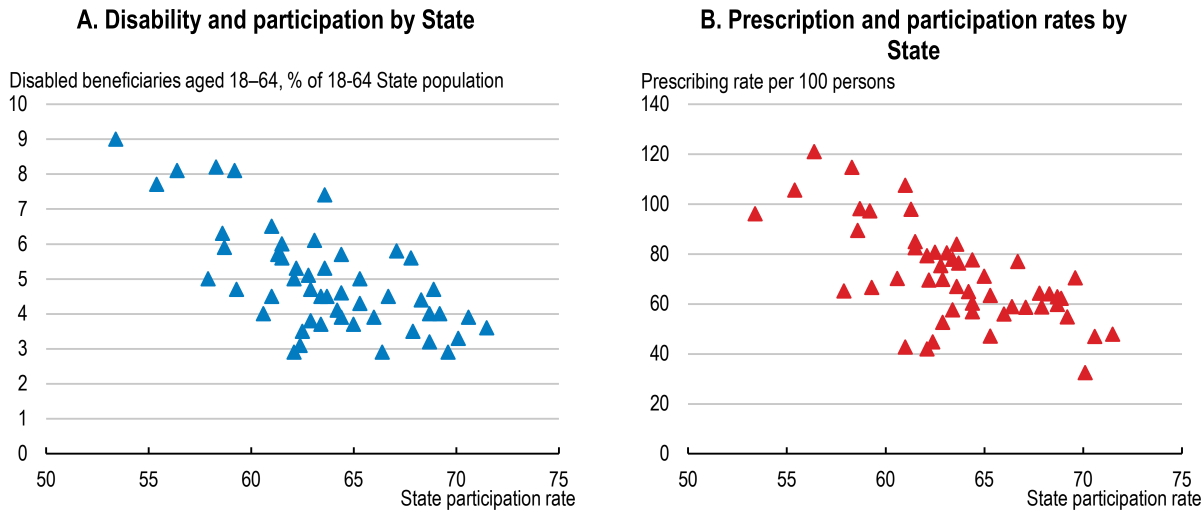
2.3. Health, drug addiction and re-employment prospects

76. Improving employment prospects has a link with health, including mental health. The relationship is complex, though there is some evidence that job loss can incur considerable physical and psychic costs and raise the risk of suicide. On the other hand, employment appears to improve life outcomes, including by reducing the need for medical treatment, as well as by raising household income. The work of Case and Deaton (2017[46]) highlighted increasing midlife mortality due to suicides and drug and alcohol abuse since the late 1990s, contributing to relatively modest gains in life expectancy in the United States. While causality is complicated, the importance of drawing workers into the labour force and employment is highlighted by the relationships between non-participation and disability and drug use.

77. Opioid use appears to be connected to labour market conditions (Figure 2.22). Prescription rates appear to be higher where labour force participation is lower. There is also a possible relationship between drug use and disability. This may arise after the definition of disability was extended to include chronic conditions. Krueger (2017[47]) found that around one-fifth of the non-participating prime age males were also regularly taking opioid painkillers. This would account for around 0.6 percentage point of the decline in the male prime age participation rate.

78. The link with participation may be overstated as areas where poor prescribing practice was prevalent before the opioid crisis gathered pace were also areas with relatively poorly performing labour markets. The correlation with disability and opioid prescriptions could suggest that non-participation is a consequence of workplace injury in areas where physical labour was more prevalent. Indeed, the incidence of disability is concentrated in the old industrial heartland (Figure 2.23). However, disability has acted as a social safety net, with the undesirable consequence that very few recipients re-enter the labour market. In this context, a lesson from recent experience is to preserve the labour force attachment of displaced workers or run the risk of persistent non-participation, which generate costs that the public authorities ultimately end up shouldering.

Figure 2.22. Disability is correlated with lower labour force participation and greater opioid use



Source: OECD Labour force statistics; Centers for Disease Control and Prevention (CDC); and Social Security Administration (SSA).

