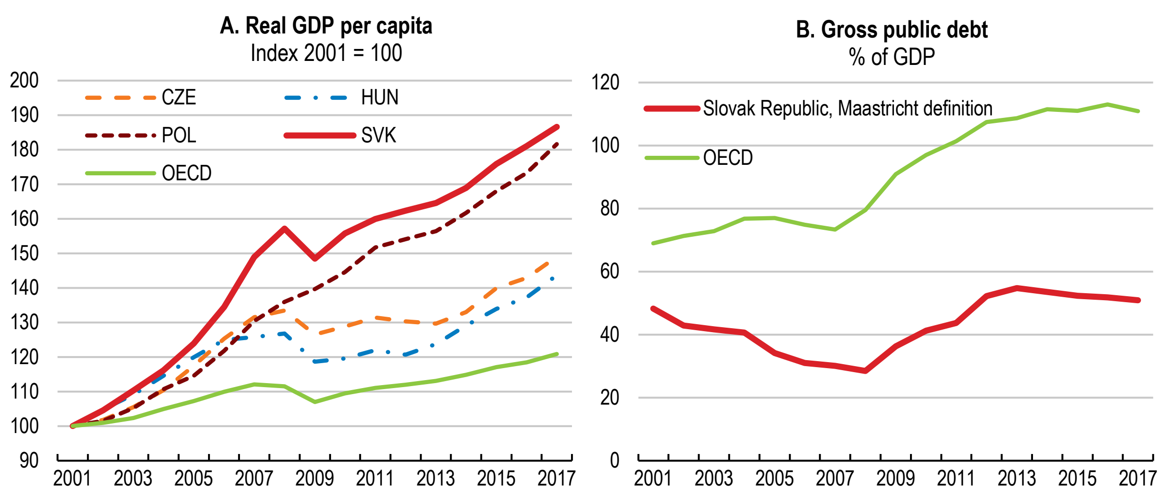
Key Policy Insights

The Slovak economy remains strong. Employment has reached a record high, and unemployment is at its lowest level since 1993. Short-term growth prospects are good.

Thanks to sustained economic growth, almost 4% on average in the last two decades, living standards have converged towards the OECD average, and public debt has declined in relation to GDP (Figure 1). Export-led expansion has been driven by continuing inward investment in the car industry, strong integration into global value chains and resulting improvements in labour productivity. Growth has spilled over into the domestic services sector to some extent, but productivity gains there have been much lower. Strong wage growth is fuelling consumption, inflation and house prices. Household indebtedness has been rising rapidly. The authorities will have to continue to use fiscal and macro-prudential policies to avoid overheating.

Figure 1. Slovakia is performing strongly



Source: OECD (2018), OECD Economic Outlook: Statistics and Projections (database).

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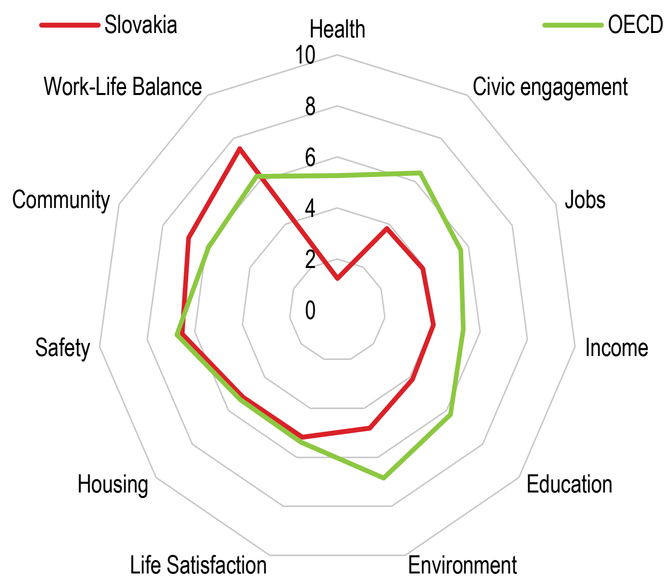
Nearly all indicators of well-being have been improving over the past 10 years. However, in some areas Slovakia still lags considerably behind other OECD countries, particularly in health (Figure 2), as life expectancy at birth remains among the lowest in the OECD. While poverty and inequality are low overall, the majority of Slovakia's Roma, about 8% of the population, face extreme social exclusion, with very low employment, widespread poverty and low life expectancy (FRA, 2016). Providing better living standards and economic opportunities to the Roma will require well-coordinated efforts across social, housing, education and employment policies. Different government levels will have to cooperate closely, and strong involvement of the Roma communities themselves will be needed.

Figure 2. In some well-being dimensions Slovakia lags considerably behind



Source: OECD Better Life Index 2017.

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Slovakia has benefitted from strong integration into global value chains, but the gains from integration are likely to decline in the future. Foreign direct investment has focused mainly on downstream activities, which, although generating high productivity growth in the past, have low value added. Strong productivity growth in the foreign-owned sector has not spilled over to most domestic firms. High wage increases and technological changes enabling the automation of routine skills will reduce the attractiveness of Slovakia and lower the benefits enjoyed by less skilled workers.

Slovakia's economic success is largely depended on the cars and electronic industries, where considerable automation is expected. This can help address labour shortages and increase productivity. But for everybody to benefit from new technologies, it will be crucial to give displaced workers good training opportunities to upskill. More generally, the demand for high skilled workers is expected to rise. However, Slovakia's adult training system is underdeveloped, and its vocational education is not sufficiently responsive to labour market needs. Already shortages of skilled workers are appearing in several sectors while – until recently – more workers were leaving than entering the country, and residential mobility is relatively low. Innovation and a better ability to adopt new technologies so as to move into higher value-added activities, would be fostered by policies to improve the quality of tertiary education and research. Population ageing is likely to accentuate labour shortages, as Slovakia faces one of the fastest declines in the working-age population in the OECD.

Weak public service efficiency, particularly in education and health care (OECD, 2017a), and a perception of relatively widespread corruption (Transparency International 2018) hinder Slovakia's economic development. There has already been some progress in terms of anti-corruption legislation and procedures. The Prime Minister's office is developing a system to identify and address corruption risks in the administration. Efforts need to continue to improve the efficiency and quality of the judiciary and to make public administration more effective, efficient and transparent. In this context a free press and openness to non-government organisations play important roles (Transparency International, 2018); they help detect misconduct, ensure accountability, improve trust and thus enhance the ability of foreign and domestic entrepreneurs to get on with innovation and growth.

Against this backdrop this Survey has three main messages:

- The economy is strong, but fiscal consolidation should continue to contain demand pressures.
- Faced with rapid technological change and skill shortages, Slovakia needs to upgrade the skills of its workers to protect their longer-term employability and foster productivity gains.
- Improving the well-being of Roma will require stronger and better coordinated efforts across social, housing, education and employment policies.

Macroeconomic conditions continue to improve

The economy is growing strongly

The economy is set to grow at a robust pace in a broad-based expansion (Table 1). The launch of new production lines in the automotive sector is adding significantly to productive potential and fuelling gains in export market shares. New car plants are expected to affect production capacity in 2019, so growth will slow somewhat in 2020.

Employment growth has been strong, and unemployment has been falling fast (Figure 3, Panel A), though there remain pockets of widespread joblessness in some regions, and long-term unemployment has remained stubbornly high. A substantial portion of the unemployed are likely to be Roma, many of whom lack skills and employment experience. Labour shortages have started to arise in many areas, while the vacancy rate is at its highest level for many years and continues to rise. The labour shortages are concentrated in manufacturing and are related to currently strong growth. Wage growth has increased, particularly among highly skilled workers, though labour costs are still less than half those in Austria and Germany (Panel B). Strong labour demand has been met to some extent by increasing labour force participation of older workers and women, offsetting the decline in the working-age population. Immigration has increased, recently reaching parity with emigration; foreign workers still account for only 2% of the labour force, but this is four times the 2012 level (Panel C).

Labour market buoyancy and strong consumer confidence are contributing to robust private consumption. Investment picked up in 2018 after a slump related to the switchover in EU budget, as it took time for public- and private-sector workers to learn the rules allowing them to draw on the funds. Prospects for continued investment growth are good, thanks to accommodative financial conditions, strong business confidence and new foreign investment in the automotive sector.

Table 1. Macroeconomic indicators and projections

Annual percentage change, volume (2010 prices)

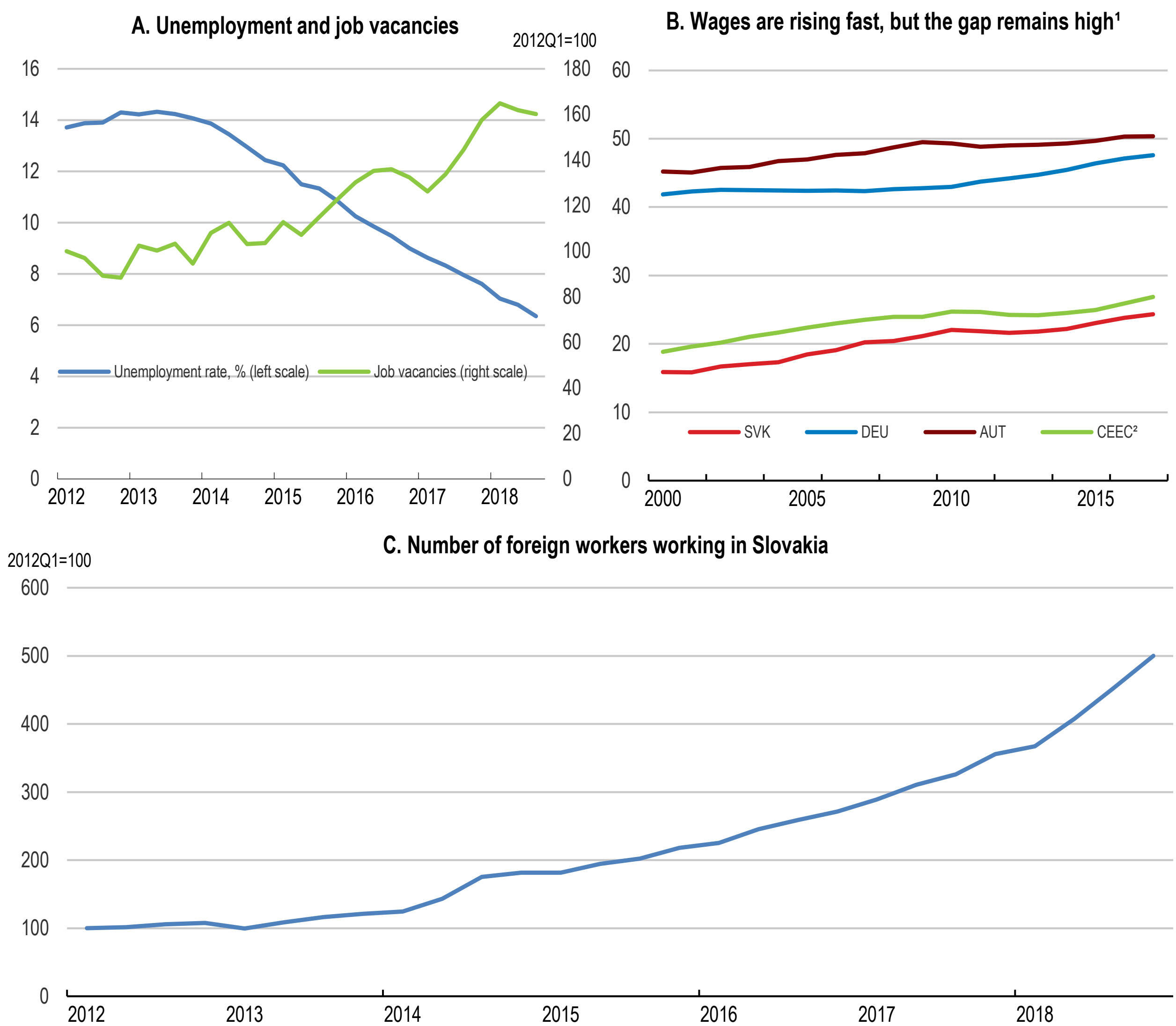
	2015 Current prices (EUR billion)	2016	2017	2018	2019	2020
Gross domestic product (GDP)	79.1	3.1	3.2	4.1	4.3	3.6
Private consumption	43.2	2.9	3.5	3.0	4.0	4.1
Government consumption	15.3	1.6	1.7	2.3	1.9	2.0
Gross fixed capital formation	19.2	-9.4	3.4	13.2	4.1	4.1
Housing	1.8	23.3	0.7	6.0	2.9	4.1
Final domestic demand	77.7	-0.4	3.1	5.2	3.6	3.7
Stockbuilding[1]	0.2	1.5	-0.5	-0.3	0.1	0.0
Total domestic demand	78.0	1.2	2.6	4.7	3.7	3.7
Exports of goods and services	73.1	5.5	5.9	5.8	8.3	6.4
Imports of goods and services	71.9	3.4	5.3	5.9	7.7	6.5
Net exports[1]	1.2	2.0	0.7	0.1	0.8	0.1
Other indicators (growth rates, unless specified)						
Potential GDP	. .	2.6	2.5	3.5	3.8	3.3
Output gap[2]	. .	-1.4	-0.5	0.0	0.5	0.9
Employment	. .	2.8	1.5	1.1	0.8	0.7
Unemployment rate[3]	. .	9.6	8.1	6.7	6.1	5.5
GDP deflator	. .	-0.5	1.2	2.3	2.8	3.0
Harmonised index of consumer prices	. .	-0.5	1.4	2.5	2.7	3.0
Harmonised index of core inflation[4]	. .	0.9	1.4	2.0	2.5	3.0
Household saving ratio, net[5]	. .	3.0	2.4	2.9	2.9	2.9
Terms of trade	. .	-0.4	-0.6	-0.4	0.0	0.0
Current account balance[6]	. .	-2.2	-2.0	-1.2	0.1	0.0
General government fiscal balance[6]	. .	-2.2	-0.8	-0.7	-0.4	0.0
Underlying general government fiscal balance[2]	. .	-2.2	-0.8	-0.7	-0.6	-0.4
Underlying government primary fiscal balance[2]	. .	-0.9	0.3	0.4	0.4	0.6
General government gross debt (Maastricht) [6]	41.3	51.8	50.9	49.8	47.9	45.9
General government gross debt [6]	47.2	59.8	58.2	57.0	55.1	53.2
General government net debt [6]	27.7	36.2	35.5	33.9	32.0	30.0
Three-month money market rate, average	. .	-0.3	-0.3	-0.3	-0.2	0.2
Ten-year government bond yield, average	. .	0.5	0.9	0.9	1.1	1.4

1. Contribution to changes in real GDP
2. As a percentage of potential GDP
3. As a percentage of the labour force
4. Harmonised index of consumer prices excluding food, energy, alcohol and tobacco.
5. As a percentage of household disposable income.
6. As a percentage of GDP.

Source: OECD (2018), *OECD Economic Outlook 104 database*, preliminary.

Inflation rose to 2.5% in 2018 (Figure 4), spurred by rising demand and higher food and electricity prices. While the pressure from commodity prices should diminish, wage pressure will keep inflation above 2% for some time. Wages have been rising fast, and the government plans large increases in public-sector salaries. This could set off an accelerating spiral in the private sector, pushing up inflation, which would undermine some of the gains in price competitiveness that Slovakia has made in recent years. In the short term rising wages would probably further expand domestic demand, as the reduced profits would be felt mainly abroad, rather than in Slovakia.

Figure 3. The labour market is tightening



1. Labour cost for LCI (compensation of employees plus taxes minus subsidies) in industry, construction and services, 2012 = 100. In 2017 constant prices at 2017 1 000 USD PPPs.
2. Central and Eastern European countries (CEEC) include Czech Republic, Hungary, Poland, Slovenia and Slovakia.
Source: Eurostat; OECD, OECD Economic Outlook 104 database; OECD Labour Earnings Database; Central Office of Labour, Social Affairs and Family.

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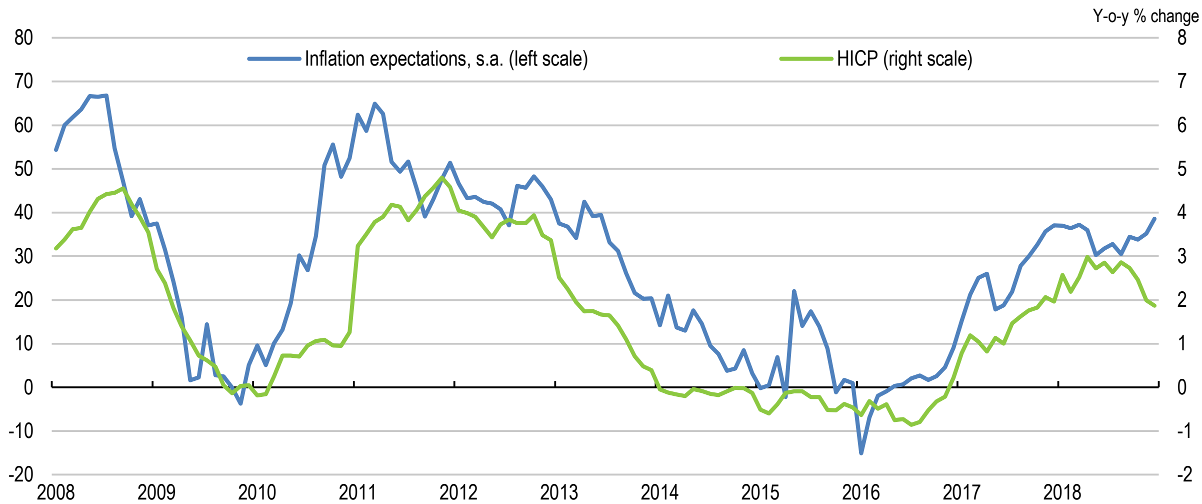
Figure 4. Inflation is rising



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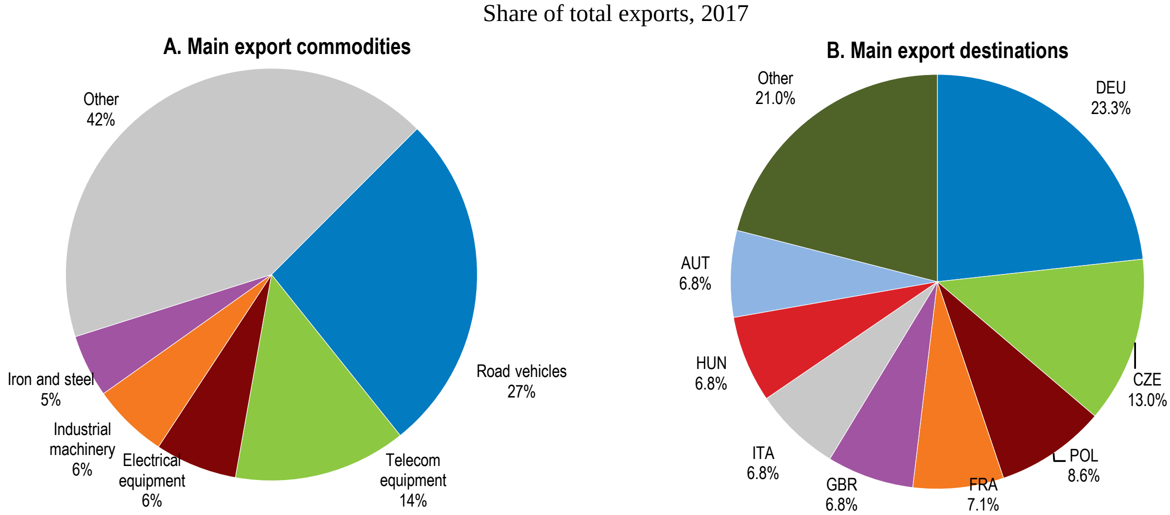
There are both upside and downside risks surrounding the short-term outlook. Current rising tensions on capacity could lead to overheating, undermining international competitiveness and slowing growth. On the external side, the Slovak economy is particularly exposed to any disruption in trade, given its heavy inclusion in global value chains and significant reliance on the automotive sector (Figure 5). On the upside, supportive financial conditions and strong consumer confidence could strengthen private domestic demand even more than projected. If the euro area continues to complete the banking union, this would enhance stability and confidence improving conditions for sustainable growth.

