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20th anniversary of Poland's accession to the OECD

This year we celebrate 20th anniversary of Poland's accession to the OECD.

For Poland, the membership in the OECD is a sign of quality; it also confirms the affiliation to a group of like-minded countries.

Recommendations and guidelines formulated by the OECD often contain tailored-made advice on how the country might want to tackle problems in economic and social spheres.

The OECD is not just a group of economically significant nations. It is also a policy forum covering a broad spectrum of areas. Poland can share its experience and learn from the practices of the other members, how to address current challenges.

The OECD sustains working relationships with over 100 non-member economies. Poland thus benefits from the dialogue and consultations with almost all major international players. It is particularly important to bear in mind that an increased interdependence and globalisation demand global rules of the game.

The twenty years of Poland's membership in the OECD is a history of rich and unique, multidimensional cooperation with the Secretariat and member states. It has engaged different people, involved setting foot in various places, covered multiple topics, comprised numerous events and produced a variety of products. All these activities, however, have had one single objective: working together to promote policies that will improve the economic and social well-being of people around the world.

We are looking forward to further strengthening the collaboration with the OECD and its member states to promote the OECD's goal worldwide: "better policies for better lives".

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

The economic situation and policies of Poland were reviewed by the Committee on 08 February 2016. The draft report was then revised in the light of the discussions and given final approval as the agreed report of the whole Committee on 4 March 2016.

The Secretariat's draft report was prepared for the Committee by Nicola Brandt and Antoine Goujard under the supervision of Peter Jarrett. Statistical and research assistance was provided by Patrizio Sicari and administrative assistance by Dacil Kurzweg.

The previous Survey of Poland *was issued in March 2014.*

Information about the latest as well as previous Surveys and more information about how Surveys are prepared is available at www.oecd.org/eco/surveys.

BASIC STATISTICS OF POLAND, 2014

(Numbers in parentheses refer to the OECD average)*

LAND, PEOPLE AND ELECTORAL CYCLE

Population (million)	38.0		Population density per km²	121.6	(34.9)
Under 15 (%)	15.1	(18.1)	Life expectancy (years, 2013)	77.1	(80.4)
Over 65 (%)	15.1	(16.0)	Men	73.0	(77.8)
Foreign-born (%, 2011)	1.8		Women	81.2	(83.1)
Latest 5-year average growth (%)	-0.1	(0.6)	Latest general election	October	2015

ECONOMY

Gross domestic product (GDP)			Value added shares		
In current prices (billion USD)	546.0		Primary sector	2.9	(2.5)
In current prices (billion PLN)	1 719.1		Industry including construction	32.5	(26.8)
Latest 5-year average real growth (%)	3.0	(1.9)	Services	64.6	(70.7)
Per capita (000 USD PPP)	24.7	(39.0)			

GENERAL GOVERNMENT

Per cent of GDP

Expenditure	42.1	(42.7)	Gross financial debt [a]	65.9	(114.4)
Revenue	38.8	(38.5)	Net financial debt [a]	38.1	(72.6)

EXTERNAL ACCOUNTS

Exchange rate (PLN per USD)	3.149		Main exports (% of total merchandise exports)		
PPP exchange rate (USA = 1)	1.828		Machinery and transport equipment	38.3	
In per cent of GDP			Manufactured goods	19.8	
Exports of goods and services	47.4	(53.8)	Miscellaneous manufactured articles	13.6	
Imports of goods and services	46.2	(49.8)	Main imports (% of total merchandise imports)		
Current account balance	-2.0	(0.0)	Machinery and transport equipment	33.8	
Net international investment position	-61.3		Manufactured goods	17.4	
			Chemicals and related products, n.e.s.	14.4	

LABOUR MARKET, SKILLS AND INNOVATION

Employment rate for 15-64 year-olds (%)	61.7	(65.6)	Unemployment rate, Labour Force Survey (age 15 and over) (%)	9.0	(7.3)
Men	68.2	(73.6)	Youth (age 15-24, %)	23.9	(15.1)
Women	55.2	(57.9)	Long-term unemployed (1 year and over, %)	3.3	(2.5)
Participation rate for 15-64 year-olds (%)	67.9	(71.2)	Tertiary educational attainment 25-64 year-olds (%, 2013)	25.8	(33.3)
Average hours worked per year	1 923	(1 770)	Gross domestic expenditure on R&D (% of GDP)	0.9	(2.4)

ENVIRONMENT

Total primary energy supply per capita (toe)	2.5	(4.1)	CO_2 emissions from fuel combustion per capita (tonnes, 2012)	7.6	(9.7)
Renewables (%)	9.4	(9.1)	Water abstractions per capita (1 000 m^3, 2013)	0.3	
Fine particulate matter concentration (PM2.5, µg/m^3, 2013)	17.0	(13.8)	Municipal waste per capita (tonnes, 2013)	0.3	(0.5)

SOCIETY

Income inequality (Gini coefficient, 2012)	0.298	(0.308)	Education outcomes (PISA score, 2012)		
Relative poverty rate (%, 2012)	10.2	(10.9)	Reading	518	(496)
Median equivalised household income (000 USD PPP, 2010)	11.8	(20.4)	Mathematics	518	(494)
Public and private spending (% of GDP)			Science	526	(501)
Health care, current expenditure (2013)	6.4	(9.0)	Share of women in parliament (%, November 2015)	24.8	(27.8)
Pensions (2011)	10.9	(8.7)	Net official development assistance (% of GNI)	0.08	(0.36)
Education (primary, secondary, post sec. non tertiary, 2012)	3.4	(3.7)			

Better life index: *www.oecdbetterlifeindex.org*

a) 2013 for the OECD aggregate.
b) 2012 for the OECD aggregate.
* Where the OECD aggregate is not provided in the source database, a simple OECD average of latest available data is calculated where data exist for at least 29 member countries.

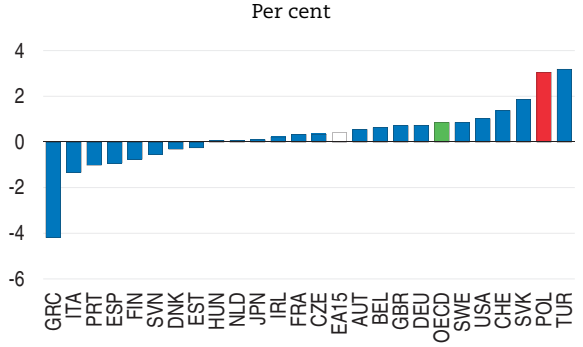
Source: Calculations based on data extracted from the databases of the following organisations: OECD, International Energy Agency, World Bank, International Monetary Fund and Inter-Parliamentary Union.

Executive summary

- *Growth is robust, and unemployment has declined*
- *Education reforms would strengthen skills*
- *Greening infrastructure would improve public health*

Growth is robust, and unemployment has declined

Average annual real GDP growth, 2007-14



Source: OECD Economic Outlook 98 Database.

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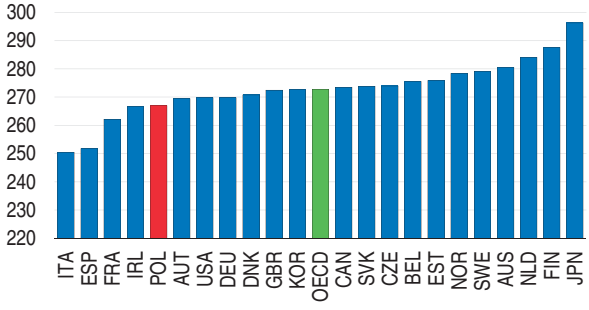
Growth has been very robust, unemployment has come down fast, and deflation has been largely a supply-side phenomenon, strengthening real incomes and consumption. To continue its convergence with the most affluent OECD countries Poland needs to move towards higher-technology production, better skills among the population and higher employment rates for women and older workers. The widespread use of excessively flexible temporary contracts is impeding productivity, wages and access to training.

Education reforms would strengthen skills

Literacy proficiency scores for 16-65, 2012



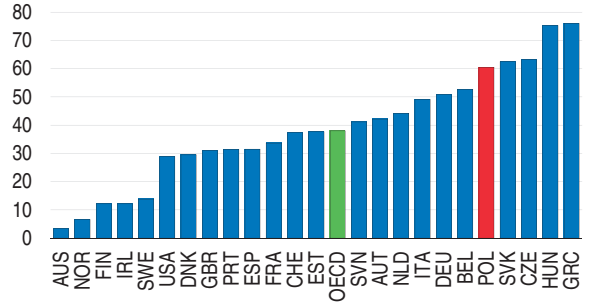
Source: OECD Skills Outlook 2013 Database.

StatLink http://dx.doi.org/10.1787/888933339987

Despite important improvements in schooling outcomes and tertiary attainment rates, average skills of adults are well below typical OECD levels. Basic vocational education has failed to provide many students with solid basic skills and is not always aligned with labour market needs. The earlier tertiary education boom led to low quality in some areas. Reforms to strengthen quality are underway. Plans to better recognise foreign credentials and new possibilities to validate experience and skills would improve job matches of immigrants.

Greening infrastructure would improve public health

Deaths from air pollution per 100 000 inhabitants, 2013



Source: Institute for Health Metrics and Evaluation.

StatLink http://dx.doi.org/10.1787/888933339995

Despite important improvements in the transport, energy and ICT infrastructure, bottlenecks are holding back the economy. A lack of integrated planning and weak project management capacity at the local level has hampered infrastructure investment. Ageing electricity generation capacity and household heat production rely mainly on solid fuels. This and the use of poor quality coal by households, together with low energy efficiency in the residential sector produces substantial urban air pollution, posing health hazards, and heavy carbon emissions, which contribute to climate change.

MAIN FINDINGS	KEY RECOMMENDATIONS
TOP PRIORITIES	
The new government's reform plans require greater tax revenues, as do age-related spending and investment needs.	Raise revenues by broadening the VAT base, eliminating reduced rates and exemptions, and by increasing property and environmental taxes. To improve tax compliance set up strong central management for the tax authority, improve coordination, invest in ICTs and focus more resources on auditing large taxpayers.
Poor basic skills are widespread, particularly among students of basic vocational schools.	Continue to expand access to early childhood education and care, particularly for poorer families. Continue to strengthen individual support for weak students in elementary and lower secondary education, and attract the best teachers to basic vocational schools, e.g. by improving their pay and career opportunities.
Greenhouse gas emissions from power plants and air pollution are high, while electricity generation capacity is in need of renewal.	Ensure that climate change policies are clear and aligned with European and international objectives. Invest in interconnections with neighbouring countries in the electricity and the gas sectors.
OTHER PRIORITIES **Boosting employment**	
Irregular work relationships are undermining productivity and well-being.	Strengthen labour law enforcement, and further align contributions on civil and labour law contracts.
Employment rates among women are low.	In addition to childcare facilities develop long-term care facilities and move towards individual taxation only.
Employment among seniors, in particular women, is low, and so are pension replacement rates.	Increase the statutory pension age, as previously planned. If early retirement is to be allowed, it should be at the same age for men and women and at actuarially neutral discounts.
Improving the investment framework	
Local governments are responsible for most of the infrastructure but lack capacity to manage projects.	Bolster local capacity by providing central-government technical assistance and integrated e-procurement processes.
The regulatory burden is holding back growth and investment.	Streamline business registration procedures, and monitor the impact of the recent reform of insolvency law.
Enhancing skills	
Immigrants often work in professions that do not match their qualifications, and they find it difficult to transfer skills acquired abroad.	Implement easier foreign credentials recognition and validation of experience and skills acquired abroad.
The earlier tertiary education boom has led to quality problems in some areas.	Link university teachers' pay and career prospects to their performance, and continue strengthening links with business and foreign universities.

Assessment and recommendations

- *Moving towards higher-technology production would raise living standards*
- *Growth is solid, and the labour market situation has improved significantly*
- *Macroeconomic policies*
- *Enhancing employment and access to high-quality jobs*
- *Ensuring efficient public infrastructure and better conditions for private investment*
- *Further improving education to boost productivity and the ability to adopt innovations*
- *Making better use of migrants' skills*

Moving towards higher-technology production would raise living standards

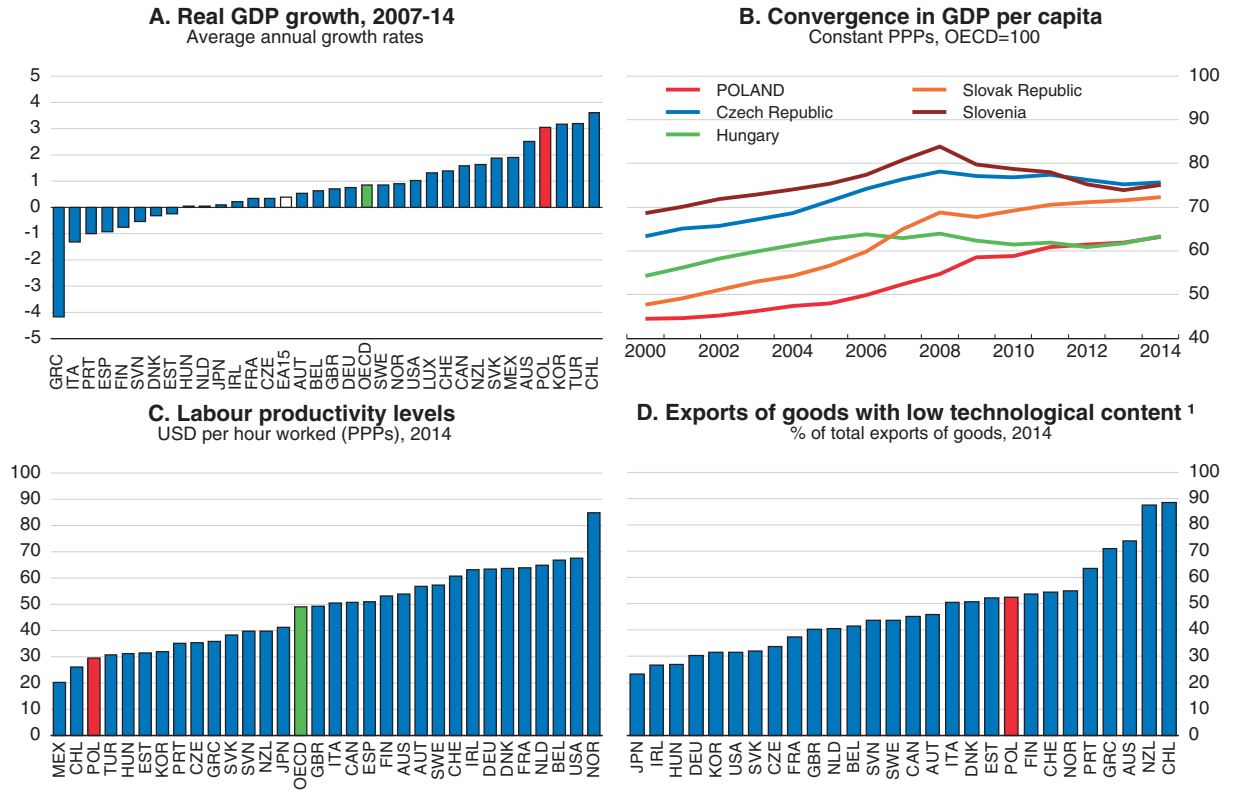
Remarkably resilient to the 2009 world economic and financial crisis, Poland has continued to grow strongly (Figure 1 Panel A) and catch up with other OECD countries in terms of GDP per capita (Panel B). Productivity has risen quickly, and this needs to continue to sustain convergence with other OECD economies, as its level is still relatively low as is the technology content of Poland's exports (Panel C and D). Moreover, Poland faces severe demographic pressures owing to low fertility and negative net migration, which will weigh on GDP growth and on Poland's ability to finance adequate pension and health-care spending in the longer term. Based on past trends migration is not expected to mitigate the sharp decline in the working-age population over the coming decades, unlike in many other OECD countries (Figure 2), although recently immigration has been rising. The new government has announced a welcome focus on strengthening skills and the economy's capacity to innovate, and its development plan foresees policies to strengthen investment in productive capital and research and development. It wants to raise labour supply; the envisaged increase in the coverage of preschools as well as the number of childcare places for less than three year-olds will be helpful in this respect. It also aims to enhance inclusiveness in a context of in-work poverty that is higher than the EU average. But plans to lower the retirement age risk reversing progress in increasing seniors' employment and worsening old-age poverty.

By 2016, the 20th anniversary of Poland's OECD membership, it had achieved levels of well-being and quality of life never before experienced. Poland scores higher than the average OECD country on personal security, social connections and education owing to a strong increase in tertiary attainment rates and high literacy and numeracy scores of 15 year-olds (Figure 3). Yet, jobs, housing and health outcomes are less favourable. The main environmental problem in Poland is poor air quality reflected by high levels of urban air pollution. It is related to the dependence on old and sometimes inefficient household heating infrastructure based on low-quality coal and a heavy reliance on car transport.

Against this backdrop this *Survey* has three main messages:

- The economy has been resilient, with robust growth, falling unemployment and a stable financial sector.
- Investment in low-emissions infrastructure and skills is essential to sustain a continued improvement in living standards, environmental quality and well-being.
- Employment rates need to increase further to head off extreme demographic pressures, and making Poland more attractive for workers would be beneficial.

Figure 1. **GDP growth has been robust, but productivity and exports' technological content have stayed weak**



1. Includes exports of goods with low and medium-low technological content.

Source: OECD (2015), *Economic Outlook 98 Database* (and updates), *National Accounts and Productivity Databases*; and OECD calculations based on UN Comtrade data.

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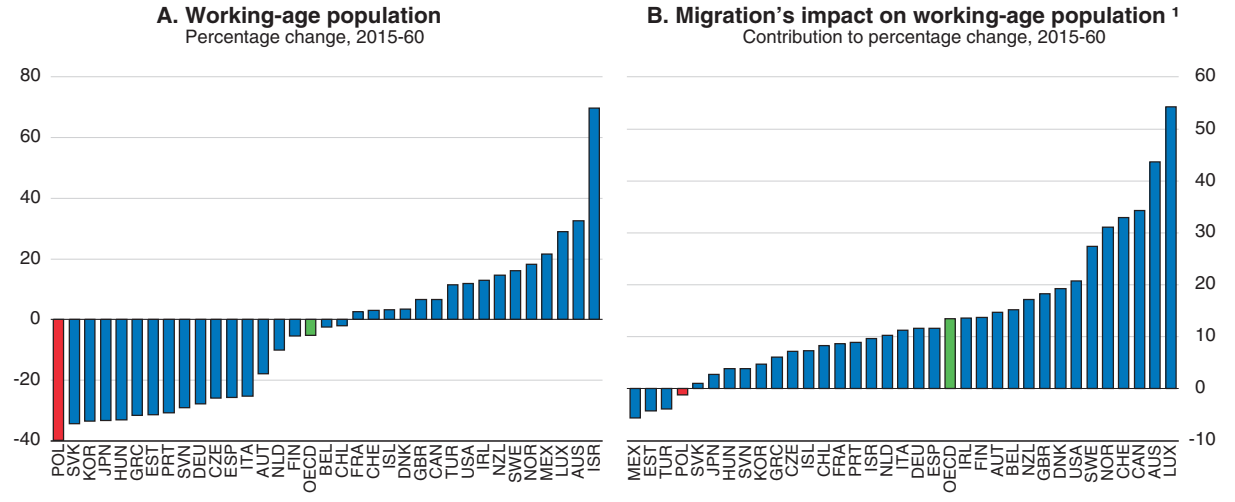
Figure 2. **The working-age population is set to decline sharply**



1. Projected impact of migration on the change in size of the working-age population in the 2015-60 period. This is calculated as the difference between the projected percentage change in the size of the working-age population in a scenario with migration and a scenario without migration. The migration scenario is based on past trends.

Source: United Nations (2015), *World Population Prospects: The 2015 Revision*.

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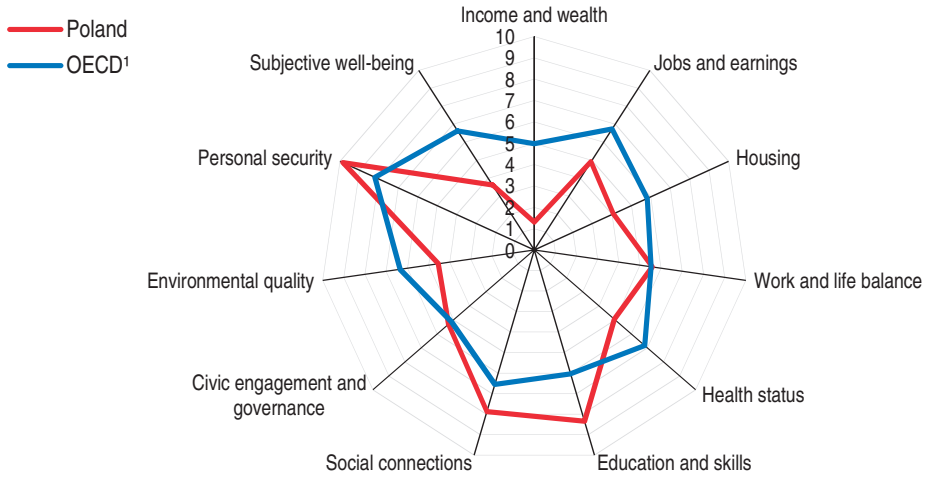
Figure 3. **The OECD Better Life Index for Poland**



1. Unweighted average.
Source: OECD (2015), *OECD Better Life Index*, *www.betterlifeinitiative.org*.

StatLink http://dx.doi.org/10.1787/888933339290

Growth is solid, and the labour market situation has improved significantly

Real GDP growth is projected to remain at around 3½ per cent annually in 2016-17, supported by solid investment and consumption gains (Table 1). Considerable EU-supported infrastructure investment will continue to underpin activity increases, despite a temporary slowdown in 2016 at the switchover of budget periods for EU funds. The rapid fall in joblessness and rising real incomes related to falling food and energy prices are supporting consumption. Contained unit labour costs have underpinned Poland's continued integration into global value chains and strong export performance (Figure 4).

The rapid decline in the unemployment rate is in large part a secular phenomenon. Older workers whose skills were not fit for the market economy have exited, while a new, relatively well-trained generation has entered, reducing equilibrium unemployment. Actual unemployment has fallen in all age groups. In addition, the labour market is extremely flexible: most employment gains have taken the form of temporary jobs with limited worker bargaining power (see below). Yet, the vacancy rate has risen, and firms report growing problems in finding qualified staff, suggesting incipient labour market pressures (Grant Thornton, 2015; Manpower Group, 2014).

This projection is subject to various risks and uncertainties. Lower commodity prices would raise household disposable incomes and reduce production costs. Private consumption and investment could respond more strongly to confidence improvements and income gains. On the other hand, renewed turmoil in the euro area and a slowdown in emerging markets, China in particular, could depress exports and investment, both directly and indirectly through spending by European trading partners. A stronger-than-expected effect of the automobile emissions scandal could curb motor vehicle and parts exports more than expected.

A new 0.44% annual tax on bank assets and other additional fees on banks could reduce bank profitability further and tighten credit supply. Additional costs for banks would arise – with a possible negative impact on financial stability – if the authorities were to require banks to convert foreign-currency-denominated – mainly Swiss franc –

Table 1. **Macroeconomic indicators and projections**

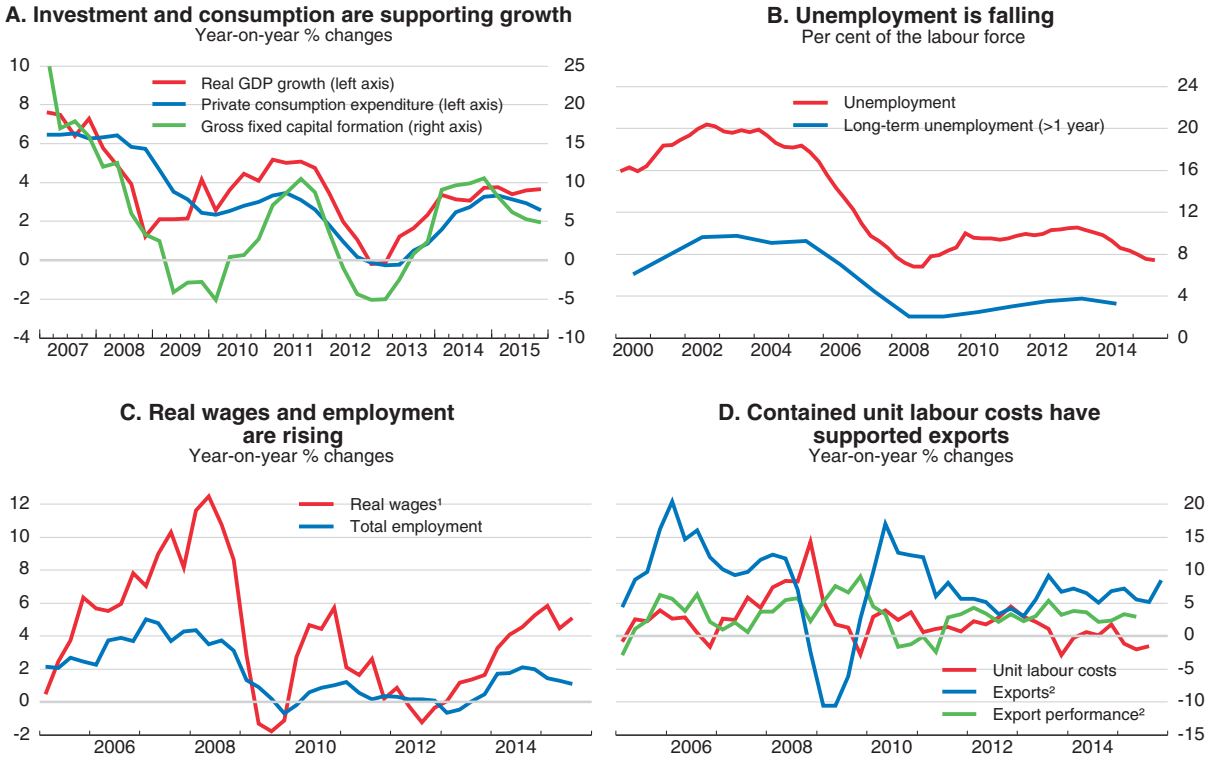
	2012	2013	2014	2015	2016	2017
	Current prices PLN billion	Percentage changes, volume (2010 prices)				
GDP	1 629.0	1.3	3.3	3.6	3.4	3.5
Private consumption	1 002.7	0.2	2.5	3.0	3.5	3.6
Government consumption	292.0	2.2	4.9	3.8	2.7	2.9
Gross fixed capital formation	322.5	-1.1	9.8	6.1	5.8	6.7
Of which: Housing	43.2	0.0	3.8	3.7	3.4	3.5
Final domestic demand	1 617.1	0.3	4.4	3.8	3.8	4.1
Stockbuilding[1]	19.6	-1.0	0.5	-0.4	0.0	0.0
Total domestic demand	1 636.7	-0.7	4.9	3.4	3.8	4.1
Exports of goods and services	723.6	6.1	6.4	6.6	4.4	5.4
Imports of goods and services	731.3	1.7	10.0	6.0	5.2	6.5
Net exports[1]	-7.7	1.9	-1.5	0.4	-0.3	-0.5
Other indicators (% change, unless otherwise specified):						
Potential GDP	-	3.0	2.9	3.1	3.2	3.2
Output gap[2]	-	-1.9	-1.5	-1.1	-0.9	-0.5
Employment	-	-0.1	1.9	1.0	0.6	0.5
Unemployment rate[3]	-	10.3	9.0	7.4	7.1	6.9
GDP deflator	-	0.4	0.4	0.4	1.1	1.7
Consumer price index	-	1.0	0.1	-0.9	1.0	1.7
Core consumer prices	-	1.2	0.7	0.5	1.1	1.7
Household saving ratio, net[4]	-	0.7	2.1	3.2	3.2	3.3
Trade balance[5]	-	1.9	1.3	2.7	1.8	1.3
Current account balance[5]	-	-1.3	-2.0	-0.2	-1.0	-1.4
General government financial balance[5]	-	-4.0	-3.3	-3.1	-3.0	-3.0
Underlying government financial balance[2]	-	-3.3	-2.8	-3.0	-3.3	-3.0
Underlying government primary balance[2]	-	-1.2	-1.2	-1.4	-1.8	-1.4
General government gross debt[5]	-	62.6	65.9	67.1	67.4	67.5
General government debt, Maastricht definition[5]	-	55.9	50.4	51.7	51.9	52.1
General government net debt[5]	-	35.3	38.1	39.8	41.1	42.0
Three-month money market rate, average	-	3.0	2.5	1.7	1.8	2.1
Ten-year government bond yield, average	-	4.0	3.5	2.8	3.0	3.4

1. Contributions to changes in real GDP, actual amount in the first column.
2. As a percentage of potential GDP.
3. As a percentage of the labour force.
4. As a percentage of household disposable income.
5. As a percentage of GDP.

Source: OECD (2015), *OECD Economic Outlook 98 Database* and updates.

mortgages into domestic currency at preferential exchange rates, as proposed by a Presidential draft bill. This could have a sizeable impact on the banking sector, as the stock of such mortgages represented around 9.5% of GDP and 44.5% of all mortgages at end-2015, though mortgages in foreign currency represented less than 2% of originations in 2014/2015. Currently, the proposal does not contain a cost estimate, but this is to be provided by the Polish Financial Supervision Authority (KNF) in March. The National Bank of Poland estimates the total direct costs at PLN 38-44 billion, more than three times higher than the banking sector's total net profits in 2015 (NBP, 2016). Separately, on 15 January the rating agency Standard & Poor's downgraded Poland's foreign-currency credit rating by one notch to BBB+. Yields rose thereafter but have since returned to the levels observed before the decision. No other major credit rating agency has followed suit. Other potential yet unquantifiable shocks are enumerated in Box 1.

Figure 4. **Macroeconomic indicators**



1. Deflated by CPI.
2. Goods and services, volume.

Source: OECD (2015), *Economic Outlook 98 Database* (and updates) and *OECD Labour Force Statistics Database*.

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Box 1. **Possible shocks to the Polish economy**

Shock	Possible impact
Spillovers from monetary normalisation in the USA	US monetary policy normalisation could trigger capital flow reversals, exchange rate depreciation and a fall in asset prices. This would put a burden on households and fiscal policy, as the share of household and public debt denominated in foreign currency is substantial.
Geopolitical tensions	Intensified instability in Russia and Ukraine could undermine external demand (although since the conflict occurred Polish agri-food exporters have successfully found alternative markets for their products) and put pressure on natural gas prices and provision. It could also lead to an increase in military spending, sharpening problems of adequately financing much needed civilian spending. A marked reduction in tensions could raise exports.
Increasing numbers of migrants	A substantial inflow of migrants would raise medium-term labour supply. Providing them with training and granting them employment access would speed up their integration into the labour market. This would eventually have positive effects on the fiscal situation, innovation, productivity and income.
Electricity capacity shortages	Tight electricity production capacity and limited cross-border connections heightened by unintended power flows from Germany's network may trigger further electricity capacity shortages in extreme weather conditions. This would lower industrial production and could curtail FDI inflows.

Macroeconomic policies

The government needs higher revenues to finance its programmes

The new government has confirmed its determination to keep the deficit below 3% of GDP. Yet, implementing a number of government priorities would imply higher spending or lower revenues (Box 2), while new taxes already adopted or under discussion would yield revenues of a much smaller order. Some modest further income could be forthcoming from greater efforts to reduce tax evasion, especially in the VAT.

Box 2. **The new government's tax and spending plans**

- A law passed in February 2016 introduces a new child benefit (the "family 500+" programme) that would pay PLN 500 per month per child until age 18. It will be means-tested for the first child with a monthly income cap of PLN 800 (PLN 1200 for disabled children), but available for all children beyond the first. It will be paid out beginning in April 2016. The government estimates the costs at PLN 17 billion in 2016 and PLN 23 billion (1.3% of 2015 GDP) per year thereafter.
- The government campaigned on a promise to increase the tax-free allowance from PLN 3000 per year to PLN 8000. However, the plans have not yet been detailed, the size of the increase might end up being lower, it might be implemented in several steps, and it might be reduced for higher-income households. Without any of these changes the government estimates the annual cost at PLN 20 billion (1.1% of 2015 GDP). The Ministry of Finance will present a draft government proposal in 2016.
- A new tax on assets of financial institutions was enacted on 15 January and entered into force at the beginning of February. The tax has to be paid by banks and credit unions, insurance companies, as well as other lending institutions. The monthly tax rate is set at 0.0366% of total assets (0.44% annually). There is a tax allowance of PLN 4 billion worth of assets for banks and credit unions, PLN 2 billion for insurance companies and PLN 0.2 billion for other lending institutions. Moreover, the state-owned development bank (BGK) and banks undergoing restructuring are exempt from the tax. The government has foreseen PLN 5.5 billion of receipts in the 2016 budget (0.3% of 2015 GDP). This is roughly half of the banking sector's net profit in 2015.
- The Finance Ministry also presented the draft principles of the new retailer tax. There would be a tax-free allowance of PLN 18 million in revenue per year. The basic rate will be 0.7% of turnover. Revenue in excess of PLN 300 million a month will be taxed at 1.3%. In addition, a special tax rate would apply to revenue generated during weekends and on public holidays: of 1.3% up to PLN 300 million per month, and 1.9% above this level. The Ministry of Finance is expecting the tax to generate receipts of around PLN 2 billion in 2016 (0.1% of 2015 GDP). The final scope of the tax has yet to be decided and amendments are likely, such as a higher threshold and no surtax for Saturdays, as the bill has not been submitted to parliament and is currently being discussed with social partners and the retail sector.
- The government is working on a strategy to re-inforce the tax and customs administration. Foreseen measures include a general anti-avoidance rule, which would limit the scope for tax planning, merging the tax and customs administrations, limiting cash payments from EUR 15 000 to PLN 15 000 and introducting IT instruments to detect and combat VAT fraud. Through these measures the government hopes to increase tax revenues by PLN 12 billion in 2017 (0.6% of 2015 GDP).
- A presidential draft bill would lower the pension age to 60 for women and to 65 for men, reversing the 2012 reform that increased the retirement age in stages to 67 by 2020 for men and by 2040 for women. There is no official government estimate of the costs of this reform.

Past fiscal consolidation efforts have created the conditions for putting the debt-to-GDP ratio on a downward path, and the headline deficit is set to remain close to 3.0% of GDP in 2016 (Table 1). This is higher than the 2.8% deficit foreseen in the budget due to lower inflation and GDP growth projections in this baseline scenario. With nominal growth and long-term interest rates following the OECD long-term projections over 2018-60 and the primary deficit shrinking from 1.4% in 2016 by 0.1% of GDP each year (Figure 5, Panel A), debt would fall steadily, reaching 30% of GDP towards 2050 under the baseline scenario (Panel B). This baseline scenario takes into account the effects of ageing on labour force participation and assumes that the pension age is increased gradually in line with the 2012 reform. Debt reduction would be delayed if fiscal slippage occurred in 2016 and 2017, for example if additional revenue-raising measures disappointed (Box 2). With a deficit increase of, say, 1.5% of GDP in 2017, keeping constant the long-term growth and interest-rate trajectories, public debt would only stabilise. However, estimates of future potential growth and long-term interest rates are quite uncertain, and lower long-term growth, notably if old-age employment rates declined further than expected (see below), and higher interest rates by half a percentage point could lead to continued increases in public debt to above 60% of GDP by 2030.

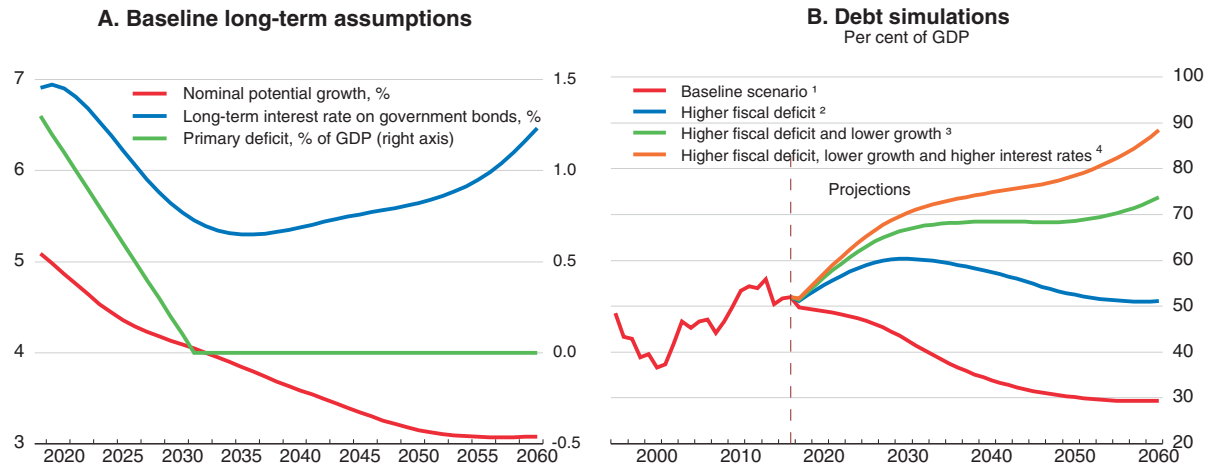
VAT exemptions and reduced rates, similarly as in other OECD countries, imply large revenue losses (Figure 6), worth more than 2.5% of GDP in 2013 (Ministry of Finance, 2014). Withdrawing them would thus yield much higher revenues than the envisaged tax increases on banks and retailers and would simplify the tax system. In contrast, taxes on individual sectors will make it more complicated. Part of the benefits of reduced VAT rates accrues to rich individuals, making it an inefficient tool to support the poor compared to targeted transfers or labour tax reductions.

Further options to increase revenues include increasing property taxes by making them market-value-based and taxing capital gains on rented properties. Green taxes could also help to raise revenues, although their main goal is to internalise externalities. Removing tax exemptions on fuel use, raising taxes on water and air pollution and implementing an aviation tax as well as an emissions-based tax on vehicles, which is currently lacking in Poland, could yield additional revenues equivalent to almost 1 ½ per cent of GDP in 2025 (Hogg et al., 2014).