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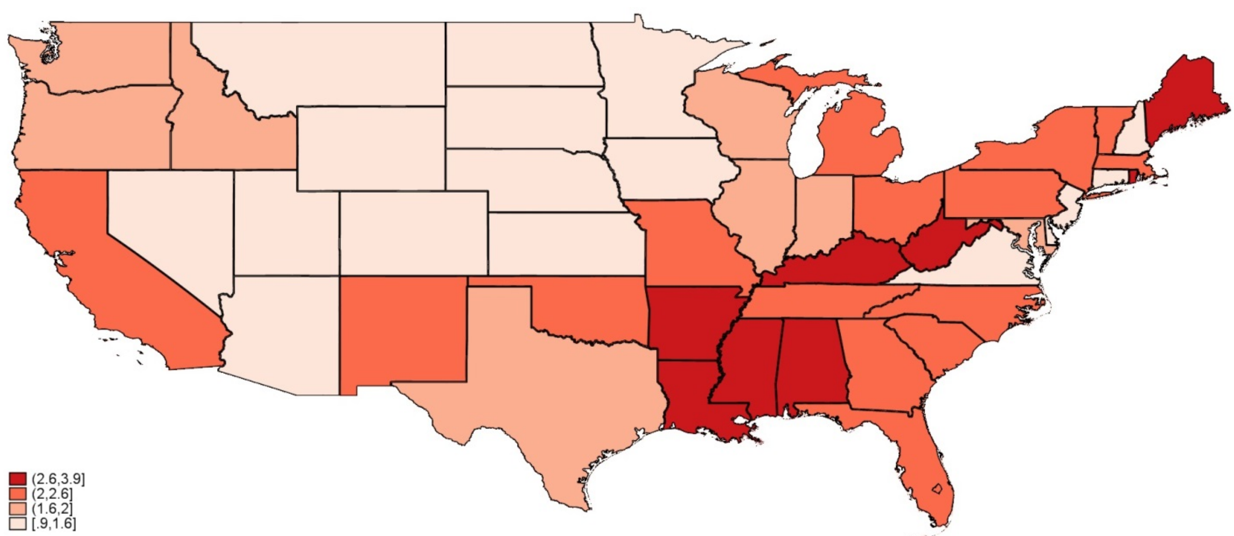
Figure 2.23. Disability rates are higher in the South and eastern heartland

Disability insurance recipients as per cent of State population



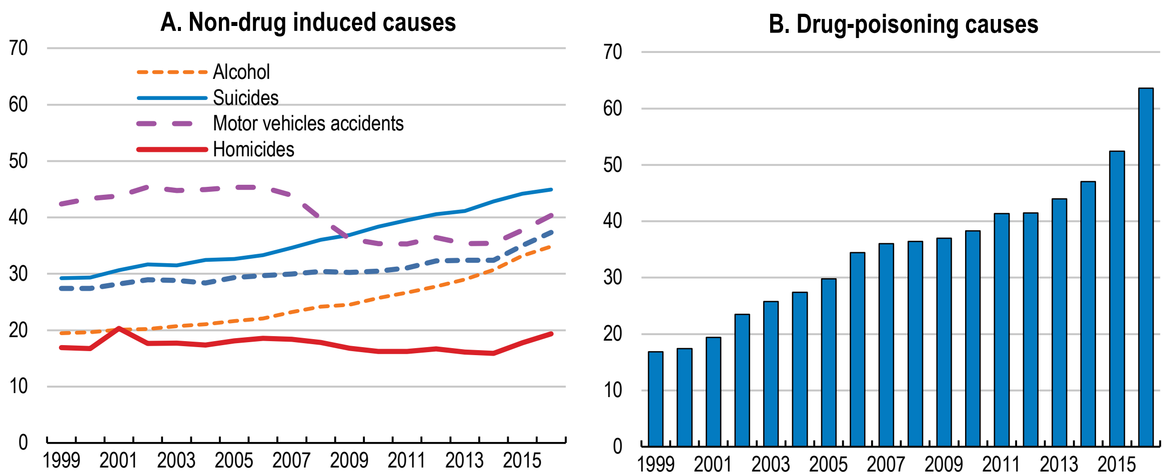
Source: Census Bureau and Social Security Administration.

79. The rise in drug-related deaths has been particularly dramatic (Figure 2.24). While opioid abuse is a problem in other countries, opioid use and death rates are considerably higher in the United States. For example, the age-adjusted death rate from opioid (all drugs) overdoses was 13.3 (19.8) per 100,000 in 2016. For comparison, in Australia, the age-standardised death rate for all drugs was 7.5 per 100,000. In Europe, drug-induced mortality rates were around 2 per 100,000 for the population aged 15 to

64, but were elevated in Estonia and Sweden, where they were closer to 10 per 100,000 (EMCDDA, 2017[48]).