Figure 5. Exports of goods by commodity and market

Share of total exports, 2017



Source: OECD (2018), *International Trade by Commodity Statistics, SITC Revision 3*.

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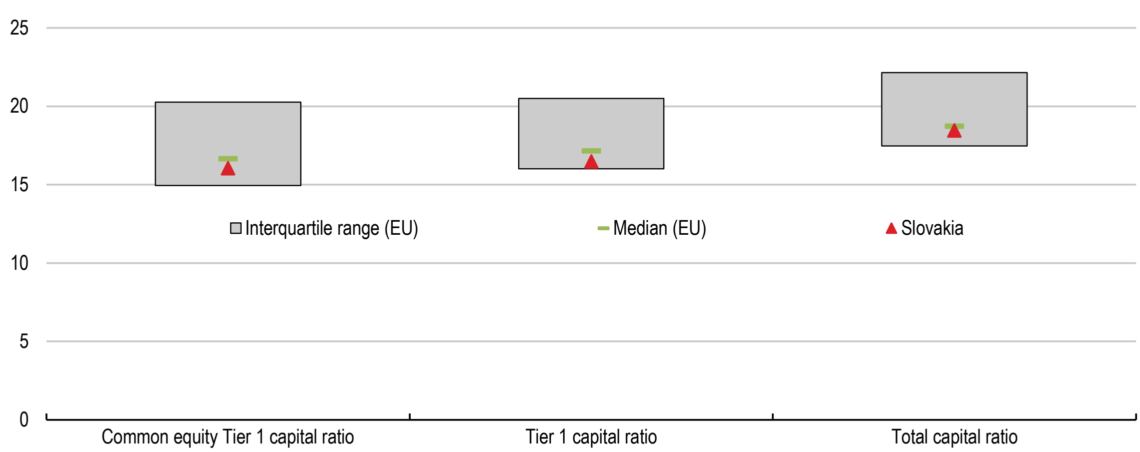
Table 2. Vulnerabilities for the Slovak Republic

Vulnerability	Potential impact
Disorderly escalation of trade tensions.	Rising protectionism would affect external demand from Slovakia's main trading partners.
Hard Brexit.	The Slovak economy is well integrated into global value chains and would be heavily affected by significant changes in the flow of goods and services across Europe.

The financial sector is stable, but increasing household debt poses a risk

Slovakia's financial system is healthy measured by bank capital and liquidity. The main banks are subsidiaries of Austrian and Italian institutions, and their profitability and provisioning for non-performing loans continue to be among the highest in the banking union (National Bank of Slovakia, 2018), though competition has been reducing margins on new loans. Loans are fully funded by domestic deposits, while capital ratios have been stable or rising slightly in recent years, remaining just below the EU median (Figure 6). Household borrowing has been running well ahead of income growth, faster than anywhere else in the OECD (Figure 7, Panel A). The ratio of household debt to disposable income rose from around 30% in 2006 to 78% by 2017, which is still much lower than in many other countries (Panel B), but the increase in Slovakia stands out.

Figure 6. Solvency ratios are slightly below the EU median



Note: Data are as at September 2017.
Source: National Bank of the Slovak Republic.

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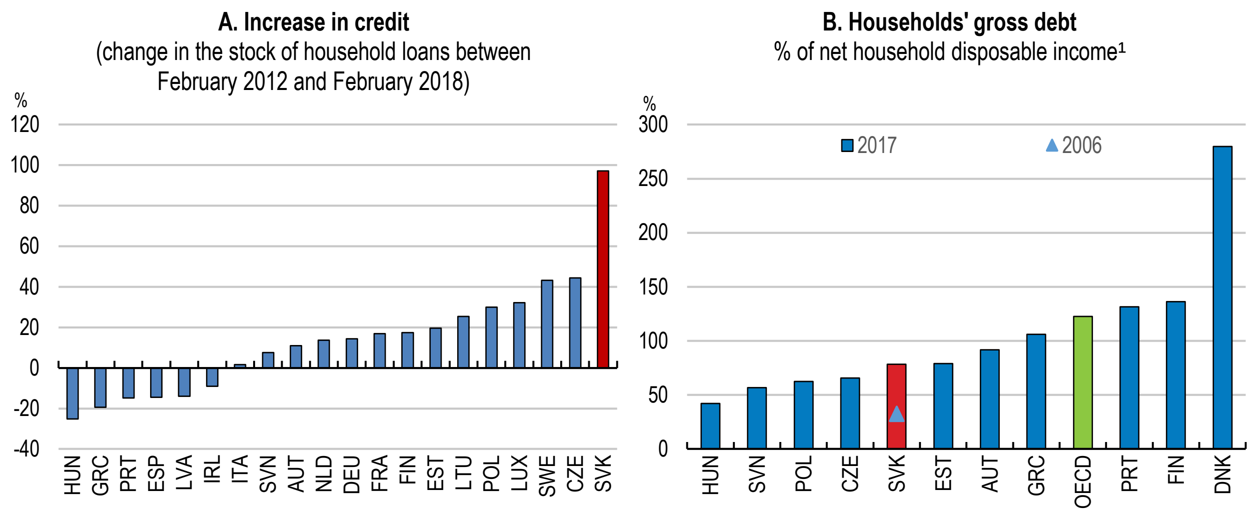
Figure 7. Household indebtedness is increasing, fuelled by housing loans



Note: Data for Austria, Estonia and OECD are for 2016.
Source: National Bank of the Slovak Republic; OECD

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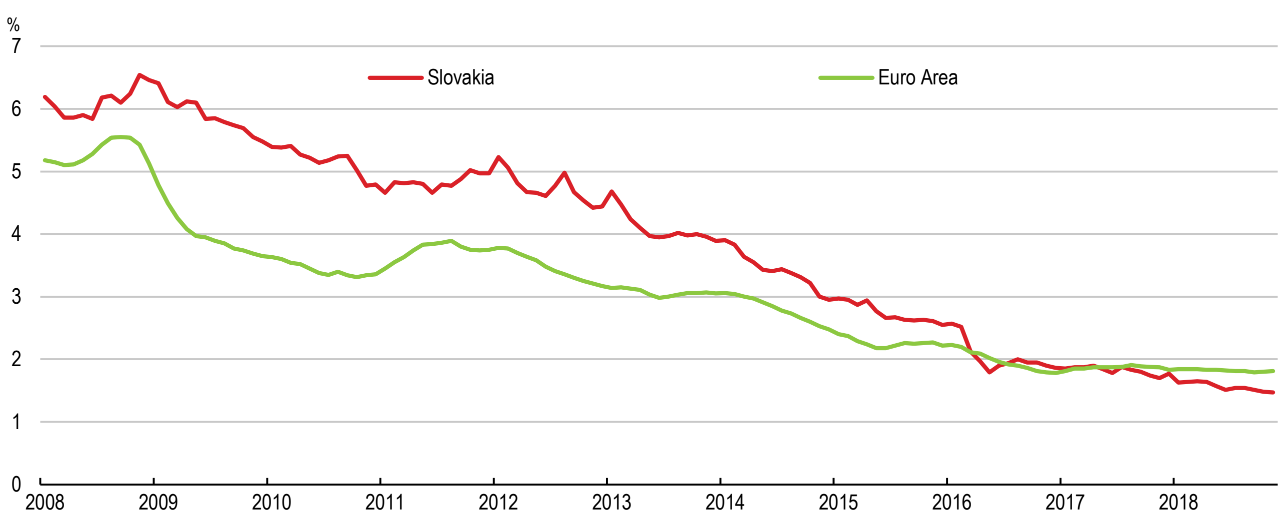
About 80% of outstanding loans to households in 2016 were for house purchase, up from around 65% a decade earlier. House prices have risen in line with fundamentals, by around 15% since 2016. Household credit growth has been fuelled by rising incomes and a fall in the cost of borrowing. These costs were quite significantly above the euro-area average until 2014 but have since fallen sharply to a level somewhat below the average (Figure 8). As falling interest rates have put downward pressure on their profits, banks have sought to respond by stepping up their lending activity (National Bank of Slovakia, 2018).

Figure 8. Average cost of borrowing for house purchase has decreased significantly



Source: European Central Bank.

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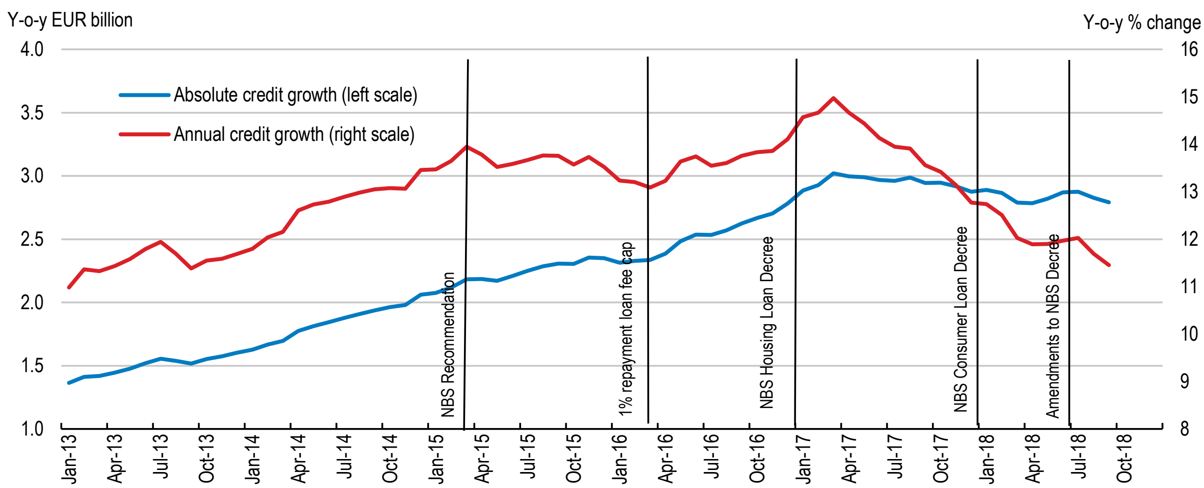
The long-running upward trend in household debt is increasing the vulnerability of the Slovak household sector. Interest rates are at historical lows, and the terms of new loans are relatively long, leaving little scope for rescheduling the debt of borrowers who get into financial difficulty. Mortgages are generally very long term, often over 25 years, so borrowers are vulnerable to shocks such as interest rate rises or loss of employment over a long period.

Concerned about credit growth exacerbating this vulnerability, the Central Bank has already intervened to tighten access to housing and consumer loans. Credit growth has slowed a little but remains high (Figure 9). According to analysis by the Slovak National Bank, credit growth remains higher than the rate corresponding to economic fundamentals (National Bank of Slovakia, 2018); the Central Bank is therefore prudently phasing in further macro-prudential measures (Table 3) (Box 1). It should stand ready to further tighten macro-prudential policy if financial-sector risks do not abate.

Figure 9. Household debt growth was also influenced by legislation



Note: "1% loan repayment fee" corresponds to the introduction of a regulatory limit of 1% on the level of early repayment fees for housing loans.
Source: National Bank of Slovakia (2018), Financial Stability Report, Chart 10.

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Table 3. Phased implementation of changes to regulatory lending requirements from 1st July 2018

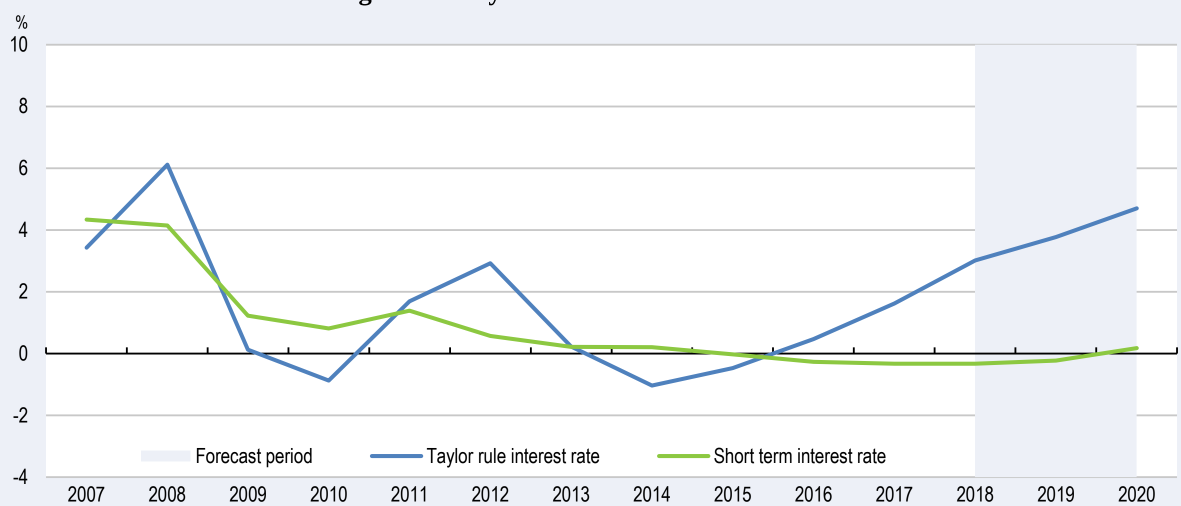
	Maximum share of new loans with debt-to-income ratio above 8	Maximum share of new loans with loan-to-value ratio between 80 and 90%
Q3 2018	20%	35%
Q4 2018	15%	30%
Q1 and Q2 2019	10%	25%
From 1st July 2019	5% + 5% on meeting additional conditions	20%

Source: National Bank of Slovakia

Box 1. The current monetary stance does not properly reflect the business cycle in Slovakia

The Slovak Republic joined the European Monetary Union in 2009. Given that the ECB rate is determined by the cycle of several other countries, the monetary stance does not always correspond to the cycle of the Slovak economy. This may be investigated by using the Taylor rule. Estimates assume that monetary policy would have targeted 2% inflation and a closed output gap. The interest rate implied by the Taylor rule (Figure 10) suggests that the role of other counter-cyclical policies such as fiscal and macro-prudential might have increased (Dehmej and Gambacorta, 2017; Wyplosz, 1991; Gali and Monacelli, 2008). The result shown in Figure 10 depends on the equilibrium real interest rate. Slovakia is a small and open economy, therefore it is assumed that the equilibrium real interest rate corresponds to the potential growth rate of the euro area. There is considerable uncertainty about the equilibrium real interest rate, though. Empirical research suggests that after the crisis the real equilibrium interest rate in the euro area has been lower than potential growth (Holston, Laubach and Williams, 2018). Assuming a lower rate would imply a lower gap between actual policy interest rate and the one implied by the Taylor rule.

Figure 10. Taylor rule estimated interest rates



Note: The Taylor rule rate interest rate is calculated as: i = average potential growth in the euro area + inflation + 0.5 * output gap + 0.5*(inflation – 2.0).
Source: OECD Analytical database

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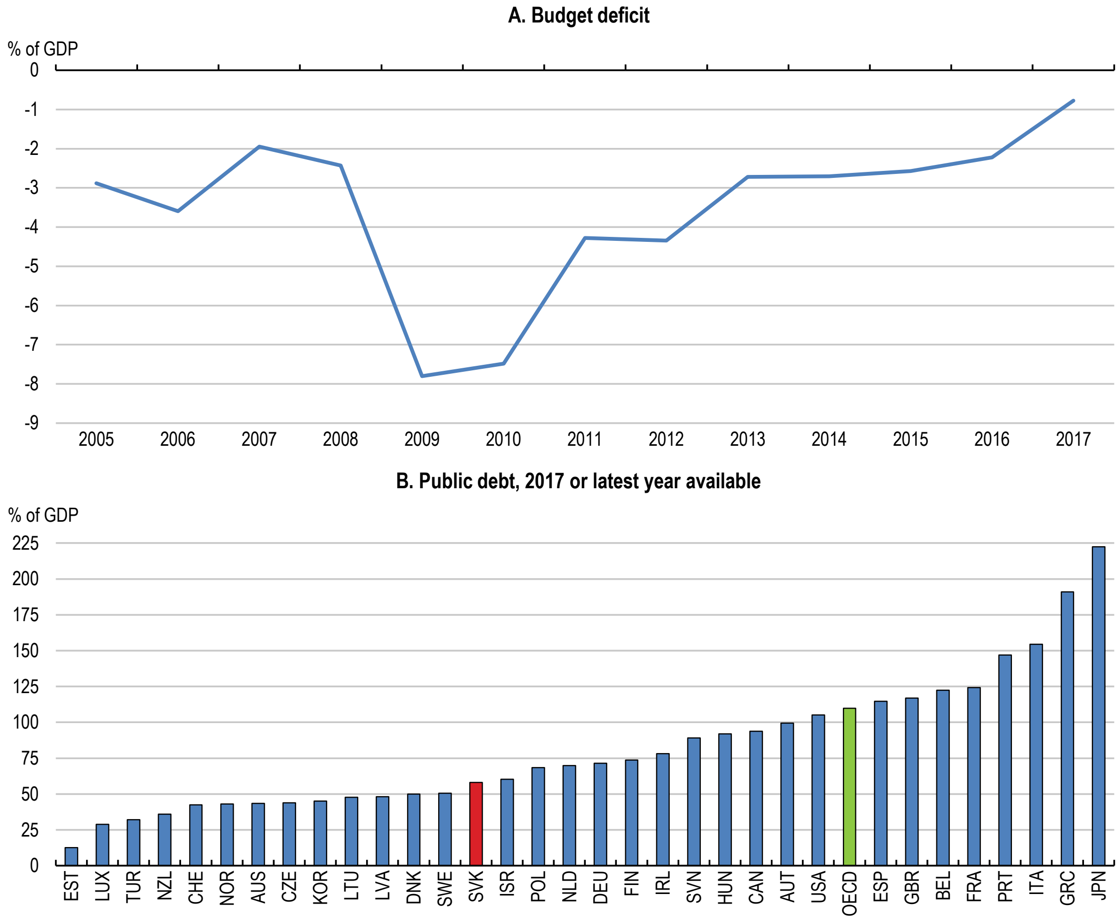
Healthy public finances should be preserved

Slovakia's fiscal position is relatively strong (Figure 11). General government debt has continued to decrease, and the budget deficit has shrunk to a historically low level (0.8% of GDP) due to strong growth and significant consolidation in 2017. Measures adopted by the government since 2012 have helped to improve tax collection, particularly for VAT. The government plans to reach budget balance by 2019, in line with its European medium-term objective.

Figure 11. The budget deficit and debt are relatively low



Note: Debt follows OECD National Accounts definitions.
Source: *OECD Economic Outlook database*.

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Fiscal consolidation is appropriate, despite spending needs

Fiscal consolidation is welcome, as the government needs to lean against the increasing demand pressures. Policy interest rates are quite low for a fast-growing economy that is showing signs of reaching capacity constraints (Box 1). The government plans to reduce the deficit to zero in 2019, but most of this fall is due to strong growth: according to the government's plan the expected structural improvement in 2018-20 represents on average of just 0.1% per year. Somewhat more tightening might be prudent to contain demand pressures. In this regard limiting large public-sector wage increases to areas where important skills shortages are emerging, such as teaching, would be advisable. Fiscal policy assumes an increased importance in providing macroeconomic stabilisation in a monetary union (Kirsanova et al., 2007). At the same time, a somewhat tighter fiscal stance would also make more room for action in the event of shocks, as Slovakia's open economy is very exposed to international trade tensions and volatility.

Still, there are good reasons for increasing public expenditure in some areas, notably education and Roma integration. Within a tighter budget, priority-spending need should be financed by a combination of increased revenue, expenditure switching, and improved efficiency (Box 2).

Box 2. Quantifying the fiscal impact of structural reforms

The following estimates (Table 4) roughly quantify the long-run fiscal impact of selected recommendations. These estimates do not take into account any consequent effects on GDP.