The government also wants to focus on increasing tax compliance to generate extra revenues. VAT evasion has increased significantly to more than a quarter of the total liability (Figure 7). It is estimated to have increased further in 2015 (PwC, 2015). The previous government introduced counter-measures in some sectors, such as making sellers rather than buyers liable for VAT, but fraudsters have tended to move to other sectors in response. Thus, focusing on improving tax enforcement is appropriate. The government prudently assumes no increase in revenues in 2016 due to tax administration reform.

Tax administration has suffered from fragmentation within the Ministry of Finance and a lack of coordination among local and regional tax offices. Building a unified revenue administration with a strong central management structure and investing in modern ICTs, in line with the new government's plans (Box 2), should improve its effectiveness (Toro et al., 2015). Local and regional tax offices should be streamlined by grouping audit at the regions with strong management and coordination from the central government level. Ongoing efforts to strengthen analysis and planning of tax audits should continue. In

Figure 5. **Debt is on a declining path**



1. Baseline long-term assumptions of Panel A.
2. Same assumptions as in Panel A, except the primary deficit is higher by 0.5% of GDP in 2016 and 1.5% of GDP in 2017. Thereafter, the deficit is reduced gradually by 0.1% of GDP each year – the same pace as in Panel A – until it reaches zero.
3. Same assumptions as in 2., but nominal growth is lower by 0.5 percentage points over 2018-60.
4. Same assumptions as in 3., but long-term interest rates are higher by 0.5 percentage points over 2018-60.

Source: OECD (2015), *Economic Outlook 98 Database* (and updates); *OECD Long-Term Database* and OECD calculations.

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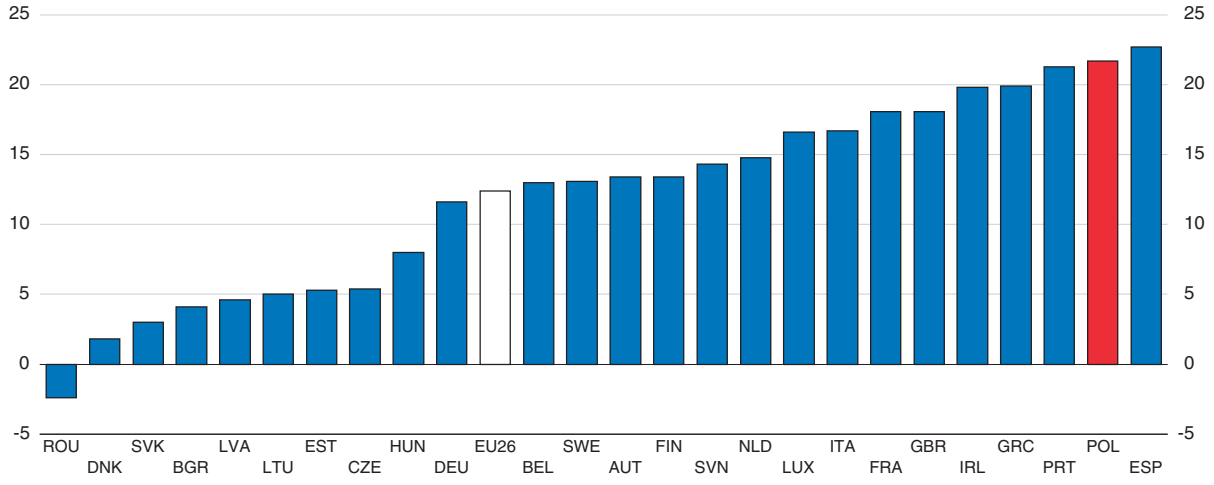
Figure 6. **VAT revenue shortfall due to tax breaks[1]**

Per cent of potential revenue, 2013



1. Measures the revenue loss due to the existence of reduced VAT rates (rate gap) and VAT-exempted supplies of goods and services (exemption gap). The exemption gap is considered net of imputed rents, financial services and public goods, for which VAT imposition is deemed technically impossible or socially unfeasible.

Source: European Commission (2015); *Study to quantify and analyse the VAT Gap in the EU Member States*.

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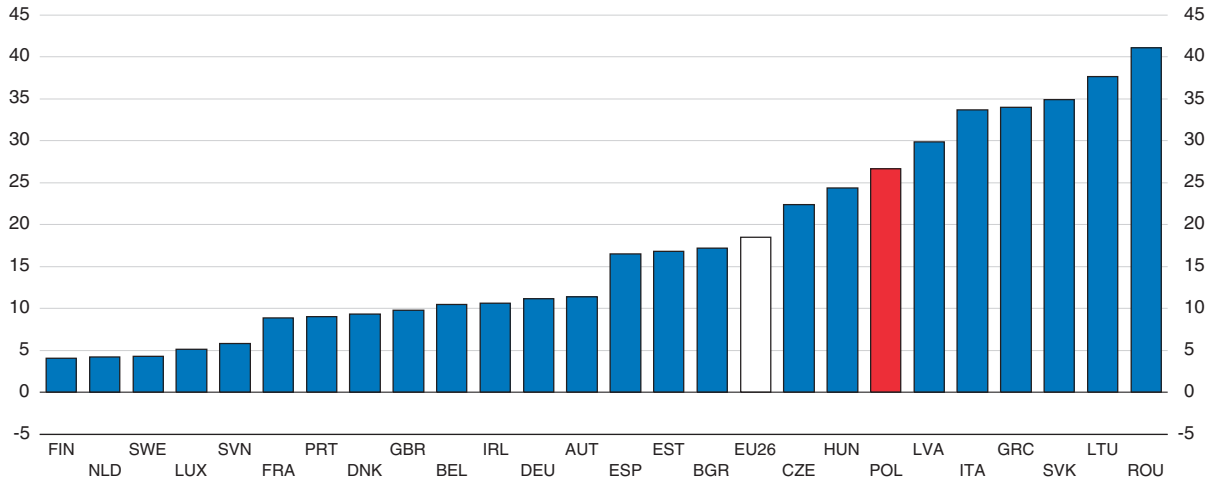
particular, more staff familiar with modern risk analysis techniques are needed, along with a specialised audit unit focusing exclusively on large taxpayers, who typically account for 50-70% of tax revenues (Toro et al., 2015; European Commission, 2015a). Developing international cooperation and standardised reporting in line with OECD (2015a)

Figure 7. **VAT revenue shortfall due to evasion[1]**

Per cent of total tax liability, 2013



1. Corresponds to the difference in percentage terms between the amount of VAT actually collected and the VAT total tax liability.

Source: European Commission (2015), *Study to quantify and analyse the VAT Gap in the EU Member States*.

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recommendations would allow the tax administration to focus its audit resources more on serious fraud issues. As a welcome complement to efforts to improve tax administration, the former government prepared a law that enhances taxpayers' rights and promotes a conciliatory approach to settling disputes.

The government's plan to increase child benefits substantially should encourage young people to have more children (OECD, 2011a), improving the long-term demographic outlook. It could also help limit child poverty, although it may reduce female labour supply. The measure entails a direct transfer of 500 PLN per month until children reach age 18, which would be means-tested for the first child and available for all families for every additional child. It adds to the child tax credit. So far the government has not announced any plans to eliminate the child tax credit. Over time the government should merge these two partly overlapping measures.

Reforming the farmers' social-security scheme could also generate substantial budgetary savings, as contributions cover only a fraction of the benefits. In addition, it would promote mobility of workers from small farms to more productive parts of the economy (OECD, 2014a).

A comprehensive medium-term fiscal plan will be forthcoming in Poland's convergence programme to be published in April 2016. It will detail the costs of large spending and tax measures over 2016-19 and explain how the government intends to continue gradual, structural deficit reduction of at least ¼ percentage point of GDP per year. However, independent reviews of fiscal planning could be strengthened. The Monetary Policy Council reviews macroeconomic assumptions underlying the budget, its macroeconomic impact and points to risks. The Supreme Audit Office (Najwyższa Izba Kontroli, NIK) publishes an ex-post assessment of budgetary execution and medium-term fiscal planning, including compliance with rules. Yet, it would be helpful to have that Office or another independent institution make ex-ante assessment of the government's fiscal plans and conduct long-term fiscal sustainability analyses.

Monetary policy faces challenges

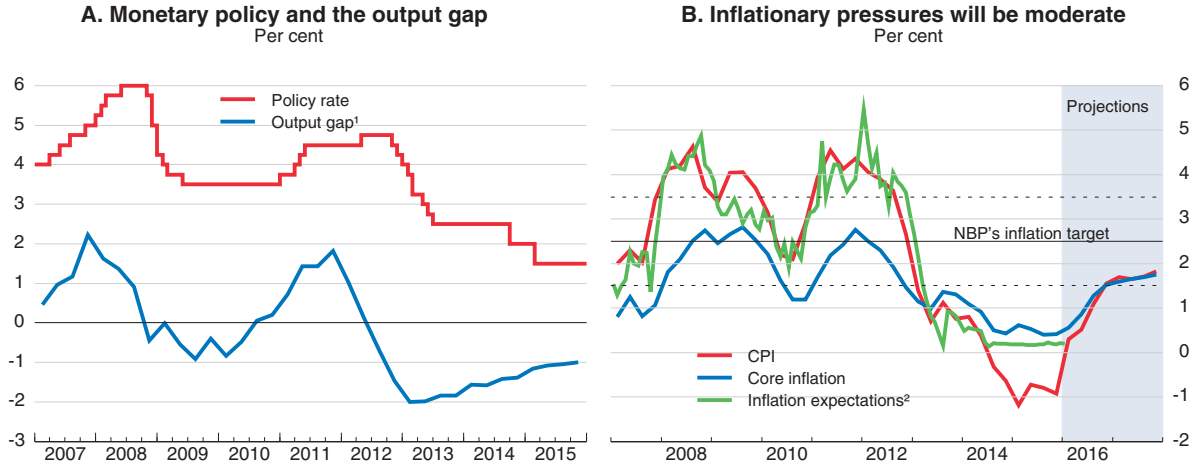
The central bank has kept the official interest rate at a record low of 1.5% since March 2015 (Figure 8, Panel A). Inflation has been well below the medium-term inflation target of 2.5% (with a tolerance band of ±1 percentage point) for three years and has been negative since July 2014. Deflation reflects mainly global factors, such as low food prices and recurring declines in energy prices. Yet, core inflation remains close to zero. Inflation expectations have also fallen to record lows, although in Poland expectations tend to follow the actual inflation rate, and the decline is therefore unlikely to become self-fulfilling (Panel B). Unemployment is probably close to its equilibrium, and the output gap is mildly negative, yet nominal wage growth has failed to pick up. The zloty has fallen fairly steadily since May 2015, and there is much uncertainty surrounding fiscal policy, which may prove to be expansionary. Should inflation pressures build gradually, in line with OECD projections, there would be a case from a purely domestic perspective for the central bank to start increasing rates fairly soon. However, the central bank should proceed with caution, as there are ongoing headwinds to activity from slowing emerging markets and risks of financial turbulence, for example from potential tensions from divergent moves between US and euro-area monetary policies. These considerations justify keeping rates low for the time being. Should inflation continue to be quiescent and remain below target, interest rate reductions should be considered.

The financial system remains sound

Despite historically low interest rates, there are no signs of asset price bubbles nor unwarranted debt accumulation. Real credit growth has picked up (Figure 9, Panel A), but house prices have been broadly flat (Panel B), and household indebtedness has remained fairly constant overall (Panel C). Non-financial corporate debt has been stable in recent years at 46% of GDP (16% of GDP for bank credit; foreign debt stands at around 19% GDP). Poland's largely foreign-owned banking system remains well capitalised and liquid (Panel D), and the core Tier 1 capital-adequacy ratio, at 14.3%, stood well above Basel III requirements at end-September 2015. Leverage has been stable at a moderate level. However, the profitability of the banking sector is declining, due to narrowing interest rate margins (NBP, 2015). Moreover, bank costs are set to rise, as they are to contribute to a new fund for distressed debtors, which adds to a new asset tax and higher contributions to the bank-guarantee fund. These three measures would amount to around half of 2014 bank profits. As mentioned above, the authorities are also considering requiring banks to convert foreign-denominated mortgages into domestic currency at preferential exchange rates. These additional burdens may have a negative effect on financial stability by reducing the profitability of the banking sector and its capital position. This in turn would limit credit to the real economy.

Credit risks remain limited. A significant share of loans to households and non-financial corporations (Figure 10, Panel A) is in foreign currency. Yet, since 2014 banks have been allowed to provide foreign currency (FX) mortgages only to households with a steady income in the same currency. This has stopped new origination of such loans. FX mortgages are concentrated among the wealthiest households (NBP, 2013), and intercompany loans represent a majority of non-financial corporations' FX loans, mitigating apparent vulnerabilities (IMF, 2015). The financial sector was resilient to the abrupt depreciation of the domestic currency against the Swiss franc in January 2015. The share of non-performing loans (NPLs) remains relatively low (Panel B). For mortgages

Figure 8. **Inflation and monetary policy**



1. As a percentage of potential GDP.
2. Mean of the expected rate of inflation over next 12 months.

Source: OECD (2015), *Economic Outlook 98 Database* (and updates); Narodowy Bank Polski.

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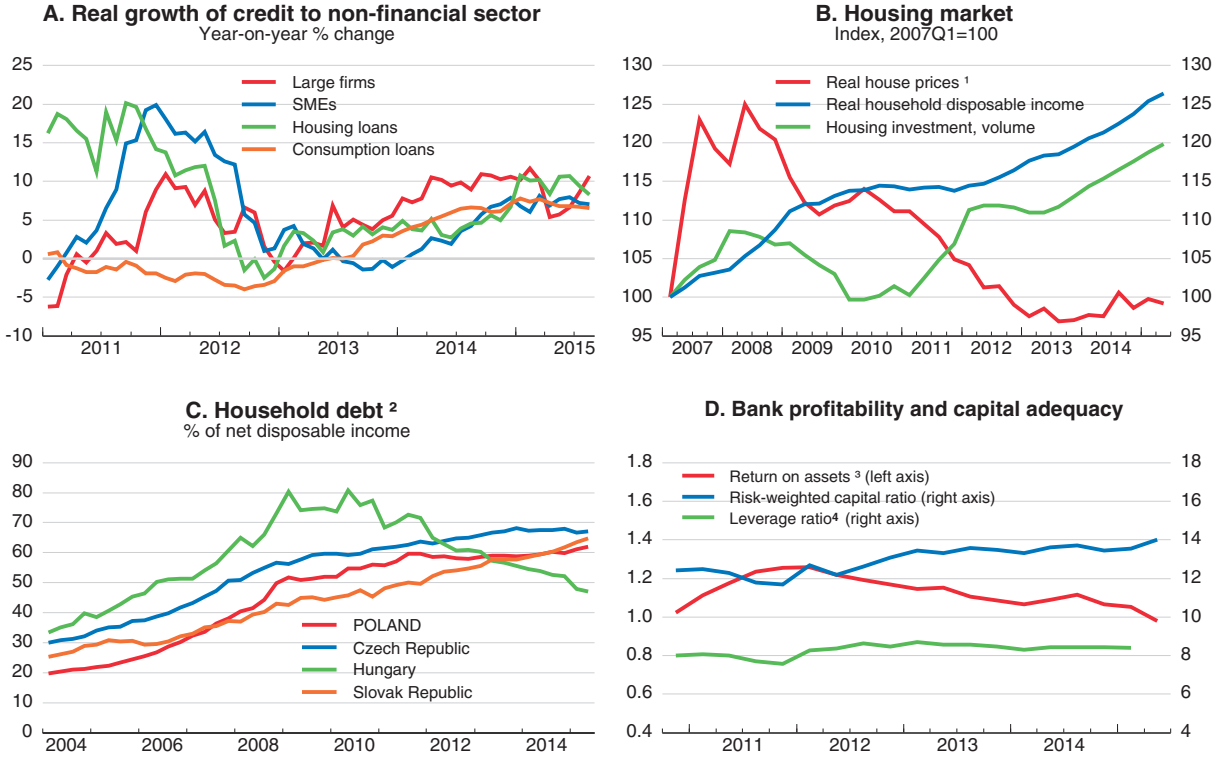
Figure 9. **Financial sector developments**



1. Hedonic price index in the 10 largest cities, deflated by the CPI.
2. Household debt is computed by subtracting shares and other equity, as well as financial derivatives, from total household liabilities.
3. 12-month profits in percent of 12-month assets.
4. Median capital ratio (core capital over unweighted assets).

Source: Narodowy Bank Polski; *OECD (2015), Economic Outlook 98 Database* (and updates) and *National Accounts Database*.

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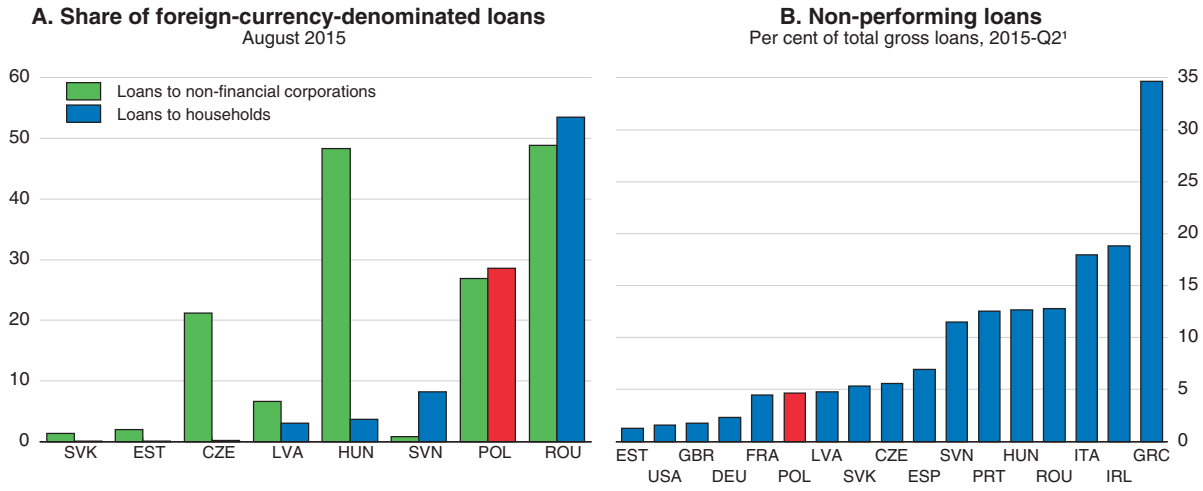
Figure 10. **Foreign-currency-denominated and non-performing loans**



1. Or latest available information.
Source: ECB; and IMF, *Financial Soundness Indicators*.

StatLink http://dx.doi.org/10.1787/888933339361

alone, the NPL share was 3.3% at end-September 2015 for local-currency loans and 3.1% for those denominated in foreign currency.

Poland's universal banks do not currently have access to either covered bonds or securitisation and rely on short-term deposit liquidity and foreign finance for mortgage lending. The development of mortgage banks that can issue mortgage bonds has been limited; however the legislation aimed at easing the issuance of mortgage bonds and improving long-term liquidity has only recently entered into force. In particular, a new law reduces tax barriers to the development of covered bonds and promotes pension fund, credit union and foreign investment in such assets. This would, in turn, strengthen financial stability.

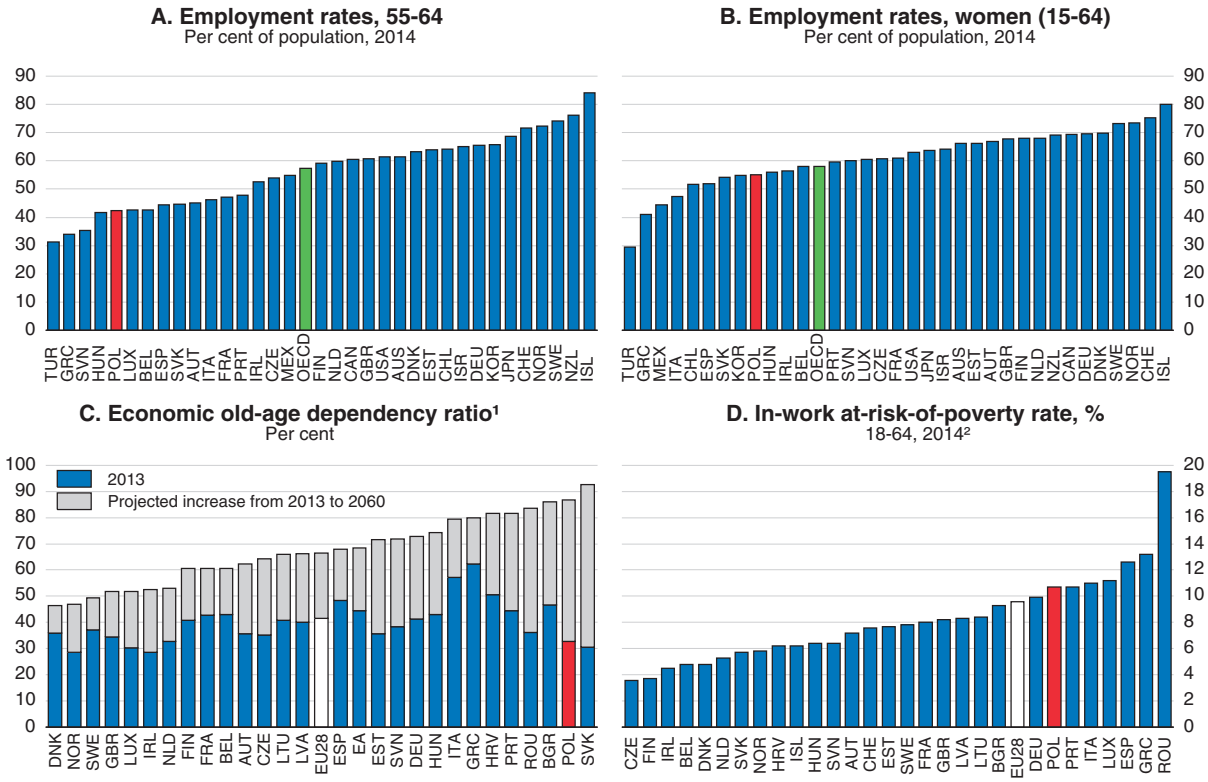
Enhancing employment and access to high-quality jobs

Improving labour force participation and employment of women and seniors

Unemployment has come down, and employment rates have increased, in line with robust economic growth. Nevertheless, labour force participation and employment rates are still among the lowest in the OECD, especially for women and older workers (Figure 11, Panels A and B). At the same time, the share of elderly citizens is high and set to increase further (Panel C), as Poland has one of Europe's lowest fertility rates. These trends jeopardise potential growth and the ability to finance adequate pension and health-care spending in the long term. Among those who are employed quite a few are poor. In fact, in-work poverty is above the EU average (Panel D). This is in part related to the prevalence of irregular work relationships.

Better opportunities to combine work and family life are needed to allow more women to work, if they so desire. One of the most effective policy measures in this respect is the provision of childcare services, which also contributes to raising fertility (OECD, 2011a and 2012). Poland extended the coverage of preschools for three- to five-year-olds to close to 80% in 2015 from just over 30% in 2002 (Figure 12, Panel A shows 2013 numbers). The number of childcare institutions for children under three quadrupled between 2011

Figure 11. **Employment rates are low in the context of rapid ageing, and in-work poverty is relatively high**



1. Measured as inactive population aged 65 and over as a ratio to the 15-64 employed population.
2. Or latest available year.

Source: OECD (2015), *OECD Labour Force Statistics Database*; European Commission (2015), *The Ageing Report*; and Eurostat.

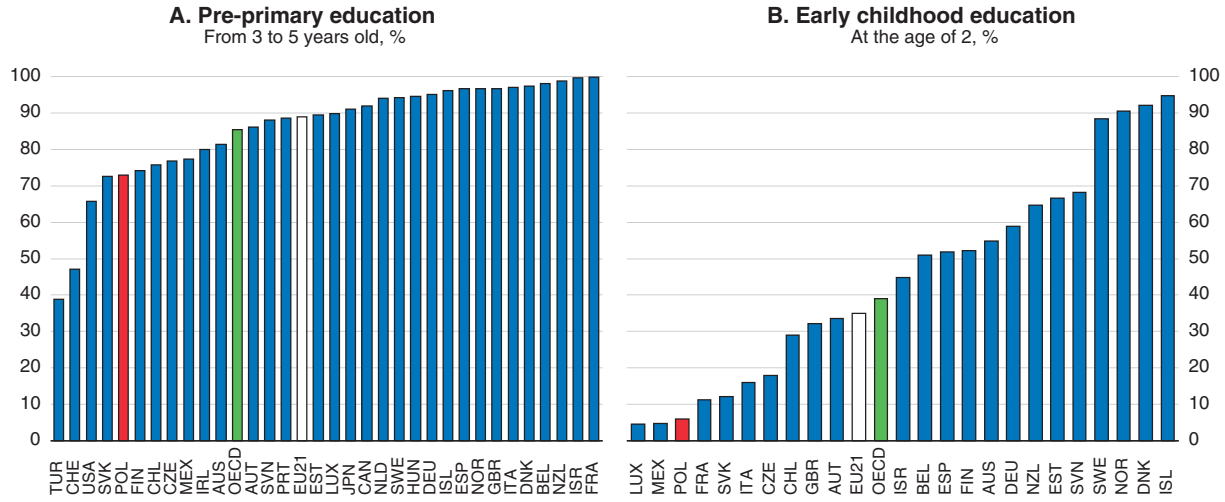
StatLink http://dx.doi.org/10.1787/888933339376

and 2014, but coverage remains low (Panel B). The current system of joint taxation of family income implies higher tax rates for second earners – typically women. OECD analysis shows that this reduces female labour force participation and full-time employment (OECD, 2012). Moving to individual taxation would remove this distortion (OECD, 2014a).

Poland has one of the lowest pension replacement rates in Europe (OECD, 2015b) and its reduction until 2050 is estimated to be larger than anywhere else in Europe (Figure 13). This involves a serious risk of higher old-age poverty. The 2012 pension reform increased the retirement age in stages to 67 by 2020 for men and by 2040 for women. The new government campaigned on a promise to allow women to retire at 60 and men at 65, the pre-reform status quo. This would have a negative impact on the employment of seniors and thus long-term growth, though its magnitude is unclear. This can be contained to some extent if workers who retire before 67 receive a lower pension in line with their reduced contributions and – as is already the case – a correspondingly higher pension if they work beyond that. The government provides workers with annual information on their pension rights and how they would change thanks to delayed retirement. This should also be useful. OECD evidence shows that such actuarially neutral pension adjustments ensure higher labour force participation of older workers compared to systems where early retirement is possible with lower pension reductions (Johansson et al., 2013). However, the same work shows that a reduction in the legal pension age reduces older workers' labour

Figure 12. **Enrolment rates in pre-primary and early childhood education have been weak but increasing**

2013

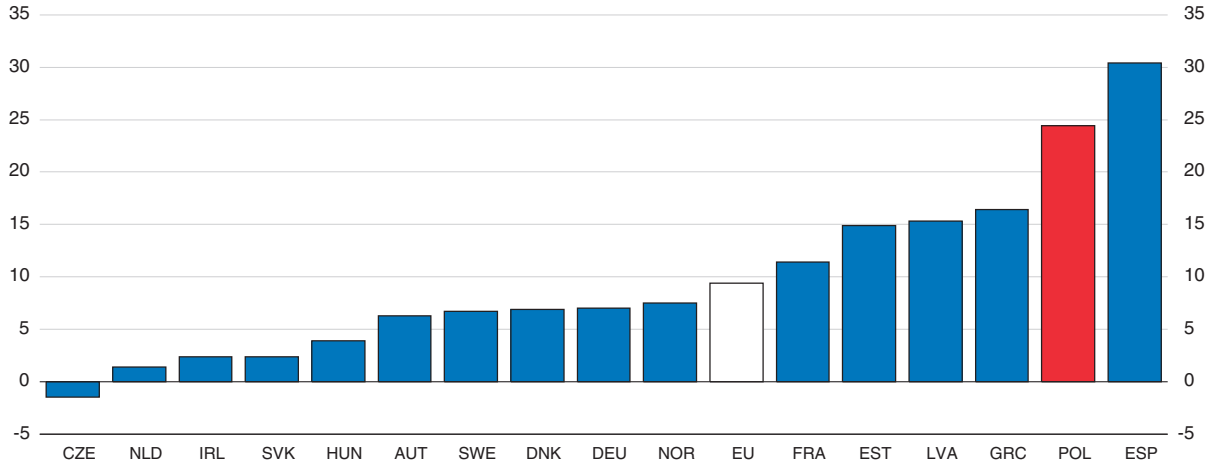


Source: OECD (2015), *Education at a Glance 2015 Database*.

StatLink http://dx.doi.org/10.1787/888933339387

Figure 13. **Reduction in gross average replacement rates[1] of public pensions[2], 2013-60**

Percentage points



1. The gross average replacement rate is calculated as the average first pension as a share of the average wage at retirement.
2. Public pensions include disability, survivor and non-earnings-related benefits.

Source: European Commission (2015), *The 2015 Ageing Report*.

StatLink http://dx.doi.org/10.1787/888933339397

force participation, with a negative impact on GDP in the long term. Lowering the minimum pension age can lead myopic individuals to retire early, even if that implies poverty. This risk would be heightened for women, who have lower earnings than men and live longer but would be allowed to retire earlier under the government's plans. Thus, the statutory retirement age should be increased, as previously planned and any possibilities to retire early should be the same for men and women and come with actuarially neutral pension reductions.

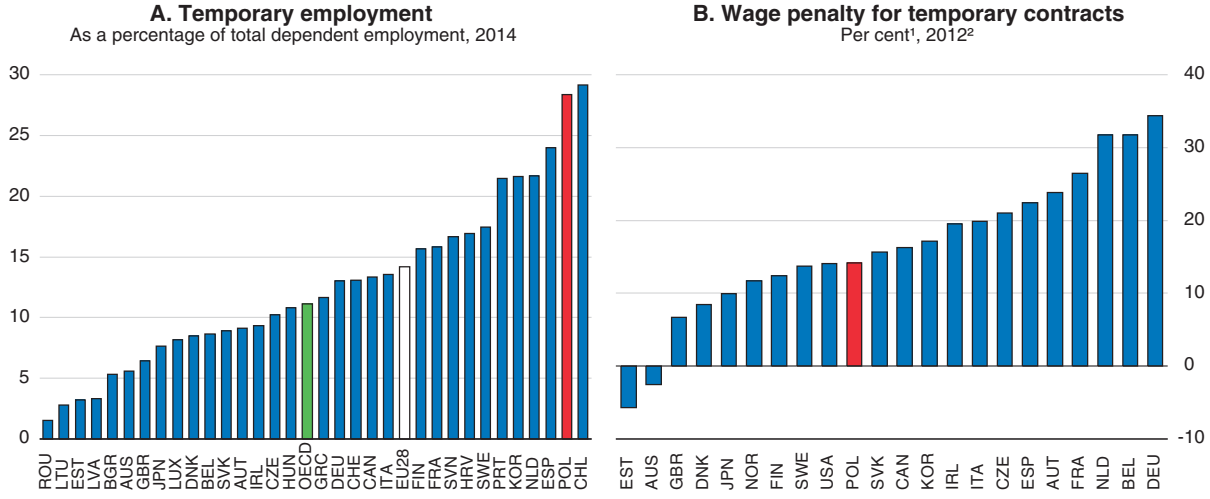
The government should continue to make efforts to raise employment opportunities for older workers, which are scarce, particularly among women. Measures that would contribute to this include developing long-term care facilities, aligning the rules of special pension schemes with the general system, harmonising employment protection for all age groups to avoid disincentives for hiring older workers and providing government support to spread good practices in terms of managing senior workers, in particular for SMEs (OECD, 2015c).

Strengthening labour mobility would also improve the functioning of the labour market. Further improving transport infrastructure (see below) and deepening the thin rental housing supply would contribute to this. The lack of local spatial plans in many areas holds back housing supply that is well connected to urban infrastructure, and parliamentary work to lower barriers for municipalities to issue such plans should be resumed (see below). Further easing rent controls and eviction of non-paying tenants by shifting the obligation to find shelter for them from landlords to the state would help to promote a rental market with reasonable tenant protection (OECD 2013a; Peppercorn and Taffin, 2013).

Improving access to high-quality jobs

Poland has the European Union's largest share of workers with temporary contracts (Figure 14, Panel A); such contracts are especially prevalent among the young and the low skilled. Prospects of moving from a temporary to a permanent job are poor (OECD, 2014b). Temporary jobs can be based on regular labour law or on civil law. Civil-law contracts are not subject to the minimum wage, paid leave, a notice period for dismissals or working-time regulations and can involve much lower social contributions (Arak et al., 2014). In firms with more than nine workers the incidence of civil-law contracts increased from 547 000 in 2010 to 1.2 million in 2014 or around 13% of total employment in those firms (GUS, 2014; GUS, 2015a). These contracts were originally created for freelance workers, but

Figure 14. **Temporary employment**



1. Compared to wages for permanent workers, controlling for average literacy and numeracy scores, highest qualification, occupation and industry.
2. The data cover solely the Flanders region for Belgium and England and Northern Ireland for the United Kingdom.

Source: OECD (2015), *OECD Labour Force Statistics Database*; and *OECD Skills Outlook 2013 Database*.

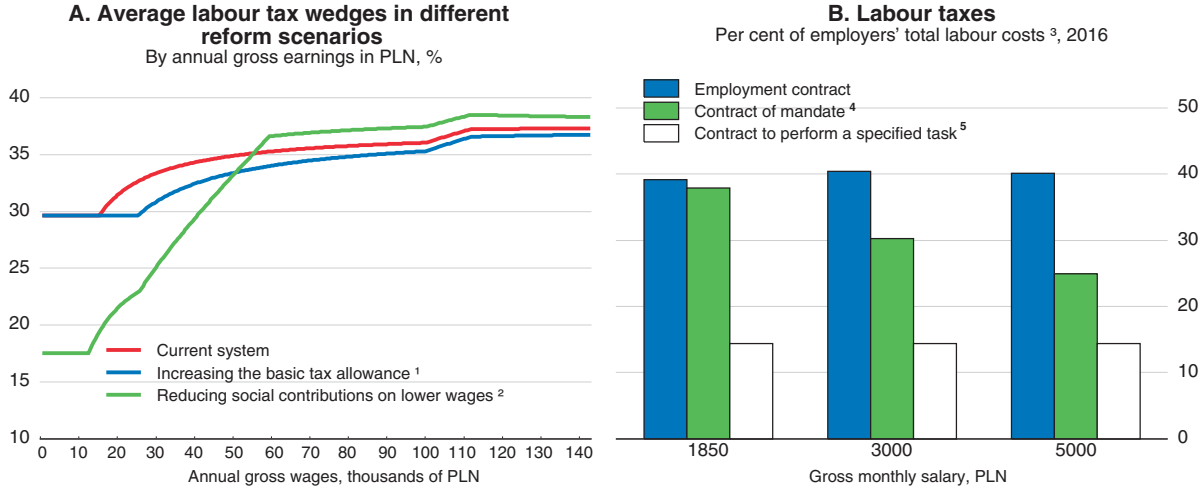
StatLink http://dx.doi.org/10.1787/888933339401

in recent years employers have increasingly used them for jobs that have clear characteristics of dependent employment, such as a well-defined work place and hours and subordination vis-à-vis the employer. Yet, Polish authorities have found it difficult to combat abuse (OECD, 2008; Vega and Robert, 2013). In 2014 fewer than half of those found to have broken the law by improperly using civil law contracts were subject to penalties, with an average fine of just over 300 euros (National Labour Inspectorate, 2015). In addition, the share of people who work informally with no legal or social security protection whatsoever amounted to 7.5% in 2014 (GUS, 2015b).

Having so many workers on temporary and irregular contracts impinges on well-being, productivity and Poland's ability to raise the technology and skill content of its production. Weak regulation of temporary work contracts encourages their widespread use and is associated with slower productivity growth (Bassanini et al., 2008; Dolado et al., 2012). Such contracts are also associated with postponing childbirth and a lower number of children overall (Auer and Danzer, 2015; de la Rica and Iza, 2005). Workers on temporary contracts are confronted with a higher risk of unemployment, lower wages (Figure 14, Panel B), greater in-work poverty risks and poorer access to training (OECD, 2014b; Lewandowski and Kaminska, 2014) than others with otherwise similar characteristics.

Poland's tax wedge for low-wage workers on regular contracts is above the OECD average. It is essentially the same for medium or high pay, limiting the redistributive effect of the tax system (Figure 15, Panel A). This high tax wedge contributes to the widespread use of civil-law contracts, which in some cases are subject to much lower social security contributions (Panel B). The government has recently taken steps to increase social

Figure 15. **Average tax wedges on labour income**



1. The basic tax allowance would be increased from PLN 3 000 to PLN 8 000.
2. The social security contributions reform would cut employers' and employees' contributions by half for workers earning the minimum wage or less and let them increase gradually to the standard rate for wages above 1.2 times the minimum wage. The first personal income tax rate would be increased to 20%.
3. Income tax and social security contributions as a share of wages, taxes and contributions paid by employers.
4. Refers to persons with several contracts with the same employer. The first contract is subject to earnings equivalent to the minimum wage.
5. Assumes tax-deductible expenses of 50%.

Source: OECD calculations based on the OECD Tax-Benefit model; Ministry of Finance.

StatLink http://dx.doi.org/10.1787/888933339417

contributions on some civil-law contracts, although there are still ways for employers to split contracts to minimise contributions, and this should be monitored. The government also aims to introduce an hourly minimum wage of PLN 12 applying to civil law contracts. For a standard working week of 40 hours it is higher than the monthly minimum wage for labour law contracts by 3.7% in 2016.

Cutting labour taxes significantly on regular labour-law contracts with low wages would further reduce incentives to use civil-law and other irregular contracts and would make the tax system more progressive. This could potentially be done by reducing social contributions on lower wages, but other financing would be needed to maintain benefits for these groups. Another solution would be to further align contributions between civil and labour law contracts. The government's plan to increase the tax-free allowance from 3000 to up to 8000 PLN per year (see Figure 15, Panel A) would lower taxes for everyone and would hence be very costly. To obtain a larger effect on the tax burden on lower wages one possibility would be to increase the tax-free allowance but only for income from work instead, such as proposed by Arak et al (2014). Introducing a targeted earned income tax credit would even be more effective in reducing the tax burden on low-wage workers (OECD, 2014a).