Figure 2.24. Deaths from alcohol and drug induced causes have been rising sharply

Deaths by underlying causes per 100 000, 1999-2016



Source: CDC Wonder database.

StatLink http://dx.doi.org/10.1787/888933732669

2.4.1. Costs of the crisis

80. The consequences of the opioid epidemic are not only felt through deaths but also through the impact on livelihoods and breaking up homes. For example, parental neglect or incapacity to care is forcing public authorities to take children into care. The effects on livelihoods can also be dramatic. While possible to remain in employment, the correlation with non-participation in areas most beset by opioid addiction suggests that addiction ultimately impairs participation. In addition, when addiction leads to criminality, the consequences of a felony record can drastically reduce employment possibilities. The spread of opioid addiction and the growth of the illicit drug market have adverse social consequences with the growth of criminality and the consequences for communities as households who can move leave the areas most affected.

81. Standard measures of the cost of opioid addiction and deaths include the effects from lost wages and productivity as a result of death, incarceration and decreased productivity associated with drug addiction. Estimates suggest that this could amount to around $40 billion (Table 2.2). Significant costs arise from providing health care. Other costs arise with spending on policing and criminal justice system and child and family assistance spending.

Table 2.2. The costs of the opioid crisis are substantial

Estimates of the costs of the opioid crisis in $ billion

	2013	2016
Lost wages and productivity	$41	$40
Health care costs	$26	$21
Substance abuse treatment	$3	
Policing and criminal justice	$8	$8
Child care and family assistance		$6
Tax revenue foregone		$16

Note: The estimates for 2013 are from (Florence et al., 2016[49]) and 2016 are from (Rhyan, 2017[50]).
Source: (Florence et al., 2016[49]), (Rhyan, 2017[50]).

82. Drug misuse and abuse puts considerable pressure on public services. In 2014, there were over 400,000 emergency room visits and over a quarter of a million hospitalisations for drug poisonings. Opioid overdoses accounted for around one-fifth of these hospitalisations and one-quarter of these emergency room visits. Medicare and Medicaid are the primary payers in around two-thirds of opioid poisoning cases. Public outlays are also incurred through costs for policing, law enforcement and other public services in dealing with drug overdoses. In addition, the treatment of addiction represents another cost often borne by public authorities. On the other side of the ledger, lost productivity also has effects on tax revenue. Estimates of this suggest that in 2016 the combined impact would reduce Federal, State and local tax revenue by almost $16 billion, or around ¾ percentage point of current receipts. As many of the costs are borne by State and Local governments the impact will vary significantly across the country depending on the intensity of the problem locally.

83. The consequences of the opioid epidemic are even more profound if rather than just the effects on wage and productivity, estimates also account for the value individuals put on their own lives. The Council of Economic Advisors estimated that the cost rises to over $500 billion when taking into account deaths (based on age-adjusted estimates of the value of statistical lives) (CEA, 2017[51]).