Table 4. Illustrative fiscal impact of recommended reforms

Measure	Annual fiscal balance effect % of GDP
Deficit-increasing measures	1.9
Increasing spending on pre-school education to the OECD average	0.3
Increasing spending on primary, secondary and tertiary schools	0.3
Increasing spending on active labour market polices to the OECD average	0.3
Measures to promote access of Roma to public services	0.3
Reducing social security taxes	0.7
Offsetting measures	1.9
Tax measures	1.6
Reducing the VAT tax gap	0.7
Tax increases (environmental, property taxes)	0.9
Expenditures measures	0.3
Abolishing the coal subsidy	0.1
Merging municipalities	0.2

Notes: 1. Increasing spending on pre-school education from 0.5% of GDP to the OECD average (0.7% of GDP).
2. Increasing education spending per student as a share of GDP per capita to the OECD average.
3. Increasing ALMP spending as a share of GDP (0.2% of GDP) to the OECD level (0.5% of GDP).
3. Measures to promote access of Roma to public services will be four times higher than the current EU funded projects targeted at Roma per year (0.07% of GDP) (see Chapter 1).
4. The amount by which social security taxes can be reduced represents a residual between additional measures and offsetting measures.
4. Closing half of the VAT gap (26%) between Slovakia and the EU median level (10%) according to the EC VAT gap estimates (see below).
5. Increases environmental taxes from 2% of GDP to the median OECD level (2.2% of GDP).
6. Increasing the revenues from the recurrent taxes on immovable property from the current 0.4% to the OECD average (1.1% of GDP).
7. Savings on merging municipalities is based on the results of empirical research (0.2-0.4% of GDP) (Cernenko, Harvan and Kubala, 2017).
Source: OECD calculations.

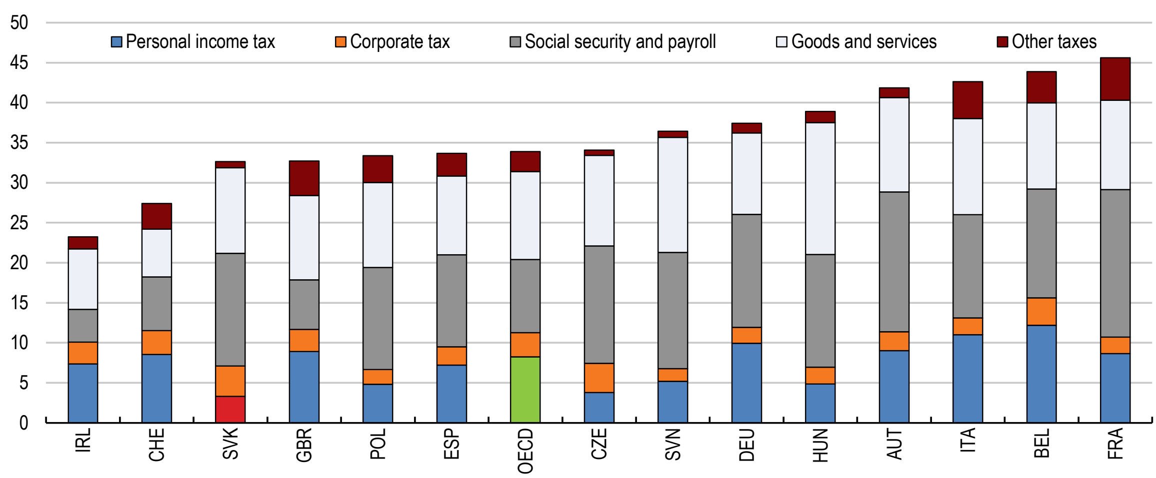
Medium-term planning

Large revenue gains are possible if Slovakia can make further progress in improving tax collection. Despite success in reducing tax evasion, it remains substantial (see section on tax administration below). Two areas where increasing rates could be considered are environment-related taxes and property taxation.

The effective carbon-pricing gap, which measures the gap relative to the Paris Agreement goals, remains significant (OECD, 2018a). In this regard, energy and other environmental taxes should increase. They are still 0.2% of GDP lower than the median OECD level, which by itself would not be enough to eliminate the effective pricing gap. In addition, there are many tax exemptions related to energy consumption. Abolishing them would provide incentives for more effective energy use and could increase revenues by up to 0.1% of GDP (MoE, 2017). The government should launch a broader environmental tax reform to abolish exemptions in excise taxes, harmonise tax rates across different activities as a function of estimated environmental damages and increase environmental tax rates, which are low by international standards. However, environmental tax reform needs to be accompanied by measures to cushion the effect on the poor and the rural population, who is dependent on car transport for mobility, unless good public transport services are offered.

The revenue from recurrent taxes on immovable property in Slovakia is 0.7% of GDP lower than the OECD average. There is some evidence that higher taxation on housing may reduce house price volatility (EC, 2018a). Real estate taxes are less distorting than taxes on labour, though in Slovakia, where many low-income households own their homes through restitution rather than wealth, they could be regressive. The revenue from increases in environmental taxation and some increase in property taxation could be used to finance cuts in labour taxes, as the tax mix is heavily reliant on social security taxes (Figure 12); this increases the cost of employing low-wage workers, harming the least skilled (OECD, 2017a). The average single worker in the Slovak Republic faced a tax wedge of 42% in 2017, compared with the OECD average of 36%.

Figure 12. The tax mix in Slovakia relies heavily on social contributions



Source: OECD, *Revenue Statistics Database*; OECD, *OECD Economic Outlook 104 Database*.

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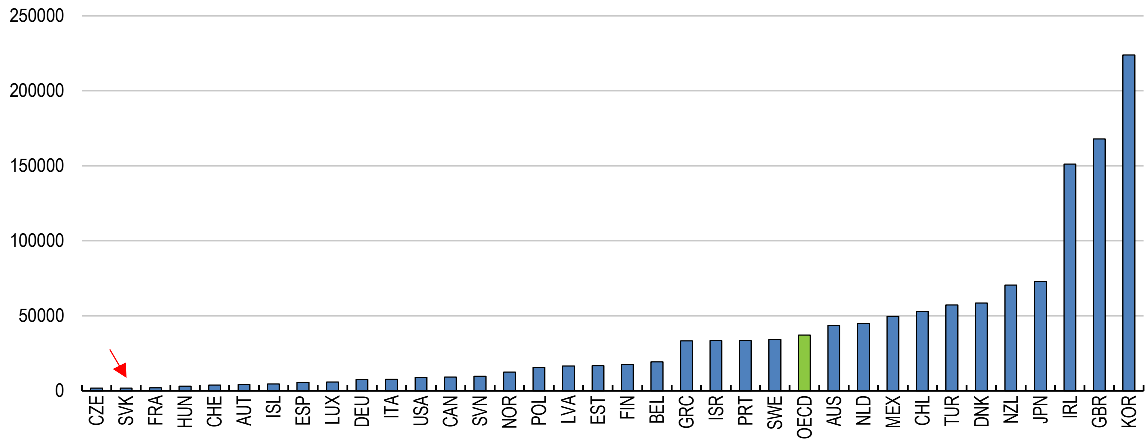
The large number of local governments inflates public expenditure. The average population of municipalities is one of the lowest in the OECD (Figure 13). Estimates suggest that reducing their number through mergers could save up to 0.4% of GDP (Cernenko, Harvan and Kubala, 2017).

Figure 13. Slovak municipalities are among the smallest in the OECD

Average number of inhabitants



Source: OECD (2018), Subnational government structure and finance database.

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The budgetary framework has improved considerably since the crisis. An independent fiscal council was established in 2011, and transparent debt ceilings were introduced. They require public debt to remain below 60% of GDP. This legal ceiling will decline until it reaches 50% of GDP by 2027. However, binding multi-annual expenditure ceilings, which have also been a constitutional provision since 2011, have not yet been implemented. Actual expenditures in recent years have been consistently higher than budgeted, following persistent overshooting of revenues.

In this regard the Ministry of Finance is examining adding expenditure ceilings in the general government budget in the near future (MoF, 2018a; Table 5). Expenditure ceilings could improve budgetary planning and restrain expenditure increases in boom periods, while allowing the automatic stabilisers to work in downturns. They could also help to better incorporate expenditure reviews into the budgetary planning process and realise the identified potential for savings (see section on public administration below). Expenditure ceilings played an important role in making fiscal frameworks more effective in the Netherlands, Denmark, Sweden, and Finland (EC, 2010). In practice, expenditure ceilings take the form of a cap on nominal or real spending growth over the medium term. Empirical evidence suggests that the compliance rate with an expenditure rule is greater if the rule is directly under the control of the government and enshrined in law or in a coalition agreement (IMF, 2015). The government should consider linking the expenditure ceilings with its debt objectives, as in Israel.

Table 5. Past OECD recommendations on maintaining fiscal prudence

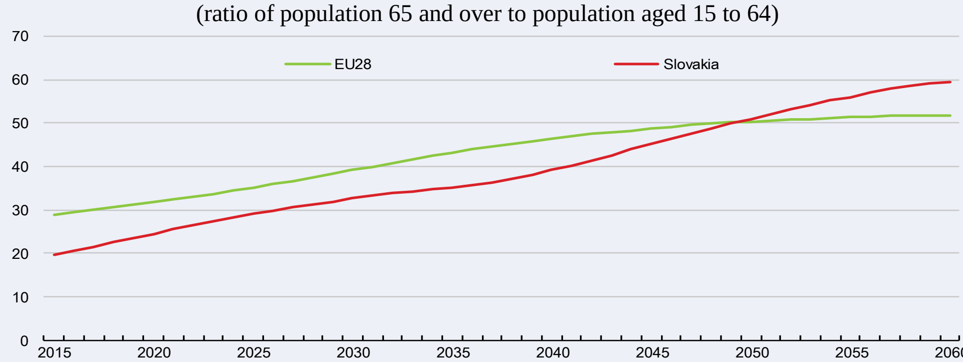
Topic and summary of recommendations	Summary of action taken since 2017 *Survey*
Pursue budget balance by 2019 as planned.	The government`s draft budgetary plan has confirmed the plan to reach a balanced budget by 2020.
Create enough room over time under the debt ceiling to allow the automatic stabilisers to work.	According to the recent government forecast, debt will become fully compliant with the national ceiling already in 2018 and reach 45 % of GDP in 2020.
Implement the constitutional provision of multi-annual binding spending ceilings to reinforce budget discipline in upturns.	The Ministry of Finance announced the testing of expenditure ceilings in the general government budget in the near future
Supplement the current debt ceilings with a much lower non-binding debt target.	No action taken

Box 3. The pension reform needs to be implemented as planned

The Slovak Republic has one of the fastest ageing populations in the OECD. Currently, the share of elderly persons (65 and over) in the working-age population is one fifth. However, in 2060 the share of elderly persons in the working-age population will reach almost 60% (Figure 14). Steep population ageing will expose the pension system to strong fiscal pressures in the next few decades.

Figure 14. The rapidly rising old-age dependency ratio

(ratio of population 65 and over to population aged 15 to 64)



Source: Eurostat

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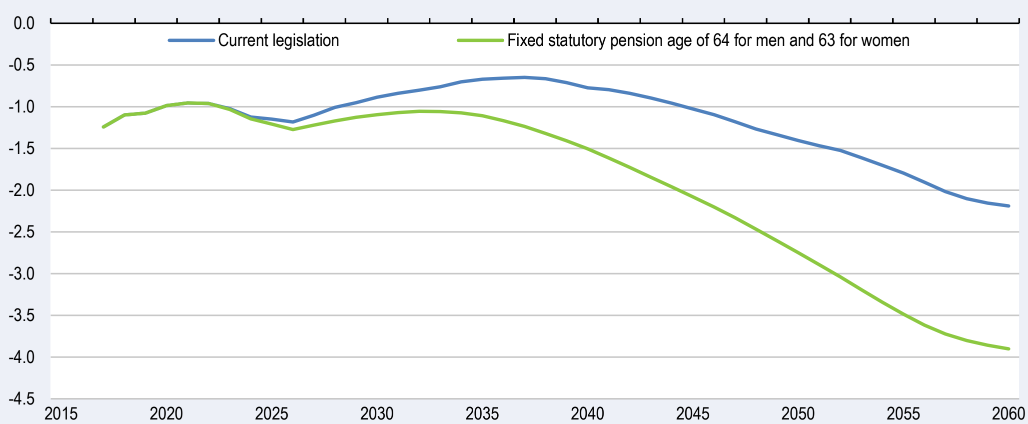
To face this fiscal challenge, a general pension reform was adopted in 2012-13, which streamlined the points-based pension system, incorporated special regimes for the armed forces and police, switched to inflation-based indexation and adjusted the statutory pensionable age in line with rising life expectancy from 2017 onwards (OECD, 2017a). If the reform is implemented as originally envisaged, it will help to ease the burden on the pension system coming from population ageing (Figure 15, Current legislation). Parliament is currently discussing potential changes in the constitution that would revise the pension system so as to break the link with life expectancy so as to not allow the pension age to be higher than 64 (and lower than that for parents); this will increase the pension system deficit even further.

Figure 15. The pension system deficit

% of GDP



Source: Fiscal Council of the Slovak Republic.

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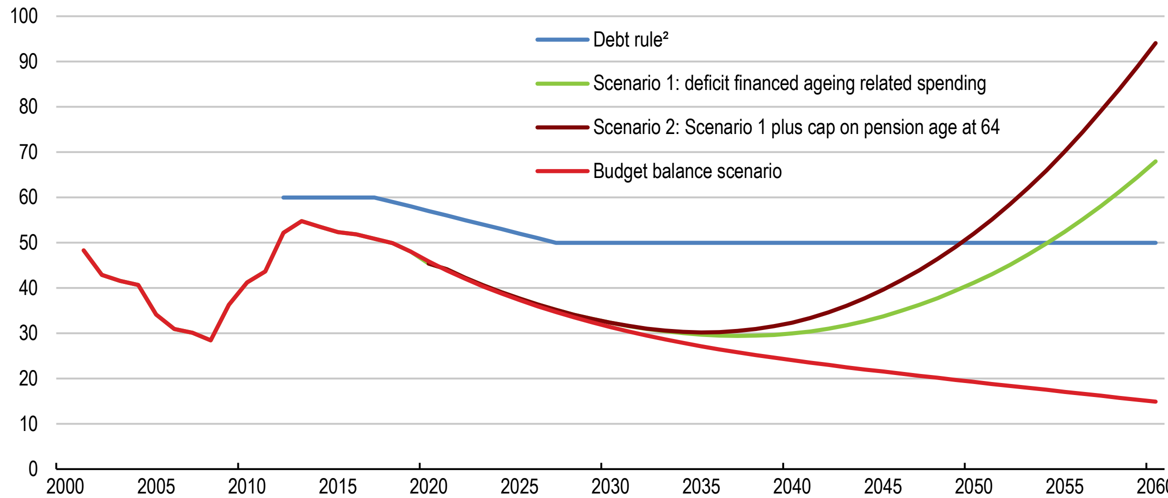
Figure 16. Illustrative public debt paths

General government debt, Maastricht definition, as a percentage of GDP[1]



1. The "Budget balance" scenario consists of the projections for the Economic Outlook No. 104 until 2020. From there on real growth is based on OECD long term scenario projections and will grow by 2.0%. The "Budget balance" scenario assumes that the budget reaches balance in 2020 and remains stable onwards during the whole projection period. Implicitly, this assumes that ageing costs are offset by rises in taxes or cuts in other expenditure. "Scenario 1, - deficit-financed ageing-related spending " differs from the previous scenario by assuming a higher government deficit due to expenditures sensitive to population ageing (pension, health and long-term care) based on the EC ageing report. "Scenario 2, - Scenario 1 plus cap on pension age at 64" differs from the previous scenario by assuming an entitlement to full pension at the age of 64, regardless of life expectancy, as planned in the proposal discussed in parliament in the fall of 2018.
2. Constitutional debt thresholds: 60% of GDP - Vote of confidence procedure against the government. Between 2018 and 2028, the thresholds are to be gradually lowered by 10 pp.
Source: Calculations based on OECD (2016), OECD Economic Outlook: Statistics and Projections (database), October.

In the long term, keeping the budget balanced will provide adequate buffers against future shocks and more fiscal room for manoeuvre - assuming that rising ageing-related costs are fully contained, for example through higher tax revenues or spending cuts (Figure 16, Budget balance scenario). In this regard, the pension reform of 2012-13 was important, as it significantly lowered pension indexation and increased the age at which full pension entitlement is reached (loosely called the ‘pension age’) in line with rising life expectancy (Box 3), limiting the rise in pension costs (Table 6). Expenditure on health and old-age care is projected to rise by around 2% of GDP by 2060; without measures to offset these costs, the debt-GDP ratio will increase above the debt ceiling (Figure 16, Scenario 1: deficit-financed ageing-related spending). Backtracking on the pension reform and capping the statutory pension age at 64, as foreseen by an initiative currently discussed in parliament, will increase the debt even further (Figure 16. Scenario 2). At the same time, implementation of various structural reforms can help increase economic growth (Box 4), with positive effects on fiscal sustainability.

Table 6. Long-term projection for age-related spending, % of GDP

	Total age-related spending			Gross public pension spending			Health care spending			Long-term care spending		
	2016	2030	2060	2016	2030	2060	2016	2030	2060	2016	2030	2060
Czech R.	18.2	19.7	25.2	8.2	8.2	11.6	5.4	5.9	6.6	1.3	1.8	2.8
Hungary	19.0	17.8	21.9	9.7	8.4	11.1	4.9	5.4	5.8	0.7	0.8	1.1
Poland	20.4	20.5	22.2	11.2	11.0	11.1	4.3	4.5	5.2	0.5	0.7	1.2
Slovenia	21.9	23.9	28.8	10.9	12.0	15.2	5.6	6.3	6.8	0.9	1.1	1.8
Slovakia	**18.9**	**18.8**	**22.2**	**8.6**	**7.6**	**9.9**	**5.6**	**6.2**	**7.0**	**0.9**	**1.1**	**1.5**
EU28	25.0	25.7	26.8	11.2	11.6	11.3	6.8	7.2	7.7	1.6	1.9	2.7
EA	26.0	27.0	27.6	12.3	13.0	12.4	6.8	7.1	7.5	1.6	1.9	2.7

Note: Total age-related spending includes gross public pensions, health care, long-term care, education and unemployment benefits.
Source: European Commission (2018), *The Ageing Report 2018, Economic and Budgetary Projections for the 28 EU Member States (2016-2070)*, 3/2018, Brussels.

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Box 4. Structural reforms can raise growth and living standards

The effect of selected reforms proposed in this *Survey* can be gauged using simulations based on historical relationships between reforms and growth outcomes across OECD countries (Égert and Gal, 2017). The model on which the estimates are based captures the reform recommendations only very roughly in some instances. Therefore, they should be seen as purely illustrative. The policy changes that are assumed (Table 7) are based on comparing Slovakia's current policy settings with those of OECD countries. The model estimates reflect fiscally neutral spending increases. For example, the expenditure increase on childcare support is financed by tax increases or spending cuts in other areas.

Table 7. Illustrative GDP-per-capita impact of recommended reforms

Reform	Percentage increase in GDP per capita	
	10 year effect	Long-run effect
Increase spending on Active Labour Market Policy	1.1%	2.2%
Increased spending on R&D	1.4%	3.7%
Increase government support for childcare	1.6%	2.1%
Improve the rule of law	3.4%	8.9%

Notes: The permanent policy changes assumed for the scenarios in the table are:
1. Spending on active labour market policies as a share of GDP is increased by 0.3% of GDP to reach the level of the OECD average
2. R&D business sector funding is increased from 0.4% to 1.3%, reaching the OECD average level
3. Government support for childcare is increased from approximately 0.5% of GDP to 0.7% of GDP, matching spending to the OECD average
4. Improving the rule of law measured by the World Bank's World Governance indicator by closing one-fifth of the gap with the average of top 5 European countries in the OECD better life ranking.
Source: OECD calculations based on Égert and Gal (2017).