Ensuring efficient public infrastructure and better conditions for private investment

Strengthening the quality of infrastructure investment

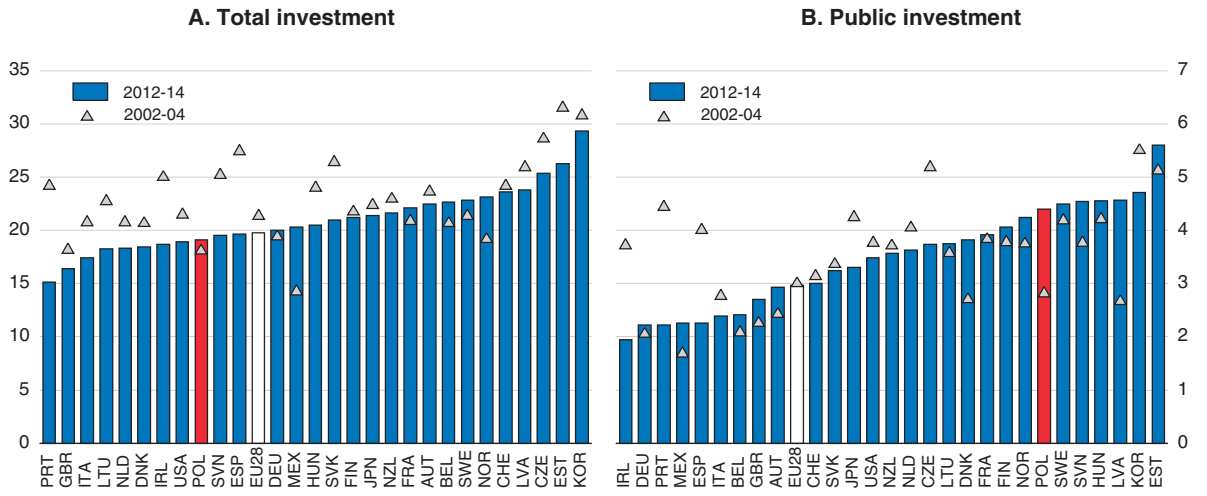
Poland's investment has been relatively low compared to countries with similar per capita income (Figure 16). Public investment has been heavily supported by EU funds, and Poland has significantly upgraded its infrastructure networks over the past decade. However, bottlenecks still restrain productivity, and much remains to be done to enhance environmental outcomes. The EU 2014-20 programming period provides an opportunity to strengthen the management of infrastructure investment. Further improving public infrastructure, notably ICT technologies and networks, would facilitate new technology adoption. Time-series evidence points to a positive historical relationship between public and private investment and GDP growth in Poland (Rutkowski, 2009), as high-quality infrastructure promotes productivity, thereby encouraging private investment (OECD, 2015d).

Increasing administrative capacity in public procurement, public-private partnerships and infrastructure management would improve spending efficiency. Local governments lack skilled personnel, and sometimes incentives, to plan and manage infrastructure or develop local zoning plans and energy efficiency strategies (NIK, 2014a; Ministry of Economy, 2012). Providing central government technical assistance through expertise and upfront resources for the preparation of large municipal projects would help local governments deal better with such projects. There should also be a central platform for integrated e-procurement procedures. Such a platform could reduce the fragmentation of the public procurement market (Public Procurement Office, 2015). Defining metropolitan governance structures according to functional urban areas, as planned for 2016, and giving them infrastructure planning competencies could also improve cooperation among local governments (Ahrend and Schumann, 2014).

Reinforcing the independence of sector regulators would reduce regulatory uncertainties that inhibit investment. The rail network regulator, UTK, reports to the

Figure 16. **Public and private investment**

Annual averages, per cent of GDP



Source: OECD (2015), *Annual National Accounts Database*.

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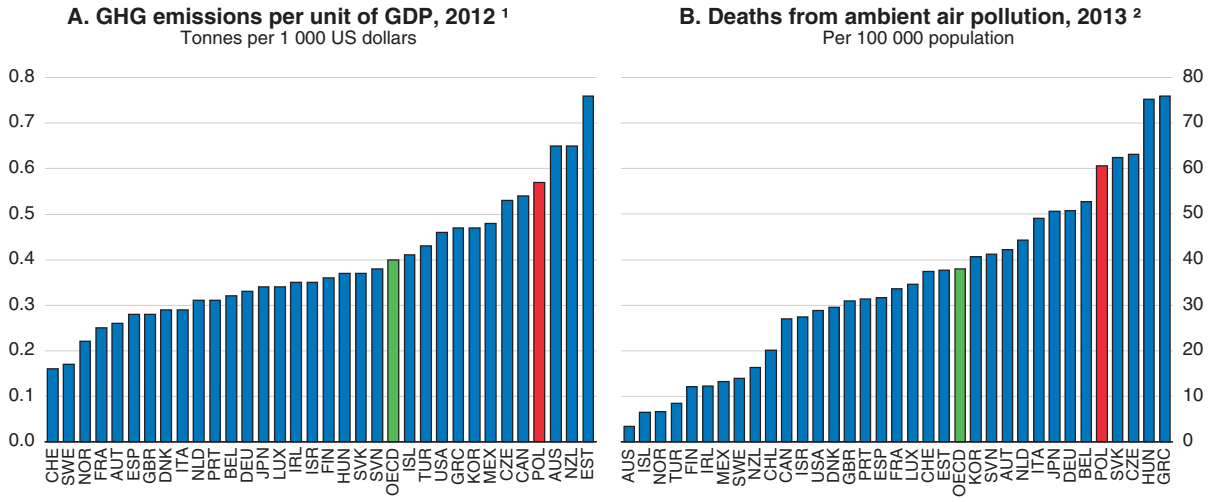
Minister for Transport, and its president may be removed at any time, undermining its independence when dealing with state-owned companies (OECD, 2014a). Likewise, the president of the Competition Authority can be recalled without justification. Regulators should have fixed-term, non-renewable mandates during which they cannot be dismissed without fault. At the same time revolving-door opportunities should be eliminated.

Greening infrastructure

The government needs to focus more on the environmental impact of public investment. Greenhouse gas (GHG) emissions (Figure 17, Panel A) – mainly CO_2 – and urban air pollution are considerable, contributing to climate change and causing substantial health costs (Panel B). A broad-based strategy is needed to improve environmental quality and contribute to reaching the goal agreed at COP21 in Paris to hold the increase in global average temperature compared to pre-industrial levels to well below 2°C and achieve a balance between GHG emissions and removals in the second half of the century. The government is planning to increase public transport spending in 2014-20 and to progressively reduce the share of coal in the energy mix. Even though Polish power plants fulfil the relevant EU directive requirements, they are among Europe's largest contributors to health hazards and other environmental costs through industrial air pollution (EEA, 2011). The central and some local governments provide subsidies to replace highly polluting, coal-fired household heating systems with more efficient versions, and there is a will to move towards district heating. This will be less polluting, thanks to its higher efficiency, although most Polish district heating systems are coal-fired. The government should use integrated cost-benefit analysis to take health and environmental impacts more fully into account in the choice and design of infrastructure projects (OECD, 2015e).

Green taxes are crucial to internalise the externalities associated with production and consumption, thus setting the right incentives to opt for environmentally friendly infrastructure. They should therefore be an integral part of the government's strategy to reduce CO_2 emissions and air pollution. The government has implemented the polluter

Figure 17. **GHG emissions and deaths from ambient air pollution**



1. Excluding LULUCF.
2. Deaths from ambient particulate matter and ozone pollution.

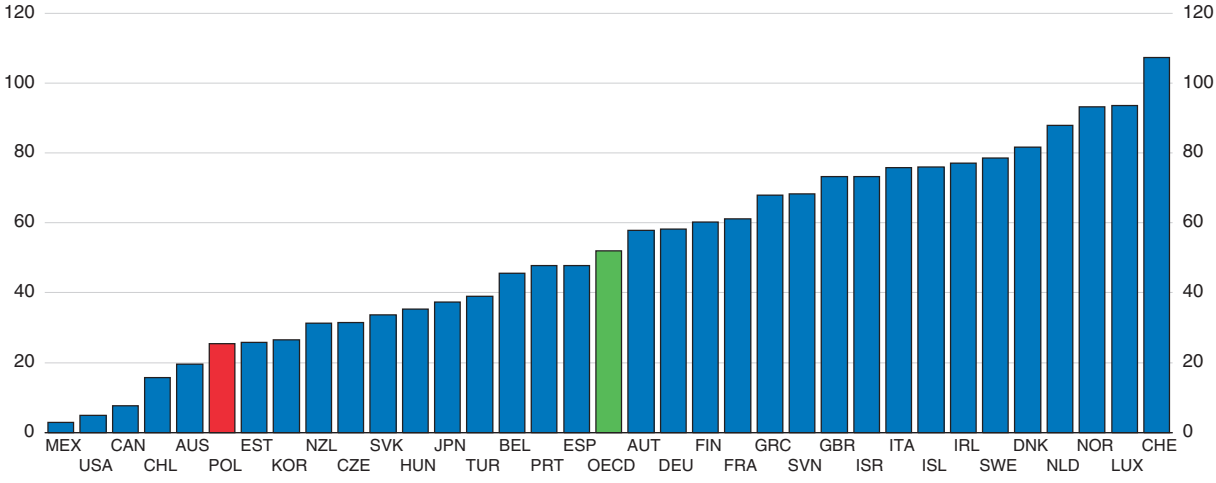
Source: OECD (2015), *Environmental Statistics Database 2015*; Institute for Health Metrics and Evaluation, *http://viz.healthmetricsandevaluation.org/gdb-compare/*.

StatLink http://dx.doi.org/10.1787/888933339430

pays principle with taxes on air and water pollutants, but these taxes are often not high enough to internalise associated externalities (Hogg et al., 2014, OECD, 2015e). Similarly, the CO_2 tax on sectors not covered by the European Union's emission trading system (ETS) is only 0.29 PLN per tonne of carbon in 2016, and the implicit economy-wide tax rate on CO_2 emissions from energy use is low (Figure 18). Raising the CO_2 tax to around the ETS carbon price would provide a much more effective signal to reduce emissions once ETS prices recover.

Figure 18. **The effective tax rate on CO_2 emissions from energy use is low**

EUR per tonne of CO_2, 2012



Source: OECD (2013), *Taxing Energy Use – A Graphical Analysis*.

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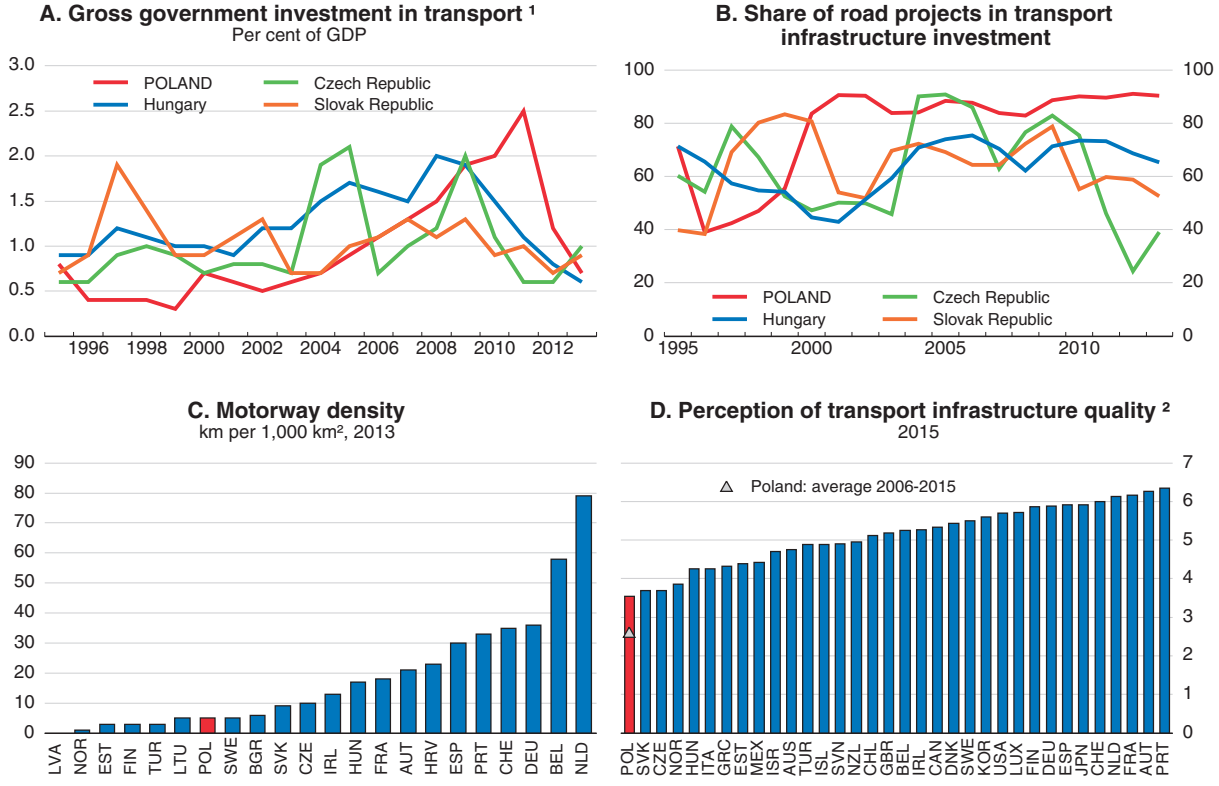
Better collaboration between the Ministries of Finance and the Environment is needed to create strong and consistent price signals that would help to internalise the externalities associated with burning fossil fuels. As an example, diesel used in transport is taxed at a lower rate than petrol, although its CO_2 content is higher and it emits more local pollutants (OECD, 2013b and 2015e). Coal used by households for heating is a significant source of urban air pollution but is not subject to an environmental tax, which is allowed by EU regulations. A tax would reinforce the government's subsidy programmes to replace inefficient individual household heating systems and its plans to move towards district heating. CO_2 and energy taxes have been an important factor promoting district heating in Sweden and reducing emissions in the residential sector (OECD, 2011b).

Transport infrastructure needs are substantial

From 2003 to 2011 transport investment increased sharply and was heavily weighted towards roads. Nevertheless, motorway density remains relatively low, and the perceived quality of the transport network is still one of the lowest in the OECD (Figure 19). Strengthening metropolitan transport governance, building up local road and rail infrastructure-management capabilities and reducing funding uncertainty in these sectors would ensure a more efficient allocation of investment and maintenance spending.

Figure 19. **Transport infrastructure**



1. Gross general government fixed capital formation.
2. Index from the lowest perceived quality (0) to the highest (7).

Source: OECD (2015), *Transport infrastructure investment and maintenance spending*; Eurostat (2015), *Road, rail and navigable inland waterways network*; World Economic Forum (2015), *The Global Competitiveness Report 2014-15*.

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Integration of different types of transport is a priority, as connections between national and local roads are often lacking (World Bank, 2011). The first top-down strategy for the whole transport sector – Transport Development Strategy to 2020 (with perspectives to 2030) – was adopted in 2013. A comprehensive plan of transport investments to be implemented in the period 2014-20 is included in the Implementing Document to the Strategy, but it will need regular updates. Inland waterways have received little funding, limiting seaport catchment areas (NIK, 2014b). The 2014-20 operational programme for EU funds includes planned new and modernised intermodal terminals for passenger and freight transport, which is welcome. Intermodal projects linking railways, seaports and airports will benefit from extra points when competing for EU funds.

Given the environmental effects of intensive car traffic, the envisaged increase in spending on public transport infrastructure in the 2014-20 EU funds programming period is crucial. However, railways may still suffer from unreliable financing, notwithstanding the planned increase. The infrastructure manager, PKP PLK, signs three-year maintenance contracts with the government, but the specific budget allocations are decided on an annual basis, creating a lack of reliable financing for long-term maintenance work. In addition, most local governments offer only one-year contracts for public passenger rail service providers, effectively making investment in highly capital-intensive rolling stock unprofitable and deterring new entry. Several tenders have not been able to attract even a single bidder (European Commission, 2013). As a result, local governments usually purchase their own rolling stock, lending it on to public passenger rail service providers. However, a welcome draft programme aims to ensure more stable financing over 2016-23, notably for maintenance.

A weak spatial planning system has contributed to substantial urban sprawl (Veneri, 2015, Krajewska et al., 2014), intensifying road congestion and urban pollution. Around 70% of municipal territory lacks local spatial plans, and building permits are granted based on administrative decisions that do not ensure coherence with spatial planning (Ministry of Regional Development, 2012). Many new developments lack access to urban infrastructure, including public transport. Before the recent election there was a draft law before the parliament reforming urban planning that would tighten restrictions on granting building permits on land without local spatial plans. It would also reduce barriers for municipalities to develop such plans. The scale and scope of compensation municipalities have to pay to owners when they restrict the use of their land would be limited. At the same time, to obtain building permits faster developers would be allowed to build infrastructure themselves and provide it free of charge to municipalities. The parliamentary approval process of this reform needs to be resumed swiftly to support the development of efficient urban public transport infrastructure and reduce urban sprawl. If it proves insufficient, the government should create an obligation for municipalities to develop local spatial plans.

Road pricing could better internalise environmental externalities and take into account maintenance costs, thereby helping to promote public transport. Heavy vehicles have to pay fees on only a small part of the network, and these fees were less than half of Czech or Slovenian levels in 2012 (ITF, 2013). Allowing local authorities to set urban congestion charges could also help limit traffic congestion and local pollution, as in London, Oslo and Stockholm.

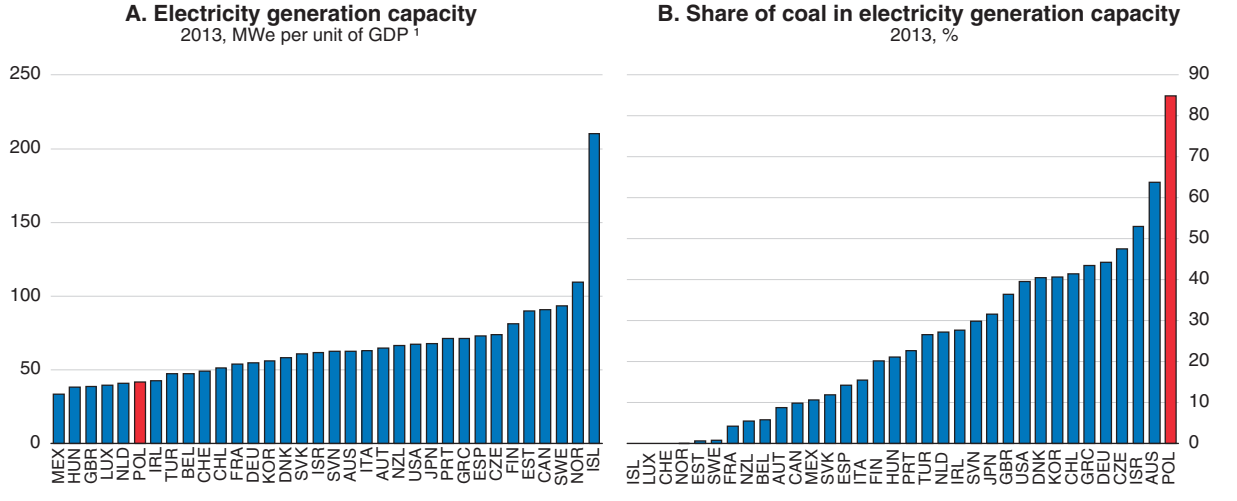
Lack of maintenance is a significant problem for local roads. They make up 95% of the road network, and local governments alone cannot afford to maintain them. Past EU financing plans have focused on new investment. Funding of local infrastructure management agencies is provided through central-government transfers, and spending decisions are taken as part of annual budget processes. This short horizon, together with the lack of long-term asset management strategies and insufficient staff skills, leads to considerable uncertainty and postponed maintenance, imposing long-term costs.

The renewal of energy infrastructure is an opportunity to go for cleaner options

Electricity generation faces two urgent challenges in Poland: ensuring the replacement of old capacity and providing incentives for an environmentally favourable diversification of the fuel mix. The generation stock is ageing (IEA, 2011), offers little spare capacity and is heavily reliant on coal (Figure 20). Emissions from the power sector of sulphur and nitrogen oxides per inhabitant are much higher than in the average OECD country (OECD, 2015f). This has important human health costs. The draft "Energy Policy of Poland until 2050" foresees partially replacing and complementing existing coal-fired power plants with high-efficiency coal plants and a sharp increase in renewable energy sources, supported by new gas plants as both reserve capacity and a basis for co-generation with heat. In addition, a first nuclear power plant is to be commissioned by 2030. However, the new government has yet to confirm this long-term strategy, and its implementation remains uncertain.

Financial returns to investments in different electricity sources need to fully internalise environmental costs to ensure competitive neutrality. Poland's retail gas prices for businesses are close to the European average, although its retail electricity prices are relatively low (Figure 21, Panels A to C). At the same time, wholesale electricity prices are volatile and declining throughout Europe because of weakening demand and intense short-term competition (Panel D). The generating costs of new facilities are well above wholesale prices for most technologies (NEA/IEA/OECD, 2015). The government should consider introducing a market for "capacity certificates", as in the United Kingdom and

Figure 20. **Electricity generation capacity**



1. Thousand US dollars at 2005 purchasing power parities and prices.

Source: IEA (2015), *Electricity Information 2015*; IEA (2015), *Electricity and Heat Generation*.

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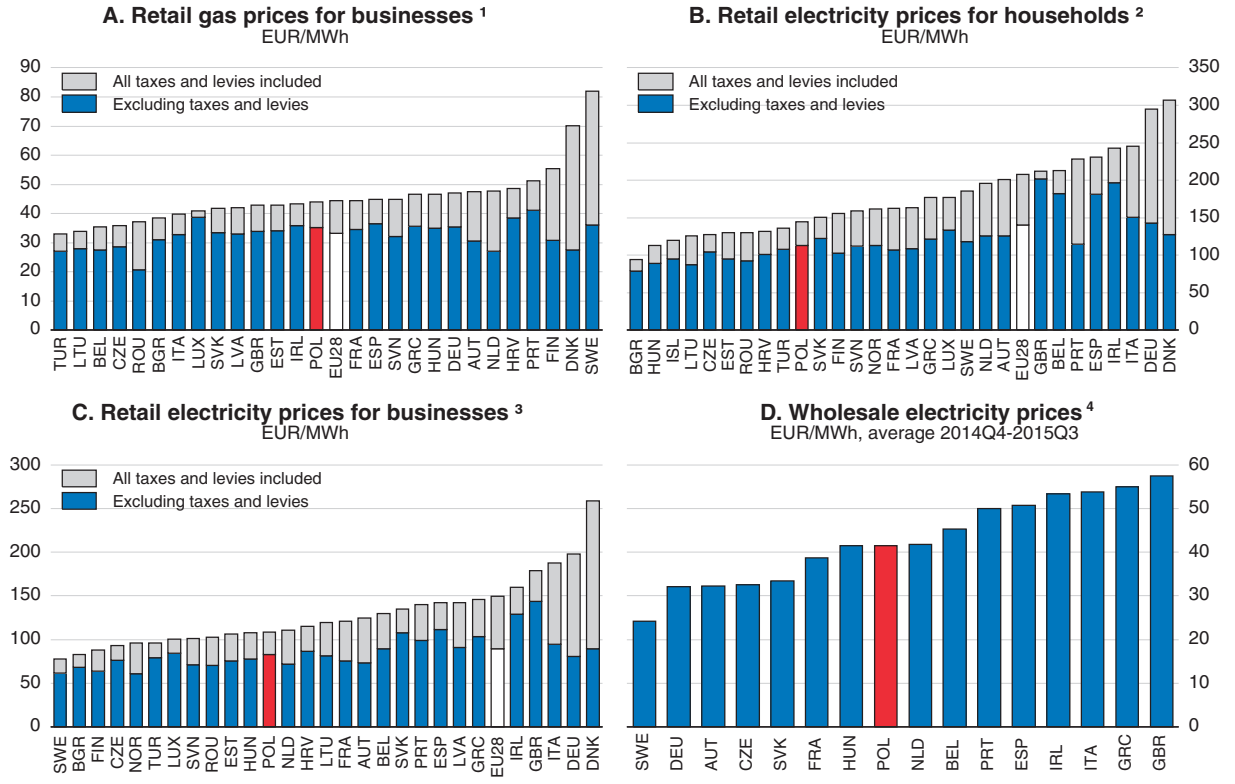
Figure 21. **Energy prices**



1. Price in the first semester of 2015 for annual use of 2 778-27 778 MWh.
2. Price in the first semester of 2015 for annual use of 2 500 – 5 000 KWh.
3. Price in the first semester of 2015 for annual use of 500 – 2 000 MWh.
4. Average baseload prices.

Source: Eurostat (2015), *Energy Price Statistics*; European Commission (2015), *Quarterly Reports on European Electricity Markets, 2014Q4 to 2015Q3*.

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more recently in France: the authorities would award certificates to generators for providing reliable capacity and require each electricity supplier to purchase a certain amount of these certificates in regular auctions. Generators would thus be rewarded for providing capacity, which could ensure that it is sufficient to meet peak demand. However, such a market would need to be carefully designed to preserve retail and wholesale competition.

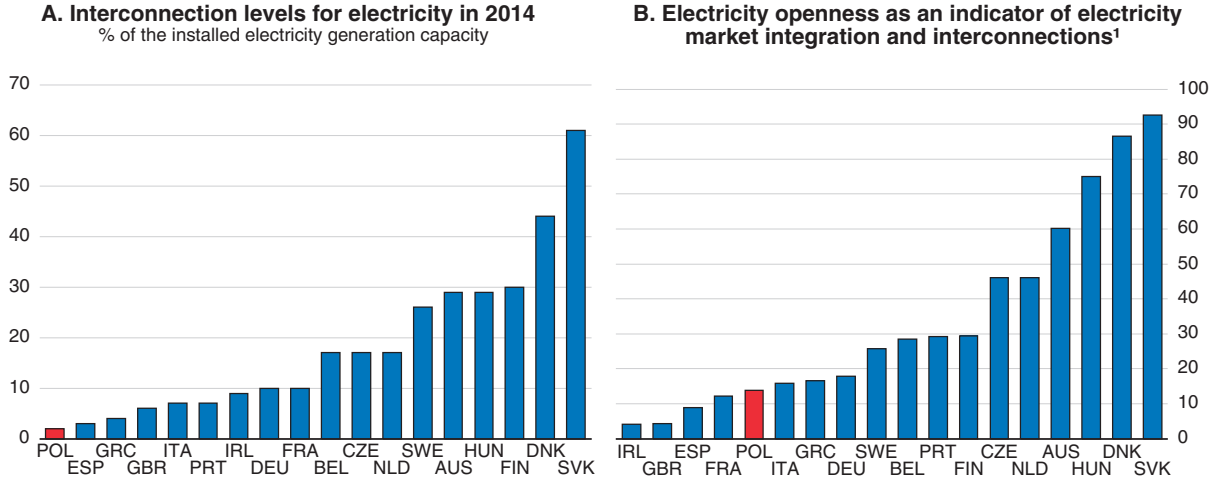
Poland is on track to reach a renewables share in total energy consumption of 15% in 2020 as set out in its National Renewable Energy Action Plan. Still, its renewable electricty sector remains underdeveloped (European Commission, 2015b). At 11% in 2013 the share of renewables in electricity generation was half the OECD average (OECD, 2015e). Their development has been hampered by regulatory uncertainty, excessive administrative burdens and a lack of inter-regional transmission capacity. In April 2014 the government approved a new renewable energy support system, based on auctions and guaranteed prices, that in 2016 will begin to replace the current system of quantitative renewable targets backed by tradable green certificates, which are awarded based on the use of renewables to generate electricity. Firms with a renewables share above the legal

requirement have been able to sell green certificates and other firms were able to comply with their obligations by buying such certificates.

Until now many electricity generators have complied with their renewables obligations by buying green certificates, holding back investment. Green certificates have been cheap because co-firing of biomass with coal (which is of little environmental benefit) has been eligible, but such support is to be phased out over the next 15 years. This could eliminate the current oversupply of green certificates and promote investment in other renewable technologies. However, the long transition period between different support systems has created uncertainty for investors. Strengthening electricity transmission and distribution capacity, as currently planned, and ensuring easy access to the electricity grid by streamlining administrative procedures would foster renewables development. Indeed, in the north of Poland, applications for connecting wind farms to the grid far exceed the available grid capacity (IEA, 2011).

Deeper infrastructure integration with neighbouring electricity markets would spread the burden of achieving European-wide GHG emissions reduction targets more efficiently across countries. With only 2% of its electricity generation capacity available for trade with other EU Member states in 2014, according to European Commission estimates, and low import and export flows (Figure 22), buffering with neighbouring transmission system operators is difficult, and power outages are relatively frequent by international comparison (CEER, 2013). Unscheduled flows from neighbouring countries (mainly Germany) are partly responsible (ACER, 2015). However, international interconnections would reach only 7% of the installed generation capacity, even after accounting for restrictions due to unscheduled flows. New investments in international links with neighbouring countries are planned under the 2014-20 EU funds programme, and regulations for building such international connections have been streamlined. Such investments would bring Poland's interconnectivity above the European Commission's (2015c) 2020 target of 10%.

Figure 22. **International interconnection capacity in the electricity market**



1. Electricity openness is calculated as the ratio of electricity imports plus exports to electricity consumption in 2012.
Source: European Commission (2015), *Achieving the 10% electricity interconnection target, Making Europe's electricity grid fit for 2020*; IEA (2015), *World: Electricity/Heat Supply and Consumption*.

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There is also significant potential to improve energy efficiency. Since 2011, electricity, gas and heat suppliers have had to reduce losses in production, distribution, transmission and end-use to obtain energy-efficiency certificates (so-called "white certificates"), which are needed to meet energy-efficiency obligations. Suppliers can also buy those certificates from other compliant firms or pay a fee. More than 98% of obligations were met by paying the fee during the first tender (OECD, 2015e). The development of smart or intelligent grids would allow network operators to modulate electricity demand during peak periods and lower GHG emissions related to electricity consumption by improving consumer awareness. However, Poland is lagging in this dimension (European Commission, 2014). Moreover, thermal insulation is often poor. Easing the eligibility conditions for housing efficiency programmes, as well as developing consumer awareness through certifications, as planned, would promote household investment.

To speed up the move away from inefficient coal-fired heating furnaces and improve air quality several measures are needed. Subsidy programmes to replace inefficient furnaces should continue. To strengthen the move towards district heating improving sub-central government collaboration regarding energy and heat is essential. Despite legal obligations, municipalities have failed to develop local energy efficiency plans, holding back the development of co-generation, notably with renewables, which holds tremendous potential (CODE2, 2014).

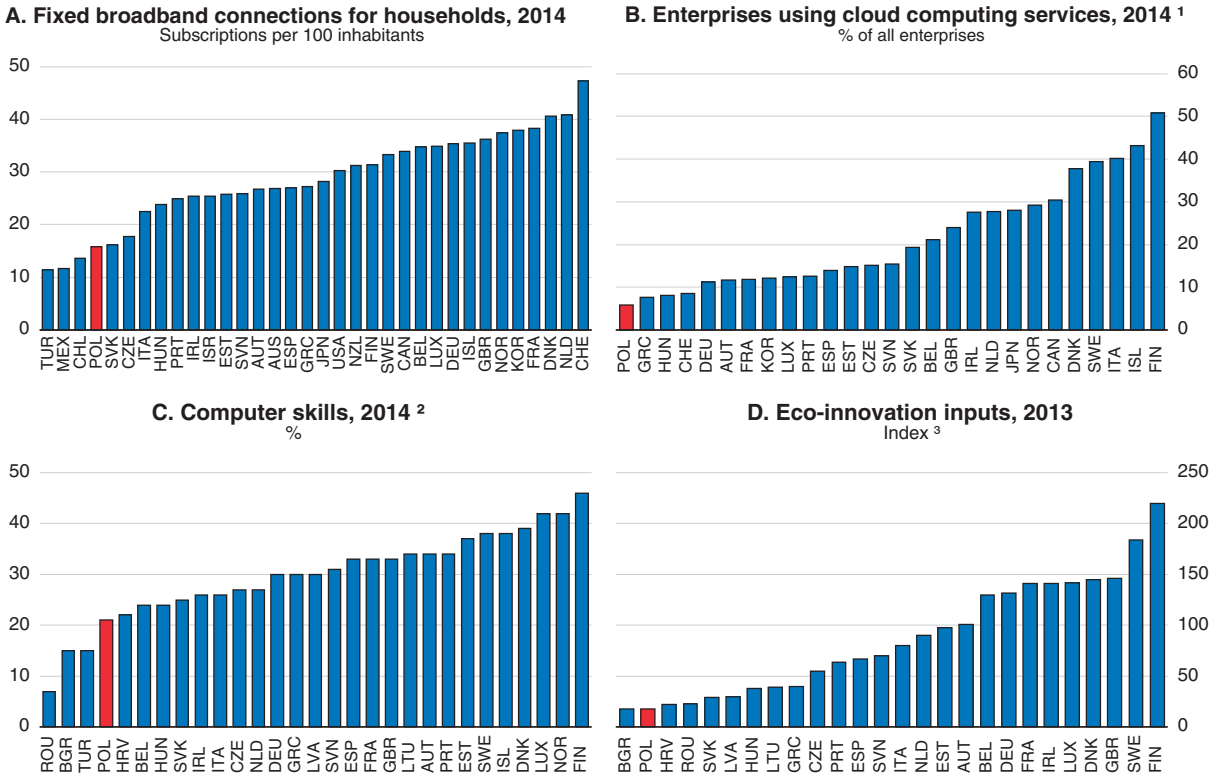
Developing ICT infrastructure

Poland lags behind most OECD countries for some indicators of Internet use by households and firms for information and computing purposes (Figure 23, Panels A and B). To reduce costs, investments in broadband and digital infrastructure should be implemented at the same time as road, rail and energy investment whenever possible, as planned (European Commission, 2015d). For example, the development of smart grids and integrated intelligent transport systems could allow better energy and transport choices and empower businesses and consumers through more complete information (OECD, 2015g). However, this would require significant upgrading of the skills of the population (Panel C) to foster diffusion, including in eco-innovation, which appears particularly low in Poland (Panel D).

Improving conditions for private investment

The new government's plans to streamline regulations are welcome, as a reduced regulatory burden will improve the business environment and thus investment. The ongoing reform of regulated professions will ease entry and investment significantly in the services sector. Poland has also cut the average number of hours spent by firms to pay taxes though additional e-procedures for VAT and transport taxes (World Bank, 2015), and an ongoing reform is set to eliminate currently widespread inconsistencies in rulings from different local tax authorities, addressing long-standing complaints from foreign investors. However, according to corporate lawyers, starting a business remains costly in terms of both time and money (Figure 24, Panels A and B), though registration in the National Court Register takes on average less than two weeks according to the Ministry of Justice. Online registration procedures are complex and have a low take-up, despite some recent streamlining (World Bank, 2015). The late or deficient transposition of EU single-market legislation (European Commission, 2015e) also creates legal uncertainty, deterring cross-border investment. Better integrating public consultations into the elaboration of

Figure 23. **Fixed broadband penetration and ICT use**



1. Cloud computing refers to ICT services used over the Internet as a set of computing resources to access software, computing power, storage capacity and so on.
2. Share of individuals aged 16 to 74 reporting to have carried out five or six specific tasks related to computer use.
3. Index from 0 (lowest levels of inputs) to 300. The index is based on three indicators: government investments in environmental and energy R&D, green early-stage investments and total R&D personnel.

Source: OECD (2015), *Digital Economic Outlook 2015* and *OECD Science, Technology and Industry Scoreboard 2015*; Eurostat (2015), *Individuals' level of computer skills*; European Commission (2015), *Eco-Innovation Scoreboard*.

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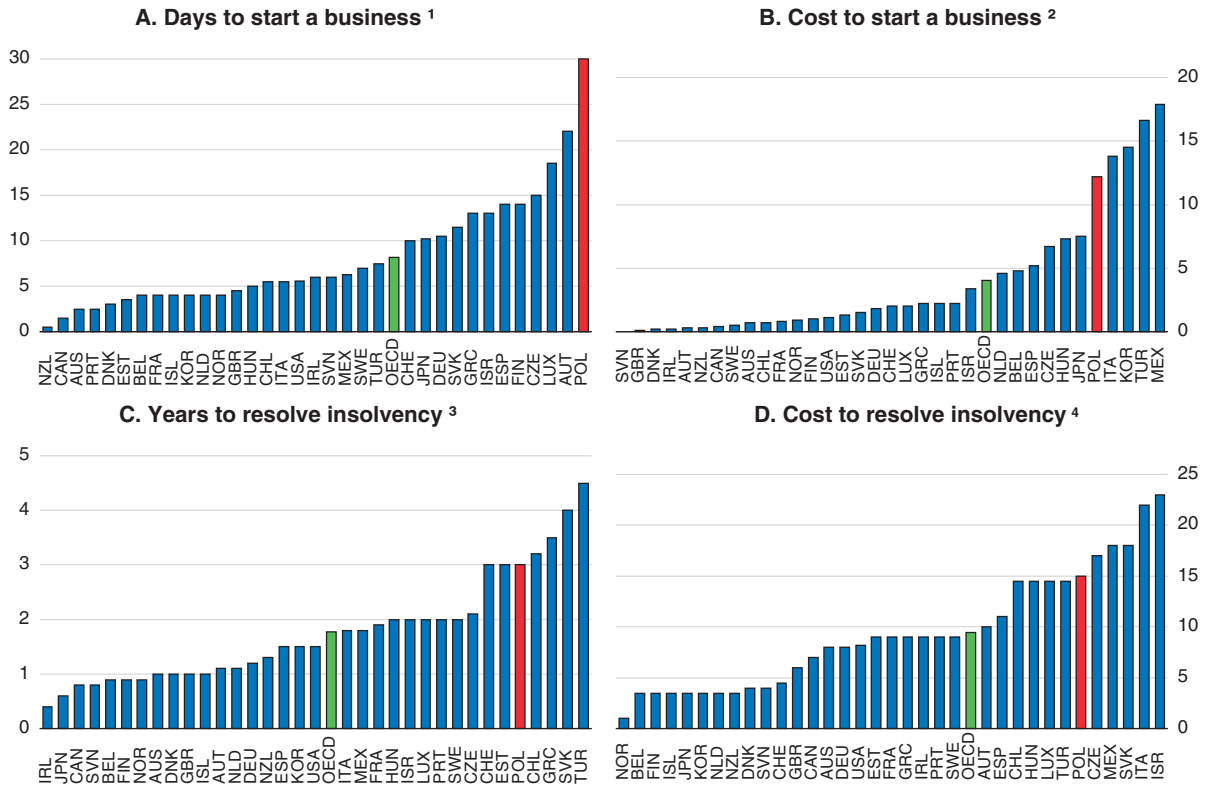
regulations and promoting in-depth evaluation of regulations in specific sectors would strengthen the reform process and help improve the business environment (OECD, 2015h).