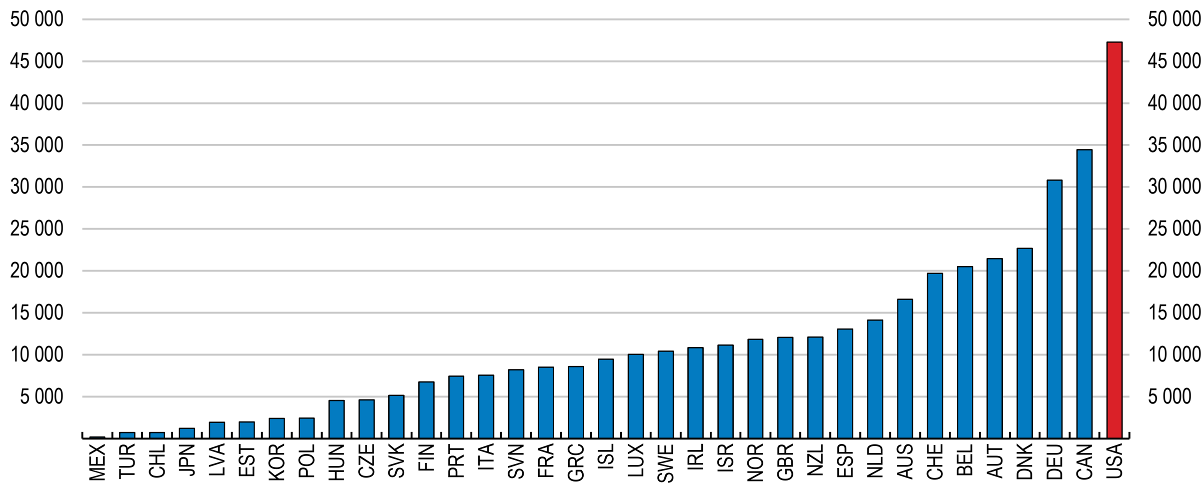
2.4.2. The opioid epidemic and drug use

84. The opioid epidemic emerged relatively unnoticed until death rates surged in the past decade. In part, the scale of the problem confronting the United States is the sheer prevalence of opioids. The prescription of opioids per capita is significantly higher than elsewhere in the OECD (Figure 2.25). The pharmaceutical industry and healthcare sector appear to have played a role in the genesis, and to which they are now reacting. As pain management philosophies changed, particularly with respect to treating chronic pain, pharmaceutical companies and medical doctors increasingly advocated opioids for a wider range of conditions. Between 1999 and 2014, opioid prescriptions quadrupled. This was compounded by relatively liberal policies on the number of opioids being prescribed, the duration of treatment and aggressive marketing. Anecdotal evidence also suggests that medical practitioners prescribed more drugs to reduce co-payments patients would need to make for repeat prescriptions. Prescription rates also varied considerably across the country, suggesting that prescription practice is poorer in some areas. Ultimately millions of individuals were exposed to addictive substances, either the intended patient or through unused drugs being taken by family members or others. By 2014, one in four patients receiving opioids for non-cancer chronic pain was

struggling with opioid dependence. The amount of opioids available also facilitated drug misuse and abuse.

Figure 2.25. Opioid prescriptions are widespread in the United States

Per million



Source: INCB.

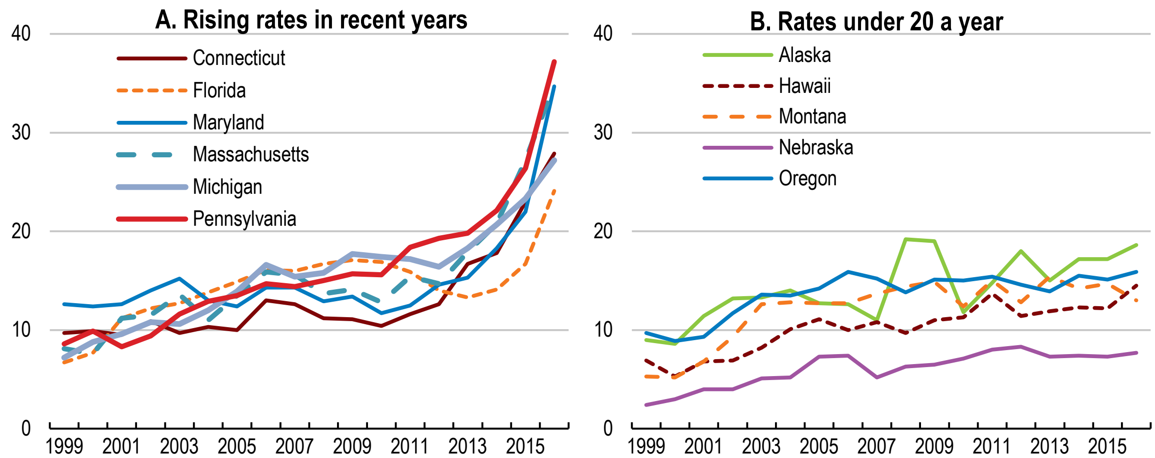
StatLink http://dx.doi.org/10.1787/888933732688

85. More recently, prescribing practice appears to be changing as the associated risks are becoming better appreciated, but opioid supply is still considerable. The prescription rate peaked in 2012 at around 80 per 100 persons and has subsequently declined in 2016 to under 67 per 100 persons and the average daily dosage has also been falling gradually. The decline in prescriptions is mainly accounted for by declines in supplies of less than 30 days. On the other hand, prescription rate for longer durations have remained relatively constant since the beginning of the decade, such that the average days of supply per prescription has increased from around 13 days in 2006 to 18 days in 2016.