Sustaining environmentally friendly growth

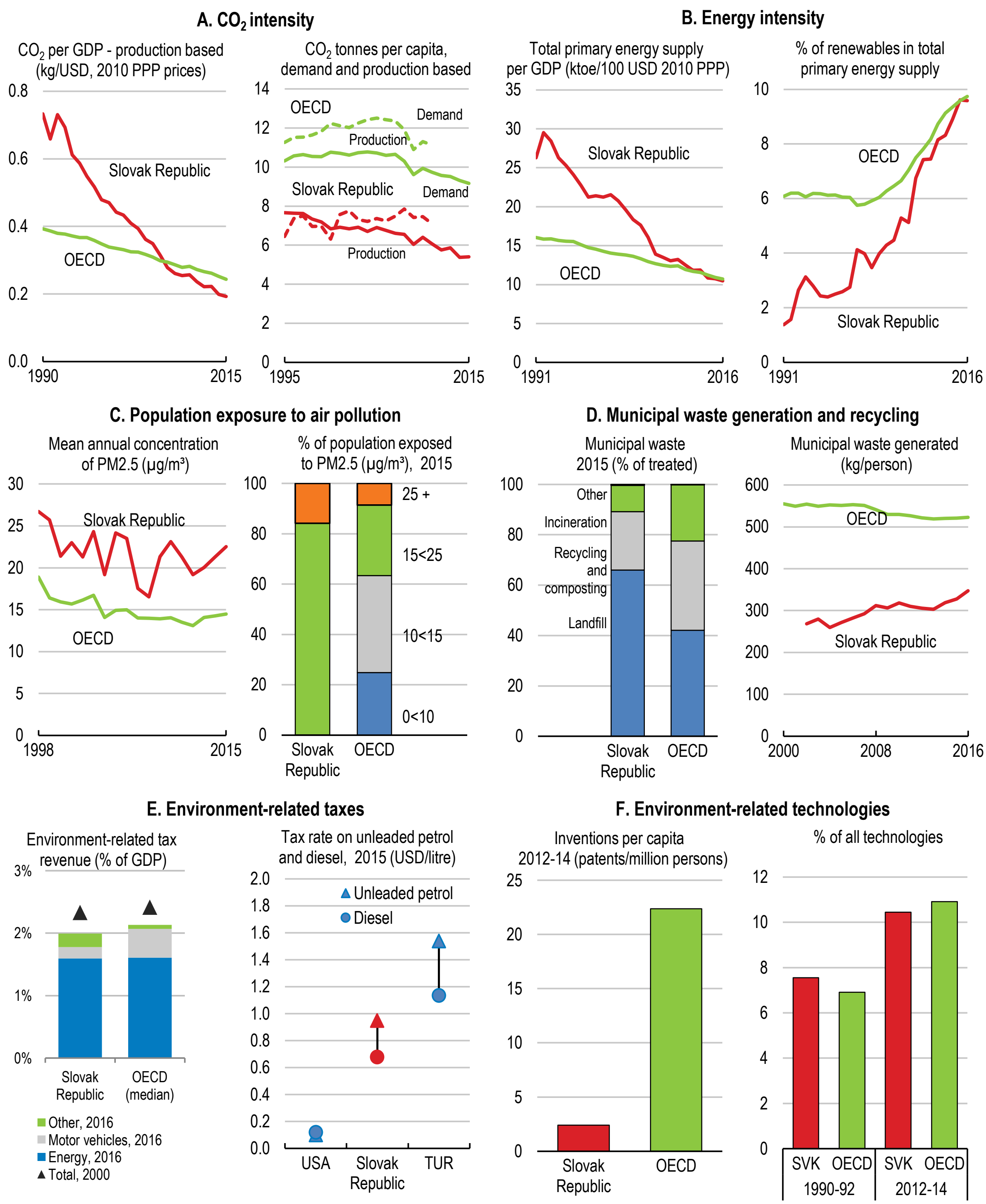
CO_2 emissions per capita are lower than on average in the OECD (Figure 17, Panel A). But Slovakia needs to develop a plan for reaching long-term emissions reductions needed to meet the goals of the Paris agreement, especially as most of Slovakia's CO_2 emissions are outside the European Union's Emission Trading System. Slovakia offers subsidies for the purchase of electric cars. But this is unlikely to be a very effective instrument when, for example, energy taxes and taxes on vehicles (Figure 17, Panel E) are lower than in most countries. Also, coal is taxed at lower rates than oil or natural gas, even though it generates more pollution. In electricity generation, oil and coal are not taxed at all. Gradually raising taxes on fossil fuels according to their carbon content would lower greenhouse gas (GHG) emissions and also help to reduce air pollution, which is particularly prevalent in Slovakia (Panel C). At the same time, as recommended in the previous Survey, the coal subsidy should be abolished (Table 8).

Table 8. Past OECD recommendations on environment and green growth policy

Topic and summary of recommendations	Summary of action taken since 2017 *Survey*
Gradually phase out coal subsidies and tax breaks for energy use.	No action taken
Consider introducing a CO_2 tax in sectors not covered by the EU- ETS and raising the tax rate on diesel fuel.	No action taken

Slovakia makes excessive use of landfill in waste treatment (Panel D). To start to reduce this, in November 2017 the government began to use EU funds to support waste management projects in the least developed areas. The authorities argue that this creates employment, while reducing landfill and thus improving the environmental impact of waste treatment. It also comes with the prospect of developing renewable energy from waste. Extensive publicly funded construction of sorting and recovery infrastructure has already taken place, however (OECD, 2018b). So far, this has had little effect on recovery and recycling rates, though. The government recently approved measures to substantially increase fees for waste landfill over the next three years to intensify the fight against illegal landfill and incentivise recycling.

Figure 17. Emissions have fallen more than the OECD average



Source: OECD (2018), *Green Growth Indicators (database).*

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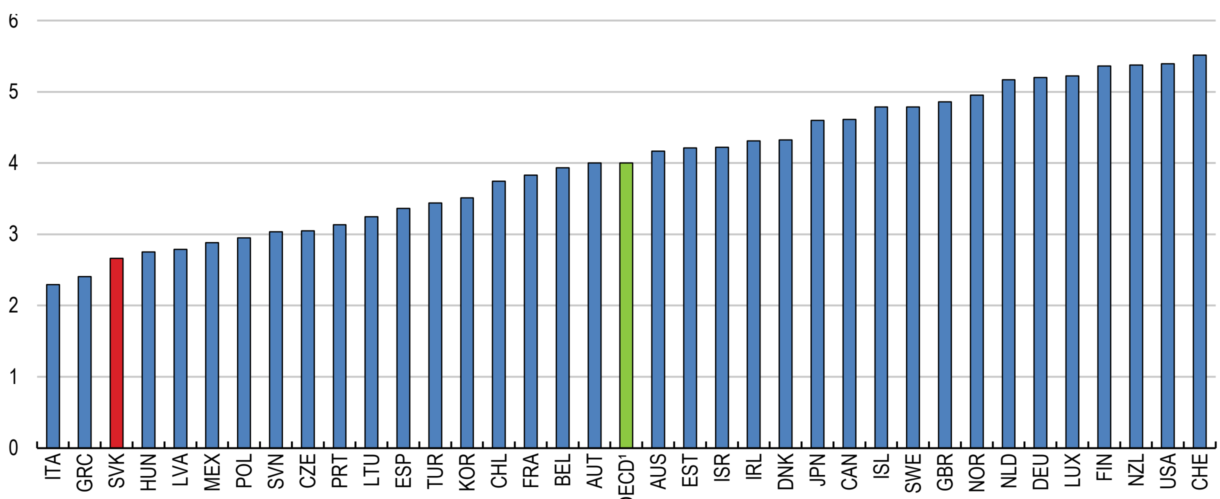
Improving the quality of public services and facilitating access will improve well-being for all citizens

Increasing public-sector efficiency is a crucial policy challenge for Slovakia. Health-care outcomes are poor. Mortality is high, and life-expectancy at birth is only 77 years, three years lower than the OECD average. Education results are weak and highly dependent on socio-economic background, suggesting that schools are not effective in overcoming differences in children's starting position (see the section on education below). Moreover, indicators suggest a poor comparative performance of public administration (Figure 18) and lack of trust in government institutions. In OECD countries, only Hungary, Turkey and Mexico rank worse than Slovakia on Transparency International's Corruption Perceptions Index. In late 2017 85% of Slovaks thought that corruption was "widespread" in their country compared with two-thirds of EU citizens overall (EC, 2017). Tax collection, the judiciary and skill levels among public employees all show room for improvement. Improving the situation of the Roma community is as much to do with access to public services as with their quality and coordination.

Figure 18. Performance of government general services

Scale from 0-6 (best), 2017



Note: Unweighted average of the 36 OECD countries
Source: World Economic Forum; *Global Competitiveness Index dataset 2007-2018*; www.weforum.org/gcr

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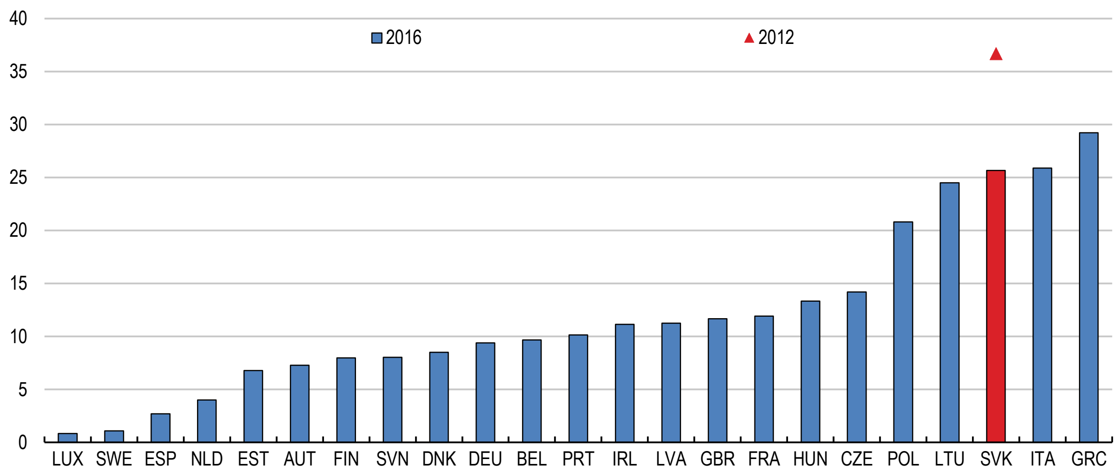
Improving the effectiveness of tax collection

Weaknesses in tax administration are reflected in heavy tax evasion. An indicator of low tax compliance is the share of companies not paying any corporate income tax (Remeta et al., 2015). More than half of Slovak companies declare zero tax liability and one fifth of them have declared zero or negative profits in five consecutive years (MoF, 2018b).

Comparing VAT revenue with its theoretical yield (the VAT tax gap) also illustrates tax collection efficiency. There has been a strong improvement in VAT collection since 2012, as tighter controls, more monitoring and better use of electronic communication take effect. The VAT tax gap reduction in 2016 was the fifth highest in the EU. But Slovakia still lags a long way behind most other countries (Figure 19).

Figure 19. The VAT Gap



Note: The VAT gap is the difference between the amount of VAT revenue collected and the theoretical tax liability according to tax law, as a percentage of total VAT liability.
Source: G. Poniatowski, M. Bonch-Osmolovskiy and M. Belkindas (2017), *Study and Reports on the VAT Gap in the EU-28 Member States: 2017 Final Report*", Center for Social and Economic Research (CASE) Reports, No. 492.

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Analytical tools using modern data analysis allow the authorities to target high-risk individuals or companies for audit. It requires investment in ICT and training personnel. The authorities are introducing tax compliance monitoring (Table 9), but tax auditing needs to be strengthened further. Many tax administrations in OECD countries are expanding their collection of data from third parties. Some tax administrations require banks to provide aggregate information periodically. For example, Poland created a centralised data warehouse, merged tax administration, customs and fiscal control operations to improve coordination, introduced improved modelling tools to better detect irregularities and facilitated information exchange with banks when there is a suspicion of tax fraud. (OECD, 2018c).

Modern technology can ease compliance by integrating tax declarations into the business process. This way they are turned into a by-product of the steps that businesses follow automatically in accounting for their transactions (OECD, 2014a). For example, the Danish tax administration developed such a system for small and medium enterprises that file their tax returns directly from their accounting systems. The system improves both accounting and tax compliance (OECD, 2015a).

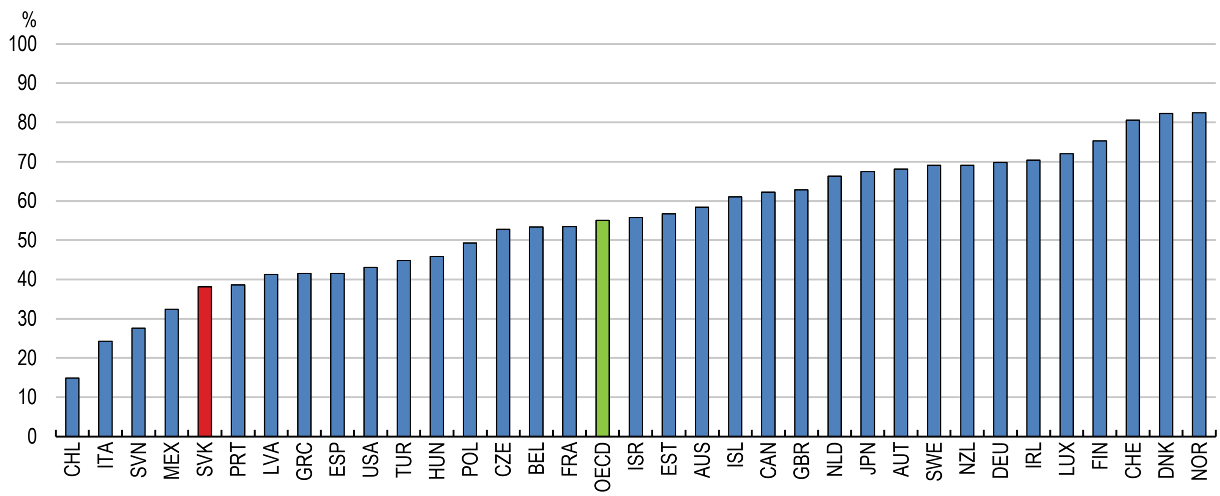
Table 9. Past OECD recommendations on effectiveness of tax collection

Topic and summary of recommendations	Summary of action taken since 2017 *Survey*
Merge the tax/customs and social security agencies to raise revenues. Link the IT systems of the tax administration and banks.	No action taken
Further enhance the efficiency of tax administration. Continue efforts to improve tax collection.	The Third Action Plan on the fight against tax fraud for the years 2017–18 (21 measures) has been introduced including the new tax compliance index that assesses taxpayers' risk profiles, mandatory e-communication for taxpayers, and prefilled electronic tax returns for motor vehicle tax.

The judicial system needs to be further improved

The Slovak judicial system has a large backlog of cases especially those concerning enforcement – a category including the resolution of creditor-debtor conflicts and insolvency proceedings. In particular, a large number of old distrainment cases add to the time taken for new cases to be processed. The average total length of judicial proceedings in civil and commercial matters was almost two years in 2017. However, the judicial system is undergoing systemic reforms to help clear the backlog. The government is considering several options to solve this issue soon. For now, Slovak citizens and companies have relatively little confidence in the judicial system, especially believing that it lacks independence (Figure 20).

Figure 20. Low trust in the judicial system and courts



Note: Data correspond to the percentage of "yes" answers to the question: "In this country, do you have confidence in each of the following, or not? How about the judicial system and the courts?"
Source: *Gallup World Poll (database).*

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When enforcement is slow or uncertain, and confidence in the system is low, individuals and companies in Slovakia have to take more elaborate and costly actions to protect themselves against default on contracts than in other countries. Methods include writing contracts in other jurisdictions, such as Austria, relying more on arbitration (also often abroad), and providing more collateral.

Responsibility for many enforcement cases has, since April 2017, been allocated to just one district court (Banská Bystrica), which has historically dealt much more quickly with these cases. Further changes were adopted aimed at speeding up certain judicial proceedings, including requiring exclusively electronic communication for certain procedures. Nevertheless, further efforts are needed to implement recommendations from a recent report by the Council of Europe's Commission for the Efficiency of Justice. Further court specialisation for some types of cases could be effective, as would be more rational budget and human-resource management, paying more attention to ethics-awareness among judges, and providing them with more technical and legal support staff (CEPEJ, 2017). These are good recommendations and should be followed up, along with other steps already planned (Table 10), such as improving the use of IT and use of alternative dispute resolution procedures.

Dealing with perceptions of corruption

The Prime Minister's office is developing a system to identify and address corruption risks in the administration, and the government proposed new legislation strengthening the protection of whistle blowers. The new system to detect corruption risks within the public administration, such as decisions involving large amounts of resources, will be used to enhance monitoring and controls in high-risk areas. Other policies, such as publishing winning public procurement contracts and requiring full disclosure of beneficial ownership of companies dealing with the state, have reinforced transparency. Over time, steps such as these, along with the continuing improvements in laws and regulations defining and sanctioning corruption, should help limit corruption and improve trust. They rely on adequate enforcement.

Table 10. Past OECD recommendations on improving the judicial system

Topic and summary of recommendations	Summary of action taken since 2017 *Survey*
Further strengthen the efficiency and independence of the judicial system. Continue to increase judicial capacity in particular through investment in IT systems.	New measures have been introduced, including an assessment of judges' work by the members of professional assessment juries/commissions named by the Judicial Council of the Slovak Republic.

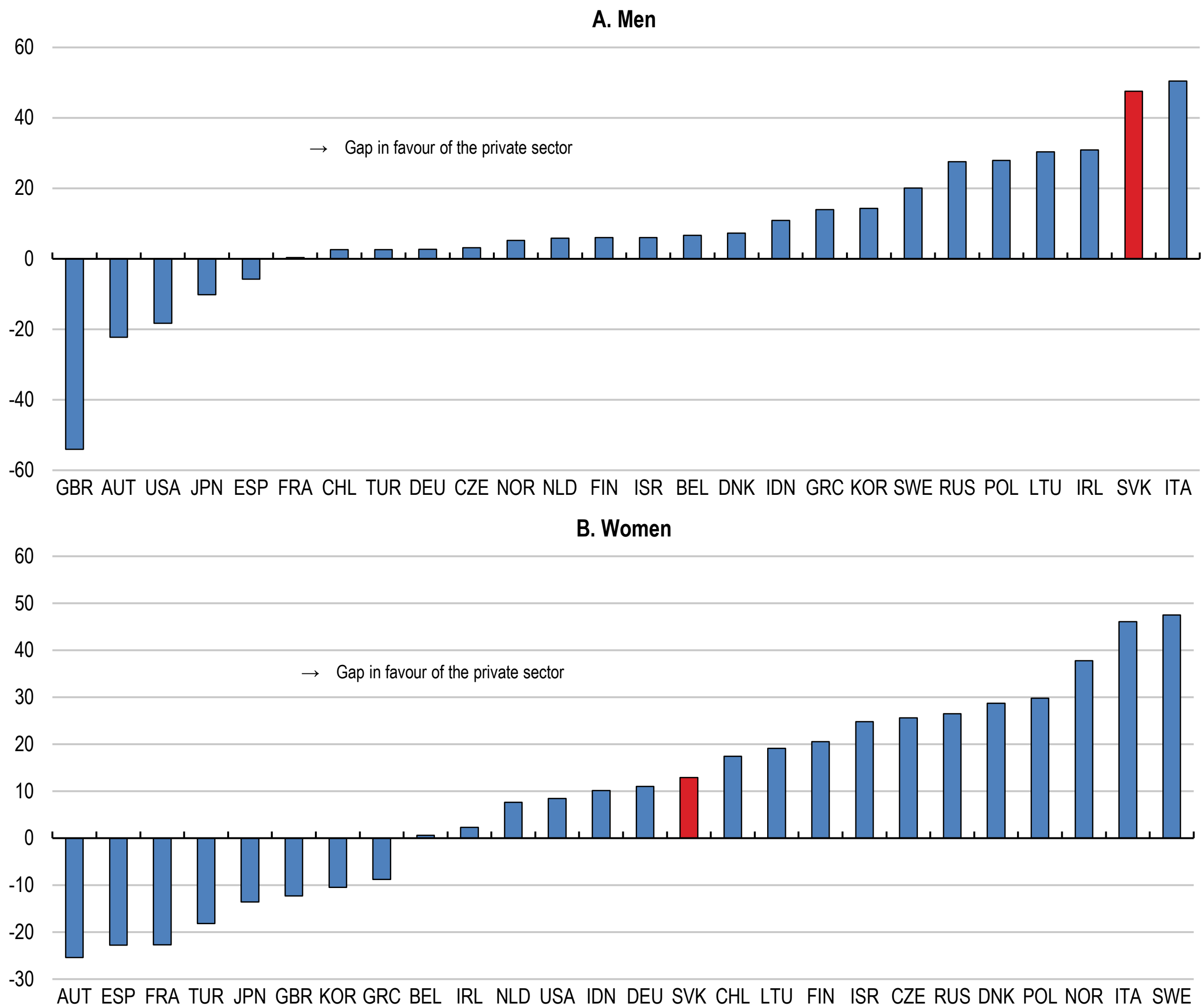
Skills in public administration

The average skill level – measured by the OECD PIAAC (Programme for the International Assessment of Adult Competencies) indicators – of public-sector employees is significantly lower than in the private sector, and this disparity is one of the highest in the OECD (Figure 21). Better recruitment, and on-going training where necessary, can help to reduce the gap. Development of performance indicators to help individuals and departments to assess their progress can also contribute.