For Polish firms to move up the value chain they will need to undertake more research and development (R&D) for faster technology adoption (OECD, 2015i), faster productivity gains and improved competitiveness. Total R&D spending was just 0.9% of GDP in 2013, up from 0.6% of GDP five years earlier but still one of the lowest shares in Europe. Take-up of R&D tax incentives is low. Some R&D tax incentives are conditioned on investments in Special Economic Zones, but these are located in poor regions, distant from public research centres. Developing high-technology clusters around research centres would be more efficient. From January 2016, a new R&D tax credit that also supports internal R&D investments has replaced the tax relief for acquiring new technology. However, it is still wasteable (non-refundable), penalising young and small firms.

The new government places a high priority on stimulating innovation and entrepreneurship. It plans to do so by increasing tax breaks for those entrepreneurs who re-invest their profits and by decreasing the corporate income tax rate on SMEs from 19 to 15%. There can be a rationale for special tax regimes for small and initially unprofitable

Figure 24. **Procedures to start a business and resolve insolvency remain long and costly**

2015



1. Time to start a business captures the median duration that corporate lawyers indicate is necessary in practice to complete a procedure with minimum follow-up with government agencies and no extra payments.
2. The cost to start a business is recorded as a percentage of the economy's annual GDP per capita. It includes all official fees and fees for legal or professional services if such services are required by law.
3. Time to resolve insolvency represents the time for creditors to recover their credit in calendar years. The period of time measured by Doing Business is from the company's default until the payment of some or all of the money owed.
4. The cost of insolvency proceedings is recorded as a percentage of the value of the debtor's liabilities.

Source: World Bank (2015), *Doing Business, 2016*.

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firms, especially in a country with relatively high informality, to ease tax compliance and related fixed costs that are more burdensome for SMEs (OECD, 2015j). However, such reduced tax rates for SMEs may also limit firm growth, induce some firms to split into smaller entities, distort resource allocation and waste resources with little impact on innovation and entrepreneurship as they are available for all SMEs, irrespective of their investment needs (OECD, 2015j; IFS, 2010).

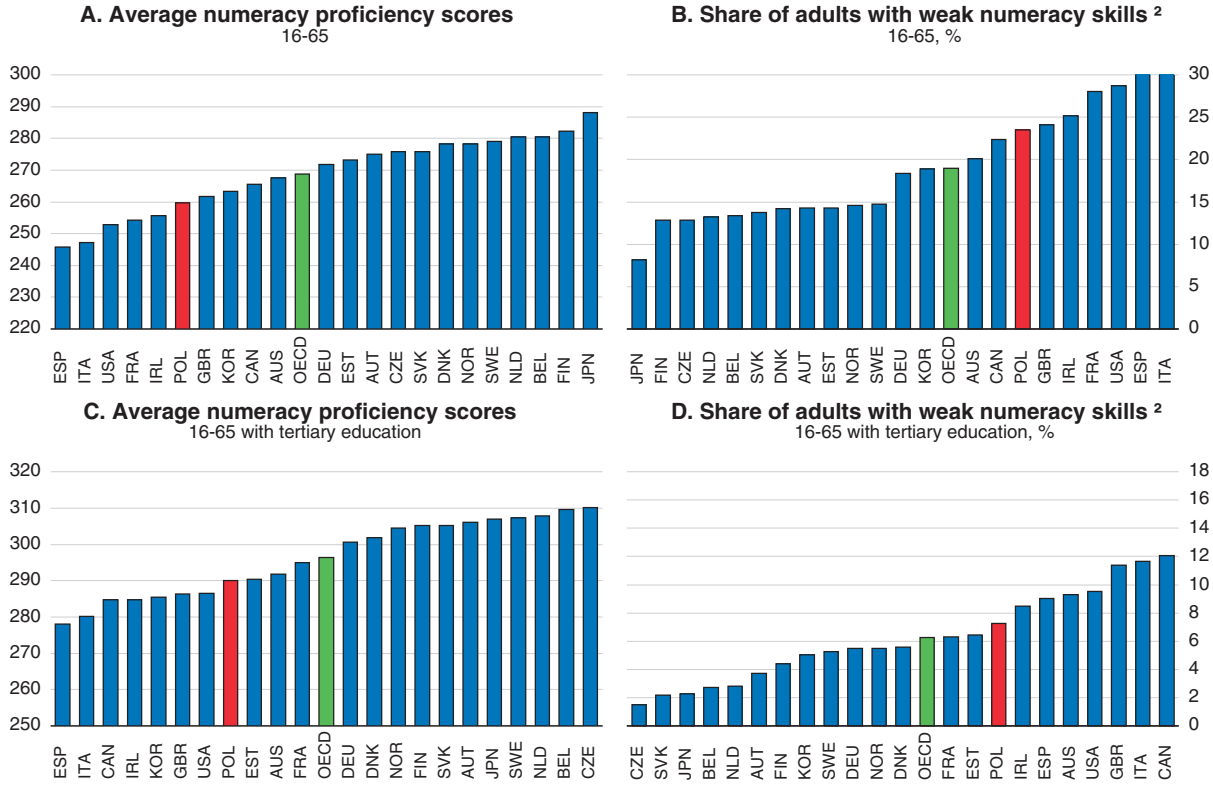
Further improving education to boost productivity and the ability to adopt innovations

The government is striving to lift learning outcomes

Average test scores in numeracy and literacy of Polish adults are relatively low according to the OECD Survey of Adult Skills (PIAAC) (Figure 25, Panel A), and the share of adults with basic skills deficiencies is correspondingly high (Panel B). This is also the case for tertiary graduates (Panels C and D).

Figure 25. **Skill test scores of adults, including those with tertiary education, are below the OECD average**

2012[1]



1. The data are based solely on Flanders for Belgium and England and Northern Ireland for the United Kingdom.
2. Share of adults scoring at or below level 1 of the PIAAC scale of numeracy proficiency.

Source: OECD (2013), *OECD Skills Outlook 2013 Database*.

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The new government is focused on raising the skills of the workforce to strengthen productivity and the economy's ability to absorb modern technologies. It can thereby build on important progress achieved over the past 20 years, including an exceptional boom in tertiary education. Learning outcomes for 15 year-olds have improved considerably and are now above the OECD average according to test scores of the Programme for International Student Assessment (PISA). Reforms that contributed to these improvements, above all for weaker students who tend to go on to the vocational stream, include: i) the postponement of tracking by one year through the introduction of lower secondary schools; ii) new national core curricula, combined with external exit exams for each school level; and iii) enhanced teacher and school autonomy (OECD, 2013c). The Ministry of National Education has now initiated experts' consultations and a broad public debate on education reforms, including curricula and examinations, teachers' skills and professional development, school governance and financing. The aim is to agree on a reform programme that will ensure equal opportunities for all young people, especially disadvantaged groups.

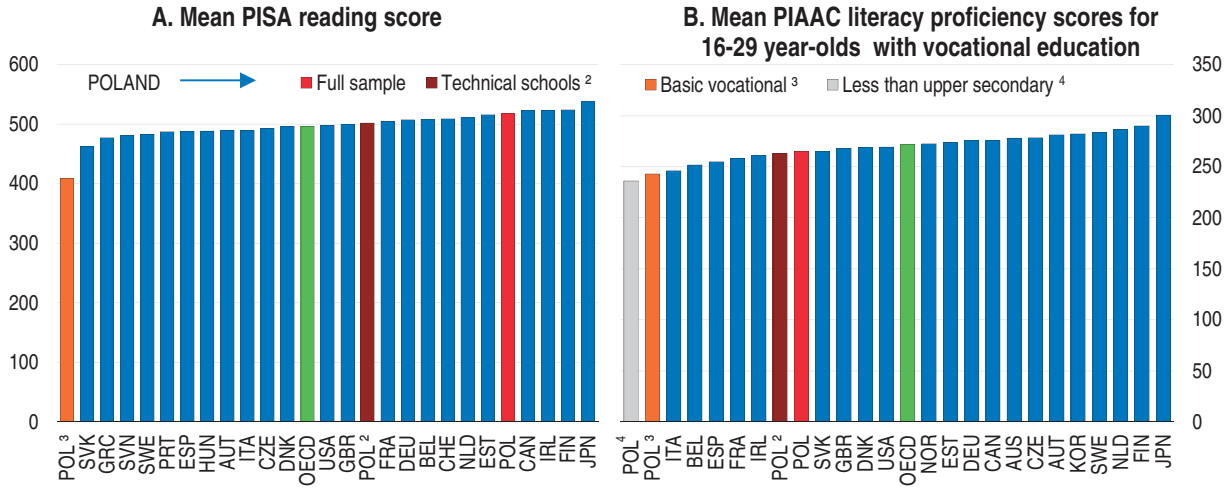
The government's focus on developing high-quality curricula for preschools and extending enrolment rates, building on important progress achieved in these areas, is welcome. It should continue to improve access to kindergarten especially for lower income groups, as early access to good childhood education and care has considerable potential to

increase learning outcomes of disadvantaged children throughout their lives (OECD, 2014c). This is all the more important as the government increased the compulsory school age by one year to seven, which could complicate access to pre-schools. This would especially hurt the educational prospects of poorer children. In the same vein, continuing the ongoing expansion of childcare places for under-three year-olds should remain a priority.

PISA and PIAAC results of pupils and graduates of basic vocational schools – which unlike technical vocational schools do not allow graduates to enrol directly in university – are weak. In fact, for adults they are only marginally higher than for those who completed only lower secondary schools at most (Figure 26). Equivalent general core curricula have been taught in the first year of all types of upper secondary schools since 2012; this should help weak students in basic vocational schools. OECD experience shows that organising one-on-one support and remedial classes for slow-learning students is crucial. Teachers at basic vocational schools, where students with difficulties are concentrated, should be offered better pay and career opportunities to attract particularly good staff. The government's plans to improve professional development for teachers at vocational schools are welcome.

Figure 26. **The skills of students and graduates from basic vocational schools are weak**

2012[1]



1. The data are based solely on Flanders for Belgium and England and Northern Ireland for the United Kingdom.
2. Mean reading score for 16 year-old students of Polish technical schools (Panel A) from an optional national study for the first grade of upper secondary school (16 year-olds) complementing PISA and mean PIAAC literacy proficiency score for Polish adults having attended techni[1]cal schools (Panel B).
3. Mean reading score for 16 year-old students of Polish basic vocational education (Panel A) from an optional national study for the first grade of upper secondary school (16 year-olds) complementing PISA and mean PIAAC literacy proficiency score for Polish adults having attended basic vocational education (Panel B).
4. Mean PIAAC literacy proficiency score for adults with less than upper secondary education.

Source: OECD (2013), *OECD Skills Outlook 2013 Database* and OECD calculations.

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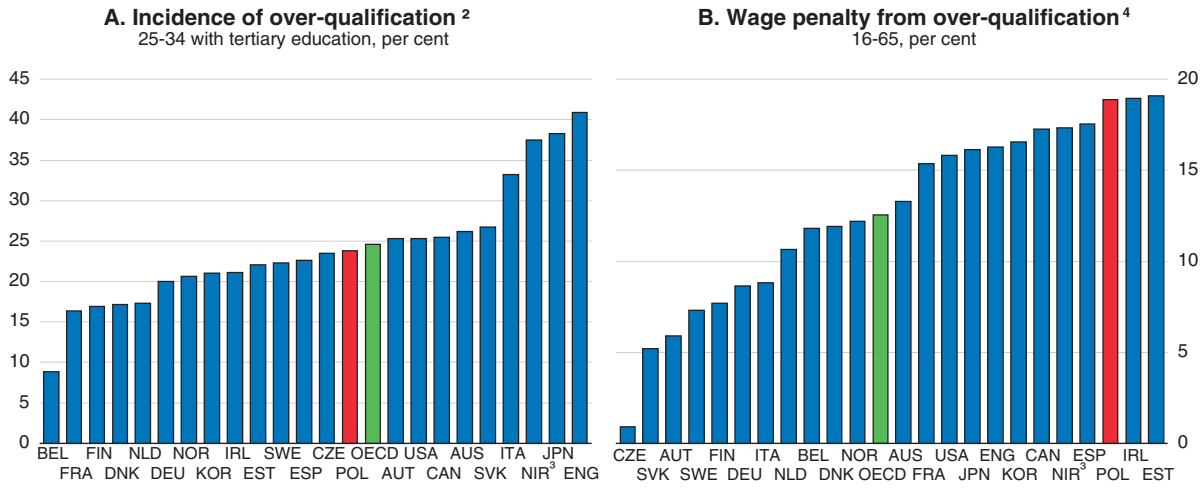
Making the education system more responsive to labour market needs

The education system does not respond sufficiently to labour market needs, contributing to lower productivity and wages. Although such mismatches are even higher in other OECD countries, a sizeable share of younger Poles with tertiary education work in professions that do not require such high qualifications (Figure 27). The share of younger Poles with tertiary degrees whose skills, as measured by PIAAC test scores, are higher than

Figure 27. **Qualification mismatches have important consequences**

2012[1]



1. The data are based solely on Belgium for Flanders.
2. Over-qualification occurs when the worker's qualification level exceeds the qualification required in his/her job.
3. Northern Ireland.
4. Compared to wages of well-matched employees, controlling for numeracy proficiency, use of skills at work, the individual's socio-economic conditions and the main characteristics of his/her employment relationship.

Source: OECD (2013), *OECD Skills Outlook 2013 Database*.

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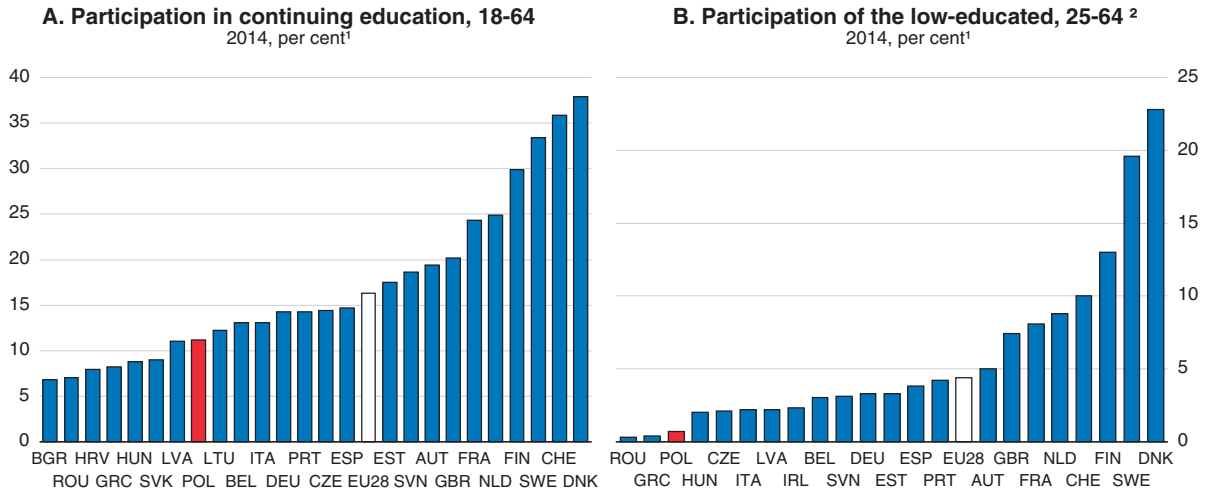
what is required for their job is lower but still considerable at close to 15%. This brings important wage penalties and negative productivity effects (Adalet McGowan and Andrews, 2015). Vocational schools create over-supply in some professions (for example, hairdressers, cooks and vendors), for which unemployment and inactivity rates are high (Górniak, 2013), and shortages in others, including in transport and storage (Lis and Miazga, 2014). For some particularly popular fields of study at university (including humanities, pedagogy, sociology and tourism) labour market outcomes are weak, although they are stronger for others, such as mathematics and computer science (Górniak, 2013).

The government has taken action to make Polish graduates more versatile and the education system more responsive. School and university curricula are now based on learning outcomes, including general skills, such as critical thinking and teamwork, rather than on narrowly defined subject content. This gives education institutions more freedom to design their programmes, including by collaborating with employers, and should allow graduates to adapt more easily to new circumstances. Yet, despite improvements, 35% of students at basic vocational schools still obtain their practical training in workshops dedicated exclusively to educational purposes, rather than in the workplace. Encouraging employers to offer greater practical training, in particular small firms through their craft associations, would help align vocational education more with labour market needs and address employers' complaints that graduates lack job-specific skills and experience.

Participation in continuing education is poor, in particular for those who need it most (Figure 28, Panels A and B). In particular, improving participation in IT courses is crucial, given low digital skills among Polish adults (see Figure 23, Panel C above). In addition, it would be useful for Poland to develop a strategy to strengthen basic skills and combat low literacy with awareness campaigns and training offers at the workplace or in a family

Figure 28. **Participation in continuing education is poor**



1. Percentage of individuals having had training in the 4 weeks preceding the survey.
2. Less than upper secondary education, ISCED levels 0-2.

Source: Eurostat.

StatLink http://dx.doi.org/10.1787/888933339542

context. Practices in other OECD countries, such as the United Kingdom, France and Germany, could serve as examples.

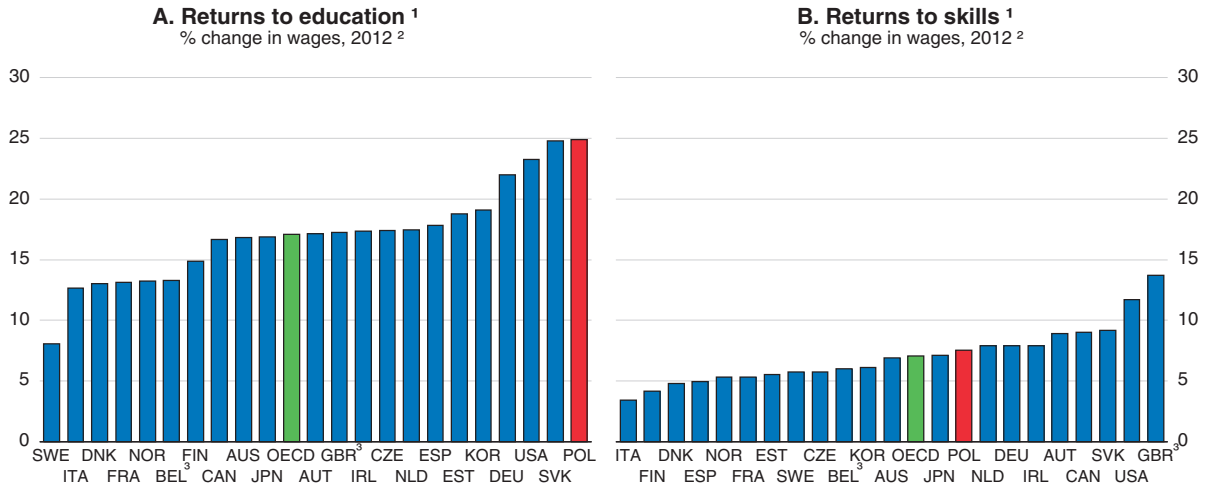
Recent reforms to continuing vocational education should make it easier for adults to obtain new qualifications. Rather than attending full-time vocational schools, adults can now obtain new qualifications by attending shorter, often part-time and modular courses, or by confirming practical work experience. This is important, because formal qualifications, as proxied by years of education, are valued much more than demonstrable skills in the Polish workplace (Figure 29).

An earlier study of English and German language competencies among teenagers revealed that they were weaker than elsewhere in Europe (European Commission, 2012). Better language training in schools and continuing education would improve job matches, as employers in the very open Polish economy value such competencies. The government's efforts to establish first language training opportunities as early as in preschool are therefore welcome.

Raising the quality of tertiary education

Starting in the early 1990s students abandoned vocational education, while universities experienced an exceptional enrolment boom. The share of tertiary educated younger people is now above the OECD average. The increase in enrolment was accommodated by a rapid expansion of private higher education institutions (Figure 30) and fee-based programmes at public universities. Perhaps as a result of this rapid expansion private university programmes were more likely than their public counterparts to be found deficient by the National Accreditation Committee at least until recently (Ministry of Science and Higher Education, 2013). The skill level of Polish tertiary graduates is lower on average than in other OECD countries, and the share of graduates with weak basic skills is high, as in other OECD countries (see Figure 25 above). A recent law strengthened accreditation and quality controls in higher education significantly, and

Figure 29. **Qualifications are valued more than skills**



1. Coefficients from an OLS regression of log hourly wages on years of education (for Panel A) and literacy proficiency (for Panel B), interpreted as effects on wages in per cent. Coefficients are adjusted for age, gender, foreign-born status and tenure.
2. Percentage change in wages associated with a one standard deviation change in years of education (for Panel A) and proficiency in literacy (for Panel B).
3. The data are based solely on Flanders for Belgium and England and Northern Ireland for the United Kingdom.

Source: OECD (2013), *OECD Skills Outlook 2013 Database*.

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several institutions that were found to be insufficiently staffed or wanting in quality have been closed down.

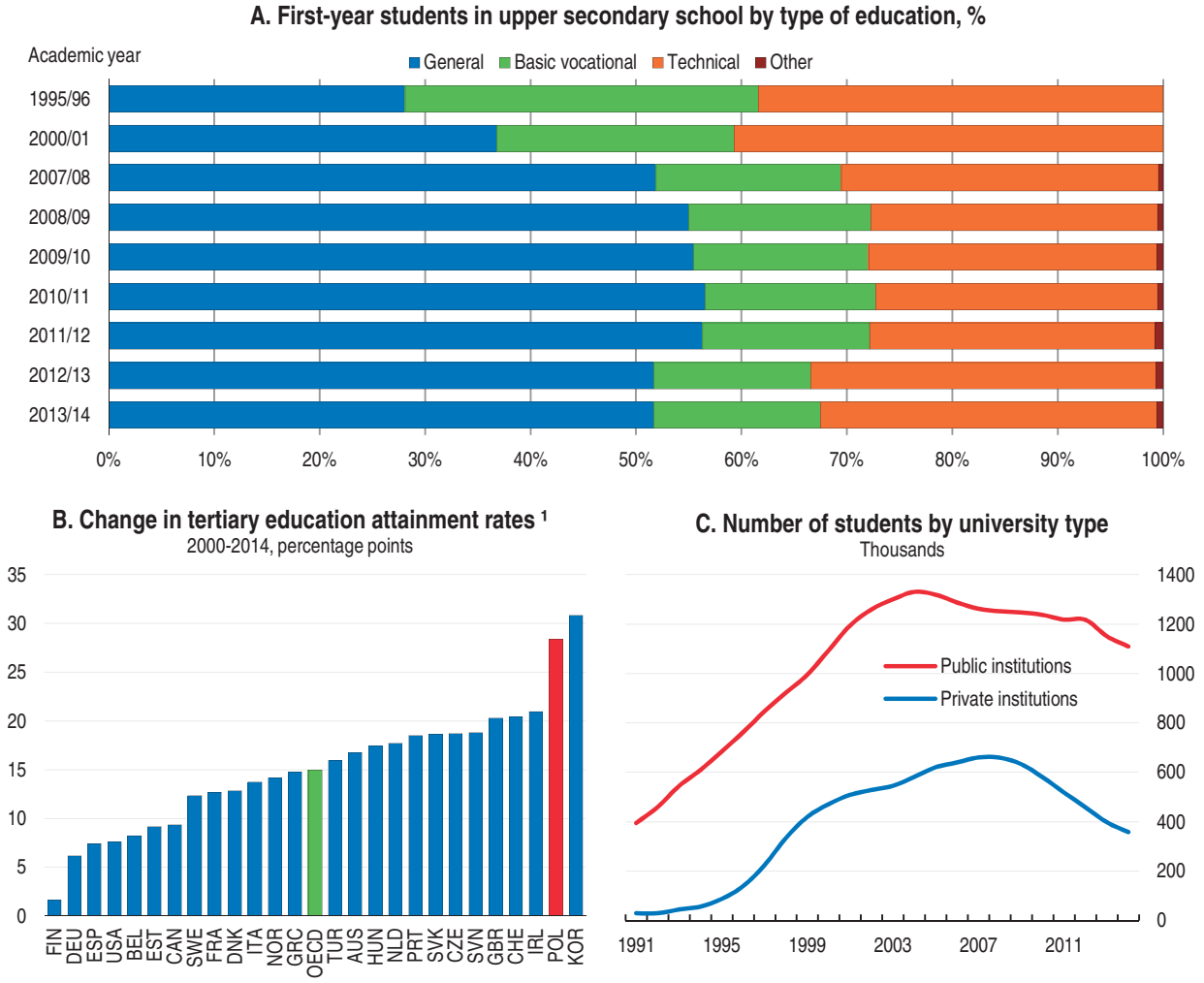
The government has made important efforts to increase academics' wages over recent years. Many had been forced to combine teaching at several higher education institutions before the practice was banned. The new government plans to align pay and career prospects with performance in teaching and research, a welcome initiative. Efforts to strengthen relations with foreign universities should also continue. There is evidence that Polish researchers collaborating with foreign colleagues are more productive in terms of research output (Kwiek, 2015; Appelt et al. 2015). Although this might well reflect the fact that better researchers are more likely to collaborate internationally, establishing closer ties to foreign universities would enrich Polish higher education.

Improving information and guidance services

Despite a legal obligation to provide secondary students with guidance, establishing high-quality orientation services remains a challenge both in schools and universities. Many pupils and students are unaware of the existence of guidance services, and even fewer seek advice (Ministry of Education, 2011; Sroka, 2014). While about three-quarters of higher education institutions operate a careers office, many are small relative to the student population served (OECD, 2013c). Laudably, regional labour offices are now obliged to cooperate with academic careers offices. The government should continue to support tertiary education institutions that want to improve the staffing of these offices and to train secondary school guidance counsellors.

The government has established a regularly updated information system on higher education institutions' programmes, staffing and research infrastructure (POL-on), among other matters. It will provide information inter alia on graduates' careers tracked through

Figure 30. **Tertiary education boomed, and students abandoned vocational education until recently**



1. Data refer to the 25-34 age group.

Source: GUS (2014), *Education in the 2013/2014 School Year*; GUS (2014), *Higher Education Institutions and their Finances in 2013*; and OECD (2015), *Education at a Glance 2015 Database*.

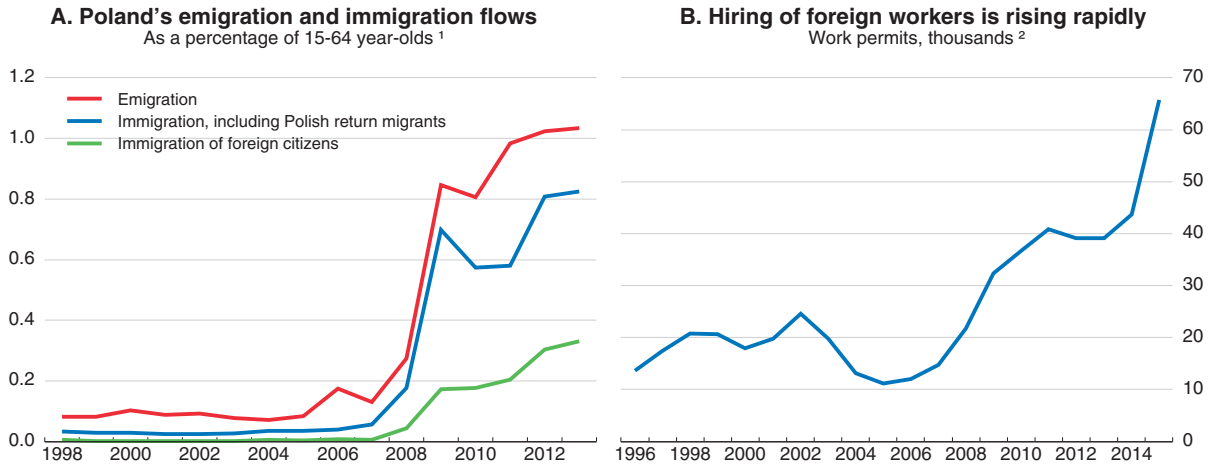
StatLink http://dx.doi.org/10.1787/888933339562

information from the university, which is to be crossed with anonymised social security records. The relevant regulation has already been adopted, and a pilot for this programme is currently being developed. This could be valuable to orient students' choices and programme development in higher education institutions. A similar system is planned for vocational graduates.

Making better use of migrants' skills

Poland has long experienced net emigration, mainly of working-age people, which intensified considerably after Poland's EU accession in 2004 (Figure 31, Panel A). Owing to somewhat lower incomes, a much steeper rise in unemployment during the transition to a market economy and a larger low-productivity agricultural sector, emigration from Poland has been much higher than from the Czech Republic, Hungary and Slovenia. The rising trend in emigration has continued in recent years, despite improving employment outcomes. An increasing number of emigrants report that they intend to stay abroad for

Figure 31. **Emigration from Poland is significant**



1. The series are subject to a break in 2009. The series were based on the register of permanent residents before 2009 and on survey data after that. This increases the numbers of both immigrants and emigrants after 2009.
2. Work permits granted individually and to sub-contracting foreign companies.

Source: OECD (2015), *International Migration Database*; Eurostat; and Ministry of Labour.

StatLink http://dx.doi.org/10.1787/888933339579

good (Chmielewska, 2015). On the other hand, immigration to Poland, mainly from neighbouring countries, has been rising fast lately, but from a very low level.

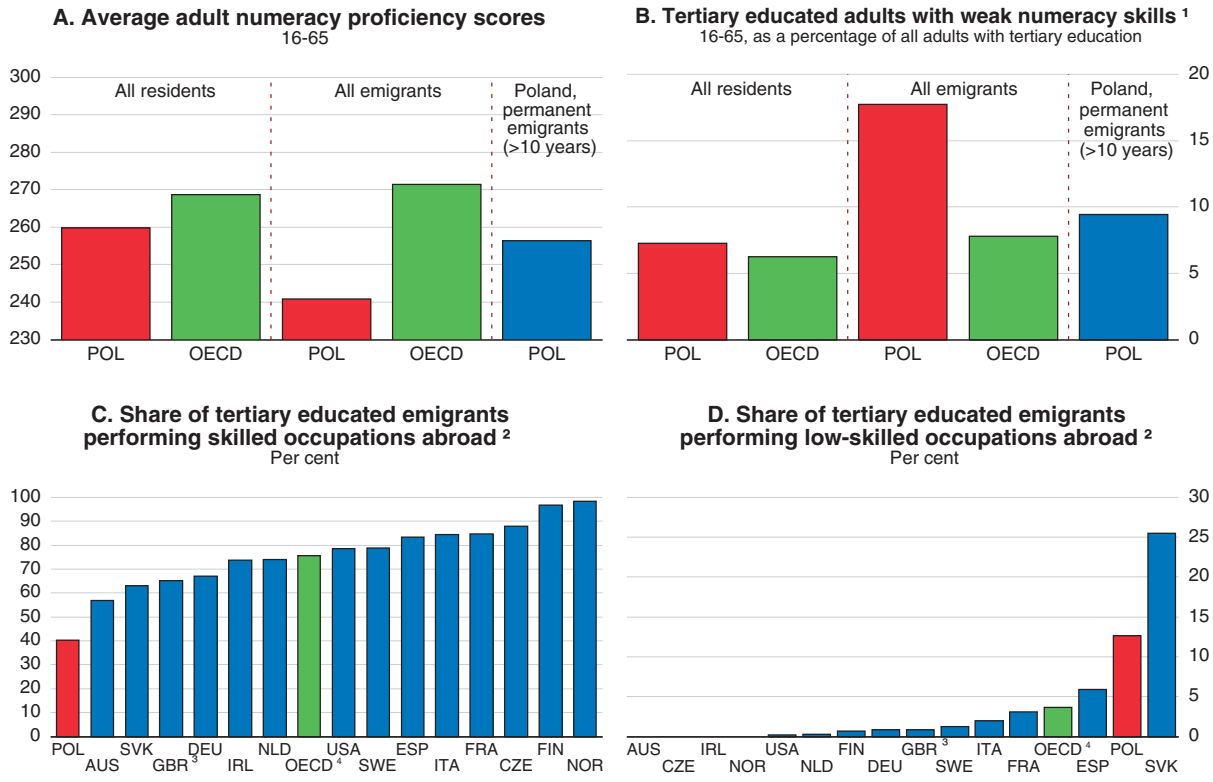
Given Poland's pressing demographic issues, it would benefit from becoming more attractive for workers of both Polish and foreign origins. This requires first and foremost policies that would improve domestic income, and working and living conditions, as discussed before. More immigration combined with policies ensuring fast integration into the domestic labour market would improve the fiscal situation in the long run (OECD, 2013d) and strengthen innovation and productivity, in particular if Poland opens up to migrants from diverse backgrounds (Ozgen et al., 2011; Peri, 2012; Alesina et al., 2013).

Requiring only a simple declaration of intent by employers to hire workers from neighbouring non-EU countries for short-term assignments makes Poland one of the most open countries in the OECD. The use of this procedure has risen considerably, more than doubling in the first half of 2015 compared to a year earlier for Ukrainians, the main users of this provision (Figure 29, Panel B). So far, such migrants seem to have largely complemented the local workforce (Duszczyk et al., 2013). Immigrants from more diverse backgrounds will need opportunities to learn Polish and enrol their children in education from a very young age. Housing policies will need to ensure they are integrated into a wide range of neighbourhoods to avoid excessive residential segregation.

Many emigrants have tertiary education, and this trend intensified after Poland's EU accession (Kaczmarczyk, 2012; OECD, 2015k). This finding is qualified to some extent by emigrants' PIAAC test scores, which are much lower than those of the Polish resident population (Figure 32, Panel A). Very weak basic skills are particularly widespread among emigrants, including those with tertiary education (Panel B). While this is likely at least in part to reflect language problems, test scores of emigrants from higher-income OECD countries tend to be much closer to the average among the resident population in their home countries and often even higher. Moreover, even Polish emigrants who have

Figure 32. **Skills of Polish emigrants are low, and they tend to perform simple jobs abroad**

2012



1. Percentage of adults scoring at or below level 1 of the PIAAC scale of numeracy proficiency.
2. Skilled and elementary occupations are defined based on ISCO classification.
3. The data are based solely on England and Northern Ireland for the United Kingdom.
4. Simple average across countries with available observations.

Source: OECD (2013), *OECD Skills Outlook 2013 Database* and OECD calculations.

StatLink http://dx.doi.org/10.1787/888933339588

stayed in the foreign country for over 10 years still have lower average test scores than the Polish resident population, although the gap is narrower. Yet, there are limitations to PIAAC data, namely the narrow representativeness for subgroups, such as emigrants from a single country, and the difficulty to tell the difference between language problems and fundamentally low skills. On balance, the observation that Poland has lost many workers with high qualifications seems more important.

Polish emigrants work in low skilled occupations particularly often and rarely in skilled occupations, even if they have tertiary education (Chmielewska, 2015; Kaczmarczyk and Tyrowicz, 2015; Figure 32, Panels C and D). Similarly, immigrants to Poland often have advanced qualifications but work in low-skill jobs, such as agriculture or domestic services. These migrants suffer from a loss of hard and job-specific skills, probably associated with their often poor ability in their destination country's language. Polish return migrants often do feel they have acquired new – in particular soft – skills, including in management and languages, both on the job and through training, but also often complain that these are not valued on the Polish labour market (Brzozowski, 2012; Szymanska et al., 2012).

Specialised job counsellors would help to better integrate migrants into the Polish labour market as would better recognition of foreign credentials, of work experience and of

skills acquired abroad. The new opportunities to validate practical experience and skills with vocational qualifications might thus prove particularly useful for migrants. The recently adopted integrated qualifications framework is another important project in this respect. With the same methodology as the European qualifications framework it describes the knowledge, skills and competences associated with qualifications, so that they can be more easily compared across countries. Similar, perhaps bilateral, initiatives would be helpful for non-EU countries.

A more active outreach to the Polish diaspora would also be beneficial. The previous government developed a programme to maintain ties with the Polish diaspora and encourage them to transmit a positive image of Poland. This is welcome and should also be used to advertise the country's interesting business and job opportunities. Information on practical details of coming to Poland is available on the website *www.powroty.pl*, which targets return migrants. It would be useful to provide similar information in English for foreigners interested in coming to Poland.