86. With opioid use rising, intentional and unintentional deaths from drug overdoses have also been rising (Figure 2.26). There have been demographic differences with the death rates for non-Hispanic whites (hereafter whites) significantly higher than other groups. In smaller metropolitan areas the likelihood of abuse or misuse of prescription pain killers is higher. Death rates are not surprisingly also higher in these areas, though there are some differences in the nature of the overdoses. Prescription opioid overdoses are a much more common cause of death in smaller cities and urban areas. In larger cities, particularly the large fringe metropolitan areas, heroin and synthetic opioids (such as fentanyl) are responsible for a large share of overdoses. Given the differences across places, improving prescribing practice (as recommended by the Administration's opioid imitative) and controlling the flow of opioids in smaller metropolitan and rural areas promises to regain control over opioid use. However, without addressing underlying addiction, tightening access to prescription opioids can push individuals with opioid dependence onto the illicit market for drugs.

Figure 2.26. Overdose death rates vary considerably across States

Drug-induced deaths per 100 000 in selected States, 1999-2016



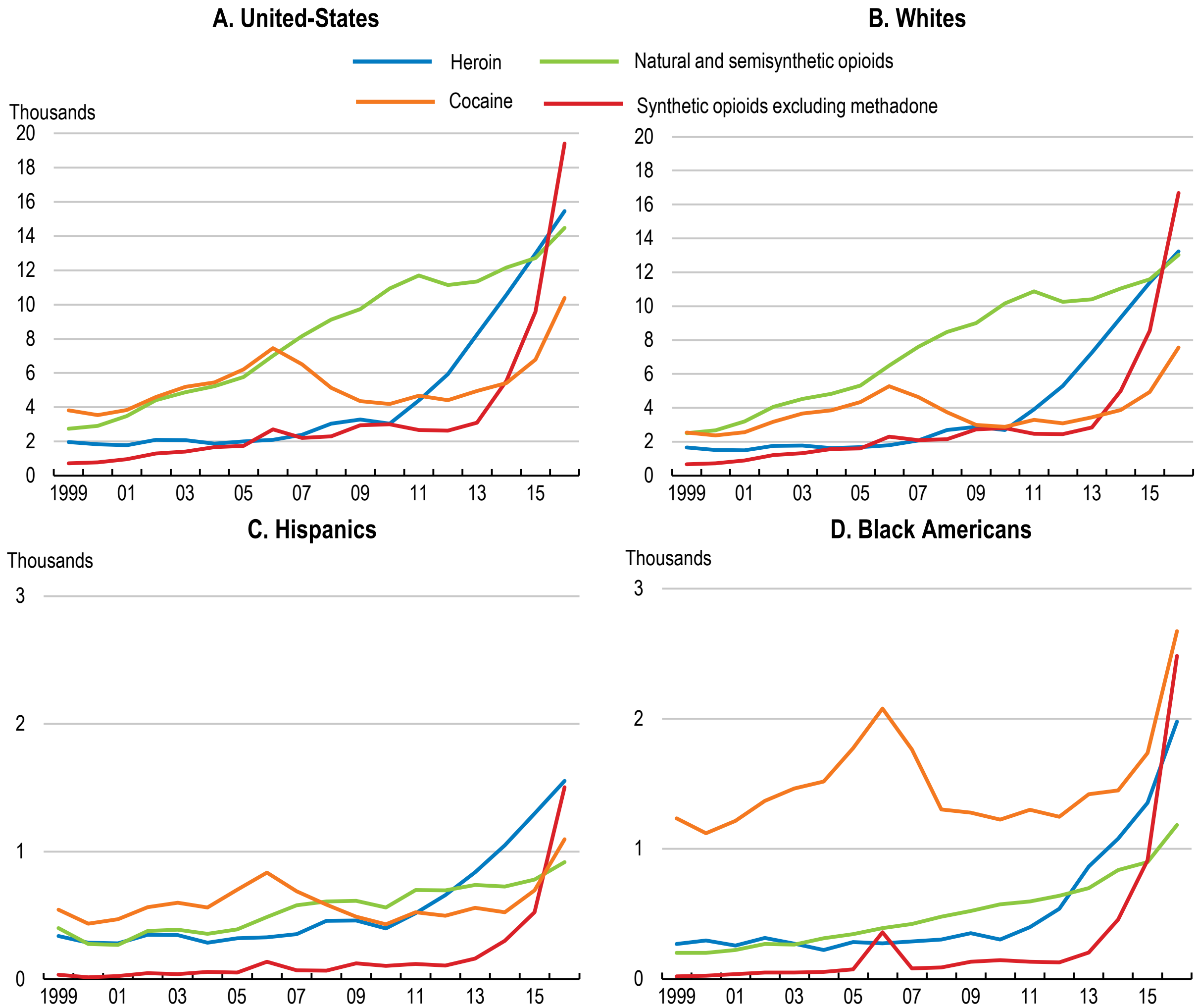
Source: NCHS, National Vital Statistics System Mortality, CDC WONDER database.