Better pay relative to the private sector might attract more qualified people into public administration. Public-sector wages are low in international comparison (MoF, 2018c). The government currently proposes substantial increases in public-sector pay 10% in 2019 and 2020 for most public employees. The plan misses an opportunity to relate pay more closely to public-sector needs, to skills and to performance. For example, the education sector has a high wage gap relative to the private sector and the Slovak teaching profession remains unattractive (OECD, 2017a). But this is not the case in other areas.

It would be better to set aside at least part of the budgetary allocations to cases of clear shortages. In this regard the government should continue to strengthen the Value for Money initiative within the Ministry of Finance, which aims to promote evidence-based policy making and efficiency within the public sector (Box 5). The current review concluding in 2018 is focused on public-sector wages. This can help to identify the most effective allocation for these additional resources. However, the conclusions of previous expenditure reviews have so far not been fully implemented. The resources of the implementation unit responsible for putting the conclusions into practice should be strengthened, and the review process should be fully integrated into medium-term budgetary planning. In this respect introducing expenditure ceilings, which put a cap on nominal or real spending growth over the medium term would help focus the administration's attention on identified savings potential.

Figure 21. The skills gap between public and private sectors is high in Slovakia



Source: Y. Mazar (2018), "Differences in Skill Levels of Educated Workers between the Public and Private Sectors, the Return to Skills and the Connection between them: Evidence from the PIAAC Surveys", *Bank of Israel Discussion Paper*, No. 2018/01.

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Box 5. Value for money: the public expenditure review process

The main emphasis of the Spending Review process is on ways to improve efficiency – outcomes for given resources -- often taking broad OECD recommendations into account.

Reports in 2016 covered Healthcare, Transport and Informatisation. In 2017 there were reports on Education, Environment, Labour Market and Social policies.

Recommendations in the 2016 and 2017 reviews included:

- Health: expand use of diagnostic related groups for hospital funding; assess pay and incentive structures for medical staff; reduce expenses by introducing stricter cost controls on special medical material, reducing drug overconsumption and implementing drug prices indexation.

- Transport: improve project evaluation and prioritisation; reduce excess capacity in railways; increase the share of road finance allocated to maintenance to reverse their deterioration.
- IT: improve project evaluation and prioritisation; centralise support functions and procurement.
- Environment: phase out coal subsidies; better prioritise flood protection investments; increase environmental taxes.
- Education: increase teachers' pay (especially for young teachers), linking this with quality and improved training; reduce the number of elementary schools, taking into account the impact on quality and accessibility of education; improve the system of accreditation of universities, including more attention to teaching results; improve information, including graduate tracking; be more selective in supporting students for post-graduate degrees.

Labour Market and Social policies: consider how to better target family support; shift active labour market policies towards educational and training programmes and adjust measures taking international experience of what works to into account; increase efficacy of the pension system by supporting age-appropriate investment choices – for example by showing people the likely pensions associated with different investment strategies and by introducing default age-specific investment strategies.

Table 11. Past OECD recommendations on raising the efficiency of the public sector

Topic and summary of recommendations	Summary of action taken since 2017 *Survey*
Establish better human resource management, modernise public administration, and strengthen co-ordination and collaboration across government. Widen the use of performance elements in promotion, contract renewals and compensation of public staff	New measures have been adopted, including performance evaluation, new recruitment procedures, and a new procedure to help high performing civil servants who were dismissed due to organisational changes in their service offices to get back to work. A central information system for the civil service has been established, which will help the Government Office to make informed decisions regarding the civil service based on data from all service offices.
Encourage joint public-service delivery for small municipalities, and strengthen the revenue-raising power and spending responsibility of viable local governments.	No action taken

Access to public services for disadvantaged groups

Weak access to public services can hamper the integration of disadvantaged groups. This is particularly true for Roma, who account for around 8% of the population. They are poorly integrated in society and have extremely weak access to public services (Table 12). Poor access is related to cultural and language barriers, lack of awareness of available programmes, geographical isolation in some cases and discrimination. The Roma have low educational attainment with high dropout rates, damaging their labour market prospects. Poverty and inadequate housing coupled with weak access to outpatient care reduce life expectancy, which is lower by six years compared to the general population and an infant mortality rate that is almost three times higher than in the general population (MoF, 2018d).

Table 12. Roma access to public services is low

	General population	Marginalised Roma
Share of children aged 4-6 who participate in pre-school education (%)	77	34
Enrolment rate in upper secondary education age (15-18)	91	58
Enrolment rate in post-secondary and tertiary education age (19-24)	50	6
Share of households living without toilet, bathroom and shower inside the dwelling	0.6	43
Share of households living without tap water inside the dwelling	12.6	25

Source: European Union Agency for Fundamental Rights (2016).

Addressing these gaps in access to public services is an urgent policy priority. The government should prioritise integrating the Roma in order to build a more inclusive society, which ensures that everybody benefits from economic growth. This will require coordinated interventions in various different policy areas including: education, labour market policies, health care, housing and financial inclusion. Coordination is particularly important because exclusion is often so severe that interventions in one area will not work without progress in others. Children's access to education and staying in school may depend on improved hygiene, which in turn depends on easy access to running water, for example. Therefore, the work of social workers, housing policies, Roma school mediators and health mediators should be better coordinated. More integrated services can address issues of vulnerable communities simultaneously, and collaboration and knowledge sharing between providers can increase service quality (OECD, 2015b). In addition, a more integrated approach is more efficient and cheaper than sequencing the individual policy measures.

Implementing interventions in an integrated manner requires a central body with some power to coordinate different policies. This would best be done by strengthening the role of the Plenipotentiary for Roma communities, who currently has only an advisory role in the central government. A model could be the Deputy Prime Minister's Office for Investment and Informatization in the Slovak Republic, which is a cross-cutting ministry coordinating other ministries in the area of investments. The same approach could be applied to the area of Roma integration. As much as possible, programmes to improve the situation of the Roma should be designed in consultation with the communities they are intended to help.

Increasing the number of trained personnel from Roma settlements themselves will help facilitate dialogue and cooperation between their communities and public institutions. There are already some successful EU-funded pilot projects such as the Roma health assistants or Roma Civil Neighbourhood Watch, which help to improve access to public services. Trained Roma health assistants accompany sick people to the doctor, interpret if necessary, contribute to the prevention of infectious disease and encourage up-take of vaccinations. The direct involvement of Roma mediators is important, because they are better able to identify the needs of the community.

There are many local initiatives from public agencies and NGOs, which facilitate dialogue and ease access to public services, some funded by the EU. Although EU-funded programmes have increased the resources targeted at Roma integration, these funds do not represent a systematic and sustainable policy response to Roma integration. Individual projects usually run only for two or three years, followed by lengthy breaks before successor EU-funded programmes start up. Many of these projects were intended to start as pilots to test different approaches and bring the successful ones to scale. However, none of them has so far been successfully incorporated into and funded by national policy.

Analysis of which are cost-effective and which are not is needed, and successful ones should be scaled up to the national level. This requires the development of improved statistics to monitor progress. The Plenipotentiary should also be mandated, and resourced, to collect data and monitor the situation of the Roma.

Affirmative action could play a role in accelerating integration. This could include extra help in the education system to improve the chances of Roma children to get a university education. Scholarships and financial aid to Roma students could remove some barriers. For example, in Israel, prospective students from disadvantaged minorities who do not meet the required academic requirements are entitled to subsidised on-campus classes, including boarding, mentoring and guidance, to help them catch up and enrol in academic studies. Recruitment to public administration might also play a role in overcoming prejudice and providing role models for future generations. In order to integrate Roma into public administration, Roma ethnicity could be defined as a "tie-breaker" when two similar-quality candidates apply to the same public position. This can be particularly important in public-sector jobs such as kindergarten teachers or teaching assistants, which will help to employ Roma but also other aspects of Roma integration. To support the integration of Roma in the private sector, employment of Roma workers can be set as a criteria or an advantage when firms bid for a public contract, similar to the practice in the United States of America (OECD, 2010).

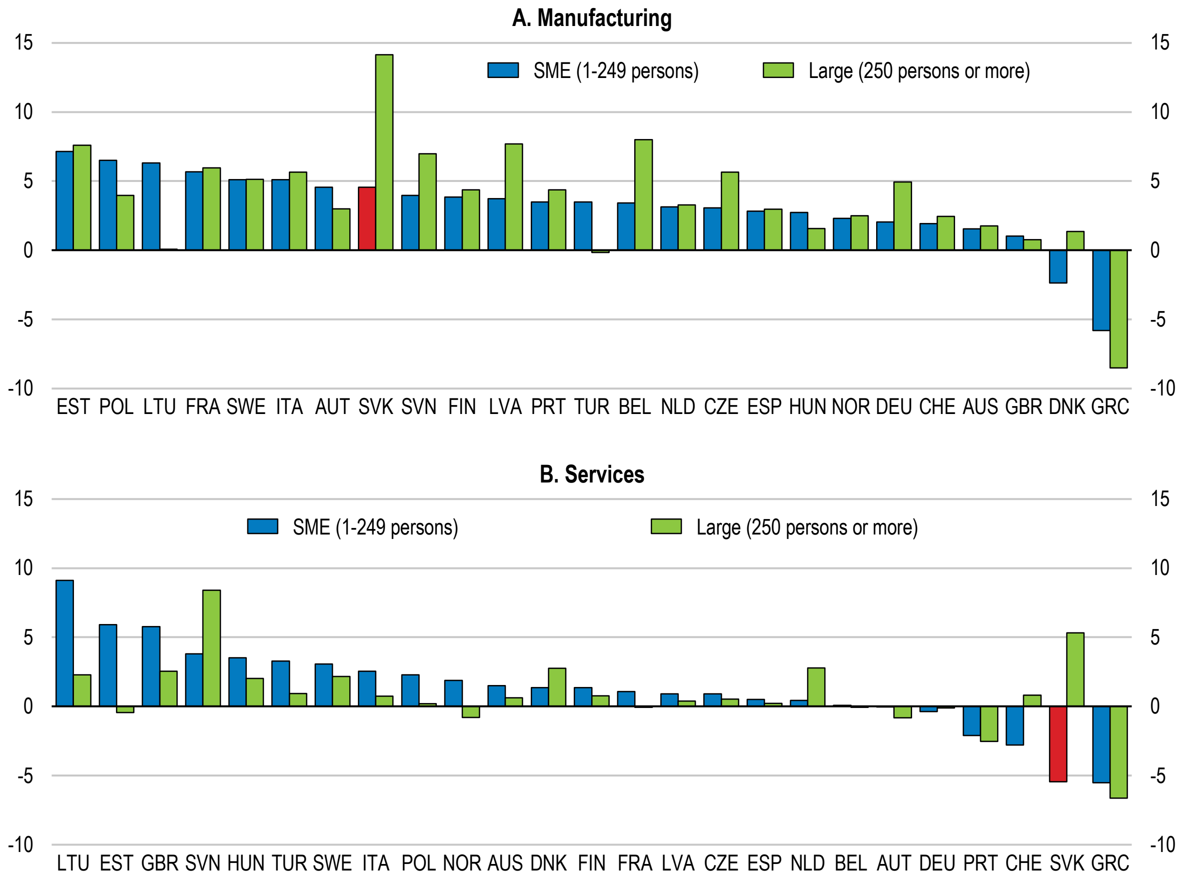
Enhance policies to develop workforce skills

Shortages of skilled labour are emerging, and technological change risks making skills redundant faster than in the past. Furthermore, there are strong signs that Slovakia is a two-speed economy, divided between large, mainly foreign-owned companies and smaller domestically owned companies. The large companies have high levels of productivity growth, frequently due to foreign direct investment delivering new technologies and recruiting or training workers to exploit them. Productivity has grown much more slowly in small companies. In small service sector companies, it has actually been declining (Figure 22). Their poorer performance suggests that spillovers of skills and ideas from the larger, foreign-oriented, companies to the rest of the economy have been limited.

Over time rising wages will make Slovakia less attractive in terms of pure cost levels for foreign investors. Future growth will therefore depend more on developing home-grown skills both for foreign-owned companies and especially for small and medium-sized companies to innovate and compete more vigorously.

Figure 22. Productivity gains have been much stronger in large firms than SMEs

Real value added per person employed, average annual change, %, 2009-14 or latest available year



Source: OECD (2017), *Entrepreneurship at a Glance 2017*, OECD Publishing, Paris.

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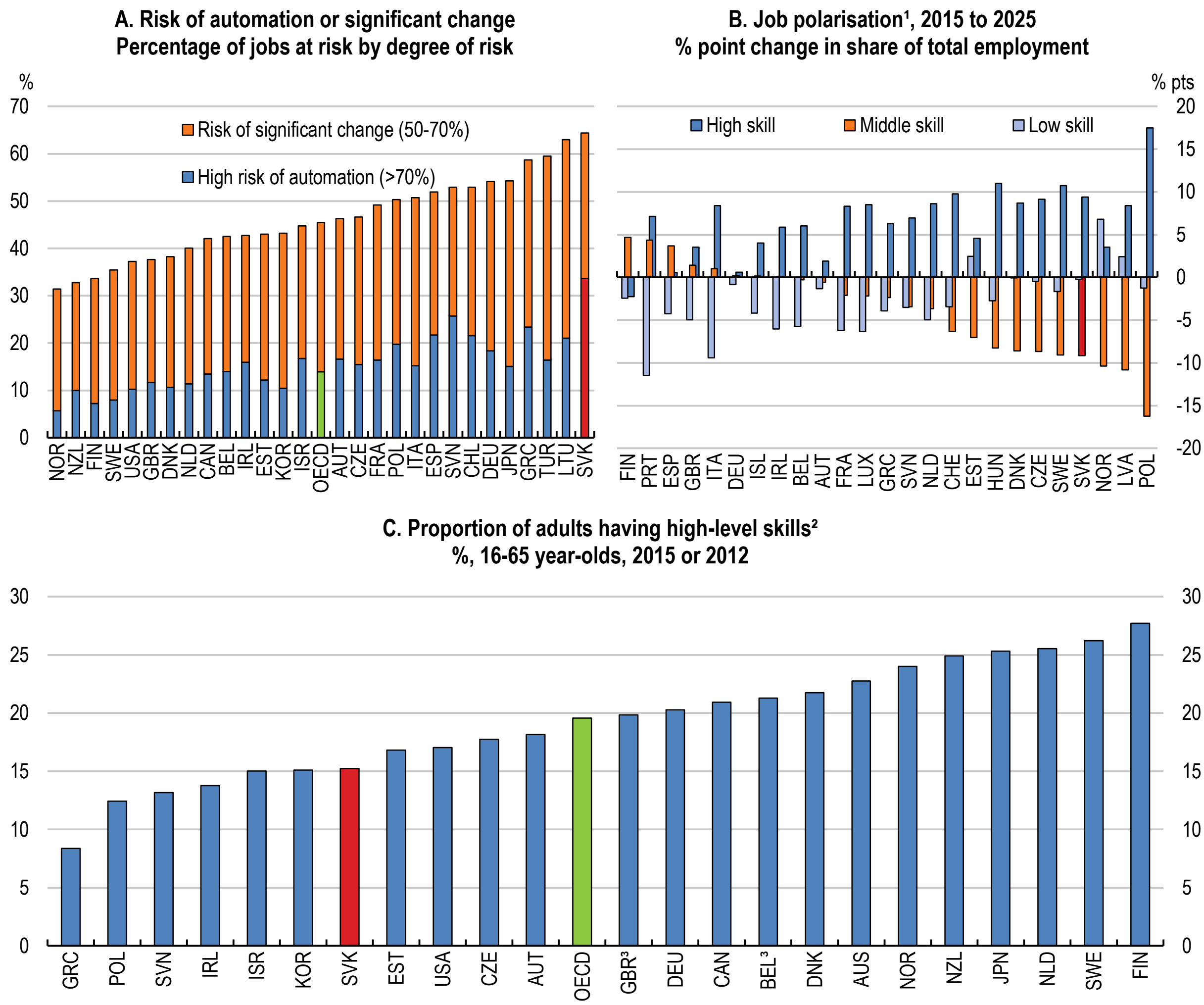
Technological change will have important consequences for the labour market in Slovakia due to its large share of low-skill routine jobs, which are likely to be automated in the near future. Almost two-thirds of current jobs in Slovakia are at risk of automation, as growing demand for highly skilled labour is expected to replace medium-skill jobs (Figure 23). It does not necessarily mean that these jobs will disappear entirely, but workers will almost certainly need to adapt to changing tasks by upgrading their skills to occupy the higher-skill jobs that will be created. Low-skilled workers often originate from disadvantaged families and were not offered the opportunity to acquire good skills. Slovakia needs stronger schools that do more to improve the performance of disadvantaged children. Vocational education and adult training also need to become more reactive to changing labour market needs and more accessible for older and lower-skilled workers. This will do much to promote inclusiveness, continued productivity growth and foreign direct investment that goes beyond a few sectors.

Figure 23. Slovakia's employment looks vulnerable to the likely increase in automation



1. High-skill occupations include jobs classified under the ISCO-88 major groups 1, 2, and 3. Middle-skill occupations include jobs classified under the ISCO-88 major groups 4, 7, and 8. Low-skill occupations include jobs classified under the ISCO-88 major groups 5 and 9. The above chart includes 15 of the 18 listed industries. The excluded industries are the following: Agriculture, hunting, forestry and fishing (1), Mining and quarrying (2), and Community, social and personal services (18).
2. Average of percentage of adults scoring at PIAAC literacy or numeracy proficiency level 4 or 5, or scoring at problem solving in technology-rich environments level 2 or 3.
3. Data for Belgium refer only to Flanders, and data for the United Kingdom refer only to England.
Source: OECD (2017), *Education at a Glance 2017: OECD Indicators;* L. Nedelkoska and G. Quintini (2018), "Automation, skills use and training", *OECD Social, Employment and Migration Working Papers*, No. 202, OECD Publishing, Paris. http://dx.doi.org/10.1787/2e2f4eea-en; European Centre for the Development of Vocational Training (Cedefop) (2017), *Forecasting skill demand and supply*, *http*://www.cedefop.europa.eu/en/events-and-projects/projects/forecasting-skill-demand-and-supply/.