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ANNEX

Progress in structural reform

Recommendations	Action taken since the beginning of 2014
Product and financial market competition	
Give the Competition Authority more powers to split up firms to reduce dominant market positions and to impose vertical separation as a remedy for reduced third-party access in network industries. Create an independent regulator for water and sanitation services.	The Competition Authority can now impose structural remedies, when behavioural measures prove insufficient or overly damaging to the undertaking. After a two-year monitoring period and consultations, the Competition Authority may be given new powers.
Modify public procurement practices to select the contractors offering the best value for money rather than the lowest price. Focus procurement decisions on a mix of prices and technical bid details, including environmental impact assessments. Enhance staff skills to deal with complex selection criteria.	The application of the price as sole award criterion has been restricted to contracts for standard goods and services. Contracting authorities have been encouraged to consider innovative, environmental and social characteristics. Specific guidelines and training measures have been provided to contracting authorities. Governmental institutions now have to respect some social clauses in procurement contracts.
Make the judicial environment friendlier to class actions in cases of competition breaches. Accelerate the functioning of the judicial system to shorten the time between the Competition Authority's decisions and a final court decision in antitrust cases.	No action taken.
Pursue privatisation, and substantially reduce government ownership in competitive segments of the economy while ensuring sound governance of remaining state-owned enterprises. Remove regulations and implicit subsidies distorting competition between public and private firms.	The number of companies the Treasury supervises fell from 387 in January 2014 to 281 in December 2015. The government envisages selling further minority shares. A new target for gender composition, additional financial planning and extra training of state-appointed directors have together strengthened SOE boards.
Fully implement the second and third stages of the liberalisation of professional services.	The second and third stages entered into force in August 2014 and December 2015.
Reduce anti-competitive pressures resulting from the participation of Polish Airports State Enterprise (PPL) in many airport entities, and consider long-term concession agreements or privatisation for airport entities. Privatise the national air carrier (LOT).	PPL is running its business on its own behalf and risk. It has shares in entities managing the most important Polish regional airports, running their business under commercial law. The analyses for the privatisation of LOT are ongoing.
Deepen financial development through a consolidation of co-operative banks and an improved legal framework for collateral. Set a cap on interbank fees for credit card transactions to reduce the effects of market concentration in line with the 2013 EU proposal.	New regulations allow co-operative banks to set up institutional protection schemes, which group institutions together. A cap on interbank fees was introduced and reduced to 0.3% and 0.2% for credit and debit card transactions, respectively.
Fiscal policy and the budgetary framework	
Improve tax compliance and cut tax expenditures. Simplify tax regulations. Reinforce the monitoring and enforcement of the tax system. Eliminate the preferential regimes for the self-employed and link their social security contributions to their actual earnings. Broaden tax bases by introducing cash registers for all professional services to improve VAT collection and by significantly tightening eligibility for the lump-sum income tax. Extend the social insurance contribution base to uncovered earnings.	A law passed in 2015 assigns more tax administration staff to inspection and enforcement. There is now pre-filling for tax declarations, and the number of required documents was reduced. Companies will be assigned to a single tax office, and tax rulings will now clarify all cases of identical content. Mandatory cash registers were extended to several professional and personal services. Supervisory board members now have to pay social contributions.
Redesign and increase the least distortive taxes, by establishing market-value-based property taxes and by taxing capital gains on rented properties.	No action taken.
Further tighten eligibility criteria in the generous disability pension system. Substantially reduce subsidies to the farmers' social security scheme, eliminate pension privileges for certain occupations, and increase the female retirement age at a faster pace, e.g. to reach 67 by 2030 instead of 2040 as currently scheduled.	Since January 2015 farmers undertaking additional work on a contract of mandate pay contributions to the universal ZUS insurance for that part of their revenues. Prevention and rehabilitation by KRUS will be financed almost fully by farmers' contributions. However, a presidential draft bill envisages lowering retirement ages.
Strengthen the fiscal framework by: introducing a deficit rule; creating an independent fiscal council at least to monitor fiscal performance relative to targets; and harmonising the domestic and Maastricht definitions of government debt.	An expenditure rule was introduced into the budget process in 2014. It was amended in late 2015: the scope of entities covered was increased, the inflation forecast used to determine the spending limit was replaced by the MPC target, and a possibility to increase expenditures in case of positive one-offs was introduced. The government considers that most elements of a fiscal council are in place, as the supreme audit office assesses budget execution in terms of its compliance with fiscal rules.
Labour markets (see also Chapter 1 herein)	
Allow the public employment services to hire more skilled staff, and ensure that overall resources are better allocated to front-line placement tasks. Promote the adoption of best practices through performance management and benchmarking of employment-service providers.	Managers of local labour offices and placement officers with good results can now receive performance-based rewards. As of 2017 external employment service providers will be benchmarked based on placement and three-month retention rates.
Rationalise ALMPs by focusing more on job-search assistance, career guidance and work schemes having a high training content. Improve job-seeker profiling. Reduce passive social assistance by making more transfers (such as childcare subsidies) conditional in part on being employed or seeking work. Expand the scope of private employment services.	Different tasks at local labour offices were combined to create client advisor posts in 2014.The number of such client advisors, including staff involved in job-search assistance, grew in total to 7812. Needs-based intensity-of-service provision based on profiling was introduced. The possibility to outsource job-placement services to private providers was introduced in 2015.

Recommendations	Action taken since the beginning of 2014
Consider merging local labour offices with unemployment benefits and social assistance administration to create a one-stop shop and more fundamentally to integrate the management of those activities. Enhance coordination and automatic exchange of information between local labour offices, firms, assistance centres and education institutions.	Since 2014 unemployed recipients of social assistance can be guided towards activation and social integration programmes under joint supervision by local labour offices, the social welfare centre and NGOs under the Activation and Integration Program (PAI).
Refrain from increasing the minimum-to-average wage ratio. Consider differentiating the minimum wage across regions depending on local labour-market conditions. Reduce wage rigidities by bringing the effects of age and education on public-sector wages closer to private-sector standards.	In January 2016, the minimum wage was increased by 6% for full-time workers with more than one year of tenure. This is above the increase in the average wage projected by the OECD.
Consider introducing an earned-income tax credit to encourage labour market participation by marginal groups.	No action taken.
Eliminate pre-retirement schemes, and prevent disability pensions from becoming attractive relative to old-age pensions. Remove the prohibition to lay off workers less than four years before retirement. Scale back survivors' pensions to reduce the labour tax wedge.	No action taken.
Promote the employment of people with disability by: reducing the employment quota of 6% and raising the penalty for firms failing to reach the revised level; and better training and activating workers with disability.	In 2014 subsidies for employing disabled people in sectors not specialised in employing disabled workers were increased, and a draft law foresees extending the scope of subsidies. There is new financial support for training disabled people. Public sector personnel and job coaches were trained to manage disabled employees and assist them.
Health care	
Broaden access to care and reduce inequality by: targeting extra resources to shortening waiting lists; extending dental services covered by public insurance; introducing co-payments on medical services while imposing a means-tested cap on the level of out-of-pocket payments; and increasing transparency of dual physician employment in the public and private sectors.	Fast-track waiting lists for cancer patients were introduced in 2015. They are now guaranteed treatment within a specified period, and there are no financing limits for treatment. Health-care providers who ensure timeliness and comprehensiveness of health-care services face no financing ceilings. But waiting lists for several other procedures remain extremely long. Work is underway to extend the basic health-benefit package in stomatology and dental care.
Improve the allocation and use of current resources by: shifting resources from hospitals to primary and long-term care, potentially by integrated health-care delivery models; strengthening the gate-keeping role of primary medicine; providing clearer incentives to hospitals to make them respect their financial commitments and rationalise the use of their resources; promoting the development of hospital management skills; and streamlining the responsibilities of the NFZ and central and local governments.	New schemes of integrated health-care will be tested in 2016-20. Since 2015 referrals of primary doctors are obligatory for ophthalmologists and dermatologists. Primary health-care was strengthened in oncology. The Minister of Health in cooperation with the National Institute of Public Health will finalise health needs maps in 2016 as a basis for the National Health Fund to purchase health-care services.
Develop a comprehensive strategy to address growing long-term care needs. Avoid labour shortages in the health-care sector by: training more staff; improving retention, particularly through better management policies and delaying retirement; enhancing re-integration in the health workforce of those who have left it; adopting a more efficient skill mix by enhancing the role of advanced practice nurses and physicians' assistants; improving productivity, in particular by linking pay to performance; and developing targeted immigration policies.	The *National Health Program 2016-20*, under discussion, includes a strategy to address senior citizens' health needs through public information campaigns and improved services, notably early diagnosis and training in geriatric health. Some 200 medical care givers in geriatrics have been trained in 2012-15. New specialisations for medical professions and modular training reduced the time to obtain a specialisation in 2013-15. A September 2015 law eased foreigners' employment as nurses or midwives and facilitated returning to health professions after a long break and combining teaching and practice.

Thematic chapters

Chapter 1

Making better use of skills and migration

To continue catching up with living standards in other OECD countries Poland needs to invest in higher skills. Crucial elements include: i) making sure that all children have access to high-quality early childhood education; ii) strengthening the basic skills of vocational education students and the relevance of their studies through stronger links with firms; and iii) improving the quality of universities by linking university teachers' pay and career progress with their teaching and research performance. The Polish government has taken action in many of these areas. More needs to be done to put immigrants' skills to better use. Polish return migrants frequently complain about difficulties in using their skills acquired abroad, while many immigrants of foreign origin work in professions that do not match their qualifications. Ongoing reforms to improve recognition of foreign credentials and new possibilities to validate work experience through formal qualifications will be helpful.

Improving Polish living standards further requires investment in higher technologies and skills. Poland has achieved important progress in raising the skills of its population after an exceptional boom in tertiary education and improvements in the learning outcomes of school children. This chapter discusses how the government can build on this progress. The skills available to the Polish economy are also affected by migration, as the country has experienced significant outmigration of highly qualified individuals. Some of them later return. Immigrants of foreign origin, whose number has been increasing albeit from a low level, also include many highly qualified individuals. The chapter therefore discusses policies to make better use of immigrants' skills.

The next section reviews progress in raising the skill level of the Polish population and policies that would help to build on this. The following section discusses skill matches and reforms to improve them. Labour market policies that would strengthen workers' access to training are discussed thereafter. The final section discusses migrants' skills and ways to make better use of them.

Raising skill levels

The government is striving to lift learning outcomes

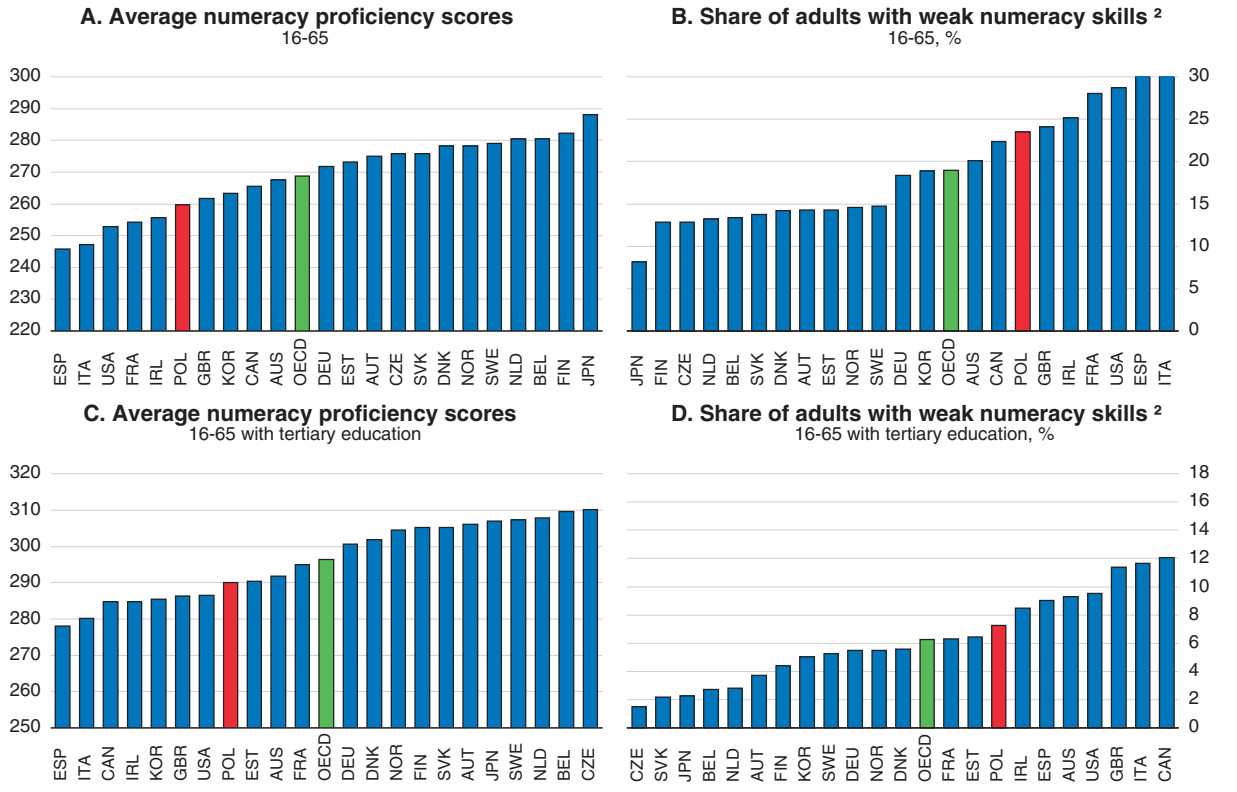
Average test scores in numeracy and literacy of Polish adults are relatively low, according to the OECD Survey of Adult Skills (Programme for International Assessment of Adult Competencies, PIAAC) (Figure 1.1, Panel A), and the share of adults with basic skills deficiencies is correspondingly higher than the OECD average (Panel B). This is also the case for tertiary graduates (Panels C and D).

The new government is focused on raising the skills of the workforce to strengthen productivity and the economy's ability to absorb modern technologies. It can thereby build on important progress achieved over the past 20 years, including an exceptional boom in tertiary education. Learning outcomes for 15 year-olds have improved considerably and are now above the OECD average, according to test scores of the Programme for International Student Assessment (PISA). Reforms that contributed to these improvements, in particular for weaker students, include: i) the postponement of tracking by one year through the introduction of lower secondary schools; ii) new national core curricula, combined with external exit exams for each school level; and iii) enhanced teacher and school autonomy (OECD, 2011a). The Ministry of National Education has now initiated experts' consultations and a broad public debate on education reforms, including curricula and examinations, teachers' skills and professional development, school governance and financing. The aim is to agree on a reform programme that will ensure equal opportunities for all young people, especially disadvantaged groups.

One particularly effective measure to help disadvantaged students is early intervention (OECD, 2014a). The coverage of preschools has been extended substantially in recent years to close to 80 per cent of three to five year-olds in 2015, and the government plans to spell out curricula and learning outcomes to set the basis for strong basic skills

Figure 1.1. **Skill test scores of adults, including those with tertiary education, are below the OECD average**

2012[1]



1. The data are based solely on Flanders for Belgium and England and Northern Ireland for the United Kingdom.
2. Share of adults scoring at or below level 1 of the PIAAC scale of numeracy proficiency.

Source: OECD (2013), *OECD Skills Outlook 2013 Database*.

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and first steps in foreign languages. These efforts need to continue, especially since the compulsory school age was raised to seven, reversing an earlier reform, although parents may send six year-olds to primary school if they wish. Without excellent coverage with high-quality preschool education there is a danger that children from disadvantaged families, in particular, will not benefit from formal education early on and chances to level their skills will be missed. According to the Ministry of Education, there are enough places for all three to six year-olds even after the reform, as the demographic decline observed since 2013 will compensate for the possible increase in the number of six year-olds in kindergarten. The number of new childcare institutions for under-three year-olds was quadrupled between 2011 and 2014, but coverage remains well below the OECD average. The government should ensure that poor families, in particular, have access to childcare services.

Vocational education

Vocational education (Box 1.1) has suffered from a number of weaknesses, including a poor reputation, a failure to provide students with solid basic skills and key competencies, such as independent and creative thinking and team work, and often a poor adaptation to labour market needs. The government has started to address many of these issues. Taking

Box 1.1. **Initial vocational education in Poland**

Upper secondary (general and vocational) education starts at age 16. Most students go either to a four-year upper secondary technical school (*technikum, ISCED 3A*) or to a three-year basic vocational school (*zasadnicza szkoła zawodowa, ISCED 3B*). Vocational education is also provided in post-secondary non-tertiary schools (*szkoła policealna*).

General secondary school (*licea ogólnokształcace, ISCED 3A*) prepares students for passing a *matura* exam and for pursuing their education in a higher-education institution. Technical upper secondary school prepares students both for the *matura* and entering the labour market. Basic vocational school and post-secondary non-tertiary school are focused on providing vocational qualifications for occupations classified by the Ministry of Education.

Practical training makes up approximately 60% of total hours in basic vocational schools and 50% in technical schools and may take place in school workshops and laboratories, continuing education centres and practical training centres. Work-based training in all types of vocational schools lasts 4-12 weeks, depending on the occupation, and is organised once or twice during the study period.

The scope of knowledge and skills acquired by pupils and the volume of practical and work-based training are defined by curricula for each occupation. Since 2012, there has been a single core curriculum for all occupations that defines interdisciplinary skills (e.g. social and interpersonal, entrepreneurship and management) and the level of proficiency to be mastered in every occupation.

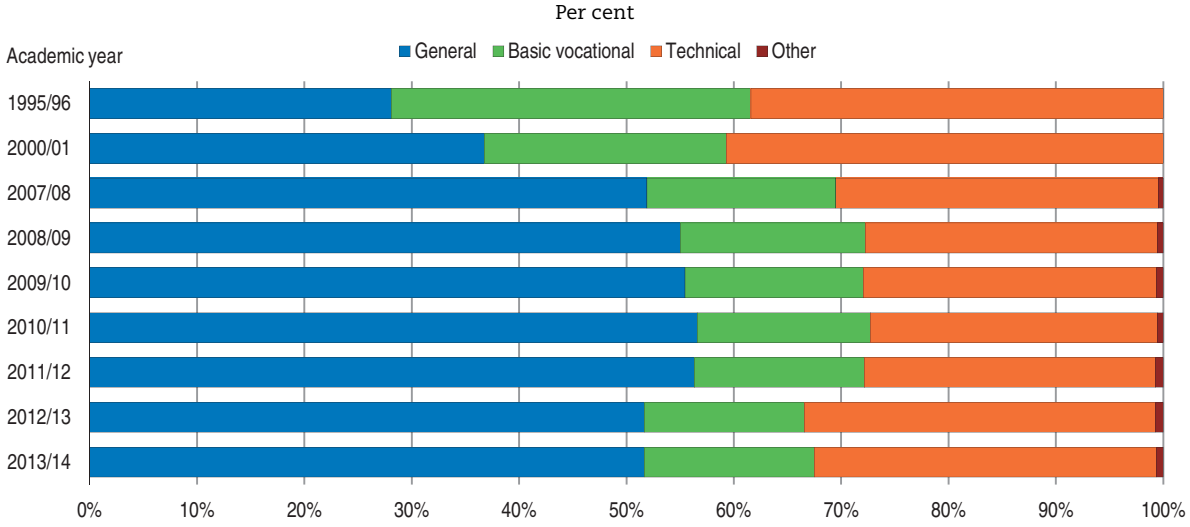
Based on: Cedefop (2013a and 2013b).

these reforms further would help vocational graduates to find better job matches on the Polish labour market.

Adapting vocational education to the market economy has been a challenge. While the education systems in former communist states were generally thought to be good, it quickly turned out after the transition to a market economy that they lacked the flexibility to adapt. Average educational attainment and literacy rates were relatively high, and there was a strong base of vocational education in Poland, as in other Central and Eastern European Countries (CEECs), when the economic transformation set in. However, knowledge and competencies taught in vocational schools were often specific to enterprises to which they were attached (Mertaugh and Hanushek, 2005). Many of these enterprises disappeared, and thus firm-specific knowledge and skills became obsolete. As demand for skilled manufacturing workers dwindled, many young people abandoned basic vocational education (Figure 1.2). Only lately has the interest in vocational schools, above all the technical branch, begun to increase again, as it has become apparent that there are shortages of qualified workers with intermediate skills. Meanwhile, it took vocational schools time to establish links to newly created firms, and the process of developing high-quality training in management, IT and other advanced technologies is still ongoing. The same holds for more generic skills, such as foreign languages, critical thinking, creativity and leadership. This has been partly related to widespread rote learning, as opposed to active learning, which involves a critical evaluation and understanding of concepts (Nešporová, 2000).

Overall labour market outcomes of Polish vocational school leavers are weak, especially so for graduates of basic vocational schools. Employment rates are low by

Figure 1.2. **First-year students in upper secondary school by type of education**



Source: GUS (2014c), *Education in the 2013/2014 School Year*.

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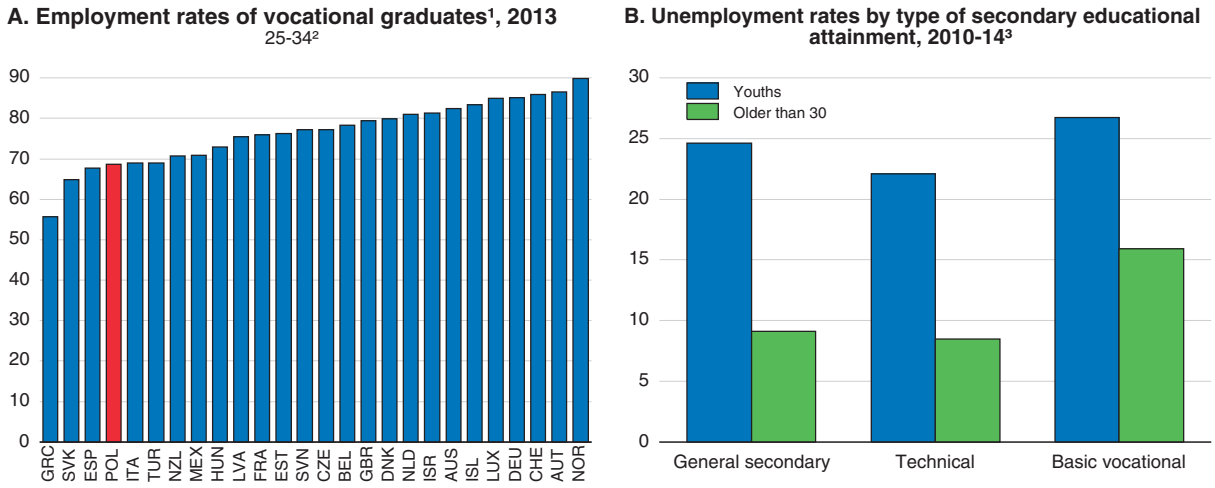
international comparison (Figure 1.3, Panel A). Graduates of basic vocational schools are more likely to be unemployed than graduates of general secondary schools (Panel B), and their average wages are lower (Lis and Miazga, 2014).

Tests indicate that Polish basic vocational education often fails to provide students with necessary skills. Average literacy and numeracy proficiencies of students and graduates from basic vocational schools are poor, as evidenced by standardised tests for pupils (PISA) and adults (PIAAC), and too many can understand only short and simple texts or master only basic numerical operations (Figure 1.4). While this is partly a selection effect, as the weakest students tend to go to basic vocational education due to its poor reputation, average test results of graduates from basic vocational schools are only marginally higher than those of adults who finished only lower secondary education. Results obtained by students and graduates from technical schools are much better, though.

The government has moved to address these problems. There was a campaign to improve the image of vocational education in the 2014/2015 school year. Curricula are now based on learning outcomes rather than on a narrow description of subject content, giving schools more autonomy to adapt their programmes, including in collaboration with employers. Learning outcomes are defined for knowledge, occupational and general skills, such as reasoning, problem-solving and collaboration. Vocational education programmes also now include training on setting up a business. Moreover, the 2012 curriculum reform integrated the general education curriculum for lower and upper secondary schools and introduced the same curricular requirements for the first year of all types of upper secondary programmes. This should help weak students in basic vocational schools to strengthen their basic skills.

But more needs to be done to help weak students make progress. OECD experience has shown that, in addition to early intervention, individualised support is crucial to help weak students bring their competencies up to acceptable standards. Given that many weak students are concentrated in basic vocational schools, one-on-one support and remedial

Figure 1.3. **Labour market outcomes of vocational school leavers are weaker than in other OECD countries**



1. Corresponding to ISCED's 3CL and 3B categories.
2. As a percentage of the age-corresponding population.
3. As a percentage of the labour force. Unemployment rates of youths refer to young people of up to 30 years of age not in formal education

Source: OECD (2014), *Education at a Glance 2014 Database*; Lis, M. and A. Miazga (2014), "Time for quality in vocational education", *IBS Policy Paper*, No. 03.

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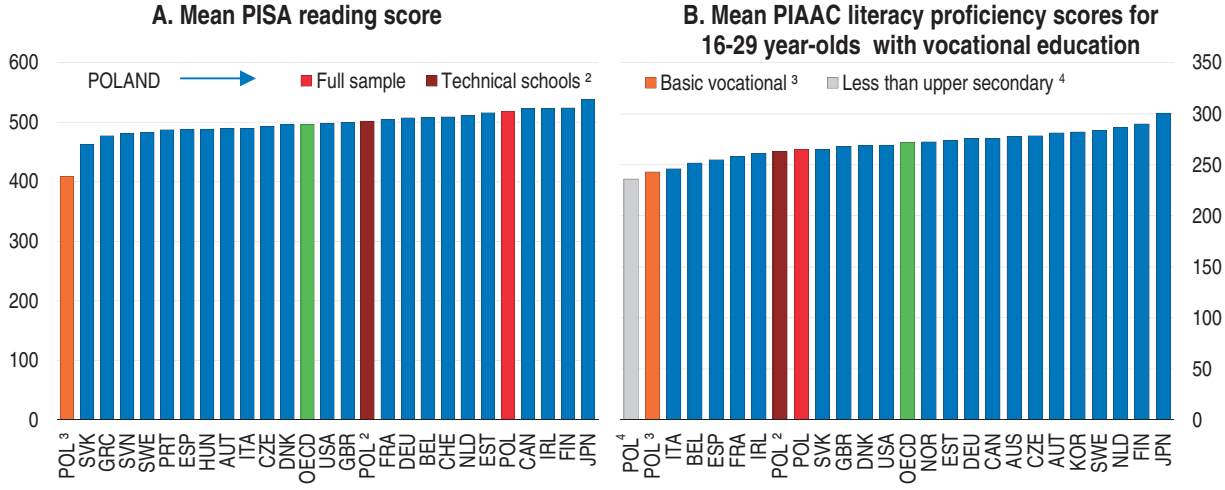
Figure 1.4. **The skills of students and graduates from basic vocational schools are weak**

2012[1]



1. The data are based solely on Flanders for Belgium and England and Northern Ireland for the United Kingdom.
2. Mean reading score for 16 year-old students of Polish technical schools (Panel A) from an optional national study for the first grade of upper secondary school (16 year-olds) complementing PISA and mean PIAAC literacy proficiency score for Polish adults having attended technical schools (Panel B).
3. Mean reading score for 16 year-old students of Polish basic vocational education (Panel A) from an optional national study for the first grade of upper secondary school (16 year-olds) complementing PISA and mean PIAAC literacy proficiency score for Polish adults having attended basic vocational education (Panel B).
4. Mean PIAAC literacy proficiency score for adults with less than upper secondary education.

Source: OECD (2013), *OECD Skills Outlook 2013 Database*.

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classes are needed there for students who fall behind. Most vocational teachers have advanced university degrees including pedagogical training. In addition, the government intends to develop the skills of the existing teaching workforce through professional development. This will include courses, practical work in firms, graduate studies to help teachers acquire skills in vocational subjects they would like to teach and networks for teachers to cooperate and share their teaching experiences. Such professional development in groups has proven highly effective in other OECD countries, such as Finland and Japan (OECD, 2005; Barber and Mourshed, 2007). To attract those with the best pedagogical skills to basic vocational schools the authorities should offer them singularly attractive pay and career opportunities. Cross-country research suggests that while effective teaching is particularly helpful for low performers, they are often less likely to receive it (OECD, 2005).

According to a survey conducted in 2010-11, headmasters often planned their courses based on technical and organisational considerations, such as the availability of technical facilities or qualified teachers (Goźlińska and Kruszewski, 2013). Only much less frequently did they consider local labour market needs and other offerings in the region. This was in part related to a lack of up-to-date information on labour market demand or reliable forecasts thereof and a failure of local governments to develop strategies for vocational education (MEN, 2011). As a result, there is often a mismatch between specialisations most frequently offered by vocational schools and the needs of employers. In transport and storage, for example, demand exceeds supply (MEN, 2011; Lis and Miazga, 2014). Among graduates from a number of specialisations in service jobs, such as hairdressers, cooks and vendors, which are frequently offered in vocational schools and are particularly popular among women, unemployment was close to 20% in 2010-12 and inactivity around a further 30% (Górniak, 2013).

A large and growing number of Polish employers complain about difficulties in finding qualified workers who meet their expectations: surveys show 80% of employers made that claim in 2014, up from 75% in 2010 (Kocór et al., 2015). According to the same study qualified manual workers were particularly scarce, and employers frequently bemoaned a lack of professional competencies specific to the job that they were looking to fill. Apart from more flexible courses in vocational schools with a greater focus on general skills, allowing workers to adapt more easily to new jobs and circumstances, this would also require more employer involvement in planning programmes and offering practical training opportunities.

With the new core curriculum based on learning outcomes, the government has made it easier for schools to contribute to programme design and is striving to engage employers in such efforts. This is a welcome change. It has become easier for schools to offer new vocational programmes after consultations with the district (*powiat*) and regional (voivodship) governments to ensure alignment with local labour market needs. The number of enterprises collaborating with schools to develop curricula and sending external examiners to participate in vocational exams is growing, according to the Ministry of Education. Yet, reaching small and medium-sized enterprises, which make up more than 90% of all firms in Poland, remains a challenge. Engaging craft associations will be crucial to enhance collaboration with these firms.

Employers will need to become more engaged in offering practical training. Otherwise they cannot expect to find workers with the specific job skills and experience they seek.

Conducting practical training through firm-based work experience rather than in schools makes it much easier to ensure that the qualifications of vocational students correspond to labour market needs (OECD, 2014b), as firms will typically be interested in offering training opportunities in areas where they lack workers. Although about 65 % of students in basic vocational schools learn in a system including firm-based training, the rest practice in different forms of workshops that are confined to training purposes.

Enterprises also need to contribute by providing more workplace-training opportunities for vocational teachers and by allowing their own staff to combine teaching in schools with work. This has proven crucial to ensuring that teachers have up-to-date industry knowledge and experience. In Poland practitioners can now become teachers based on the teacher charter after completing pedagogical training, or they can be employed through contracts based on the labour code, if headmasters find them fit for teaching. These measures are welcome, as long as pedagogical training for practitioners interested in teaching is of high quality (OECD, 2014b; OECD, 2010).

Regardless of efforts to increase the number of workplace-training opportunities for students, it will still be necessary to offer practical training in workshops for some time. The effectiveness of training in schools has often been hindered by a lack of modern equipment. Yet, qualifications offered at technical schools are evolving rapidly and in some regions, where local authorities have taken the lead to adjust courses to labour market needs, they have started to equip centres of practical training with modern technologies, which can be shared by several schools. However, these successful practices would need to be generalised, as schools tend to compete in other regions, where local authorities do not coordinate sufficiently, often resulting in several under-equipped workshops, rather than modern equipment that is shared (OECD, 2016). Enterprises can contribute to these efforts by helping to equip joint laboratories. Providing vocational schools with state-of-art technology and modern equipment is also one of the priorities for the European structural funds intervention planned for 2014-20.

Continuing education

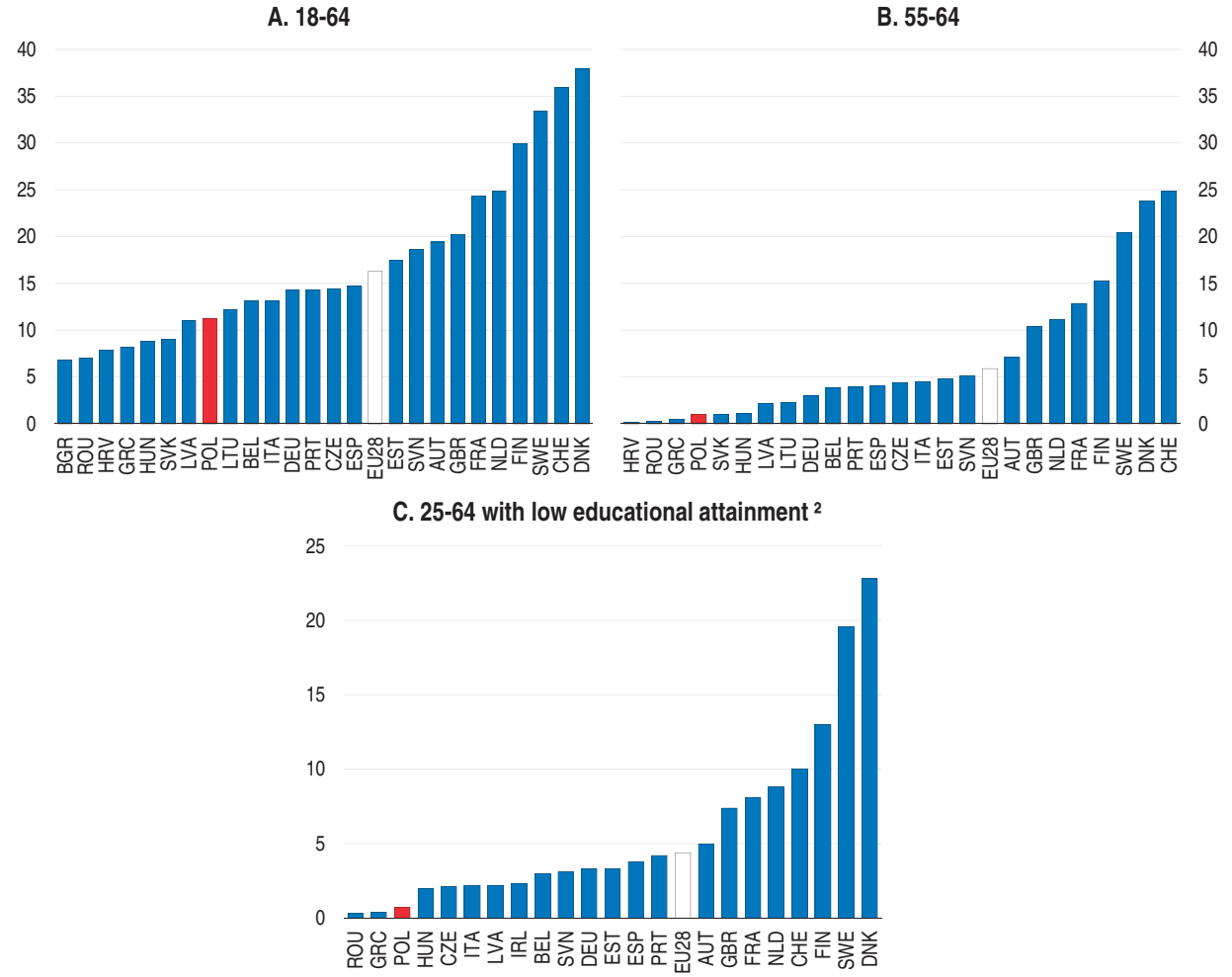
Participation in continuing education is low in Poland, notably for those who need it most. Adult participation in lifelong learning is one of the lowest in the European Union, especially among older and low-skilled workers (Figure 1.5). According to 2010 Eurostat data, only 22 % of all companies provided continuing vocational education and training, compared to 66 % in the EU-27 (European Commission, 2014). At the same time, low-skilled workers account for the largest proportion of Poland's unemployed. A lack of opportunities for adults to adapt their skills and competencies to new circumstances is a serious issue in an economy that has had to traverse a radical transition like Poland over the last 25 years.

Older adults are in urgent need to improve their numeracy and literacy competencies. The share of adults with no computer experience and severe problems in solving digital tasks is higher than anywhere else in the OECD (Figure 1.6), pointing to the need to enhance access to digital skills training. At the same time, the government should move forward with its plans to upgrade the communications infrastructure, as the share of the population without fixed high-speed Internet access is comparatively high (Chapter 2).

A study of language competences of European teenagers suggests that relatively few Polish pupils learn English well enough to be qualified as independent users: a bit more than 25%, compared with more than 80% in Sweden and more than 50% in Estonia,

Figure 1.5. **Participation in continuing education**

2014, per cent[1]



1. Percentage of individuals having had training in the 4 weeks preceding the survey.
2. Less than upper secondary education, ISCED levels 0-2.

Source: Eurostat; OECD (2013).

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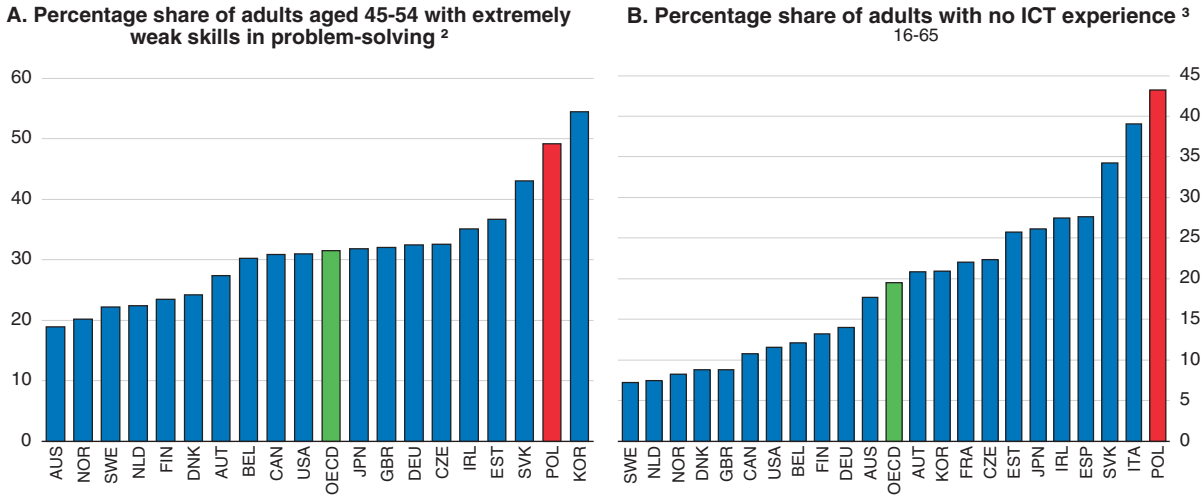
Slovenia and the Netherlands (European Commission, 2012). The share of independent users of German among Polish pupils (which is relevant, because Germany is Poland's main trading partner) is even lower according to this test: 6%, compared with around 20% in Estonia, Slovenia and Bulgaria. In the very open Polish economy many employers state that they are seeking employees with language skills. In that context, new initiatives to integrate first steps in foreign language training in preschools are welcome. More high-quality language-training opportunities for adults are also needed.