StatLink http://dx.doi.org/10.1787/888933732707

87. More recently, the use of illicit and extremely potent substitutes for prescription pain killers has grown rapidly and contributed to marked jumps in deaths from overdoses since the beginning of this decade. Death rates due to heroin overdoses spiked first from 2010 for whites and then subsequently for other groups with the exception of Asian or Pacific Islanders (Figure 2.27). Death rates from synthetic opioid overdoses (e.g. Fentanyl) began to spike up from 2013. Fentanyl and related drugs are orders of magnitudes more potent than heroin, which helps account for why overdose deaths have risen so dramatically. The dose of illegally supplied fentanyl can vary enormously depending on how the drug is mixed with other compounds and can be fatal. Indeed intravenous abusers have died before fully injecting the syringe. The potency of these drugs also presents mortality risk to family members and first responders if they are exposed to the remaining drug.

Figure 2.27. Deaths from drug overdoses

Selected drugs involved in overdose deaths in the United States (1999-2016) and by Race



Note: Natural and semisynthetic opioids include morphine, codeine, hydrocodone and oxycodone. Synthetic opioids excluding methadone include fentanyl, fentanyl analogs and tramadol.
Source: NCHS, National Vital Statistics System Mortality, CDC WONDER database.

StatLink http://dx.doi.org/10.1787/888933732726

88. There is some experience elsewhere in the OECD with the use of synthetic opioids. In Estonia, overdose rates surged in the early 2000s largely due to supply disruptions for heroin inducing switching to substitutes, notably fentanyl. Death rates are now falling, in part due to subsequent cohorts avoiding the drug as well as the government's programmes, such as drug-replacement therapies. In part, the death rates are also falling because so many of the initial drug users are now dead. In Germany, where fentanyl prescription rates are higher than elsewhere in the OECD, overdoses have risen (partly due to the diversion of legally acquired drugs). Given the potency of the drugs and the small amounts that need to be transported, combatting illicit supply is extremely difficult, though with some success recently. U.S. Custom and Border statistics reveal that discovery of fentanyl has increased considerably in the past couple

of years from essentially none in 2015 (US CBP, 2018[52]). These statistics also show a marked increase in seizures of methamphetamine (which tripled between 2012 and 2017).

2.4.3. Policy responses

89. Public policies can adapt to limit the emergence of new opioid abuse, by addressing the potential for creating opioid dependence. Adopting best practice in prescription practice and removing unused drugs from circulation would be important steps in reducing the scale of the problem. Design is important as some empirical studies fail to identify policies that make a significant difference in outcomes. Nonetheless, differences in the trajectory of drug-related deaths in States, such as the stabilising of elevated death rates in Nevada and New Mexico rather than continually rising, suggests that there are factors that can constrain misuse and abuse.

90. A number of initiatives appear to have an effect in addressing the use of prescription opioid painkillers. For example, in Minnesota health authorities introduced electronic monitoring to identify doctors who overprescribe and patients who are trying to source painkillers from different healthcare providers. This has led to a one-fifth reduction in prescriptions of the most common painkillers (hydrocodone) between December 2014 and December 2016. This does not mean that pain management is ignored as non-opioid painkillers are available and used to a greater extent in other countries.