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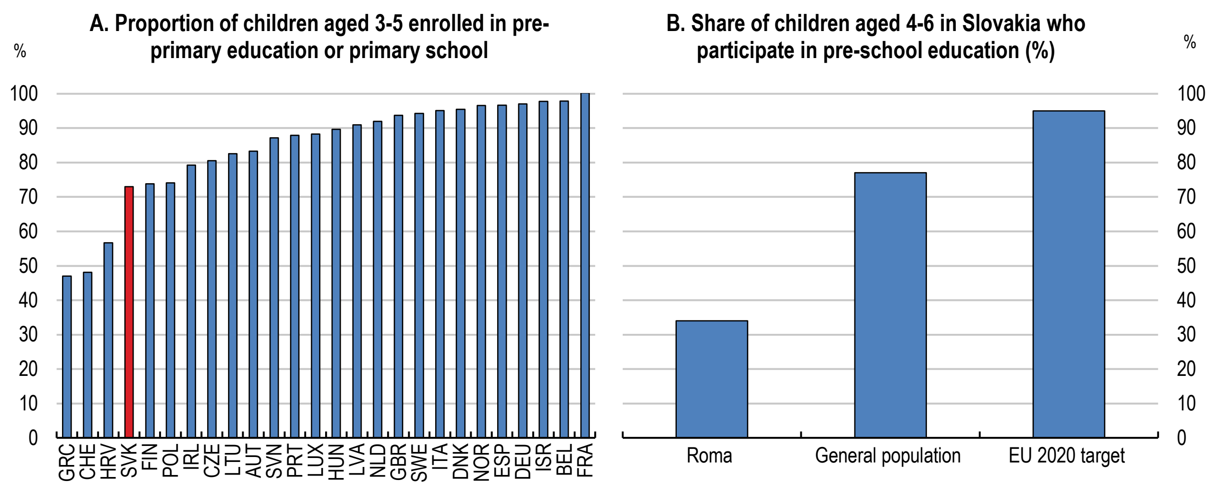
Improving education outcomes should be a priority

Slovak adults have weak problem-solving and computer skills; one-quarter of the adult population is fully computer illiterate (OECD, 2017a). Yet employers are increasingly demanding these skills in the expanding digital economy (OECD, 2014b). This situation may deteriorate further before it improves. Children's educational performance at age 15 measured by PISA is weak and has been deteriorating in international comparison. The youngest age cohorts have even worse numeracy skills than their older counterparts, a clear outlier in the OECD, where the reverse is normally the case (PIAAC – National report, 2013). Almost one-third of all 15 year-old students have not obtained even a basic level of proficiency in assessed subjects.

Participation in pre-school education can help improve children's learning and its benefits extend to their health and wellbeing (OECD, 2018d). In the Slovak Republic pre-school education is voluntary and participation is much lower than on average in the OECD. It is particularly low for disadvantaged groups such as Roma. Only one-third of them attend kindergarten, compared with almost 80% in the non-Roma, and 90% in most OECD countries (Figure 24).

Figure 24. Pre-school attendance is low, especially for Roma (%)



Source: OECD Family database; EU (2016), Second European Union Minorities and Discrimination Survey, Roma – Selected findings, European Union, Agency for Fundamental Rights.

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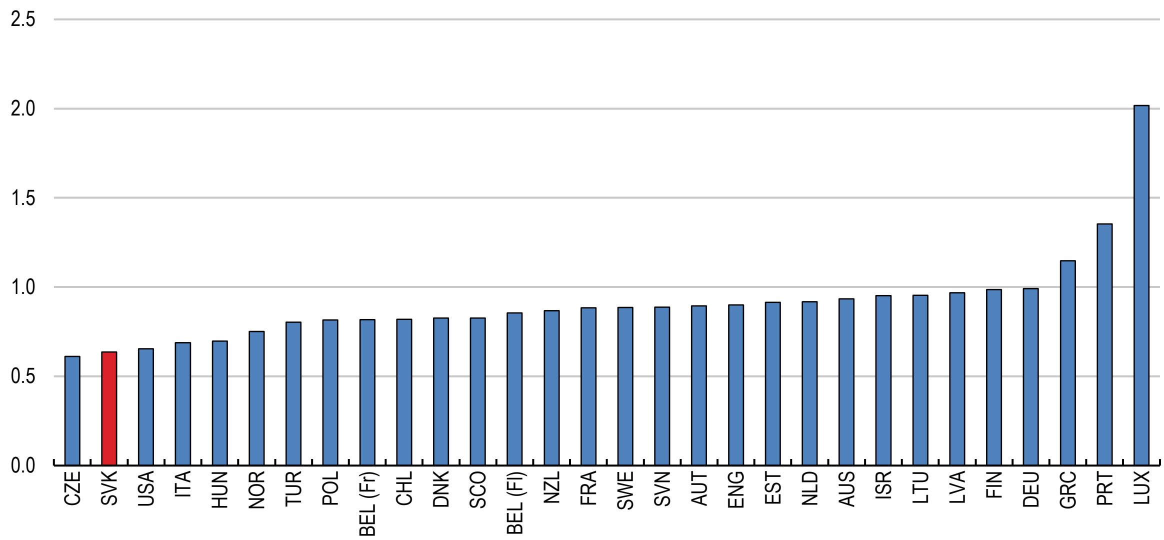
More investment and technical and material assistance to municipalities are needed in order to boost the number of pre-school facilities, which remain low despite the use of EU funds to increase capacity (OECD, 2017a). Pre-school education should become compulsory for 5 year-olds, which the Slovak Republic plans to implement as of 2020, and legal entitlements should be introduced for 3-4 year-olds. This can also be beneficial for female labour market participation, discussed further below. Several neighbouring EU member countries, such as the Czech Republic, Poland and Hungary have already introduced obligatory pre-school education. Such changes must be phased in so as not to outstrip the supply of good-quality facilities and teachers - low-quality pre-school education can have detrimental effects on development and learning (OECD, 2018e). As an intermediate step, the limited resources should be targeted first at disadvantaged groups.

The demand for pre-school education among disadvantaged groups should be bolstered by raising awareness among parents. Local municipalities and social workers should discuss the benefits of early education with the Roma. Creating parent support groups or opportunities for Roma parents' participation in school activities can foster their children's integration into their school environment. The government should also cover the hidden costs of education such as transport. A conditional cash transfer programme was introduced in Hungary in 2009 for disadvantaged children aged 3 to 4 and led to much higher enrolment (Kertesi and Kézdi, 2013). In 2018 the Slovak government introduced a child-raising allowance to partially cover the costs for pre-primary education for children one year before starting primary education.

Teachers need better qualifications, better training and better conditions to improve educational outcomes

Highly qualified and motivated teachers are key to improving skills (Chetty et al., 2014; Schacter and Thum, 2004). However, working conditions and salaries for Slovak teachers are unattractive; only 4% of them reported that their profession is valued in society (OECD, 2013a). Teachers earn only around 60% as much as the average tertiary-educated person in Slovakia (Figure 25).

Figure 25. Ratio of teachers' salaries to the earnings of tertiary-educated workers, 2016



Note: Data are for 2015 for Belgium, Chile, Czech Republic and Finland and for 2014 for France, Italy, Lithuania and the Netherlands.
Source: OECD, *Education at a Glance database*.

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The government has taken steps to improve teachers' working conditions (Table 13) and intends to increase their salaries further, along with those of other public-sector workers, by 10% in each of 2019 and 2020 and an additional increase for young and starting teachers. But overall wages are expected to rise by around 14% over this period, so a large gap will remain. Further increases in teachers' relative earnings in the future will be necessary to improve the quality of new recruits, but not sufficient: higher wages for teachers are unlikely on their own to improve results for students unless other reforms are undertaken. Such reforms need to improve teaching methods, to train teachers to adapt their methods to the needs of students, to develop measures of school performance that can give school principals and teachers useful feedback, and to expand and improve ongoing career training.

Teachers in schools with a high proportion of disadvantaged students should be given additional incentives. The maximum salary supplement in Slovakia for teaching disadvantaged pupils is EUR 25 per month, representing less than 2% of the average wage of the teacher. Some other OECD countries use much more generous financial incentives to attract the best teachers to disadvantaged schools (OECD, 2014c). Financial incentives could be complemented by other measures, such as smaller class sizes or more teaching assistants (OECD, 2012).

Table 13. Past OECD recommendations on education

Topic and summary of recommendations	Summary of action taken since 2017 *Survey*
Further increase teachers' salaries, particularly for starting teachers, conditional on improved teaching quality through high-quality professional development and increased focus on disadvantaged pupils.	Implementation plan for Education 2018 include increase in the teachers' salaries by 10% in 2019 and 10% in 2020.
Postpone early tracking in primary schools.	No action taken

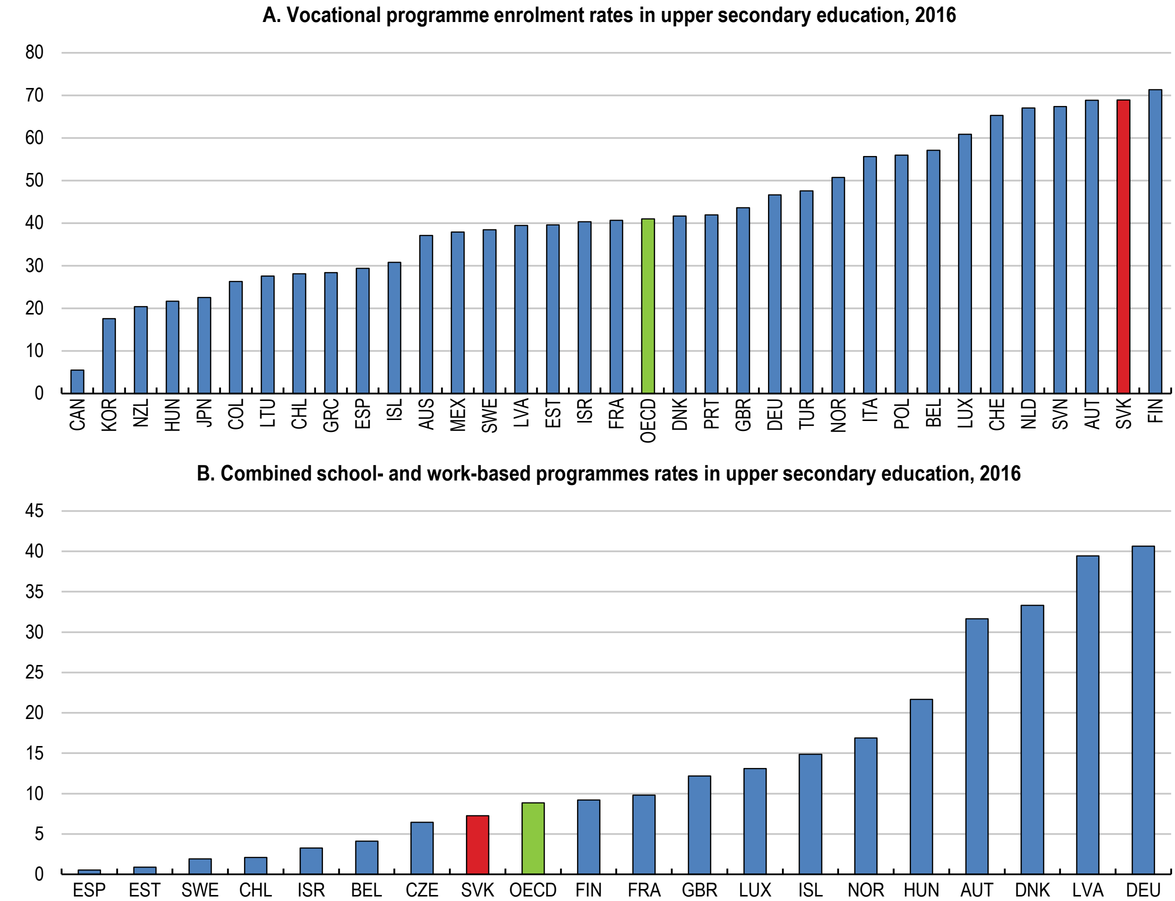
Wage increases may attract better qualified recruits, but both initial and ongoing training needs to be strengthened. One way forward would be professional development programmes, where teachers receive relevant training together with regular feedback under the mentorship of a lead teacher. Such an approach can improve teaching quality significantly (OECD, 2009; Fryer, 2016) and can also make the teaching profession more attractive by creating new career opportunities. Teachers in Slovakia rarely employ a differentiated and individualised approach that takes into account the diverse educational needs and abilities of their pupils (SSI, 2016). In contrast, in Finland, where learning outcomes are better, all teachers are trained in adapting their teaching to the varying learning needs and styles of their students (OECD, 2012).

The training content of vocational schools should be better linked with labour market needs. The share of vocational students in upper secondary education is among the highest in the OECD (70%), but few students receive work-based learning (Figure 26), while employers complain about the lack of professional and technical skills of VET graduates (Fazekas and Kurekova, 2016). Financial incentives for employers to participate in work-based learning schemes were introduced in 2015, but still only 7% of students participate (Panel B).

The authorities should continue to encourage companies to offer work-based learning and participate in designing practical and theoretical learning content. Besides the current financial incentives for employers, the National Council for Vocational Education and Training (a coordinating body, affiliated to the government, which brings together employers, some local governments and training providers) could help companies handle the associated administrative tasks, match employers with students and ensure that training meets the required quality standards. For example, in Scotland and Australia publicly funded intermediary bodies manage apprenticeships on behalf of employers, handle administrative work and match candidates for apprenticeships with employers (Musset et al., 2014).

It remains important to preserve and improve general skills among vocational students. Vocational students have generally lower levels of literacy and numeracy proficiency than general education graduates (OECD, 2017a). Work-based learning should be balanced with sufficient instruction time for general skills acquisition. This will better prepare these students for a changing labour market, enhancing Slovakia's prospects for innovation and moving up global value chains.

Figure 26. High share of vocational students with weak practical experiences



Note: Average of countries with available data.
Source: OECD (2018), *Education at a Glance database.*

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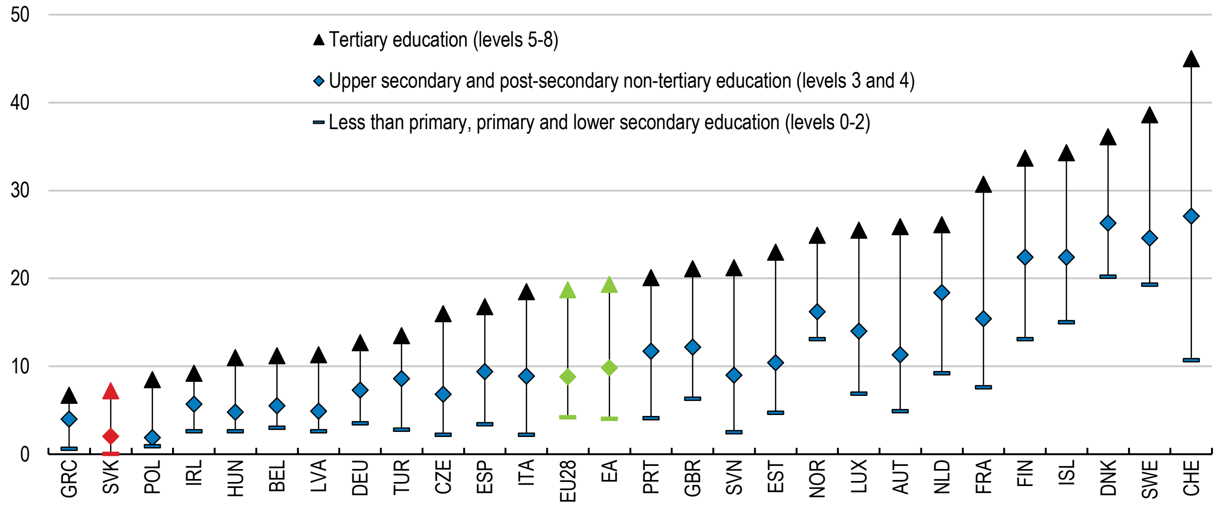
Promoting life-long learning

Technological changes expose more people to a depreciation of their qualifications in the absence of continuous investment in education and training. Cognitive and digital skills have to be used regularly and need updating, for example through training, to be maintained. The relative disadvantage of older workers is accentuated by the rapid growth and evolution in the use of ICT. These trends call for an effective lifelong learning framework, which can help preserve and update workers' skills.

However, few Slovak workers, and very few of the least qualified, take this kind of training (Figure 27). Initiatives have been launched by the authorities to expand adult learning schemes. One such initiative, Do Not Disqualify Yourself!, was introduced in 2016 and aims to promote training for adults aged over 25 who have left formal education.

Figure 27. Participation in life-long learning is low

Per cent of population aged 26-64, 2016



Source: Eurostat (Labour Force Survey 2016).

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Financial obstacles to increasing the role and effectiveness of lifelong learning are connected to the loss engendered both for workers and for businesses by a period of training. Strengthening tax incentives for employers, could encourage them to provide more training for their employees, a solution applied in some countries in northern Europe (OECD, 2017c).

Financial support is especially important for low-skilled workers (OECD, 2018f). In Germany workers with low qualifications may receive grants to be retrained in areas with good labour market prospects. In Canada, the Netherlands, France and Spain resources are directed to workers' individual learning accounts, while income-contingent loans for workers signing up to long-term training are another possibility.

New forms of training such as massive open online courses (MOOCs) can be flexible enough to be compatible with the family and professional commitments of working people. The creation of modular systems, as in Denmark, Switzerland and Portugal, can assist adults to study at their own pace. These modular systems should be encouraged by mechanisms for recognising and certifying these skills. Several technology companies, including Microsoft, HP, Samsung, Apple and Google have already introduced systems for certifying skills acquired by MOOC participants (OECD, 2016a). The government is preparing a system for certifying adults' formal and informal skills, to be introduced during 2018.

Growing shortages of skilled labour coincide with high long-term unemployment

Activation and training policies reach very few of the long-term unemployed. Such programmes are underfunded in Slovakia, and a relatively high share is still concentrated on public works schemes. Participants receive a lump-sum benefit that is often the only source of income in less developed Slovak regions (Kureková et al., 2013). Public works schemes can be valuable but maintain only basic skills, such as work routine and time management. They do not provide the skills that are in short supply, and not many participants subsequently find a job in the labour market (Hidas et al., 2016).

The government is already increasing training measures within activation policies for the unemployed, but they should be expanded further. Training can significantly improve participants' skills and employability (Card et al., 2015; EC, 2015). Not all training is effective, however, so training providers should be evaluated regularly, and the results published. It can be complemented by subsidies to private employers offering on-the-job training (also subject to evaluation) for hard-to-place job-seekers. For example, a successful public-private partnership programme called BladeRunners in Canada provides on-the-job training through cost sharing for courses, buying equipment and wage subsidies (OECD, 2012). In addition, second-chance education should be strengthened by designing and developing a network of relevant providers. Using pilot projects with careful evaluation, to find out what works in Slovakia, would be a good approach.

The Public Employment Service needs reform. With limited resources the capacity of labour offices to provide complex services for the hard-to-place unemployed is limited (Hidas, 2016). The Slovak Republic has one of the highest shares of long-term unemployed in the OECD, partly due to high unemployment among the Roma. Long periods of unemployment have ‘scarring’ effects, and the long-term unemployed are more difficult to bring back to the labour market (OECD, 2013b). They need more complex labour market policy interventions and corresponding funding.

Additional funding for Public Employment Services should strengthen counselling for hard-to-place jobs seekers who require intensive guidance. Increasing the number of specialised counsellors should be coupled with effective profiling of jobseekers’ needs. Individual action plans should be set up for job-seekers, laying out required training and catering for other needs like counselling and mentoring programmes. However, to be effective, these policies must not act separately, but in collaboration with other services, as vulnerable groups have complex needs, which require multiple interventions, especially in the case of the Roma (see above).