Since 2012 Poland has been implementing reforms to improve the quality of vocational education and opportunities for adults to acquire new skills and qualifications. The government now promotes courses to help adults acquire general competencies. Computer and foreign language courses, in particular English and German near the border, have been particularly popular. Rather than attending full-time vocational schools, adults can acquire or complete their vocational qualifications in more flexible courses. These can

Figure 1.6. **Many adults have weak computer skills**

2012[1]



1. The data are based solely on Flanders for Belgium and England and Northern Ireland for the United Kingdom.
2. Percentage of adults between 45 and 54 years of age scoring below level 1 of PIAAC's scale of proficiency in problem solving in technology-rich environments, or failing to complete the relevant PIAAC test.
3. Share of adults who opted out of PIAAC computer based assessment or declared a lack of any ICT experience.

Source: OECD (2013), *OECD Skills Outlook 2013 Database*.

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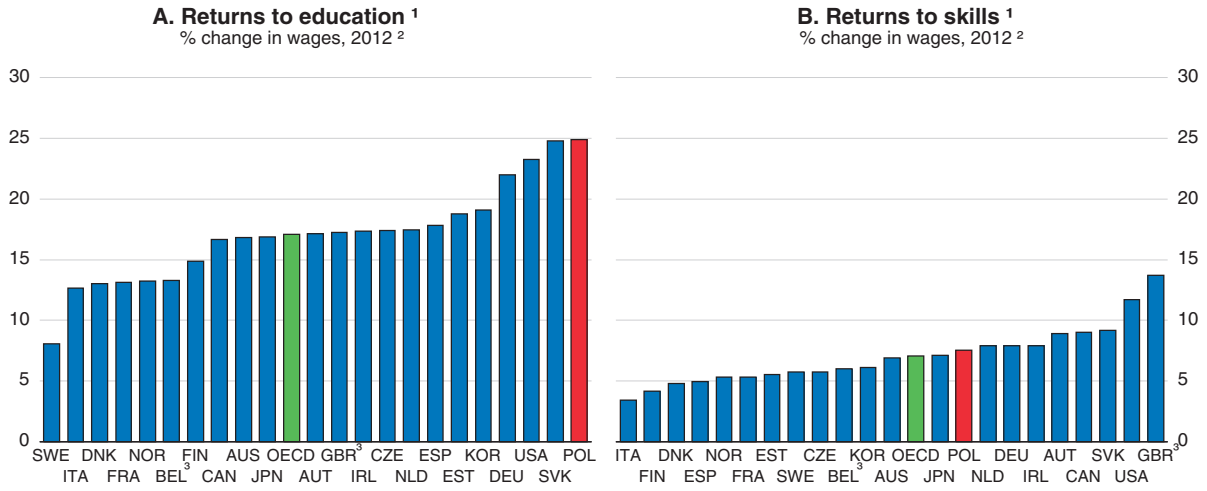
be offered part-time and outside of working hours to facilitate combining study with work. Participation in short vocational education courses has increased rapidly since their introduction in 2012. A register of occupations offered in vocational education (*klasyfikacja zawodów szkolnych)* facilitates modular completion of vocational education, as different qualifications required to obtain a certificate for a specific occupation can now be certified in separate exams (Cedefop, 2013a). Exams can confirm knowledge and skills acquired through practical experience, and up to two years of work in a specific occupation can be validated for vocational qualification certificates. This could prove especially useful in Poland, where qualifications are valued more than skills (Figure 1.7). There are also courses related to occupations and specialisations meeting specific labour market needs, which are often conducted in cooperation with public labour offices. Finally, there are apprenticeships for jobseekers, provided by local labour offices and financed by the labour fund (Cedefop, 2013b).

Given the large share of adults with severe difficulties in mastering basic skills, it would be useful to develop a strategy to fight low literacy. Poland's own success with improving students' learning outcomes, as measured by PISA results, and the experiences of other OECD countries with basic skills strategies could serve as a starting point (Box 1.2). A special approach is necessary to reach people with low literacy, in particular when they are adults. Only a fraction of those with poor literacy and numeracy test results report that they have problems with reading, writing or calculating. Yet, those who do are much more likely to state a willingness to improve their skills (Bynner and Parsons, 2006). People with low confidence in their ability to learn are less likely to take up training offers, but if they do, they progress as fast as others (Wolf, 2008). Access to training opportunities should be easy, ideally occurring in the context of candidates' everyday lives, such as the family or the workplace.

Figure 1.7. **Qualifications are valued more than skills**



1. Coefficients from an OLS regression of log hourly wages on years of education (Panel A) and literacy proficiency (Panel B), interpreted as effects on wages in per cent. Coefficients are adjusted for age, gender, foreign-born status and tenure.
2. Percentage change in wages associated with a one standard deviation change in years of education (Panel A) and proficiency in literacy (Panel B).
3. The data are based solely on Flanders for Belgium and England and Northern Ireland for the United Kingdom.

Source: OECD (2013), *OECD Skills Outlook 2013 Database*.

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Box 1.2. **Basic skills strategies in OECD countries**

In response to findings that around 14% of the working-age population are unable to understand even short and simple texts, the Federal and Länder governments in **Germany** launched a joint strategy for adult literacy and basic skills training in 2012. Measures include awareness-raising campaigns, new courses and guidance services, support for research and exchange of best practices regarding pedagogical methods. Specialised training for basic skills teachers for adults was also developed.

In **France**, the National Agency for the Fight Against Illiteracy has a central role. It runs awareness campaigns and has developed a reference framework for basic skills policies for adults, guiding the professionalisation of teachers and the exchange of good practices through an online database. It organises seminars where teachers evaluate and share their methods and learning material. The Agency has also developed a key competency programme for adult learners, which is free of charge.

England launched its Skills for Life strategy in 2001, setting up a wide range of basic skills programmes, including family- and workplace-based learning, and developing regulation to professionalise basic skills trainers. Evaluations suggest that college-based programmes improve learners' self-esteem, their commitment to education, and their self-assessed literacy and numeracy. Literacy and numeracy courses were associated with improved health, increased independence and a greater ability to conduct everyday activities. Yet, subsequent surveys of adults' measureable literacy and numeracy skills did not point to an improvement for adults with weak skills, highlighting the challenge of designing programmes with sufficient scale and quality to create a measurable impact at the national level.

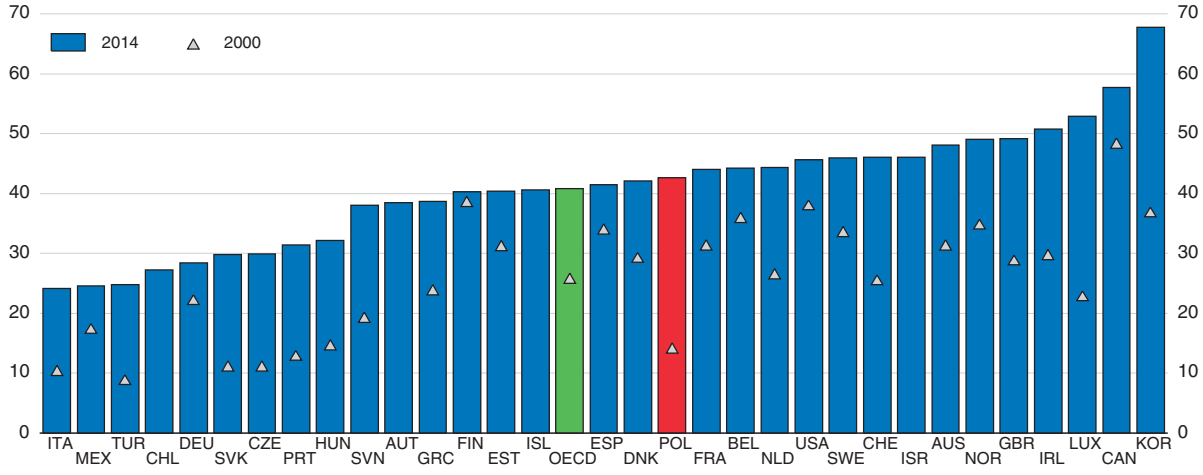
Based on Windisch (2015).

Higher education

Tertiary attainment rates have increased substantially in recent years in Poland as in other CEECs (Figure 1.8). This rapid expansion has brought with it quality weaknesses in some higher education institutions, and the programmes are not always aligned with labour market needs. The government is working to address these issues.

Figure 1.8. **Tertiary education attainment rates of individuals aged 25 to 34**

Per cent



Source: OECD (2015), *Education at a Glance 2015 Database*.

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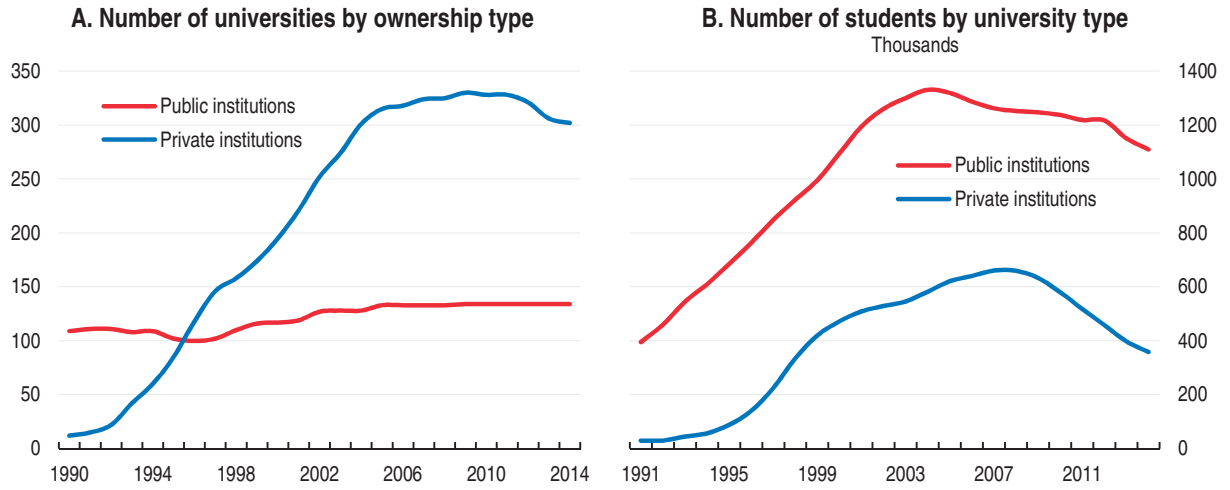
Expanding numbers of tertiary students brought about a rapid creation of private institutions of higher education all over the country and fee-based courses at public universities. At its peak in 2008 Poland had one of the largest private university sectors in the OECD, enrolling more than one third of all students, often in very small institutions. Since then the demographics-related decline in enrolments has progressed much faster in private than in public universities, however (Figure 1.9). Public institutions can offer fee-based programmes, as long as they enrol fewer students than fully subsidised programmes of similar content. Fee-based programmes both at public and at private universities are often part time.

On average the skill level of tertiary graduates in Poland is somewhat lower than in other OECD countries, and a high number lack basic skills as elsewhere in the OECD (see Figure 1.1). This puts into question the quality of some Polish university degrees. Moreover, people with basic skills weaknesses are unlikely to benefit much from tertiary education, and the fact that there are so many of them points to deficiencies in Poland's guidance system.

Public universities are the most selective and have a better reputation than their private counterparts. Fully subsidised programmes in public universities attract the best students, as job opportunities are generally at least as good as for graduates of fee-based programmes (Ernst & Young, 2009). But there is evidence of poor quality in some private institutions. The findings of the Polish Accreditation Committee suggest that the share of poor-quality higher education institutions was larger among private than public institutions at least until recently, while good quality was rarer (Figure 1.10). For some

Figure 1.9. **Poland's tertiary education institutions**



Source: GUS (2015), *Higher Education Institutions and their Finances in 2014.*

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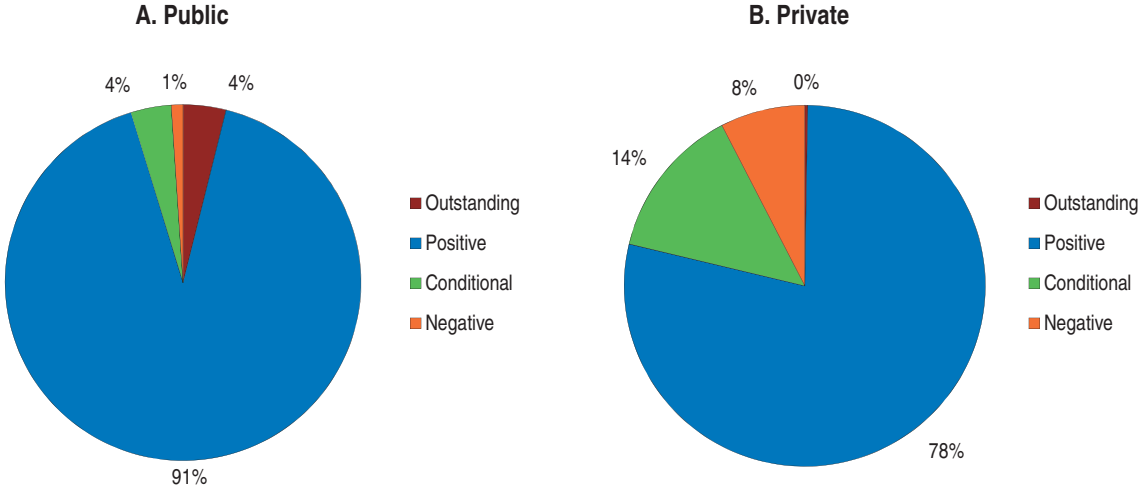
Figure 1.10. **Evaluation results for higher education institutions in Poland, 2008-11**



Source: Ministry of Science and Higher Education (MNISW), *Szkolnictwo Wyższe w Polsce*, 2013.

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programmes this is reflected on the labour market. For sociology and teacher training the share of unemployed graduates was particularly high among students that went to private universities in 2010-12 (Górniak, 2013). For example, only 3.5% of sociology graduates from public universities were unemployed in 2010-12 compared to almost 20% among graduates from private universities.

Lower quality in private universities has repercussions on equity, as students from weaker socio-economic backgrounds are more likely to attend them. Thanks to the emergence of private universities all over the country, the enrolment rate for students from small towns with less than 20 000 inhabitants has increased from 5% to 60%. Yet, although enrolment rates have increased for all income groups, lower family income still decreases the likelihood of attending university (Herbst and Rok, 2014), and students from small towns whose parents have no tertiary education are much more likely to enrol in part-time

fee-based programmes (Lewandowski and Magda, 2014). This means that students from weaker socio-economic backgrounds are more likely to have to pay fees for tertiary education that will often be of lower quality than at public universities. Owing to demographic trends it has become easier to be admitted to public university programmes that are not subject to fees, though. In any case, making sure that children from poor families attend high-quality early childhood education as discussed above will improve their chances to attend the best universities later on.

A recent law significantly strengthened higher education accreditation and quality control procedures. All higher education institutions now have to be accredited based on the adequacy of their staffing and the quality of their programmes. Several institutions that were unable to meet standards within the time they were given to improve were closed down. These important efforts should continue.

Another crucial factor to ensure high quality is attracting good teachers. The government has made important efforts to increase academics' wages in recent years. Many had been forced to combine teaching at several higher education institutions before the practice was banned. The new government now plans to align pay and career prospects with performance in teaching and research, a welcome initiative.

Boosting Polish universities' international co-operation would also help to improve the relevance and quality of tertiary education and research. The number of English-language university programmes has increased, and several institutions have used the opportunity to develop more joint-degree programmes with foreign partners. This will also help to strengthen graduates' language skills. Exchanges of views and experiences with other universities can also help make programmes more germane to modern labour markets. Moreover, there is evidence that researchers who collaborate with foreign colleagues are much more productive in terms of research output (Kwiek, 2015; Appelt et al., 2015). Although this might well reflect the fact that better researchers are more likely to collaborate internationally, establishing closer ties to foreign universities would enrich university education in Poland.

A large share of employers looking for managers and specialists complain about a lack of competences that are specific to the profession, a lack of experience and – to a lesser extent – self-organisation (Kocór et al., 2015). The government has embarked on reforms to address these complaints. Following a higher education reform in 2011, universities now have more freedom to design their study programmes, including in co-operation with business. As in secondary education, curricula are now based on learning outcomes described in the National Qualifications Framework for higher education, rather than on broad guidelines defined by the Ministry of Science and Higher Education. This gives higher education institutions more autonomy. Departments that have the accreditation to confer "habilitation" degrees, which allow holders to teach at university, can now create programmes without ministerial agreement, as long as they lead to outcomes defined by the Framework. Departments without an accreditation to confer doctoral degrees must give their programmes a practical orientation, which includes mandatory traineeships in firms or in public administration. Practitioners can be involved in programme design.

Improving skill matches

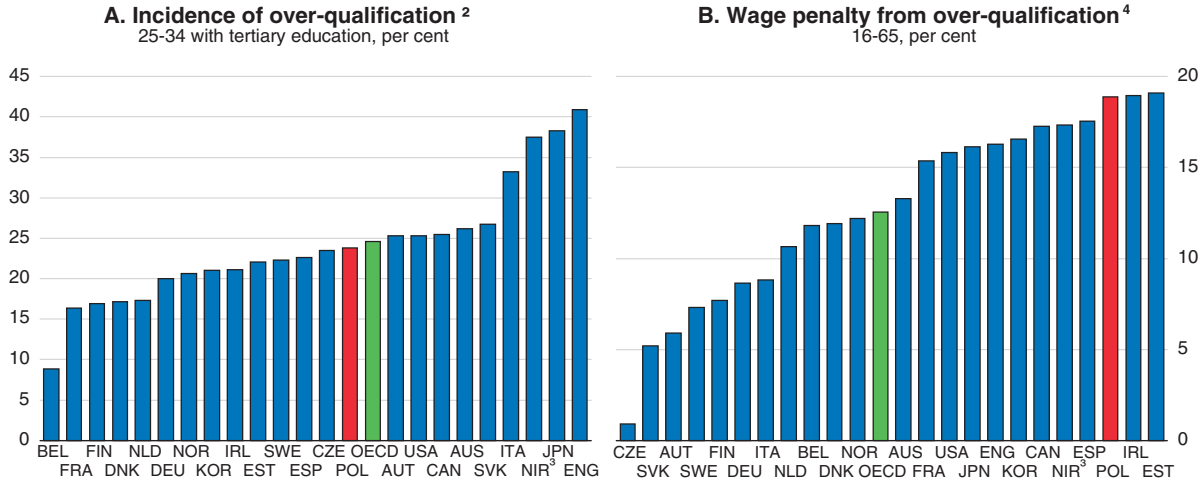
Although qualification mismatches are overall not very extensive in international comparison according to OECD data, they still concern a substantial share of the

population. This goes especially for younger people (Figure 1.11, Panel A). Qualification mismatches tend to be persistent, as a large share of concerned workers is unable to find a better match within five years (Kiersztyn, 2013), and the associated wage penalty is exceptionally high in Poland (Panel B). Skill mismatches come with negative productivity effects (Adalet McGowan and Andrews, 2015). Furthermore, field-of-study mismatch is above the OECD average in Poland, implying economy-wide costs in terms of productivity losses, a higher incidence of unemployment and sunk costs for training in a field not corresponding to the worker's ultimate job (Montt, 2015). At the same time, many employers report difficulties in finding suitable candidates, such as professionals in science and engineering, education and healthcare, as well as qualified workers in industry and construction (Kocór et al., 2015). This points to a need to better align the education system with labour market needs and improving guidance to direct students to fields that are in high demand on the labour market.

Enrolment trends suggest that students do react when information about programme quality and labour market outcomes becomes available. Since it became apparent that there is high demand for qualified workers in some technical areas, more students have become interested in vocational education (see Figure 1.2). Enrolment in private higher education institutions has declined rapidly since 2008 (see Figure 1.9), and students have started to move away from fields of study with relatively poor labour market prospects, such as humanities, pedagogy and social sciences, while enrolment in mathematics, engineering, computer science and medicine, where labour market prospects are relatively good, have increased (GUS, 2014a, Górniak, 2013).

Figure 1.11. **Qualification mismatches have important consequences**

2012[1]



1. The data are based solely on Belgium for Flanders.
2. Qualification mismatch is determined based on a comparison of a worker's qualification level – expressed as the International Standard Classification of Education (ISCED) level corresponding to his or her highest educational qualification – and what is thought to be the required qualification level for his or her occupation code – the International Standard Classification of Occupations (ISCO) code attached to the job he or she holds.
3. Northern Ireland.
4. Compared to wages of well-matched employees, controlling for numeracy proficiency, use of skills at work, the individual's socio-economic conditions and the main characteristics of his/her employment relationship.

Source: OECD (2013), OECD Skills Outlook 2013 Database.

StatLink http://dx.doi.org/10.1787/888933339539

There are a host of measures in place to monitor and project labour market needs; the main challenge is to ensure that schools and students integrate the results in their decision-making. Since 2009 there has been an ongoing national-level study on the supply and demand for different skills and qualifications on the Polish labour market called the Human Capital Report. This work is set to be linked to sectoral skills councils, composed of officials from social partner organisations, professional associations and the government, which would recommend areas of research and reforms to adjust education to labour market opportunities. The government offers an online forecasting tool (*www.prognozowaniezatrudnienia.pl*) that projects trends in employment and qualification needs. Regional labour market observatories also conduct labour market research. This information needs to be well presented and easily accessible, so that schools and universities can use it to develop their programmes and counselling services to advise students in their educational and career choices.

The government is currently setting up a monitoring system to track tertiary graduates' careers. Universities have been obliged to track students' careers since 2011, but this has suffered from a lack of a standardised methodology and thus comparability across universities. A new system, Pol-on, will now link information from universities with social security data to track graduates' careers. This could help orient students' choices and programme development. A similar system is planned for vocational graduates.

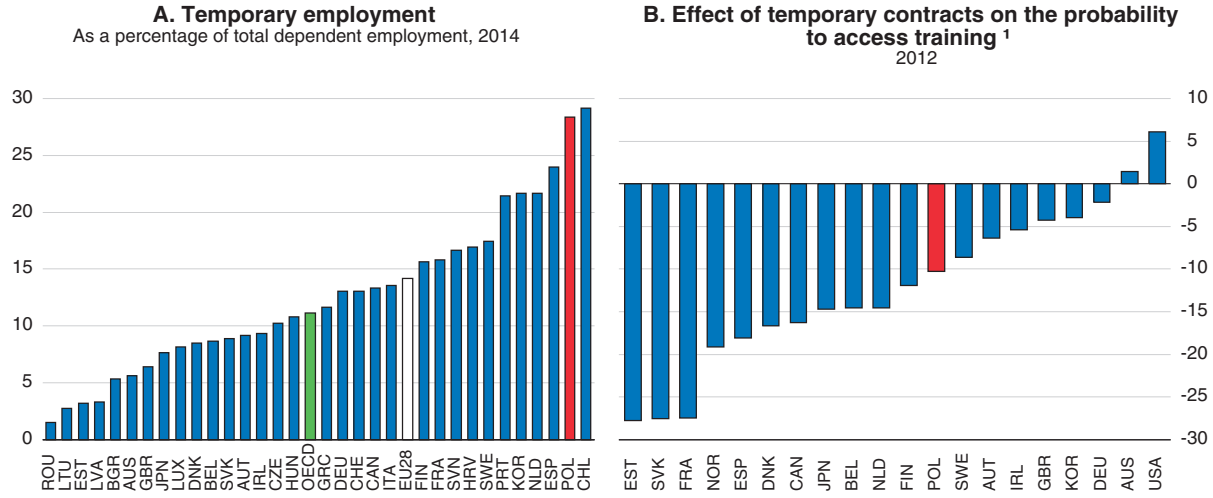
Despite a legal obligation to provide secondary students with guidance, establishing high-quality orientation services remains a challenge both in schools and universities. Survey data suggest that many vocational students are unaware of career counselling availability at their schools, and only every fifth student seeks career advice, most frequently from parents and other family members (MEN, 2011). Similarly, a survey at Częstochowa University of Technology revealed that three-quarters of students were unaware of the existence of the careers office, and only a fraction of those who knew about it sought its advice (Sroka, 2014). According to the Ministry of Science and Higher Education, about three-quarters of higher education institutions operate a careers office. However, it is up to the university to decide on their resourcing, and many are small relative to the student population they are meant to serve (OECD, 2013b).

The government is taking action to improve guidance services in universities and schools, and these efforts should continue. Centres of Information and Career Planning at regional labour offices now have to cooperate with the academic careers offices at universities, providing them for example with information on professions that are in high demand in the region. To ensure their effectiveness academic careers centres will need to be adequately staffed. The government envisages investing money from the European Social Fund in strengthening careers offices. The National Centre for Supporting Vocational and Continuing Education (KOWEZiU) has initiated training for 18 000 counsellors from lower secondary schools to provide orientation services. This will continue in coming years, supported by EU financing. To inform students in their choice of vocational schools the Ministry of Education has launched an interactive Internet tool called "Map of vocational schools", with information on education and training options.

Promoting a better use of skills through labour market policies

Poland has the European Union's largest share of workers with temporary contracts (Figure 1.12, Panel A); such contracts are especially prevalent among the young and the low

Figure 1.12. **Temporary employment**



1. Estimated percentage effect of temporary contract status on the probability of receiving employer-sponsored training compared to permanent employees.

Source: OECD (2015), *OECD Labour Force Statistics Database*; and OECD (2014), *Employment Outlook 2014*.

StatLink http://dx.doi.org/10.1787/888933339401

skilled. Prospects of moving from a temporary to a permanent job are poor (OECD, 2014c). Temporary jobs can be based on regular labour law or civil law. Civil-law contracts are not subject to the minimum wage, paid leave, notice period for dismissals or working time regulations and can involve much lower social contributions (Arak et al., 2014). In firms with more than nine workers the incidence of civil-law contracts increased from 547 000 in 2010 to 1.2 million in 2014 or around 13% of total employment in those firms (GUS, 2014b; GUS, 2015a). These contracts were originally created for freelance workers, but in recent years employers have increasingly used them for jobs that have clear characteristics of dependent employment, such as a well-defined work place and hours and subordination vis-à-vis the employer. Yet, Polish authorities have found it difficult to combat abuse (OECD, 2008; Vega and Robert, 2013). In 2014 fewer than half of those found to have broken the law by improperly using civil-law contracts were subject to penalties, with an average fine of just over 300 euros (National Labour Inspectorate, 2015). In addition, the share of people who work informally with no legal or social security protection whatsoever amounted to 7.5% in 2014 (GUS, 2015b).

Having so many workers on temporary and irregular contracts impinges on well-being, productivity and Poland's ability to raise the technology and skill content of its production. Weak regulation of temporary work contracts encourages their widespread use and is associated with slower productivity growth (Bassanini et al., 2009; Dolado et al., 2012). Such contracts are also associated with postponing childbirth and a lower number of children overall (Auer and Danzer, 2015; de la Rica and Iza, 2005). Workers on temporary contracts are confronted with a higher risk of unemployment, lower wages, greater in-work poverty risks and poorer access to training (Figure 1.12, Panel B; OECD, 2014b; Lewandowski and Kaminska, 2014) than others with otherwise similar characteristics.

Limiting the use of irregular contracts would thus support the government's strategy to strengthen skills and productivity and improve working conditions. The government has taken several measures reducing incentives to resort to irregular work relationships.

Starting in February 2016 temporary labour law contracts cannot be renewed more than twice, with a maximum cumulative duration of 33 months. The notice period for temporary and indefinite contracts has also been harmonised. As far as civil-law contracts are concerned, contributions are now due on all contracts that an employee has concluded with the same employer up to the minimum wage, rather than only on the first. The government also aims to introduce an hourly minimum wage of PLN 12 applying to civil law contracts. For a standard working week of 40 hours it would be higher than the monthly minimum wage for labour law contracts by 3.7% in 2016. This would improve the quality of civil law contracts and reduce incentives to use them, although there may be a negative impact on employment to some extent or an increase in informal employment. Labour taxes on low wages are currently relatively high. Lowering them would reduce incentives to resort to irregular work relationships or informal employment. One option would be the introduction of a targeted earned income tax credit (OECD, 2014d). In addition, labour law enforcement needs to improve.

Raising female employment would be another way to make better use of skills in the Polish economy. Increasing the provision of childcare services will contribute to this (OECD, 2011b and 2012), as would the development of long-term care services (OECD, 2014d; OECD, 2015a). The current system of joint taxation of family income also implies higher tax rates for second earners – typically women. OECD analysis shows that this reduces female labour force participation and full-time employment (OECD, 2012). Moving to individual taxation only would remove this distortion (OECD, 2014d).

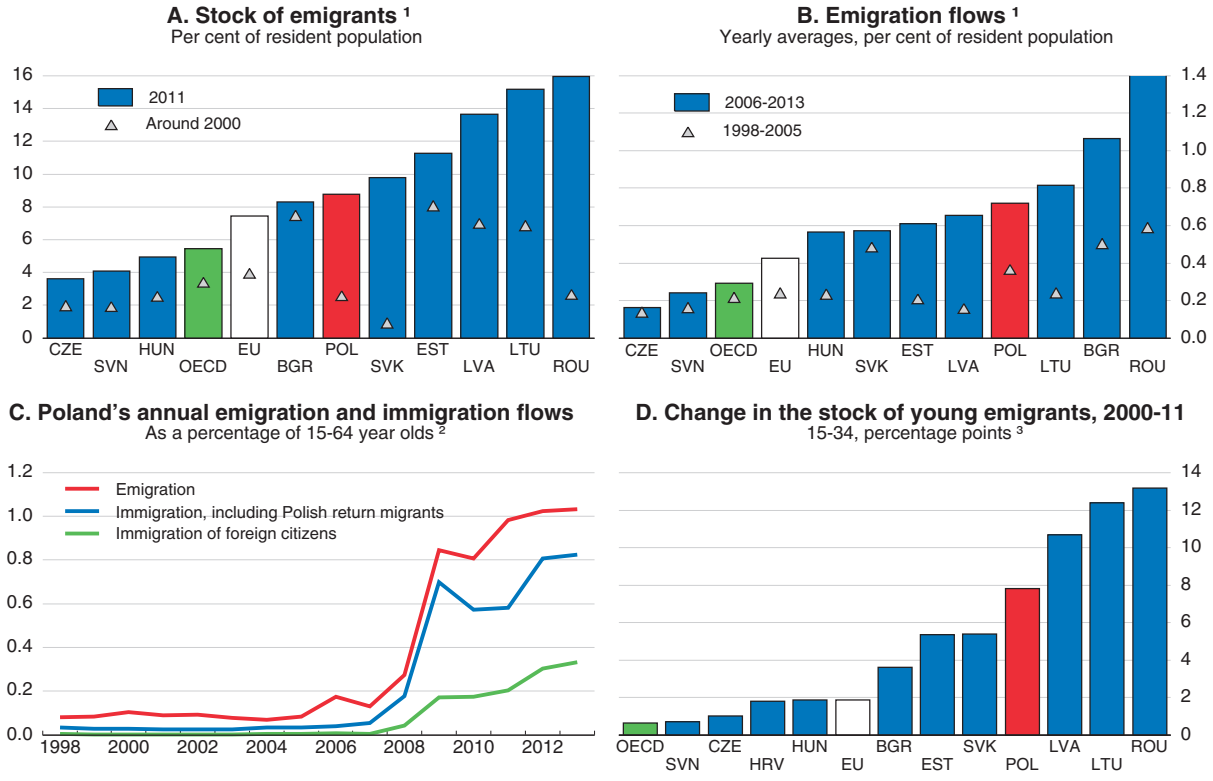
Migration and skills

Emigration is significant, while immigration has been rising from a low level

Workers and their skills available to the Polish economy are also affected by migration. A large number of Polish citizens leave every year to live and work in other countries. More than 2 million Poles, around 5% of the population, stayed abroad for more than three months in 2014, according to estimates from Poland's national statistical office. OECD data based on different sources, in particular information from the statistical offices of receiving countries, suggest that the Polish-born diaspora in 37 other countries is over 8% of the population in Poland. Both the stock and annual flows of Polish emigrants are significantly higher than for the Czech Republic, Hungary and Slovenia, although they are lower than in Baltic states and Slovakia (Figure 1.13, Panels A and B). Poland's long tradition of emigration contributes to its persistence, as foreign diaspora networks facilitate the integration of new arrivals. Social networks help emigrants to find work abroad (Łukowski, 2004), and inhabitants of particular Polish villages sometimes have a tendency to emigrate to the same country or even the same town in Western Europe (Bukowski, 2007). Emigration intensified significantly after Poland's accession to the European Union in 2004, and the incidence of relatively young people migrating has increased (Panels C and D).

Emigration has become more evenly distributed across regions and includes more urban dwellers since Poland's accession to the EU (Kaczmarczyk and Okólski, 2008). Nevertheless, net emigration rates remain remarkably high in regions with a large rural population share and low average income per capita. Emigration has been particularly marked in rural areas of the south-eastern part of Poland, where 20-35% of younger workers left between 2004 and 2007 (Kaczmarczyk, 2012a).

Figure 1.13. **Emigration from Poland is significant**



1. Emigration stocks and flows are computed with reference to a sample of 38 destination countries for which immigrant data by country of birth (stocks) and nationality (flows) are available.
2. The series are subject to a break in 2009. The series were based on the register of permanent residents before 2009 and on survey data after that. This increases the numbers of both immigrants and emigrants after 2009.
3. The stock of young emigrants is defined as those in the 15-34 age group as a percentage of the corresponding population.

Source: OECD (2015), *International Migration Database* and *Population Statistics*; Eurostat.

StatLink http://dx.doi.org/10.1787/888933339579

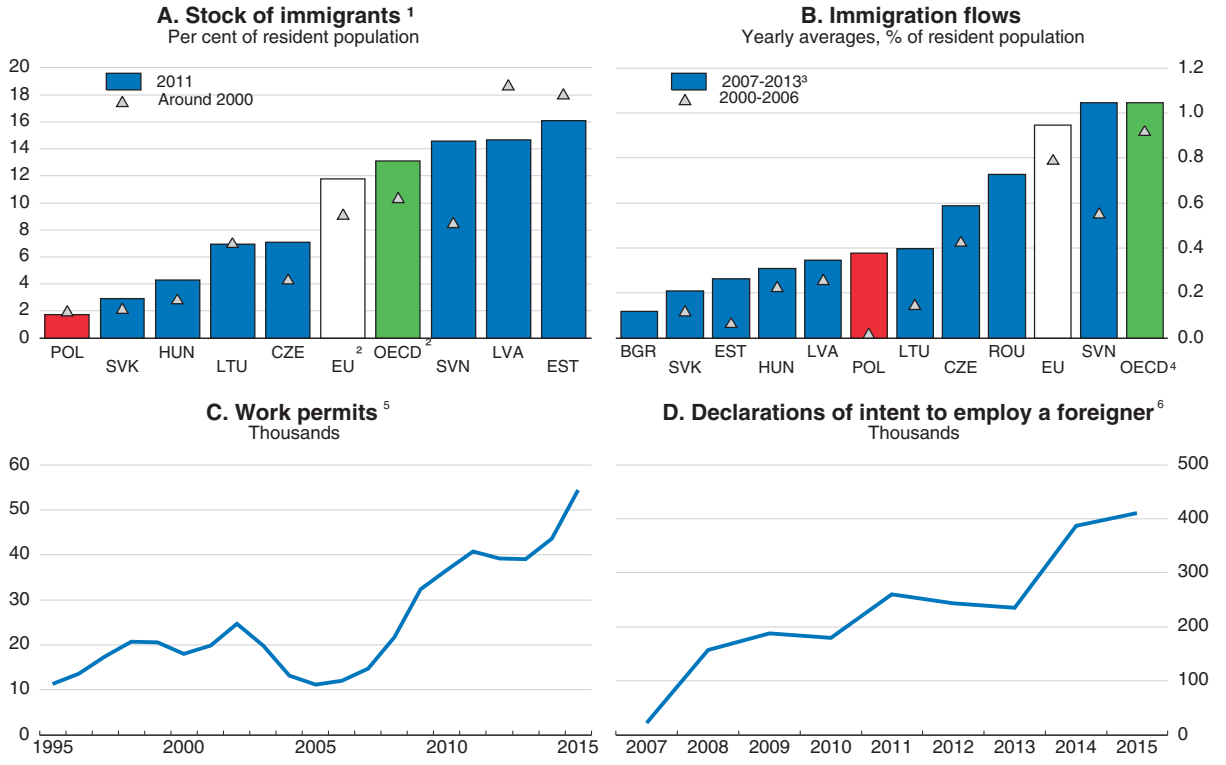
More and more Polish emigrants have longer-term plans to stay abroad. While relatively short-term seasonal labour migration was common in the early years after EU accession, around three-quarters of emigrants had been away for longer than 12 months in 2011, up from 50 per cent in 2007 (GUS, 2013). In a survey of Polish immigrants conducted by the central bank in four important destination countries, around 40% of respondents stated that they intended to stay for good (Chmielewska, 2015).

From a very low level immigration has also been rising. This is apparent from official data on foreign residents in Poland (Figure 1.14, Panels A and B). The number of work permits granted for non- EU citizens and the inflow of labour based on a simplified procedure for citizens of Armenia, Belarus, Georgia, Moldova, Ukraine and Russia also reflect rising immigration (Panels C and D). Both work permits and the declaration of intent are used mainly for short-term assignments. Ukrainians accounted for more than half of the work permits and more than 90% of labour inflows based on the simplified procedure.

Working and living conditions drive emigration

The vast majority of Poles considering emigration seek better pay and working conditions. Survey results show that more than 65% of those who considered emigration

Figure 1.14. **Immigration has been rising rapidly, though from a low level**



1. Excluding return migrants.
2. Simple average across 21 and 31 countries for, respectively, the EU and OECD aggregates.
3. For consistency, the EU and OECD aggregates for both periods are simple averages across the member countries for which average data over the reference period from 2000 to 2006 was available. Averages over samples with varying composition for the 2007-13 period yield 0.85% and 0.99% for the EU and the OECD, respectively.
4. OECD Europe only.
5. Work permits granted individually and to sub-contracting foreign companies.
6. Number of declarations issued by Polish employers according to a simplified procedure allowing firms to employ citizens of Belarus, Georgia, Moldova, Ukraine and Russia without the need for a previous work permit.