91. At the national level, the FDA is considering introducing extra hurdles for doctors wishing to prescribe more than a limited supply of opioids. Not only may this prevent patients developing addiction by continued use, but prevent experimentation by others in the household, which is another pathway to developing addiction. This approach to limiting misuse can be complemented by creating drop off places where excess drugs can be disposed of safely. And information programmes documenting the risks may help reduce some of the demand.

92. A different set of policies are needed to help people with opioid dependence. One of the most immediate concerns is preventing avoidable deaths. Naloxone and similar drugs have proven efficacy in reversing the effects of opioid overdoses and thereby saving lives. Making these drugs more widely available would help reduce deaths from overdose. Some European countries have schemes allowing naloxone to be taken home by the drug user (EMCDDA, 2017[48]). A few countries have drug consumption rooms, where death from overdose is much less likely. Almost all countries have needle and syringe programmes, which can prevent the spread of infectious diseases, which can be very expensive to treat (such as hepatitis C).

93. An additional problem for policymakers arises when limiting accessibility to prescribed painkillers induces switching to alternatives, such as heroin or fentanyl, on the illegal market. Such alternatives are likely to be more closely linked to poisoning given that dosages may vary dramatically between sources or when illegal drugs are contaminated with other chemicals. Notwithstanding these complications, actions to prevent addiction from arising should eventually feed through to a diminishing problem of addicts seeking illegal substitutes. Successes in reducing the circulation of illegal drugs will also help in this regard.

94. A second set of policies to address opioid dependence would work to wean addicts off opioids. Medically-assisted treatments using methadone and in some cases

abstinence programmes are used across the country. Programmes dealing with addiction should consider methadone and related drugs as part of the treatment regime (as is the case in many other countries where supervised injection has reduced overdose rates). But the numbers treated this way are relatively limited in comparison to the scale of the problem (currently licensed medical staff could cope with 1.5 million people being treated (AAFP, 2016[53])). Against this background relaxing some of the current administrative restrictions - where medically appropriate - would help reach a larger group of the population. For example, removing restrictions on treatment facilities (such as requirements on the number of rooms they must have) and broadening the number of doctors who can administer medically assisted programmes, particularly in rural areas where coverage by medical practitioners is limited, would help expand the reach of addiction treatments.

95. Past estimates suggest many individuals with drug abuse disorders - around 60% - do not undergo medically-assisted treatment, despite their existence (Compton et al., 2007[54]). Increasing treatment rates will require action to reduce the stigma associated with drug dependence and increase awareness of treatments options amongst drug users and medical practitioners. Efforts to develop new drugs to reduce cravings are underway though these drugs are not yet clinically proven to augment possible treatment options.

96. Successfully treating addiction will require complementary policies to reap the full benefits. These will need to address underlying problems linked to addiction and efforts to re-integrate addicts into work and housing to minimise the risks of relapse and recidivism. Finally, given the problems people with criminal records face in finding employment, the authorities should consider removing barriers to expunging criminal records of those who have undergone treatment successfully.

Box 2.6. Recommendations

Labour market policies

- **Increase spending on effective active labour market policies, such as job placement services and support to geographic mobility.**
- **Expand the use of apprenticeships and on-the-job training to ease the school-to-work transition.**
- Relax the full-time employment job search requirement in the unemployment insurance system.

Infrastructure and mass transit

- **Roll out initiatives to invest more in infrastructure, making use of greater private-sector financing, user fees and flexible risk-sharing arrangements**.
- **Improve mass transit systems.**
- Continue current policies to improve access to broadband in poorly served areas.

Housing market

- **Reform housing finance, including the government sponsored enterprises, to better target housing affordability measures to the rental market.**
- **Support the provision of affordable housing for low-income families.**
- **Use seed money to encourage States and localities to remove zoning restrictions and move to multi-use zoning.**
- **Encourage state and local governments to deregulate occupational licensing and recognise credentials granted by other States.**

The opioid crisis

- **Ease administrative barriers to the treatment of opioid addiction.**
- Make drugs that can reverse opioid overdoses more readily available.
- **Promote and expand medically assisted treatment options.**
- **Help reintegrate into employment, including by expunging criminal records, those who have successfully completed treatment for addiction.**

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