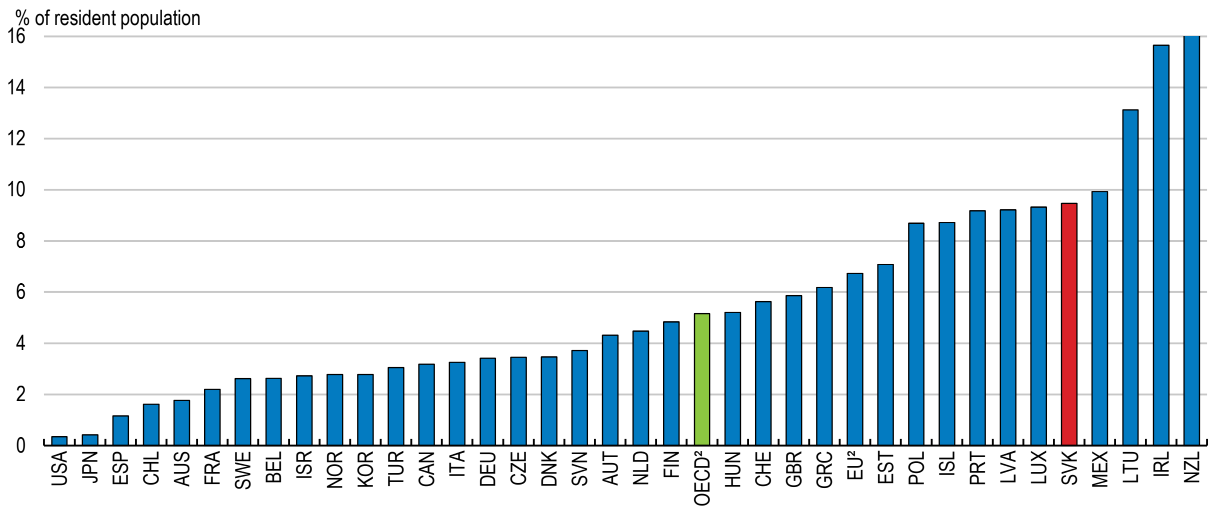
Attracting foreign and Slovak migrants

One tenth of the Slovak population is now living abroad (Figure 28) (Halus et al., 2017). Returning emigrants could bring home skills, networks and financial capital (OECD, 2008). Emigrants do not return in large numbers just for financial incentives, however; the quality of public services, notably health care and education, typically low in Slovakia, is an important additional factor.

Many OECD countries provide online hubs for their citizens abroad advertising job, training, business and research opportunities in the home country (DFA, 2015). Promoting ties between the diaspora and the country of origin can be an important source of knowledge transfer. Moreover, surveys among Slovak researchers abroad confirms that those who keep some business ties with Slovakia are more likely to consider returning home (To da Rozum, 2018).

Figure 28. A high proportion of Slovaks live abroad

People living abroad as per cent of the population of their country of origin (2016)[1]



1. Emigration stocks are computed with reference to a sample of 34 OECD countries of destination for which immigrant data by country of birth (stocks) are available.
2. Unweighted average.
Source: OECD (2016), *OECD International Migration Statistics (database); OECD Economic Outlook*: *Statistics and Projections (database).*

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Immigration can be another source of qualified workers. Inflows have increased recently from a low level and now roughly balance emigration. A currently approved measure aims to shorten residency approval for non-EU workers from 90 to 30 days for certain jobs. Moreover, since May 2018 employers hiring foreigners in occupations in shortage where unemployment is below 5% are exempted from labour market tests – compulsory time to post a vacant position on the labour office website to ensure that there are no Slovak workers available for vacant posts (Table 14). However, the exempted occupations are mostly low and middle-skilled jobs, because the definition of occupations in shortage is based on labour office data, where high skilled vacancies are rarely registered.

Table 14. Past OECD recommendations on immigration

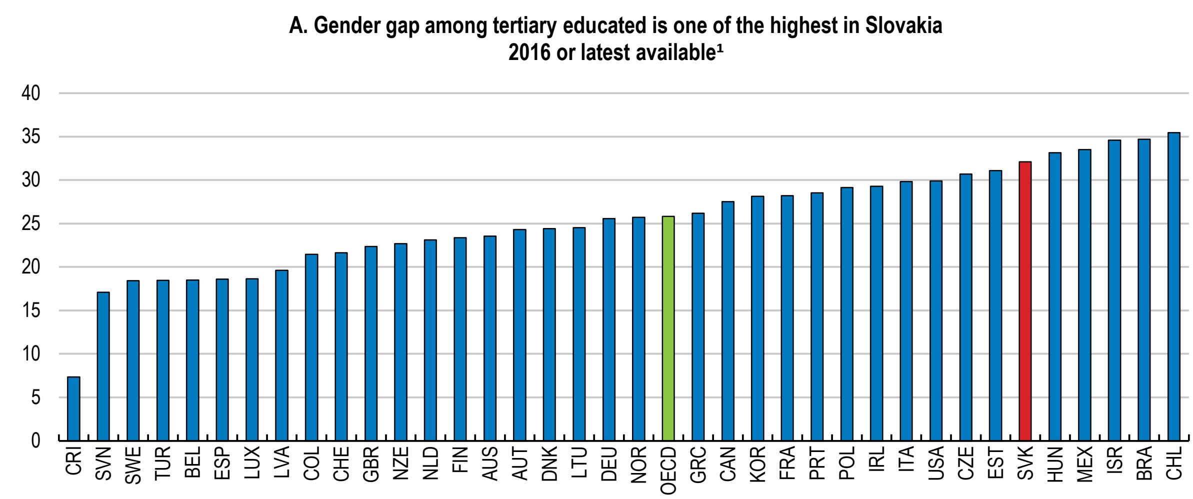
Topic and summary of recommendations	Summary of action taken since 2017 *Survey*
Simplify visa and residence procedures for skilled foreign workers.	New measures have been introduced to improve the access of highly skilled migrants from Non-EU member states to the Slovak labour market, including shortening the time for working permits in jobs with prevalent labour shortages.

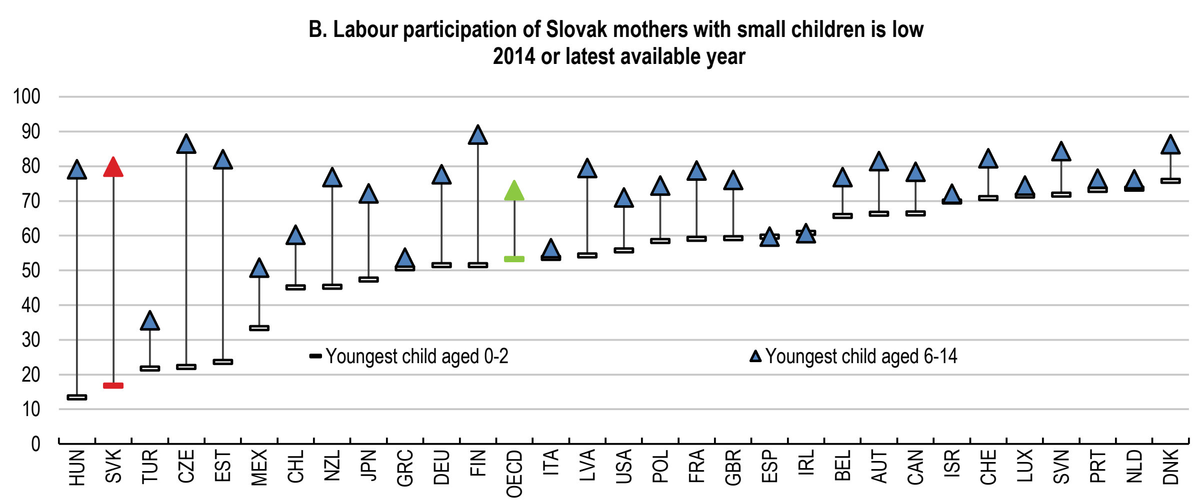
Therefore, reducing the maximum time for hiring procedures of non-EU/EEA workers would be desirable for all occupations. While the process should be simplified and transparent, overall numbers could be regulated through rationing or an auction system, for example. Care has also to be taken to design fair and acceptable rules for family members and children subsequently born in Slovakia. The government also needs to ensure that immigrants and their families have good access to education, employment services and housing conditions for highly skilled foreigners should be eased further. For example, the conditions for attributing Blue Cards, which grant special residency rights and work permits to highly skilled migrants from outside Europe, are stricter than in other EU countries.

Enhancing gender equality in the labour market

The gender pay gap is one of the highest in the European Union (Rizman, 2017) (Figure 29, Panel A). Having a child significantly affects women's earnings, but not men's (Rizman, 2017). This is in line with the experience of some other countries, which show that the gender wage gap is associated with having children (Coudin et al., 2018), but professional choices in line with gender stereotypes and discrimination can be other factors. The maternal employment rate is one of the lowest among OECD countries, particularly for women with small children (Panel B). Research shows that long career breaks can increase the gender wage gap significantly, with subsequent impacts on pension rights.

Figure 29. Labour market outcomes of women are weak, particularly for mothers with small children





Note: Estimates of earnings used in the calculations refer to the gross earnings of adults with income from full-time, full-year employment, except for Ireland, Latvia, Luxembourg, Mexico, and Turkey where data refer to earnings net of income taxes.
Source: OECD Education at a Glance 2017; OECD Education at a Glance 2018

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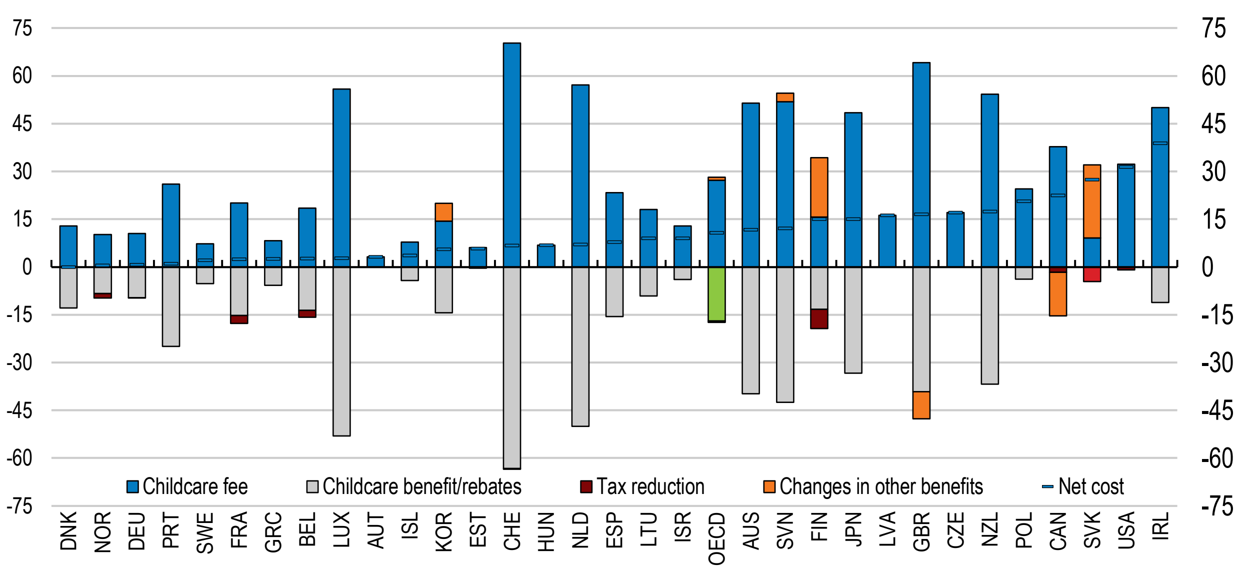
Employers make little use of options to reconcile work and parenthood or long-term care. In addition to the lack of pre-school facilities mentioned earlier (see section on education above), public childcare facilities are insufficient and private facilities expensive. Flexible employment arrangements to help reconcile family responsibilities and work are less common than in other OECD countries (Hidas and Horvathova, 2018). Family policies in Slovakia encourage mothers to look after their children at home up to the age of three. Fathers can take paternity leave and more and more do. However, parental leave, which follows this period and comes with a much lower benefit, is almost exclusively taken by mothers and it can last 130 weeks, one of the longest periods in the OECD. This accentuates the gender gap. The labour market prospects of single mothers and mothers with low skills are most severely affected (Hidas and Horvathova, 2018).

Expanding good quality pre-school facilities and childcare should be a priority. Part of parental leave should be available for partners only, to facilitate their participation in childcare. In Iceland and Sweden this led to a doubling in the number of parental leave days taken by spouses or partners (OECD, 2016b). Increasing childcare benefits, much higher in some countries, would help low-income mothers manage work and family commitments (Figure 30).

Figure 30. Childcare costs for a single-parent family are substantial in Slovakia

Net childcare costs for a two-child (aged 2 and 3) single-parent family with full-time earnings at 50% of average earnings, as a % of average earnings (AW), 2015



Note: Data reflect the costs of full-time care in a typical childcare centre for a two-child single-parent family, where the single parent is in full-time employment and the children are aged 2 and 3. Gross earnings for the single parent are set equal to 50% of average earnings. 'Full-time' care is defined as care for at least 40 hours per week. Average earnings/the average wage refers to the gross wage earnings paid to average workers, before deductions of any kind (e.g. withholding tax, income tax, private or social security contributions and union dues) (see OECD, 2007: 186-187). Data for countries marked with an * are based on estimates for a specific region or city, rather than for the country as a whole. See the OECD Tax and Benefit Systems website (http://www.oecd.org/els/soc/benefits-and-wages.htm) for more detail on the methods and assumptions used and information on the policies modelled for each country.
Source: OECD Tax and Benefit Models 2015.

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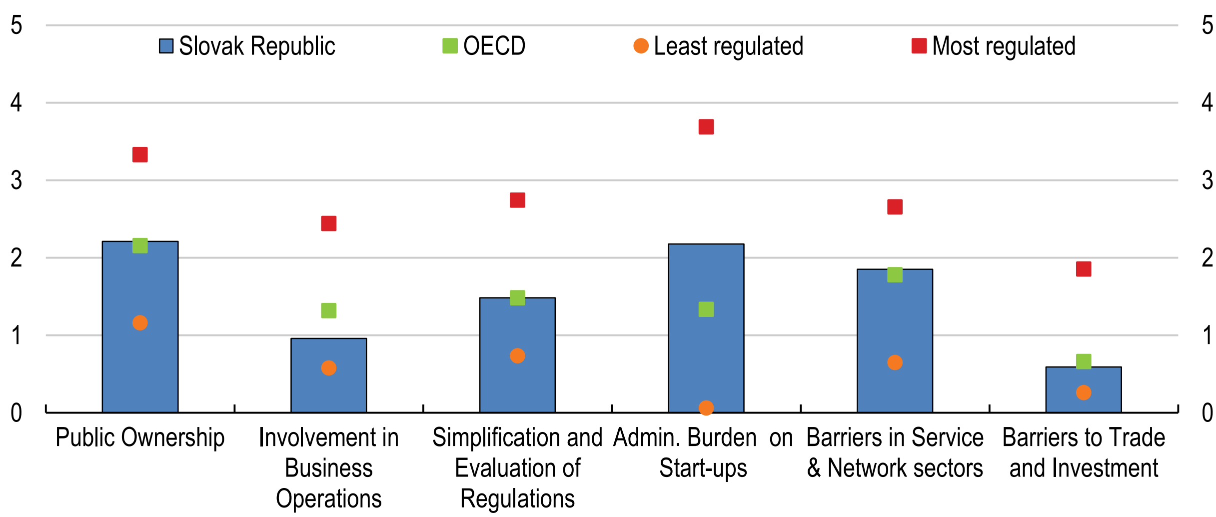
Enable entrepreneurship and innovation to support long-term growth

Strong per capita income growth, stronger than in many OECD countries, is projected to continue into the near future. But growth has been based on declining unemployment and foreign investment. The domestic sector seems to have contributed little. For the long term, unemployment may have not much further to fall, and shortages of skilled labour may dampen foreign investment. Improved education can, over time, increase the skill pool available. Diversifying Slovakia's economy and strengthening productivity through more innovation and a stronger capacity to adopt new technologies, in both domestic and foreign-owned firms, will require a vibrant business environment and a stronger research base. Beyond a more efficient and effective judiciary there are remaining regulatory hurdles which could be reduced. In addition, financing, evaluation and control mechanisms in tertiary education and research that are geared more towards rewarding quality would go a long way towards strengthening innovation.

Regulation

The regulatory environment, as assessed by OECD indicators of product market regulation (PMR), has become much less strict over the past few decades. Where regulation can be reduced without jeopardising health, safety or other factors in well-being, this can ease entrepreneurship and be beneficial for growth. The PMR indicators in Figure 31 would suggest that regulations affecting start-ups could be reduced.

Figure 31. Product market regulation is generally less strict



Source: OECD

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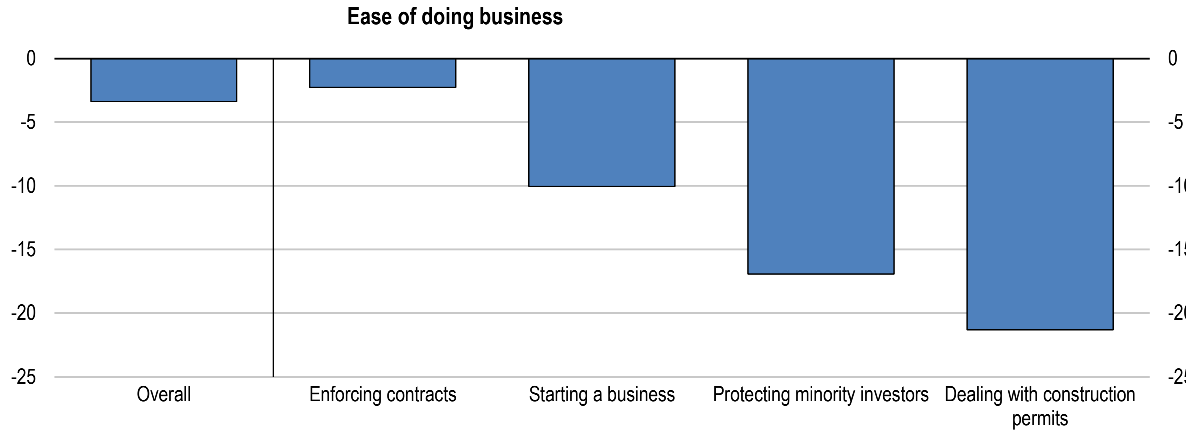
Other indicators, such as those in the World Bank's Doing Business report, cite shortcomings in contract enforcement, due to the slow pace of dispute settlement noted earlier (Figure 32).

Figure 32. Inefficiency in the government sector and bureaucracy undermine business environment



Note: The distance to frontier (DTF) measure shows the distance of each economy to the "frontier," which represents the best performance observed on each of the indicators across all economies in the Doing Business sample since 2005. OECD high income includes 36 OECD countries excluding Mexico and Turkey.
Source: World Bank, Doing Business 2019.

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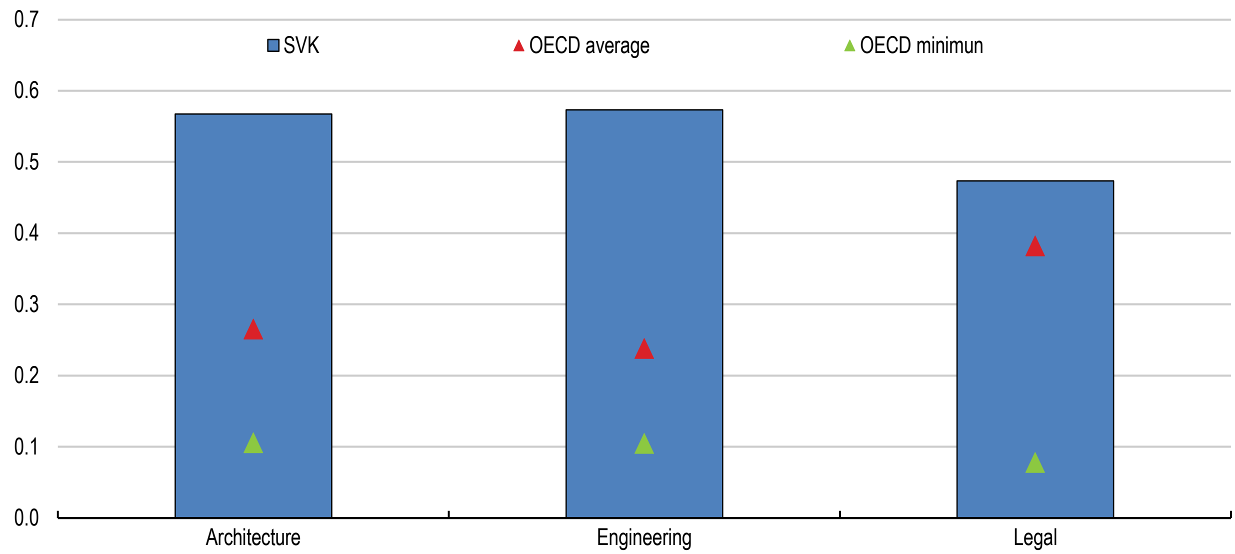
The bankruptcy regime is very slow to resolve insolvencies (World Bank, 2019). The legislation is relatively inflexible when it comes to adjusting the workforce and excessively stigmatising for honest entrepreneurs, making no distinction between honest and fraudulent entrepreneurs (World Bank, 2019; Adalet McGowan and Andrews, 2018).