Source: OECD (2015), *International Migration Database* and *Population Statistics*; Eurostat; Ministry of Labour.

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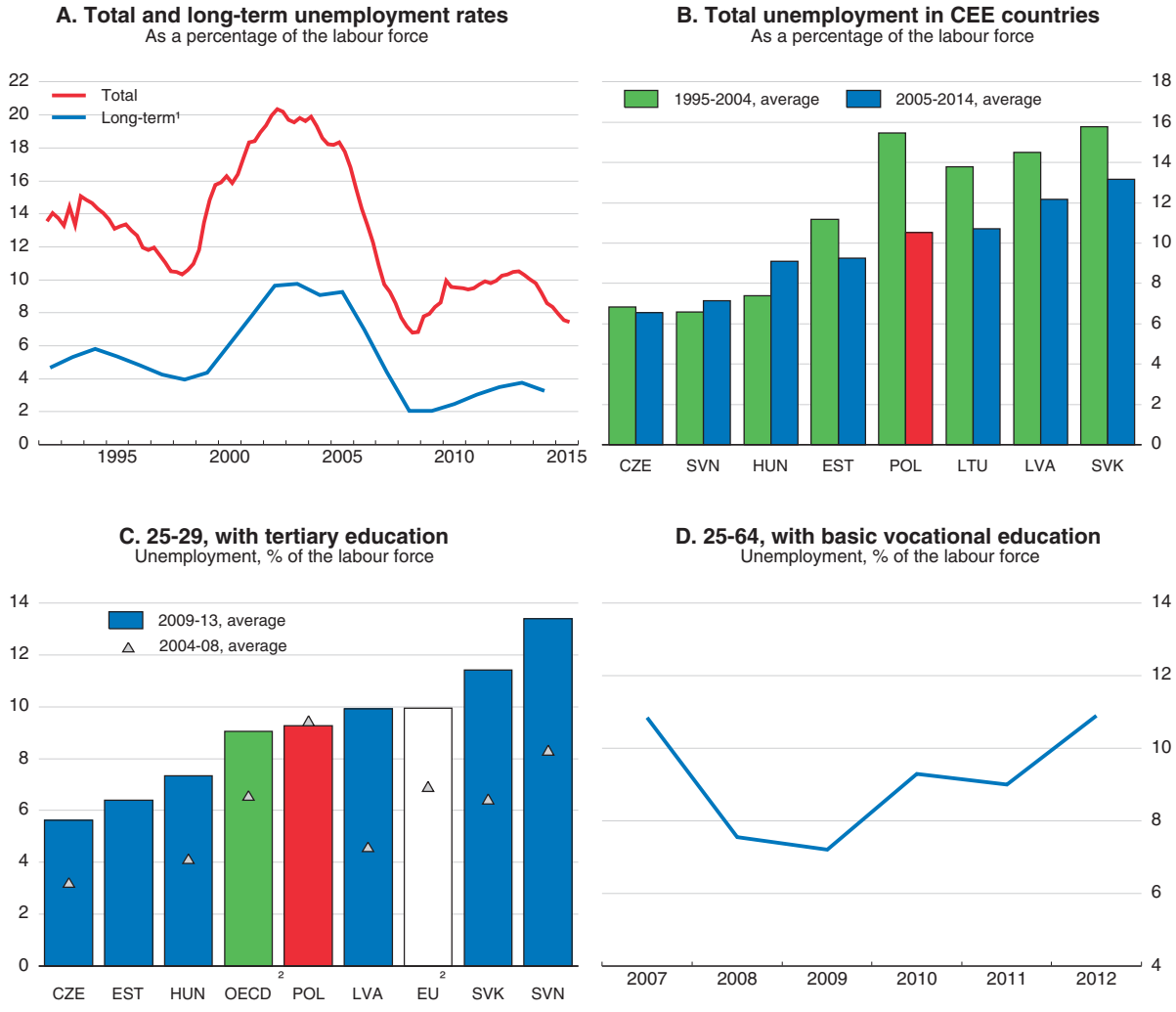
were seeking higher salaries abroad. Around 30% stated that they considered emigration, because they could not find work at home, because networks, not competences, counted for success in Poland, or because they needed to earn money to cover costs of living at home, such as helping their families or paying down loans (Kotowska, 2014). The desire to find a permanent job also plays an important role (Duszczyk and Matuszczyk, 2015) in a context of widespread temporary and low-quality work relationships.

Polish unemployment has come down lately (Figure 1.15, Panel A). Yet, it has been higher and more persistent in Poland, Slovakia and the Baltic States, where emigration rates are relatively large, than in the Czech Republic, Hungary and Slovenia (Panel B). Indeed, it has been above average among two groups with a high propensity to emigrate: people with vocational education and young university graduates (Panels C and D). Graduates of tourism, humanities, particular foreign languages and social sciences are over-represented among emigrants with tertiary education (GUS, 2013). At the same time, graduates' labour market prospects in some of these areas are especially unfavourable. The

Figure 1.15. **Unemployment in Poland**



1. Refers to individuals registered as unemployed for more than 12 months.
2. Unweighted averages across, respectively, OECD and EU countries for which data are available between 2004 and 2008.

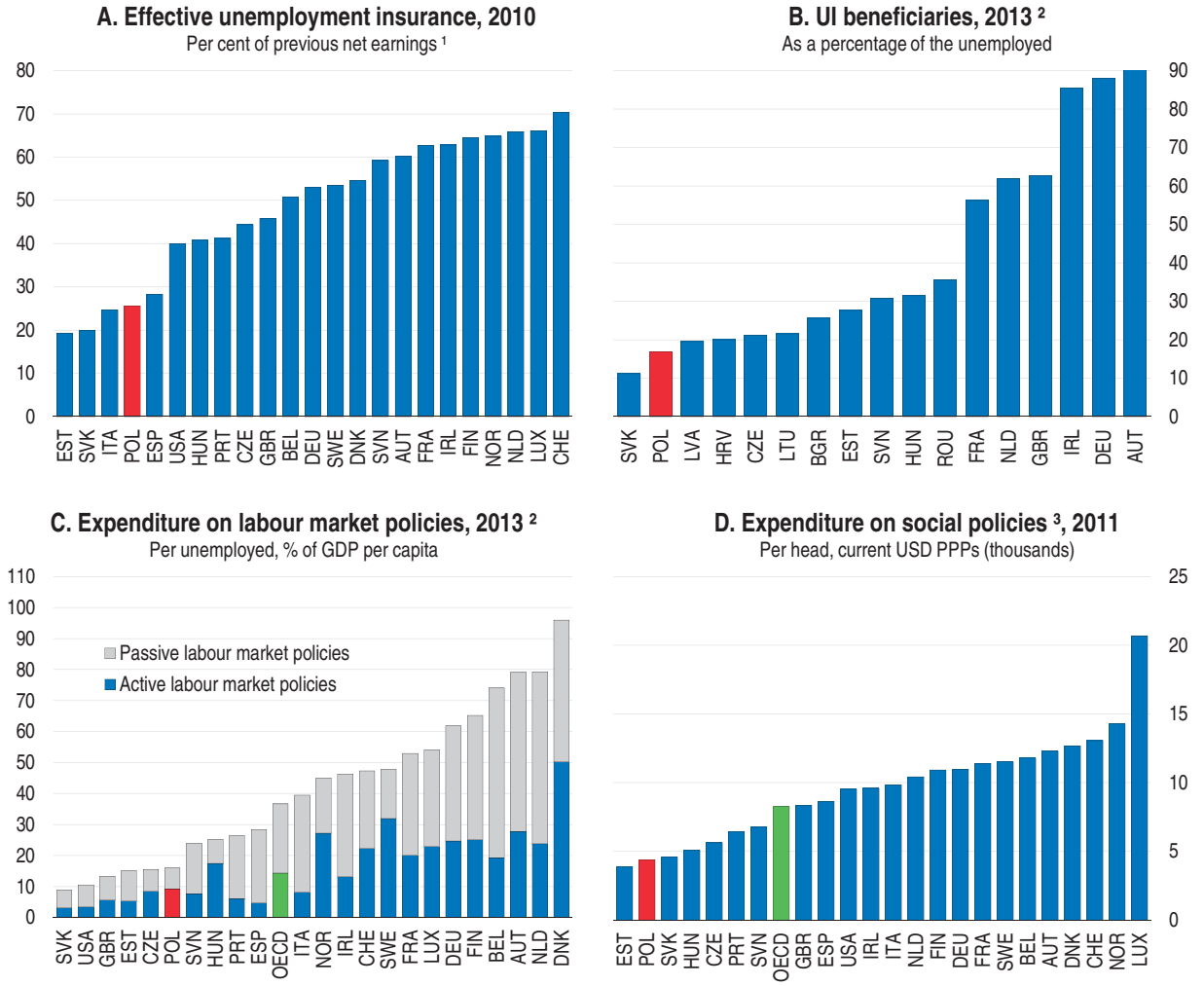
Source: OECD (2015), *Economic Outlook 98 Database*, *Labour Force Statistics 2015* and *OECD Education Statistics Database*.

StatLink http://dx.doi.org/10.1787/888933339675

share of graduates of the 10 most recent cohorts that were either inactive or unemployed in 2010-12 was 30% in tourism and recreation, and around 20% in sociology and pedagogy, compared to 11% in mathematics, 9% in computer science and 6% in civil engineering (Górniak, 2013).

The welfare system, which became less generous in the 1990s, makes it more difficult to cope with an unemployment spell in Poland than in some neighbouring countries. This helps to explain their different migration experiences (Kurékova, 2013). Average replacement rates of social benefits available to the unemployed are low (Figure 1.16, Panel A), as is coverage of unemployment insurance (Panel B). Spending on passive and active labour market policies per jobless person is comparable or higher than in the Czech Republic and Slovakia, although well below that in Hungary, Slovenia and other

Figure 1.16. **Social protection of the unemployed is relatively limited**



1. Effective unemployment insurance: average replacement rates of unemployment insurance (UI), unemployment assistance (UA) and social assistance (SA), each weighted with the share of the unemployed receiving the respective benefits. The average replacement rates for recipients of UI and UA take account of family benefits, housing benefits and social assistance if eligible. Net earnings are averaged across household types.
2. Or latest available year.
3. Public and private mandatory social expenditure.

Source: OECD (2014), *Employment Outlook 2014*; OECD (2015), *Labour Market Policies Statistics and SOCX Database*; ILO.

StatLink http://dx.doi.org/10.1787/888933339685

OECD countries (Panel C). Total social spending per capita is lower than in most other CEECs and far less than the OECD average (Panel D).

Emigration is adding to significant demographic pressures, but it has reduced poverty and inequality

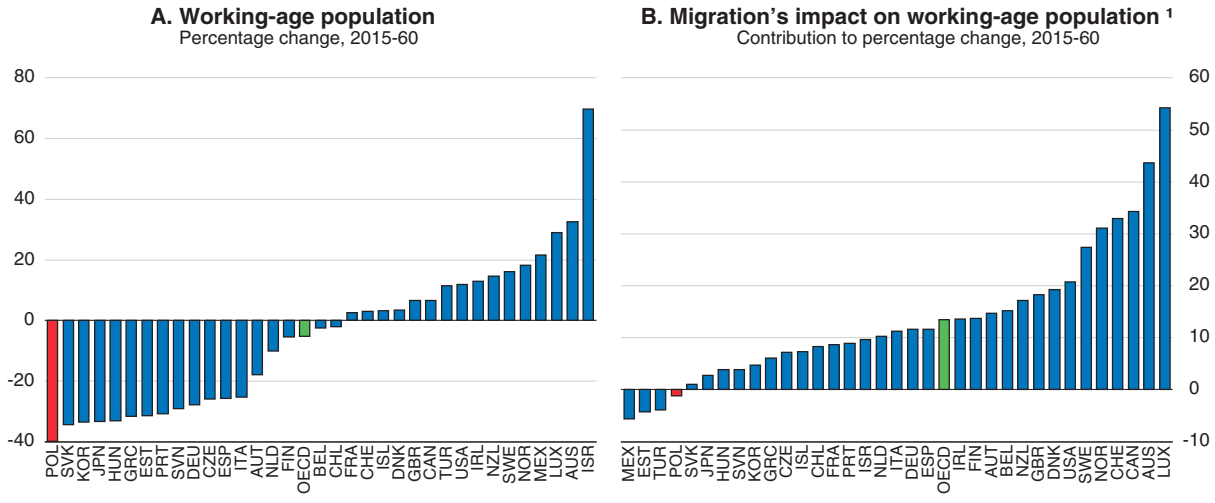
Poland faces severe demographic pressures, which will weigh on GDP growth and on Poland's ability to finance adequate pension and health-care spending in the longer term. Low fertility is the main determinant of ageing that the government needs to address. However, becoming an attractive country for migrants of both Polish and foreign origins can also make a positive contribution, provided that they are integrated successfully into the labour market. Based on past trends migration is not expected to mitigate the sharp

decline in the working-age population over the coming decades, unlike in many other OECD countries (Figure 1.17). However, immigration has increased rapidly of late. In 2012 the government adopted a strategic document on migration policy to address demographic developments and future labour market needs. Partly as a result of the ensuing reforms, the number of residence permits increased substantially and was almost twice as high in 2015 as in 2012.

Several studies find that emigration has had a weak impact on wages (Kaczmarzcyk, 2012a; Budnik, 2008; Dustmann et al., 2015), although others point out that it was stronger in sectors and regions that had particularly high outflows of workers (Anacka et al., 2014). Dustmann et al. (2015) suggest that the wage impact was stronger for workers with high and intermediate skills, who have a higher propensity to emigrate (see below). In turn, the wage impact on low-skilled workers, who became relatively more abundant, was negative.

Emigration has helped to lower poverty and inequality. Remittances peaked in 2007, owing to the growing tendency in recent years among emigrants to take their families with them, because they plan to stay. In 2014 remittances amounted to approximately 3.8 billion euros (1% of GDP). They were found to have reduced the poverty rate from 19% to 17.1% in 2008 (Barbone et al., 2012) and attenuated income inequality to some extent. They are mainly used for current consumption spending (Chmielewska, 2015), probably because families receiving them are often too poor to cover their current living expenses without these transfers (Brzozowski, 2012). Only emigrants with higher education sometimes state that they want to use their savings accumulated abroad to invest, for example in education or opening a business.

Figure 1.17. **The working-age population is set to decline sharply**



1. Projected impact of migration on the change in size of the working-age population in the 2015-60 period. This is calculated as the difference between the projected percentage change in the size of the working-age population in a scenario with migration and a scenario without migration. The migration scenario is based on past trends.

Source: United Nations (2015), *World Population Prospects: The 2015 Revision*.

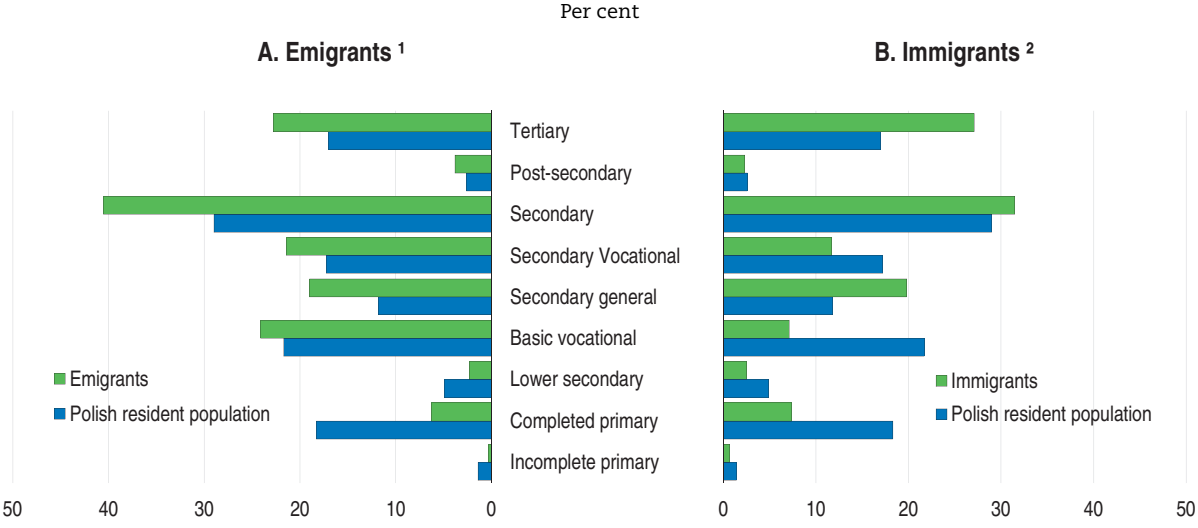
StatLink http://dx.doi.org/10.1787/888933339283

Poland both loses and gains highly qualified workers through migration

More and more Polish emigrants are highly qualified, as are official immigrants. People with higher education and upper secondary education are over-represented among emigrants compared to the resident population, while those with only primary education or less are under-represented. A similar picture holds for immigrants, of which around a quarter have Polish citizenship and are thus likely to be return migrants (Figure 1.18). The share of emigrants with higher education increased after Poland's EU accession. The largest group still has vocational education, but the share of this group among emigrants was even larger before EU accession (Kaczmarczyk, 2012a). In 2010/11 almost 16% of Poles with tertiary education lived outside the country, significantly more than in the average OECD country (OECD, 2015b).

This finding is qualified to some extent by PIAAC test scores of Polish emigrants, which are much lower than those of the resident population (Figure 1.19, Panel A). Very weak basic skills are particularly widespread among emigrants, including those with tertiary education (Panel B). While this is likely to reflect at least in part problems in taking the PIAAC test in a foreign language, test scores of emigrants from higher-income OECD countries tend to be much closer to the average among the resident population in their home countries and often even higher. Moreover, even Polish emigrants who have stayed in the foreign country for over 10 years still have lower average test scores than the Polish resident population, although the gap is narrower. Polish emigrants also have lower test scores than the resident population in their host countries (Brandt and Sicari, 2016). This is typical for immigrants in general (Bonfanti and Xenogiani, 2014), although not when they come from higher-income OECD countries (Brandt and Sicari, 2016). Given the wage increase they can expect, it seems plausible that individuals from lower income countries would be willing to move abroad, even if their language preparation did not allow them to fully use their skills in their destination country. Yet, PIAAC data do not allow for

Figure 1.18. **Both emigrants and immigrants are relatively high-skilled, 2011**



1. Emigrants staying temporarily abroad for a period longer than 3 months.
2. Immigrants staying temporarily in Poland for a period longer than 3 months.

Source: GUS (2013), *Migracje Zagraniczne Ludności. Narodowy Spis Powszechny Ludności i Mieszkań 2011*.

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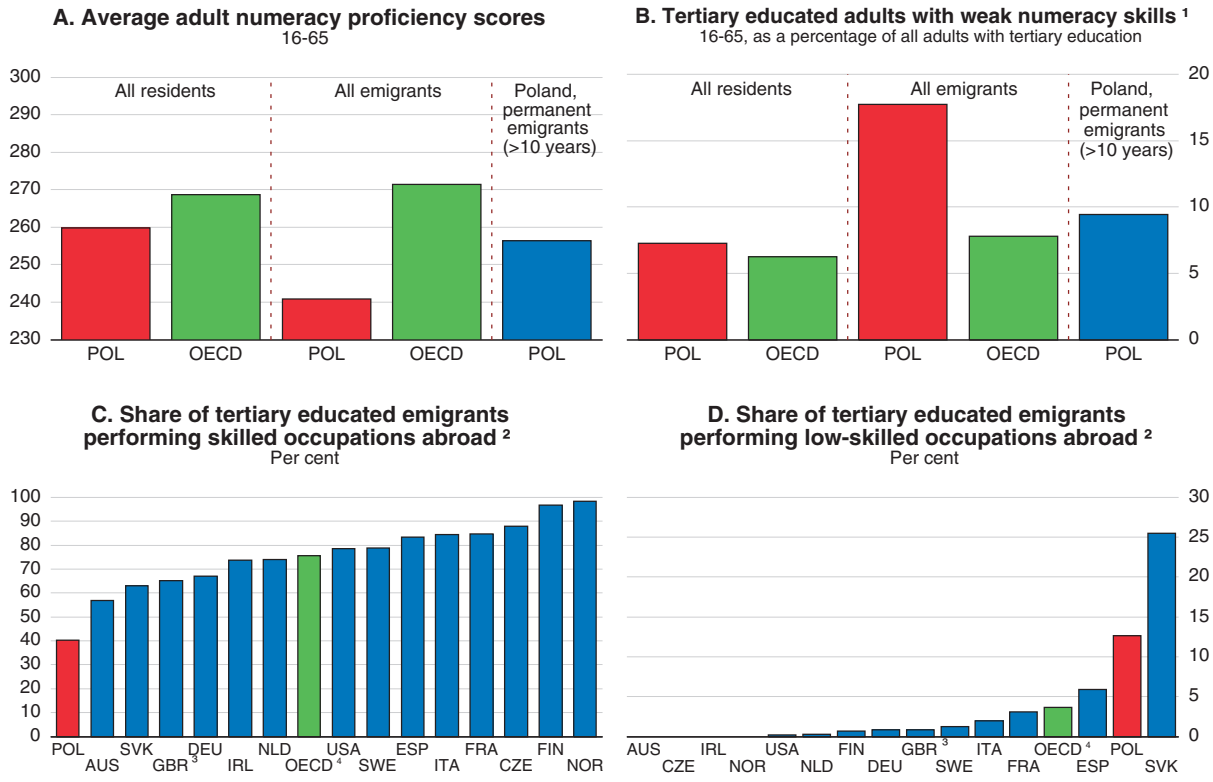
Figure 1.19. **Skills of Polish emigrants are low, and they tend to perform simple jobs abroad**

2012



1. Percentage of adults scoring at or below level 1 of the PIAAC scale of numeracy proficiency.
2. Skilled and elementary occupations are defined based on the ISCO classification.
3. The data are based solely on England and Northern Ireland for the United Kingdom.
4. Simple average across countries with available observations.

Source: OECD (2013), *OECD Skills Outlook 2013 Database* and OECD calculations.

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an unequivocal differentiation between language problems and low numeracy and literacy skills in respondents' mother tongue. Moreover, they are not necessarily representative for subgroups, such as emigrants from individual countries, even though the dataset comprises more than 600 Polish emigrants. Therefore, the observation that many Polish emigrants have university degrees seems more important.

Many Polish emigrants work in jobs requiring only low skills, although they often have a relatively high level of educational attainment (Chmielewska, 2015; Kaczmarczyk and Tyrowicz, 2015). Similarly, the recent boom of immigration from Eastern neighbours has been mainly used to fill simple, manual jobs, in particular in agriculture in remote regions (where Polish workers are difficult to find), construction, hotels and restaurants, wholesale and retail trade and domestic services. However, immigrants often have tertiary education (Duszczyk et al., 2013). Over-qualification is widespread among migrants in general and language problems as well as difficulties in transferring qualifications and skills acquired in the home country have been shown to contribute to this phenomenon (Bonfanti and Xenogiani, 2014). Yet, PIAAC data suggest that the phenomenon is especially pronounced among Polish migrants (Figure 1.19, Panels C and D). Many of them are likely to suffer from a loss of hard qualification- and job-specific skills as a result, which will make it difficult

for them to work in professions corresponding to their qualifications when they return to Poland.

Related to their concentration in low-skill jobs, average earnings of Polish workers are significantly below the average in destination countries. This disadvantage is persistent, even if it has shrunk somewhat over time. Average earnings of Polish immigrants in Germany who had stayed longer than three years were more than a third lower than average wages of Germans according to a central bank survey (Chmielewska, 2015). Kaczmarczyk and Tyrowicz (2015) show that high-skilled Polish migrants in the United Kingdom also suffer from a significant wage gap compared to their British peers.

Nevertheless, many Polish emigrants report that they were able to acquire new, mainly soft skills abroad through their work experience and training according to a survey among return migrants conducted in Silesia (Brzozowski, 2012; Szymanska et al., 2012). This goes in particular for languages (more than 80%), work experience, know-how and new managerial and organisational techniques (more than 60%). Almost 40% of migrants with higher education and slightly more than 20% of those with vocational education report that they participated in training abroad.

Migrants find it difficult to use their skills and qualifications on the Polish labour market

Available data sources suggest that labour force participation among return migrants is relatively high. While they are more likely to be employed than workers with no migration experience, their unemployment rate is also much higher (Kotowska, 2014). According to survey data from Silesia, around 40% of unemployed return migrants were workers moving back and forth between Poland and other countries who registered as unemployed when in Poland mainly for access to health-care benefits. Around 20% were low skilled and had employment problems before moving abroad. Yet, roughly 40% consisted of university graduates who previously worked below their qualifications in their destination country (Brzozowski, 2012), suggesting that over-qualification abroad can contribute to skills depreciation and labour market problems upon return. As in other countries, return migrants are more likely to set up a business than others (Anacka et al., 2014), yet when surveyed they cite various barriers. These include heavy bureaucratic procedures, high labour costs and a lack of support from local labour offices.

Only 40% of return migrants felt that they were able to use their skills and experience acquired abroad in their new jobs. Less than 30% consider that foreign experience has helped them to obtain a better job or higher earnings (Brzozowski, 2012; Szymanska et al., 2012). This may be linked to the finding that qualifications – as proxied by years of education – are valued much more highly on the Polish labour market than skills (Figure 1.7). Without a Polish qualification in their field of work, it is difficult for migrants to signal their skills to Polish employers. The new possibilities to validate work experience with formal qualifications should be particularly helpful for immigrants of both Polish and foreign origins.

Research suggests that immigrants are mainly complementary to the domestic workforce, in that their positions would have been difficult to fill by Poles (Duszczyk et al., 2013). As labour shortages are starting to emerge, including for qualified manual labour and some specialist professions, such as health-care workers, stronger immigration can

help. Yet, more needs to be done to help immigrants fully use their qualifications and skills on the Polish labour market.

Making qualifications more comparable nationally and internationally would improve labour market opportunities for immigrants. A law adopted in December 2015 foresees an integrated qualifications system (Zintegrowany *System* Kwalifikacji), aiming to make diplomas and certificates comparable, both nationally and on the European level. With the same methodology as the European qualifications framework it describes the knowledge, skills and competences associated with Polish qualifications to map them to those from other EU countries. This system should make it easier for Polish emigrants to use their qualifications in other EU countries, promoting better skills matches and development. Using qualifications acquired abroad when returning should also become easier. Similar, perhaps bilateral, initiatives would be helpful for non-EU countries that are major destinations or sources for Polish migration.

Public employment services need to improve further and be prepared to cater to immigrants' needs. The government is working to lower job counsellors' caseloads by increasing staff and to develop more individualised job-search assistance. Counsellors will need to be trained, including how to advise return migrants, immigrants and jobseekers who wish to set up their own business, and up-to-date information on labour market trends needs to be better integrated into counselling. The government recently introduced help for younger workers to set up a business, which can be particularly useful for return migrants with their relatively high propensity to become entrepreneurs. Requests for assistance can now be made online or by telephone, which might help return migrants better prepare their re-integration into the Polish labour market before they come back. Yet, services in English would be helpful to attract migrants who do not yet speak sufficient Polish, and firms should be encouraged more vigorously to list their job offers with the public employment services.

Active outreach to migrants is in Poland's interest

Given the scale of Poland's demographic problems, active outreach to potential immigrants is in its interest. Attracting more workers to Poland requires first and foremost good general economic, education and labour market policies that help the country develop and make effective use of workers' skills. Yet, actively reaching out to immigrants to facilitate moving to Poland and integrating into the labour market would also be helpful. The government has developed a programme to maintain ties with the Polish diaspora and to engage them to transmit a positive image of Poland in their residence countries. It would be important to actively advertise jobs and business and investment opportunities to them.

Information helping workers to move to Poland and work should also be extended to foreign migrants. There is a dedicated website *www.powroty.gov.pl* and a manual for emigrants considering returning to Poland to help them with job search, administrative procedures and access to education and health services. In the past, regional programmes included help to set up a business and promotional activities abroad to encourage return, but evaluations of their effectiveness are not available, and a number have been abandoned (Kaczmarczyk, 2012b). Initiatives to facilitate moving to Poland to work should be extended to foreign-born migrants from a wide set of countries. There is ample evidence that immigration is beneficial for innovation and productivity, in particular if migrants

come from diverse backgrounds (Ozgen et al., 2011; Ottaviano and Peri, 2006; Alesina et al., 2013).

As immigration from foreign countries increases and the range of source countries widens, some safeguards will be needed along with strong integration policies. With the simple declaration of intent there are essentially no restrictions to hire workers from neighbouring countries. The procedure was introduced to respond to legal seasonal labour needs, mainly in agriculture in remote regions, which had often been filled illegally before. The government should monitor whether the declaration of intent is really used for short-term seasonal employment or whether some employers use it recurrently for the same workers. In addition, stronger integration policies may be needed as more people come to Poland from a wider range of origins with more distant languages and cultures than neighbouring Ukraine. They will need opportunities to learn Polish and enrol their children in education from a very young age. Housing policies will also need to ensure they are integrated into a wide range of neighbourhoods to avoid excessive residential segregation.

Recommendations to strengthen workers' skills and profit more from migration

- Continue to expand access to early childhood education and care, particularly for poorer families.
- Continue to strengthen individual support for weak students in elementary and lower secondary education, and attract the best teachers to basic vocational schools, e.g. by improving their pay and career opportunities.
- Facilitate foreign credentials recognition and validation of experience and skills acquired abroad.
- Link university teachers' pay and career prospects to their performance, and continue strengthening links with business and foreign universities.
- Encourage more enterprises to offer work placements for vocational students.
- Develop a basic skills strategy.
- In addition to childcare facilities develop long-term care facilities and move towards individual taxation only.
- Strengthen labour law enforcement and further align contributions on civil and labour law contracts
- Continue efforts to set up high-quality orientation services for pupils and students. Train job counsellors in public employment services to advise immigrants and people who want to set up a business.
- Engage actively with the diaspora to advertise Polish investment, business and job opportunities. Provide information on how to come and work in Poland for Polish return migrants and foreign immigrants alike.

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Chapter 2

Improving transport and energy infrastructure investment

Poland has significantly upgraded its infrastructure network over the past decade. However, bottlenecks still weigh on productivity growth and environmental and health outcomes. The EU 2014-20 programming period is an opportunity to improve the management of infrastructure investment. Regularly updating national infrastructure strategies and promoting cost-benefit analyses and ex post evaluations would increase the coherence of sectoral development plans. Strengthening local governance and ensuring the independence of the network industry regulators and the Competition Authority would also be good moves. At the same time, rebuilding fiscal buffers and promoting long-term financing instruments will be critical over the medium term, while increasing environmental taxation and road pricing would promote greener investment. As many local governments lack administrative capacity, relying more on central government assistance for project management and public procurement procedures would improve infrastructure delivery. In the transport sector, the country allocated most recent funding to roads, but it plans significant investment in railway and urban public transport in 2014-20. Strengthening metropolitan governance, building up medium-term infrastructure management capabilities and reducing funding uncertainty would ensure more efficient spending. In the energy sector, electricity generation capacity is tight, while regulatory uncertainty, administrative burdens and a lack of interregional and international trade capacity has hampered the development of renewables. The authorities are seeking to develop nuclear power, but they need to take fully into account tail risks involved and its long-term costs. More energy efficiency investment would also be valuable, as current support systems do not provide sufficient incentives.

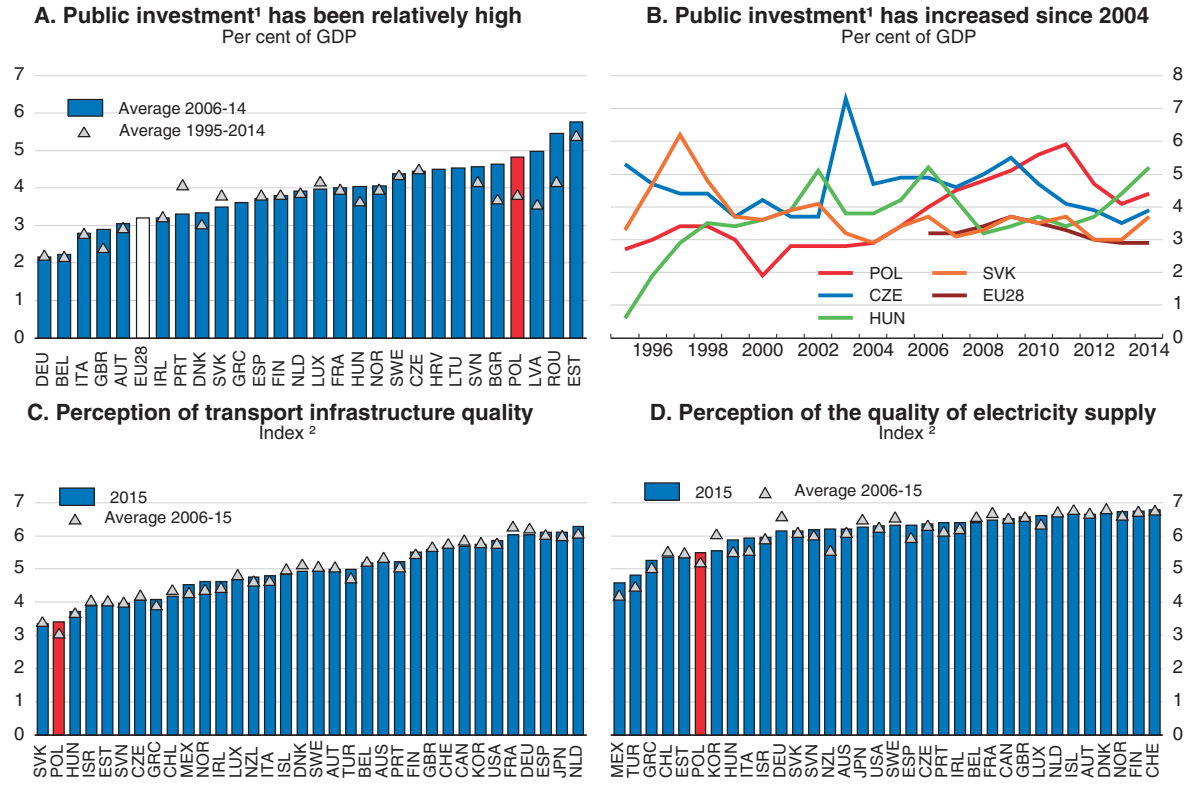
Infrastructure is key for productivity and social welfare

Improving infrastructure is a key requirement for keeping the economy on a steep long-term growth path, enabling productive private investment and the creation of new activities. Poland has made significant progress to upgrade its transport and energy infrastructure over the last 20 years (Figure 2.1, Panels A and B). The increase in public investment since 2003 has helped to significantly reduce infrastructure bottlenecks and smoothed the economic downturn during the global financial crisis and the European turmoil (OECD, 2014a). However, the perceived quality of overall transport infrastructure and electricity supply remains lower than in most OECD countries (Panels C and D), and infrastructure needs are still substantial. The current investment plans until 2030 and 2050 foresee sizeable investment in transport and energy infrastructure (Ministry of Economy, 2015a; Ministry of Infrastructure and Development, 2014). Until 2020, structural and cohesion funds from the European Union that assist in the financing of numerous infrastructure projects are set to reach nearly 3% of 2013 GDP per year (European Commission, 2015a). Strengthening the planning and management of public and private infrastructure investments, as well as improving the regulatory environment, would enhance the short- and long-term impacts of new infrastructure on productivity, growth and well-being (OECD, 2015a; IMF, 2015).

Improving transport infrastructure and developing public transport, as planned in the EU 2014-20 programming period, is an important challenge. Investment imbalances between road and rail infrastructure, consumer preference for car ownership, as well as relatively low car use taxation have led to a steady decline of public transport modes (OECD, 2014a and 2015b). At the same time, Poland's economy has exhibited a growing dispersion of GDP per capita across metropolitan areas, while residential mobility is low (Figure 2.2). Furthermore, the safety of the rail and road networks is lagging in international comparison (Figure 2.3, Panel A). Developing more efficient transport infrastructure, notably urban rapid transit, is important to reduce the sector's environmental impacts and local labour market mismatches, and to sustain regional development (OECD, 2014b and 2014c). At the macroeconomic level, lowering transportation costs would improve access to markets and regional resource re-allocation and boost agglomeration effects, productivity and economic growth. This could counteract the slowdown in potential growth associated with the rapidly ageing population and low fertility rates.

Emissions of greenhouse gases (GHGs) are another vital issue. Urban air pollution is elevated, contributing to climate change and leading to substantial health costs (Figure 2.3, Panel B; European Commission, 2015a). The government is planning to increase spending on public transport in 2014-20 and to progressively reduce the share of coal in the energy mix. However, coal's share in primary energy supply remains the highest in the OECD, despite its gradual reduction over the last decade, and the GHG emissions of the energy sector are relatively high (Figure 2.4). Ageing electricity generation capacity and limited

Figure 2.1. **Public investment has been significant but bottlenecks remain**

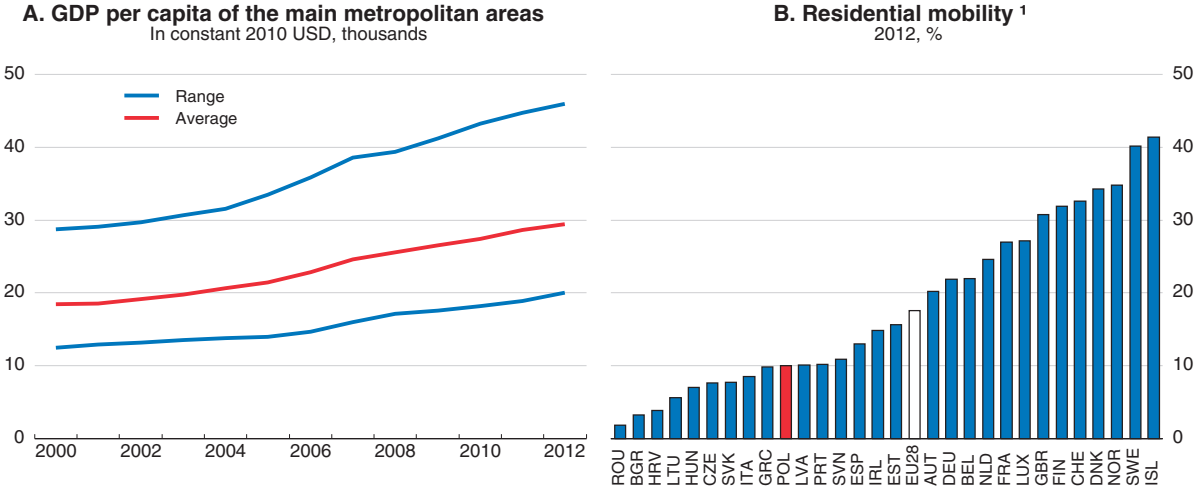


1. Gross general government fixed capital formation.
2. Index from the lowest perceived quality (0) to the highest (7).

Source: OECD (2015), *National Accounts Database*; World Economic Forum (2015), *The Global Competitiveness Report 2014-15*.