World Bank indicators also highlight problems, for example inefficient procedures for starting up a business, guaranteeing the protection of minority investors or granting building permits. The government took action in a number of these areas, including construction permits, in 2017-18. Doing Business finds that, on average and prior to these latest actions by the government, it took 300 days to obtain a building permit for a warehouse – the OECD average is 153 days (World Bank, 2019). Such delays are found in other areas of public administration, and obtaining or accelerating permission often depends on personal connections or even on making side-payments to officials (Eurobarometer, 2017).

Restrictions on foreign businesses entering the services sector, especially providers of legal services, architects and engineers, are onerous. Easing them would promote diversification into services, including through FDI (Figure 33). The government has taken steps to encourage more investment projects with higher value added. Since 2018 criteria for investment support eligibility no longer focus on the number of new jobs created but on the average salary of new jobs. The idea is to attract high value-added activities, such as research centres. This aid, which varies between 25% and 35% of investments in accordance with EU regulations, concerns around 20 projects a year, some 16 of which are submitted by foreign enterprises.

Figure 33. Entrepreneurship barriers affect professional services

OECD Services Trade Restrictiveness Index (STRI)[1], scale from 0 to 1 (most restrictive), 2017



Note: They are calculated on the basis of the STRI regulatory database, which contains information on regulation. The STRI database records measures on a Most Favoured Nations basis. Preferential trade agreements are not taken into account.
Source: OECD (2018), *Services Trade Restrictiveness Index*.

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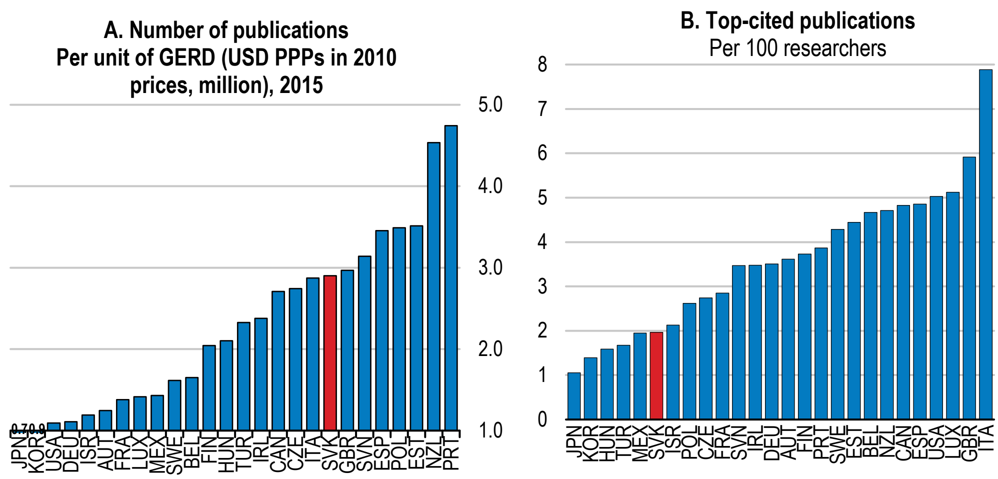
Research and innovation

There is a key role for tertiary education in providing skills to develop and introduce new technologies. However, the quality of tertiary education is among the lowest in the OECD (OECD, 2017a; U21, 2016). Partly for this reason, more than 14% of Slovak students study abroad, the second-highest level in the OECD, mostly in the Czech Republic (OECD, 2017a).

Work to improve quality is hampered by an accreditation system for tertiary education institutions that lacks transparency and independence (OECD, 2017a). Its members may have a conflict of interest because they work in higher education institutions. Labour market relevance is not a key criterion for approval of programmes, and funding for research does not effectively distinguish high- from low-quality research (Chapter 2). Hence, publication rates are relatively high, but quality is low (Figure 34). The government recently launched an ambitious reform aiming to address these shortcomings and align the quality-assurance system with international standards and introduce new methods for research evaluation. It will be important to ensure that external experts are appointed for quality evaluation. More weight should be given to the quality and impact of research, rather than the quantity, and good methods for assessing teaching quality are equally important.

Figure 34. Slovak researchers produce many publications, but their average quality is poor

Number of documents and percentage among world's 10% most cited, average 2003-2012



Note: Gross domestic expenditure on R&D in million constant USD (constant prices and PPPs).
Source: OECD (2016), *OECD Science, Technology and R&D Statistics (database);* OECD (2015), *OECD Science, Technology and Industry Scoreboard 2015: Innovation for growth and society* (http://www.scimagojr.com).

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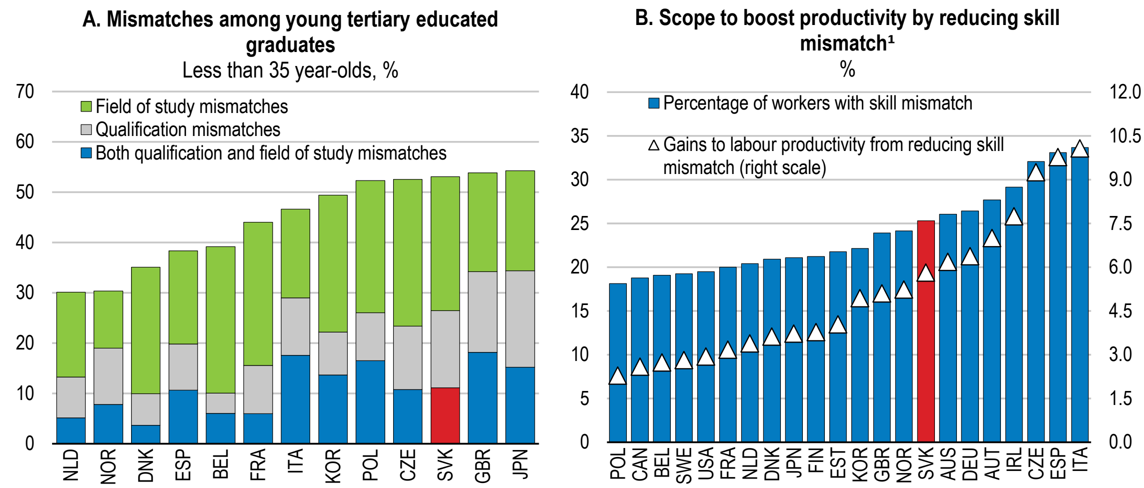
Slovak tertiary education puts too little emphasis on practical experience, contributing to significant labour market mismatch among young tertiary graduates. This reduces productivity and earnings (Figure 35). Qualifications are particularly poorly matched to the needs of businesses involved in robotics and IT solutions (Chapter 2). Graduate tracking systems, educational counselling, and career guidance, already mentioned in the government education strategy should be developed to help students make better informed choices. They can also guide funding and be used for policy evaluation. Recent steps in this direction, including the creation of centralised information outlets for students and their parents, are welcome but should be expanded beyond dual work-study programmes (Minarechová, 2018). For example, Poland launched a national system for tracking graduates' employment by matching employment records from social security with universities' data, providing reliable information on graduates' situation in the labour market, including their employment and salaries (EC, 2016). Tertiary education programmes should also be developed that have a greater professional focus: there are no vocational programmes at the Bachelors level in Slovakia, and financial incentives push universities to produce too many students with little practical experience at the Masters level (OECD, 2017a).

The Slovak education system pays insufficient attention to soft skills, such as the ability to work with others, share information, organise one's work, and communicate with, influence and manage others (Figure 36). Providing opportunities for management training for those with management responsibilities is one way forward. Developing management skills, especially for SMEs, could also be encouraged as in a number of OECD countries (OECD, 2017d). Moreover, complementary to a management skill development programme, Slovakia could emulate more specific policies such as developing business coaching programmes for SMEs (as in New Zealand) or supporting the establishment of management and entrepreneurs' networks to disseminate the adoption of good practices (as in the Netherlands and Finland) (OECD, 2016c).

Figure 35. Qualification and educational mismatches in Slovakia are high and costly



Note: The figure shows the percentage of workers who are either over- or under-skilled and the simulated gains to allocative efficiency from reducing skills mismatch in each country to the best practice level of mismatch. The figures are based on OECD calculations using OECD (2012), *Survey of Adult Skills*.

Source: OECD (2012), *The Survey of Adult Skills (PIAAC)*; M. Adalet McGowan and D. Andrews (2015), "Labour market mismatch and labour productivity: Evidence from PIAAC data", *OECD Economics Department Working Paper*, No. 1209, OECD Publishing, Paris.

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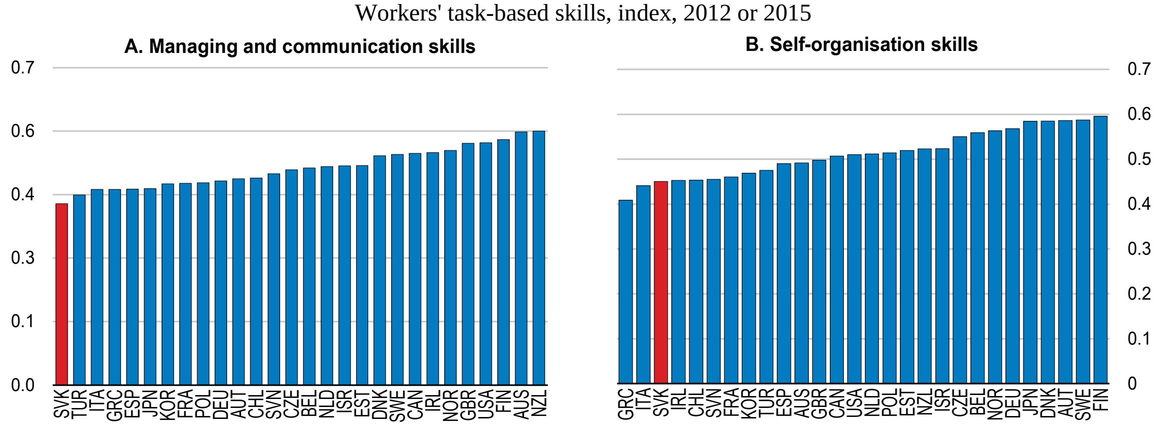
Figure 36. Slovak workers' soft skills seem underdeveloped in a number of domains

Workers' task-based skills, index, 2012 or 2015



Note: A higher score is associated with a higher frequency of performing these tasks on the job. Data for Belgium refer only to Flanders, and data for the United Kingdom refer to England and Northern Ireland jointly.

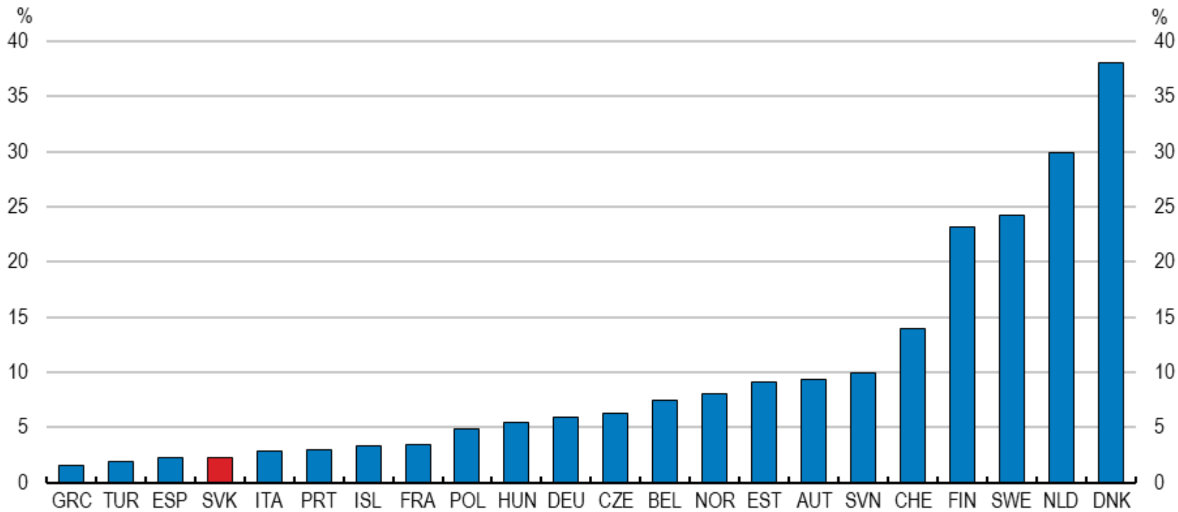
Source: OECD (2017), *Skills Outlook 2017: Skills and Global Value Chains*, OECD Publishing, Paris.

StatLink https://doi.org/10.1787/888933901921

Slovak tertiary education is relatively closed to international influences despite the increasingly internationalised nature of research and business. Few courses are held in English (Figure 37), with foreigners comprising only 6% of teachers, compared with more than half in many of the world's best universities (To Da Rozum, 2018). The number of foreign students is 5%, less than half of the OECD average. The lack of international collaboration with institutions in different countries lowers the quality of research (OECD, 2017c). To attract high-quality foreign teachers, universities need to be able to offer them well-remunerated and high-quality research positions. As an intermediate step, the government should promote academic-exchange programmes and scientific collaboration.

These incentives can help improve networking and enhance the likelihood that research will be recognised or adopted by the private sector (OECD, 2017c).

Figure 37. Proportion of tertiary education programmes provided in English, 2013-14



Source: B. Wächter and F. Maiworm (2014), "English-Taught Programmes in European Higher Education, The State of Play in 2014", *ACA Papers on International Cooperation in Education*.

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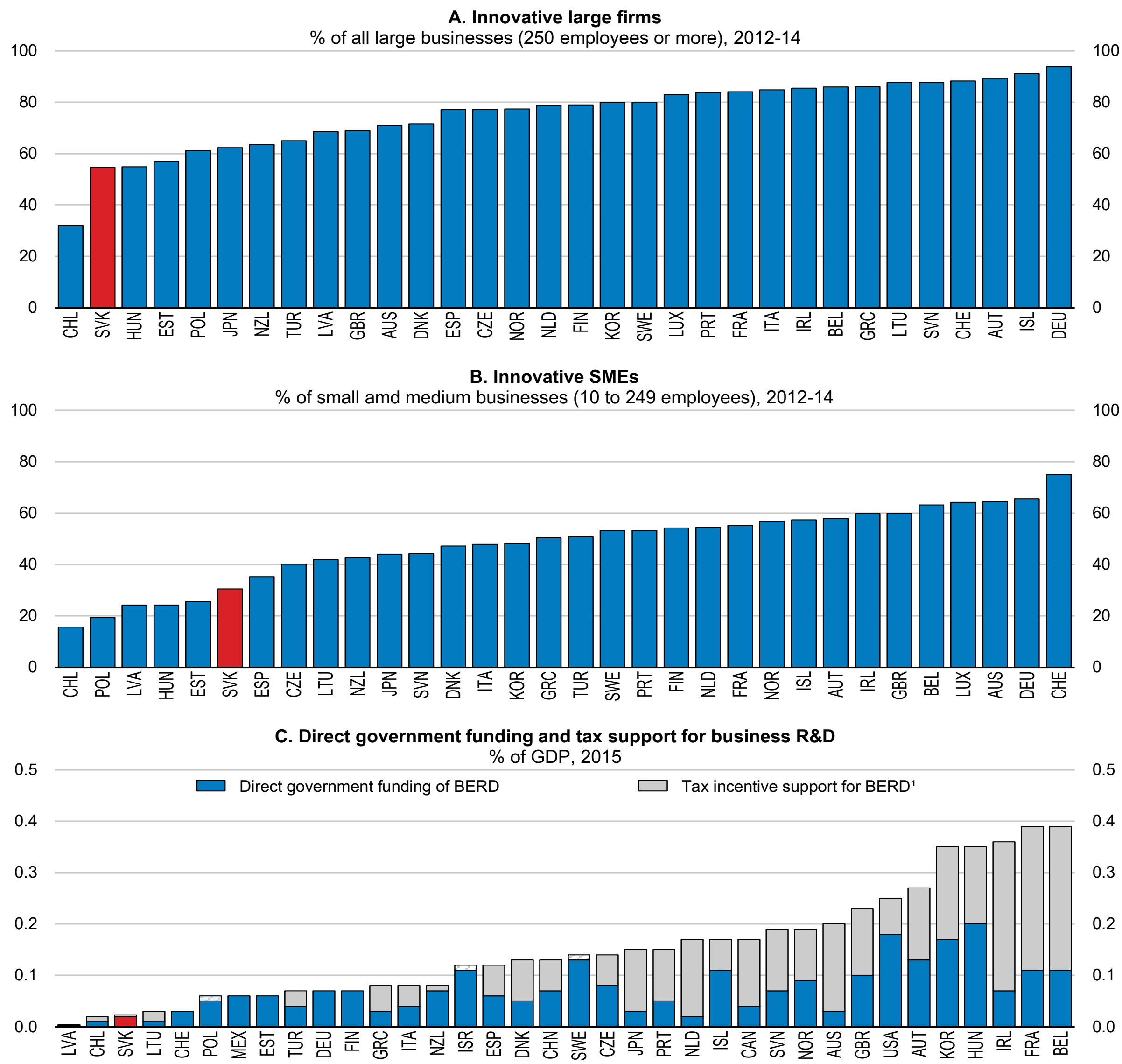
It is also important to stimulate private-sector research and innovation. The low level of R&D spending by businesses reflects, on the one hand, the limited interest shown so far by multinationals located in Slovakia to develop research activities in the country and, on the other hand, the low investment by local firms, especially SMEs, in this domain (Figure 38, Panels A and B).

The government has strengthened tax incentives to stimulate research and innovation initiatives, which were previously very limited (Table 15; Figure 38 Panel C). Tax incentives may help boost private investment in knowledge, since returns on R&D investments are difficult to appropriate by firms as some of the resulting outcomes will leak out or "spill over" to other firms. International experience shows that, to be effective, such policies must include rigorous *ex ante* and *ex post* evaluation systems (Appelt et al., 2016). Otherwise, inefficient programmes or even misuse of funds can go undetected.

Figure 38. Boosting innovation in the private sector is necessary



Note: Data on tax incentive support not available for Israel, Poland and Sweden.
Source: OECD (2017), *OECD Science, Technology and Industry Scoreboard 2017: The digital transformation*, OECD Publishing, Paris.

StatLink https://doi.org/10.1787/888933901959

If the authorities cannot monitor generalised tax incentives effectively, they should switch to discretionary schemes, where projects must respect clear criteria before support is paid. Independent monitoring and evaluation of outcomes is essential to building up a picture of which kinds of support work well in Slovakia. This applies whether the support itself is paid through the tax system or through grants. To support innovation a well-designed and properly focused strategy based on closer co-operation between private and public research could help strengthen the country's research capacities in areas such as the automotive sector where expertise already exists. Creating joint public-private centres of excellence for some of these domains would be one way to facilitate this cooperation and could also increase the country's appeal for the research teams of large multinationals. Such "centres of competence" exist in many countries. Austria has a COMET (Competence Centres for Excellent Technology) programme; one auto-industry-related example is a digital mobility programme that aims to turn ideas into research projects within six weeks. The UK has "Catapult" centres with similar objectives. A survey of competence centre programmes in different countries, with differing structure and management can be found in TAFIE (2016).

Table 15. Past OECD recommendations on innovation

Topic and summary of recommendations	Summary of action taken since 2017 *Survey*
Reform the R&D tax credit to make it refundable. Promote cluster facilitators and a competition-based funding process.	100% of R&D spending can now be deducted from the tax base, increased from 25%. At the same time, in 2018 the so-called patent box was introduced; this exempts revenues coming from the use of selected intangible assets (patents, utility models and software) from taxation.
Provide technical assistance to regional authorities to develop their capacities and involvement in assessing and steering innovation policies at the regional level.	No action taken

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