StatLink http://dx.doi.org/10.1787/888933339705

Figure 2.2. **Regional disparities and residential mobility**

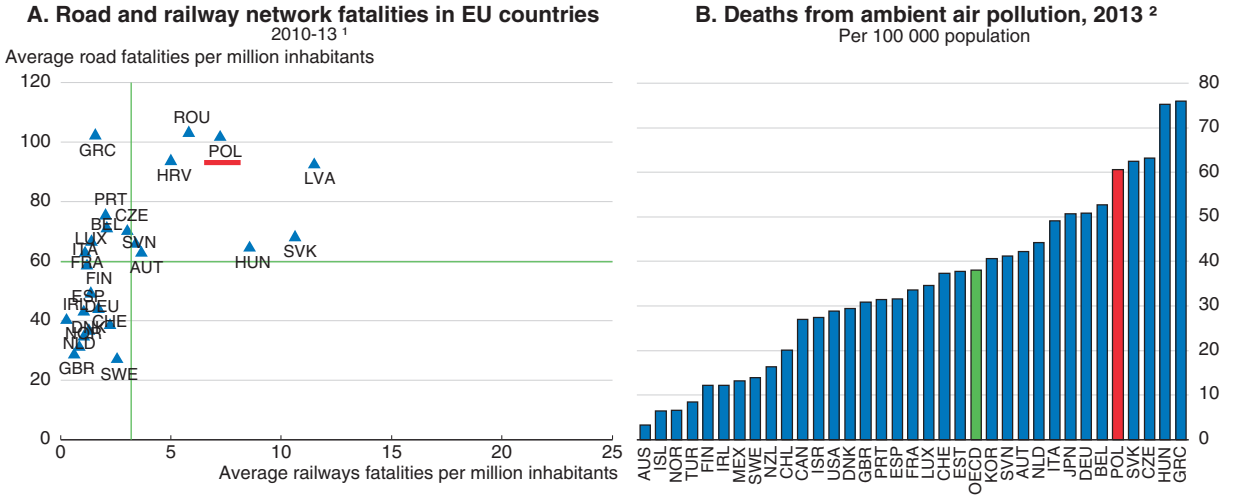


1. Share of population having moved to another dwelling within the last five-year period.

Source: OECD (2015), *Metropolitan Database*; and Eurostat, *SILC Database*.

StatLink http://dx.doi.org/10.1787/888933339711

Figure 2.3. **Land transport safety and urban air pollution**

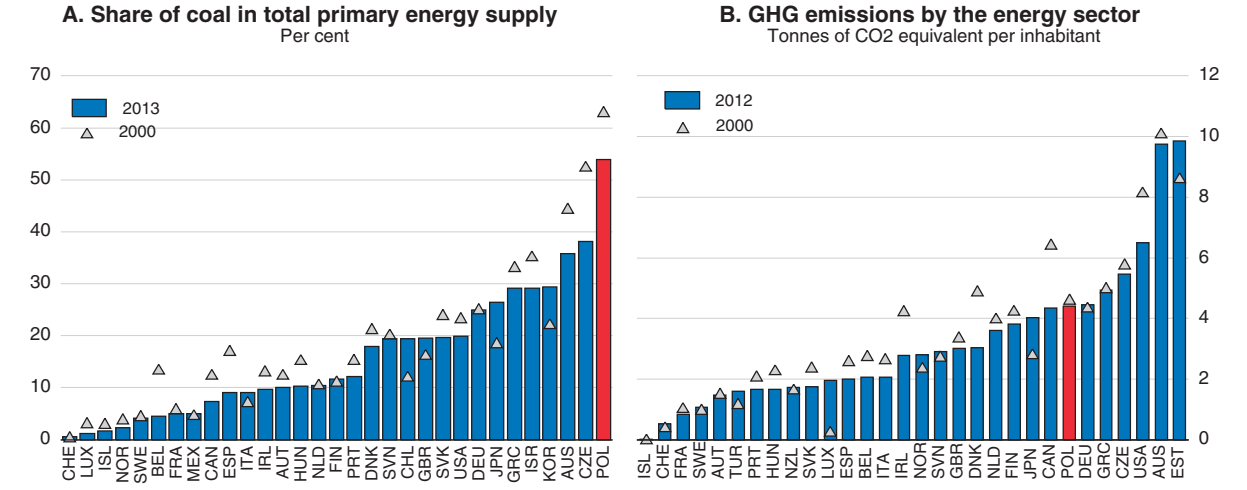


1. The vertical and horizontal lines correspond to the un-weighted European averages.
2. Deaths from ambient particulate matter and ozone pollution.

Source: Eurostat (2015), *Transport safety statistics*. OECD calculations based on Institute for Health Metrics and Evaluation, *http://viz.healthmetricsandevaluation.org/gdb-compare/*.

StatLink http://dx.doi.org/10.1787/888933339724

Figure 2.4. **Greenhouse gas (GHG) emissions in the energy sector**



Source: IEA (2015), *World Energy Statistics and Balances* (databases); OECD (2015), *Greenhouse gas emissions in tonnes of CO_2 equivalent for the energy sector*.

StatLink http://dx.doi.org/10.1787/888933339737

international trade capacity also lower the safety of electricity supply in tail events, such as the 2015 heatwave (European Commission, 2015b). Further connections to neighbouring countries and international energy markets would increase competition on wholesale and retail markets and help to reach European environmental objectives in a cost-efficient way, while easing the balancing of intermittent renewable energies.

The co-financing of EU funds and new infrastructure and maintenance needs after 2020 will require substantial government resources. However, a number of obstacles still hinder the appraisal and selection of projects and efficient infrastructure spending.

Careful planning, effective spending controls, appropriate mobilisation of tax revenue and well-functioning redistribution mechanisms across layers of governments would improve infrastructure investment. Strengthening regulatory frameworks, improving public procurement procedures and coordination among the different stakeholders would also lead to more efficient infrastructure spending. At the same time, developing risk capital from infrastructure funds that can be sold to long-term investors could support infrastructure financing.

This chapter reviews the overall regulatory and financing frameworks surrounding infrastructure investment and then focuses on the transport and energy sectors. The main results are:

- Despite significant progress in redesigning the regulatory framework, regulations and institutions could better ensure competitive neutrality. Infrastructure planning would be strengthened by better integrating policy and investment priorities across ministries and local governments, and by stepping up the professionalisation of public procurement procedures.
- Significant headway has been made to extend the road network. However, the density of high-speed roads remains lower than elsewhere, local road maintenance has been poor, and rail investment is lagging. The new rail and road investments planned under the 2014-20 EU perspective are welcome, but, over the medium term, developing road pricing is needed to ensure sustained investment and maintenance of the existing network and develop public services.
- Power generation capacity remains under-diversified, and the current regulatory framework does not provide sufficient incentives for new investment. The functioning of the new programme for energy efficiency and the development of nuclear projects need to be monitored closely and international electricity trade capacity developed, as planned.

An overarching strategy and a sound institutional framework are key to improving infrastructure

Economic growth and better environmental and health outcomes call for higher infrastructure investment. The ongoing implementation of the EU funds strategy 2014-20 provides further opportunities to strengthen infrastructure governance. At the same time, policy developments should ensure that infrastructure investments are integrated into a broader agenda of sustainable development and maintenance, since beyond 2020 EU funding may be substantially reduced.

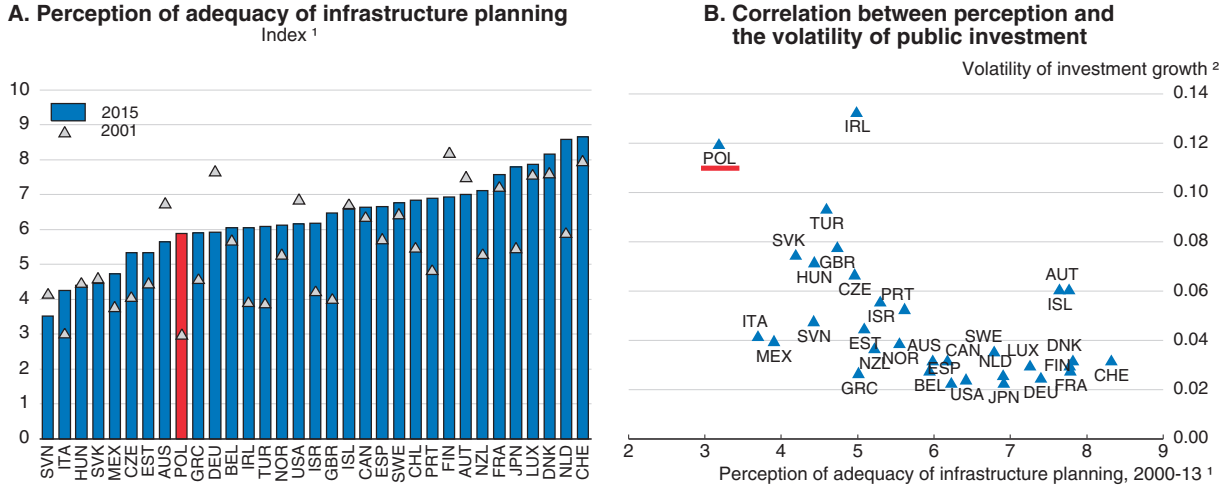
Better integrating strategic infrastructure plans across objectives and levels of government

Historically, public investment, private investment and GDP growth have moved together in Poland (Rostowski, 2009), as better public capital and infrastructure allow productivity gains and encourage private investment. Public investment may be necessary to correct market failures and finance long-term projects in the transport and energy sectors. The delivery of mostly irreversible capital investment involves a high level of risk-taking and the need for long-term financing, whereas the development of infrastructure networks is often associated with positive and negative externalities – such as lower congestion costs or higher pollution – that can lead to socially non-optimal levels of capital

investment. Well-chosen public investment can raise output and employment, both in the short and long terms by crowding in private investment (OECD, 2015a; Abiad et al., 2015; Eden and Kraay, 2014). However, not all public investment creates economically valuable capital, and institutional arrangements need to ensure the efficient allocation and the quality of projects, notably by sound cost-benefit analysis, efficient public procurement and public-private partnership procedures, as well as the development of governance capacities.

General investment strategies across all levels of government have been progressively adopted. The authorities have over time designed key long-term national development strategies: the National Spatial Development Concept 2030 in 2011, the National Development Strategy 2020 in 2012, and the Long-Term National Development Strategy 2030 in 2013. These plans, together with the partnership agreement and the operational programmes for use of EU structural and cohesion funds, represent the framework for co-ordinating sectoral policies. However, appropriate connections between national and local roads are still sometimes lacking (World Bank, 2011). A first top-down strategy for the whole transport sector, the Transport Development Strategy to 2020 (with perspectives to 2030), was adopted only in 2013. Responsibilities for policies that affect urban areas are scattered across separate ministries that administer various components of what ought to be an integrated spatial policy (OECD, 2011a and 2015c). Likewise, in the past, many concurrent infrastructure plans were not well integrated into an articulated strategy. In addition, local spatial plans cover only 30% of the country, and slow compulsory land purchasing, complicated tendering procedures and insufficient use of external audits have led to significant implementation delays (Kierzenkowski, 2008; Laursen and Myers, 2009). As a result, infrastructure planning and financing are still perceived as relatively weak, even if much better than at the turn of the century. This perceived weakness correlates positively in international comparison with the volatility of public investment (Figure 2.5).

Figure 2.5. **Indicators of the adequacy of infrastructure planning and financing**



1. Agreement of managers to the statement "maintenance and development of infrastructure are adequately planned and financed", from 0 (disagreement) to 10 (full agreement).
2. Standard deviation of nominal public investment growth over 2000-13.

Source: World Competitiveness Center (2015), *IMD World Competitiveness Online;* OECD, *National Accounts Database.*

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The government presented its medium-term plans for the road and rail sectors and a draft energy strategy in 2013-15. The National Transport Strategy to 2020 (with perspectives to 2030) presents the main goals of transport development. Its implementation programme, adopted in 2014, presents the specific investments to be carried over 2014-20, notably with the use of EU funds. While investments under the 2007-13 EU financial perspective focused on roads, funding for the railway sector is set to increase in 2014-20, notably urban transport projects to address congestion and sustainability issues (Box 2.1). The current draft "Energy Policy of Poland until 2050" also foresees partially replacing and complementing existing coal-fired power plants with high-efficiency coal plants and a sharp increase in renewable energy sources supported by new gas plants as both reserve capacity and a basis for co-generation with heat (Ministry of Economy, 2015a). In addition, a first nuclear power plant is to be commissioned by 2030. These represent steps in the right direction providing a comprehensive view of the country's infrastructure needs and how the government plans to satisfy them. However, they would need regular updates, and improving coordination between ministries and setting clear jurisdictions would also reduce policy uncertainty and could expedite infrastructure investment, notably in the transport sector.

Ex ante and ex post cost-benefit analysis (CBA) should play a larger role in the development of infrastructure strategies and the choice of specific projects. At the stage of the feasibility studies, EU regulations require a CBA of all major investment projects applying for assistance. However, several past strategies and policy documents in key areas failed to include either a proper CBA or estimates of the cost of inaction. Only limited studies of the impact of pollution on human health and on ecosystems have been carried out and taken into account in prioritising policy responses (OECD, 2015b). Moreover, the feasibility studies may have a limited impact on the choice of the final options to achieve the project's objectives. Therefore, beyond the feasibility studies, a more consistent use of CBA could help identify projects with the largest social returns, facilitate prioritisation and reduce fiscal risks. A central body could be in charge of securing uniform CBA, taking into account environmental and health impacts and other policy objectives, by building up in-house expertise, and mandatory independent counter-expertise could also be used for the largest projects, as in France. In addition, standardised ex post evaluations for large infrastructure projects should be required by national legislation so as to help identify best practices and trade-offs between policy measures and improve cost efficiency (Crozet, 2013; ITF, 2014).

The coordination of investment strategies across all levels of government is improving. Sub-central governments were responsible for about half of total public investment in 2014, above the OECD average and other Central and Eastern European countries. For example, local governments owned more than 95 % of road infrastructure in 2013 (Ministry of Infrastructure and Development, 2015a). The lack of co-ordination between the various levels of government, and between jurisdictions at the same level, has been a source of inefficiency. Polish legislation includes voluntary mechanisms for inter-municipal collaboration; however, there are no specific financial incentives to encourage it. Around 60% of municipalities are engaged in some kind of inter-municipal collaboration, but integrated urban planning is underdeveloped (OECD, 2011a). The outcomes of some environmental projects have been undermined by their geographic dispersion and the lack of clear delimitation of functional areas served by the infrastructure (European Commission, 2012). A welcome recent law foresees the creation of metropolitan

Box 2.1. **Government transport programmes**

The **National Transport Strategy to 2020 (with perspectives to 2030)** is the first global strategy for the transport sector adopted in Poland. This document, published in 2013, aims to ensure coordination between all transport modes and infrastructure projects. It sets the main goals and priorities for the transport sector, including logistics and urban transport. It aims at improving transport accessibility, safety and efficiency, and Poland's international connections.

The implementation programme of this Strategy, adopted in 2014, specifies the priorities in the railway, road, maritime and inland waterways sectors to be reached in 2014-20 to ensure coordination between transport modes and infrastructure projects. It also sets criteria for project selection in the use of EU funds.

Besides the use of EU funds, the Strategy and its implementation programme also determine all the sectoral transport programmes, notably for roads and railways. The financing of these two programmes involves the state budget, the national road and railway funds (Box 2.2) and public-private partnerships. The authorities adopted two documents that set out investment priorities in September 2015:

- **The 2014-23 National Road Construction Programme** (with a view to 2025) foresees new infrastructure investment, notably the construction of 35 ring roads, for a total amount of PLN 107 billion (6.2% of 2014 GDP), maintenance expenditures and land acquisitions worth PLN 46.8 billion (2.7% of 2014 GDP) and road safety measures (PLN 4.8 billion, 0.3% of 2014 GDP). This includes the carry-over of some expenses from the current 2011-15 National Roads Construction Programme for PLN 14.5 billion (0.8% of 2014 GDP).
- **The 2014-23 National Railway Programme** assumes that PLN 67.5 billion (3.9% of 2014 GDP) will be spent on railway infrastructure by 2023. It is expected that the projects to be carried out as part of the programme will reduce the time needed to travel between the main cities in Poland, establish rail as an alternative to road and air transport, improve accessibility for some regions and strengthen the existing connections between regions.

governance associations in 2016, notably for transport and spatial planning, but these will remain voluntary. In addition, under the 2014-20 EU perspective, new ex ante conditionality mechanisms could ensure better coordination. Indeed, the new perspective focuses on the integrated management of urban areas and their linkages with their rural counterparts, irrespective of administrative boundaries, while urban and transport developments used to be separate objectives.

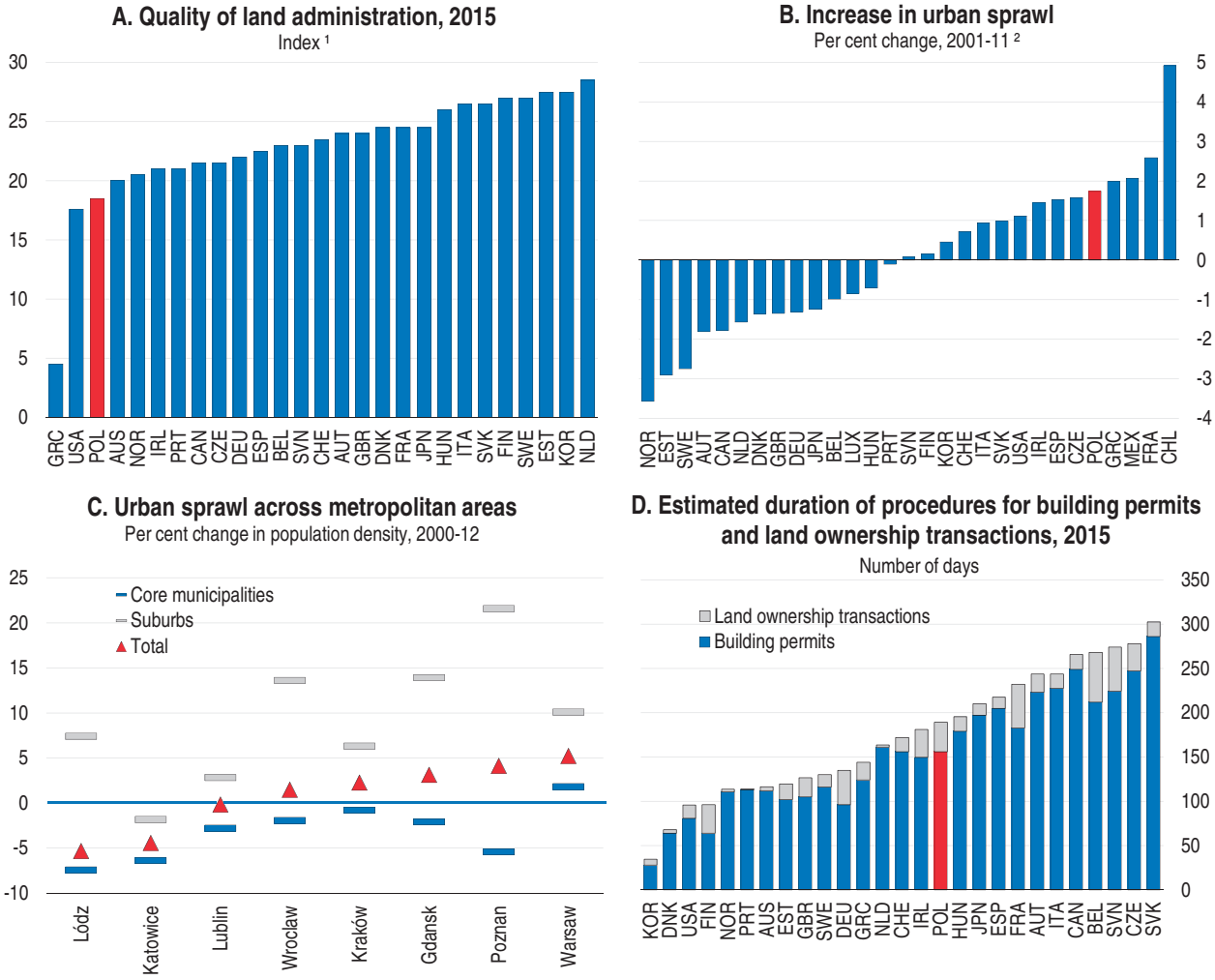
The decentralisation of the allocation of EU funds over 2014-20 will give a more prominent role to local governments in infrastructure investment, and there will be a need to increase their accountability and resources, as local tax autonomy remains limited (Blöchliger and Nettley, 2015). Decentralisation of competences in infrastructure management has not been followed by comparable fiscal decentralisation to Poland's 16 regions, 380 counties and 2 478 municipalities (OECD, 2013a). Specifically, regional and local governments depend on central government transfers to implement infrastructure and maintenance work not supported by EU funding, since they have a limited right to impose taxes and levies. Moreover, the general grant system does not fully take into account the high costs of public services for core cities compared to suburban areas, due to high wages and land prices and the concentration of public services at the core of most metropolitan areas (OECD, 2011a). In the 2014-20 EU funds allocation, transfers from the central government to local municipalities will take into account alignment with the national transport plan and the coordination of municipal policies within metropolitan areas, but such mechanisms should be made permanent to match infrastructure finance

and future maintenance costs. The introduction of metropolitan fiscal equalisation schemes could also help to better account for cost variation among municipalities.

Municipalities have far-reaching responsibilities for setting their own development policies. They design areas for certain purposes through legally binding local land-use plans. However, the quality of land administration appears relatively low (Figure 2.6, Panel A). The digitalisation of plans, the availability of information and the ease of land dispute resolution appear to lag behind most OECD countries (World Bank, 2015). Moreover, around 70% of the municipal territory lacks local spatial plans (Ministry of Regional Development, 2012). In the absence of local plans, municipalities may grant building permits based on administrative decisions that do not ensure coherence with spatial plans. Residential developments on greenfield sites have to fulfil certain minimal conditions: a neighbouring plot has to be developed with housing, and there also has to be access to a public road. This does not ensure coherence with spatial planning and tends to favour housing developments along public roads (Halleux et al., 2012; Krajewska et al., 2014). Indeed, urban sprawl has expanded rapidly (Panel B; Veneri 2015), and most metropolitan areas in Poland have experienced decreasing population density in the urban core along with increasing density in the suburbs (Panel C). An envisaged reform of spatial planning would impose much stricter conditions regarding connection to infrastructure to grant building permits on land without local spatial plans, while investors would be allowed to develop infrastructure for the municipality to comply with conditions for planning permission. It would also reduce the scale and scope of compensation municipalities have to pay to owners when they restrict the use of their land to create or update local spatial plans. This reform would support the development of local spatial plans and should be implemented swiftly. If it proves insufficient, the release and integration of municipal spatial plans with other local economic development plans and metropolitan strategies should be made mandatory in order to improve coordination among the different stakeholders.

Regulations for project approvals could be streamlined for specific infrastructure projects. The application procedures for building permits and land ownership transfers are slightly lengthier than in the average OECD country (Figure 2.6, Panel D). For a typical warehouse, obtaining a permit requires 16 procedures, takes 156 days and costs 0.3% of the construction value (World Bank, 2015). But procedures are much more cumbersome than in other European countries for windfarms (EWEA, 2010). Before the recent election there was a draft law before the parliament reforming spatial planning regulations. The parliamentary approval process of this reform needs to be resumed swiftly. This, together with foreseen amendments to the construction law, would improve the investment process; however, progress remains limited so far (European Commission, 2015c). In addition, large infrastructure projects need further authorisations. For example, various levels of government have been in charge of environmental impact assessments (EIAs) since the 1980s, depending on project size (OECD, 2015b). However, limited public participation and lack of trust among stakeholders contribute to frustration with EIA procedures by the administration, investors and the public. The national court of auditors has stated that, in several cases, notably for road and renewable energy projects, stakeholder views were ignored (NIK, 2014a). Better integrating public consultations into the elaboration of regulations and promoting in-depth evaluation of regulations in specific sectors would help improve the regulatory framework (OECD, 2015d). Improving the national anticorruption framework (see below) would also be crucial in limiting conflicts of

Figure 2.6. **Land administration, urban sprawl and duration of urbanism procedures**



1. From 0 to 30 (best practices).
2. Change in population decentralisation within metropolitan areas (Veneri, 2015).

Source: World Bank (2015), *Doing Business 2016*; P. Veneri (2015), "Urban spatial structure in OECD cities: Is urban population decentralising or clustering?", *OECD Regional Development Working Papers*, No. 2015/13; OECD (2015), *Metropolitan Database*.

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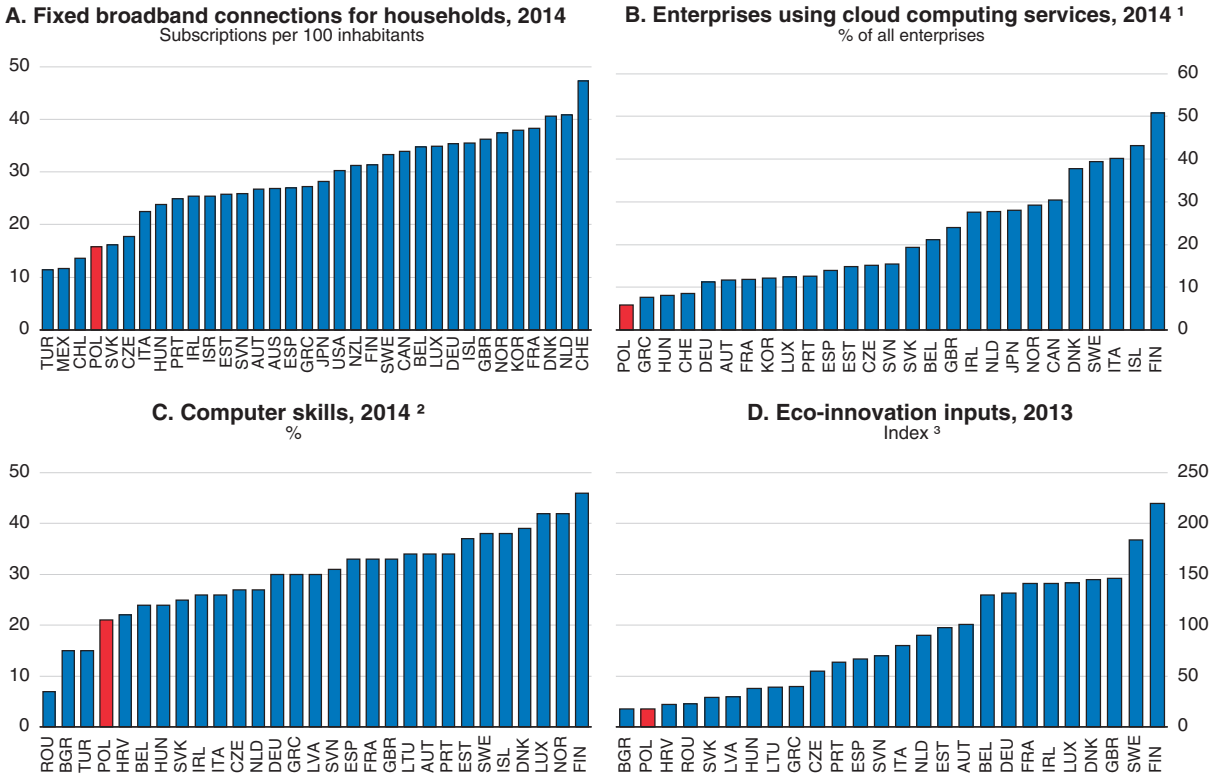
interest in permit issuance. In the past, many local authorities have conditioned the issuance of wind farm permits on donations to the municipalities, and many windfarms were built on land owned by local government employees and politicians (NIK, 2014a).

Efficient transport and energy infrastructure in Poland would benefit from expanding the broadband and digital infrastructure. Poland lags behind most OECD countries for some indicators of Internet and cloud-computing use by households and firms (Figure 2.7, Panels A and B). Investments in broadband and digital infrastructure should be implemented at the same time as road, rail and energy investment whenever possible to reduce the overall costs for the public sector, as planned in the 2014-20 operational programme for digital Poland (European Commission, 2015d). The development of broadband communication networks and services holds the potential for tremendous innovation in transport and energy investment. For example, by allowing employees and independent professionals to work remotely rather than in centralised offices, teleworking

Figure 2.7. **Fixed broadband penetration and ICT use**



1. Cloud computing refers to ICT services used over the Internet as a set of computing resources to access software, computing power, storage capacity and so on.
2. Share of individuals aged 16 to 74 reporting to have carried out five or six specific tasks related to computer use.
3. Index from 0 (lowest levels of inputs) to 300. The index is based on three indicators: government investments in environmental and energy R&D, green early-stage investments and total R&D personnel.

Source: OECD (2015), *Digital Economic Outlook 2015* and *OECD Science, Technology and Industry Scoreboard 2015*; Eurostat (2015), *Individuals' Level of Computer Skills*; European Commission (2015), *Eco-Innovation Scoreboard*.

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could cut costs and commuting time; but it remains particularly limited in Poland (OECD, 2010). Similarly, the development of "smart" grids and integrated Intelligent Transport Systems could allow better energy and transport choices, while empowering businesses and consumers. More generally, the increasing amount of real-time, fine-grained data enables more targeted and cost-effective infrastructure maintenance, service improvements and investment decisions. However, this would also require significant upgrading of the skills of the population (Panel C) to foster innovation, and Poland's current R&D in eco-innovation appears particularly low by EU standards (Panel D).

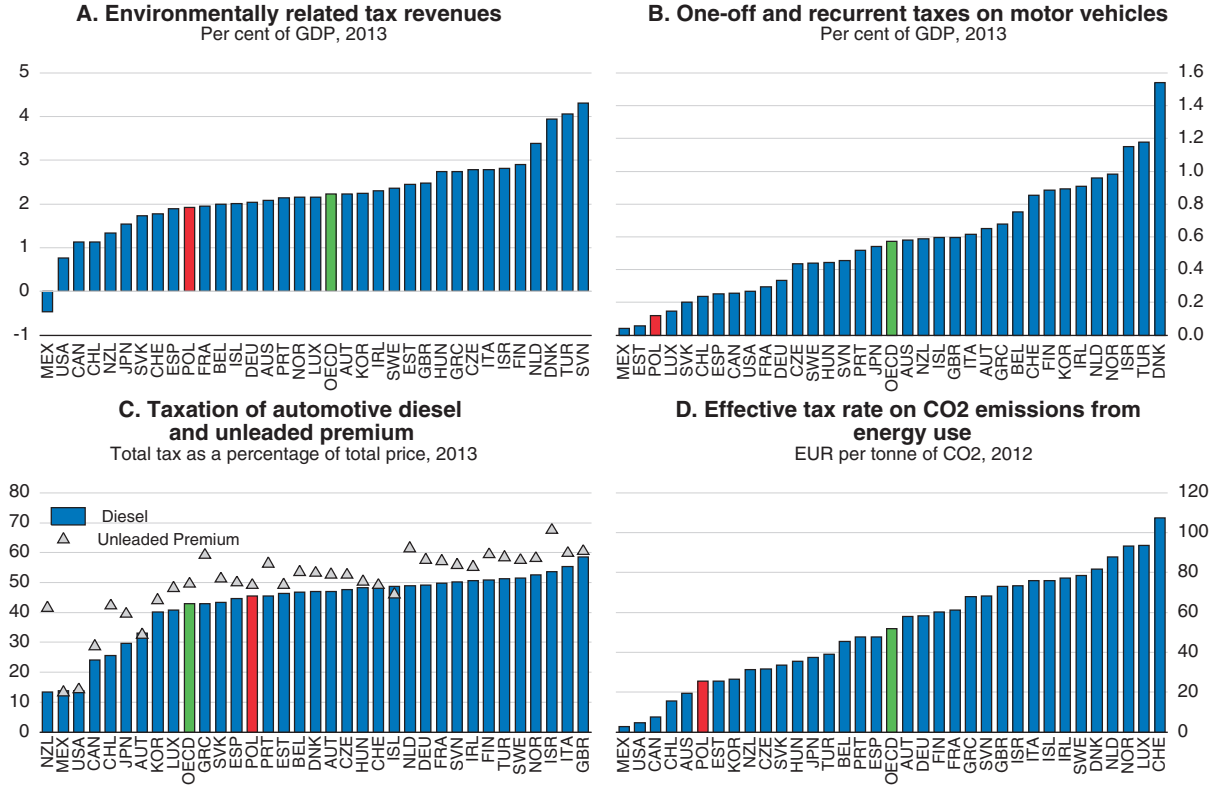
Green taxes could better internalise externalities to strengthen green investment (and help raise higher revenues). A broad-based strategy is needed to improve environmental quality and contribute to reaching the goal agreed at COP21 in Paris to hold the increase in global average temperature to well below 2°C above preindustrial levels and achieve a balance between GHG emissions and removals in the second half of the century. The government has implemented the polluter-pays principle with taxes on air and water pollutants. Yet, they are often not high enough to take into account environmental and health externalities (OECD, 2015b). Revenues from environmentally related taxes are somewhat below the OECD average, while revenues from vehicle taxes are well below it

(Figure 2.8). Poland is one of the few OECD countries where passenger vehicle tax rates are not based on environmental criteria (OECD, 2012a). This favours importing second-hand vehicles, and the large and old car fleet magnifies the weaknesses of the road network, with high long-term costs for health, public safety and public finances. Another problem is that diesel accounts for the majority of motor fuel but is taxed at a lower rate than petrol (as in most other OECD countries), despite the fact that its CO_2 emissions per litre are higher and its combustion emits more local pollutants (Harding, 2014).

The effective economy-wide tax rate on CO_2 emissions from energy use is also low (Figure 2.8, Panel D), particularly relative to other OECD-European economies. Household coal use for heating, often in inefficient systems, is not subject to environmental taxation, although this is a significant source of urban air pollution, and it is also not subject to the EU Emissions Trading System (EU-ETS, see below). A tax could reinforce the government's subsidy programmes to replace inefficient heating systems in households and its plans to move towards district heating (see below). CO_2 and energy taxes have been an important element in a broader Swedish plan to cut residential-sector emissions by promoting district heating (OECD, 2011b).

Infrastructure financing in Poland has so far relied heavily on EU funds, which co-finance public investment and contribute to economic growth. With EUR 68 billion allocated over 2007-13 (22% of 2007 GDP), inflows of EU funds to Poland were the highest in the EU in absolute value and among the largest as a share of domestic GDP. Poland's

Figure 2.8. **Green taxes**



Source: OECD (2014), *Consumption Tax Trends 2014*; OECD (2015), *Environmental Taxation and Revenue Statistics* (databases); OECD (2013), *Taxing Energy Use – A Graphical Analysis*.

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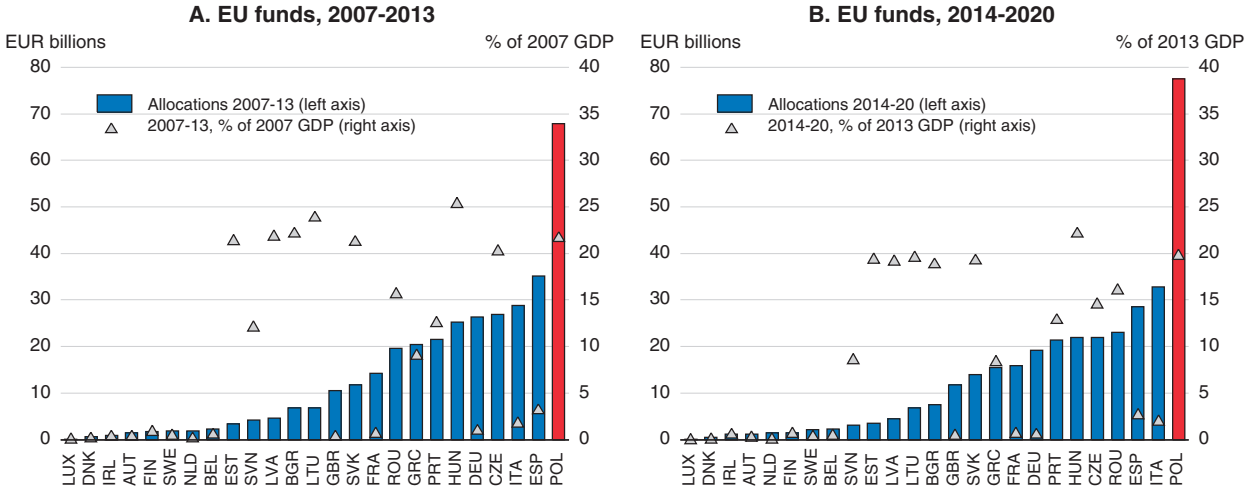
absorption of EU funds accelerated significantly after the simplification of financial management and control procedures in 2010. By the end of 2013, nearly all available funds had been contracted by operational programme beneficiaries (Ministry of Infrastructure and Development, 2013). EU funds are set to reach EUR 78 billion in 2014-20, around 20% of 2013 GDP (Figure 2.9). In particular, the new Operational Programme Infrastructure and Environment amounts to EUR 32 billion (of which EUR 28 billion from EU funds), with transport continuing to be the primary recipient (Ministry of Infrastructure and Development, 2015a; European Commission, 2014a).

Bridging transport and energy infrastructure gaps will require significant fiscal discipline. The government will need to co-finance important investments over 2014-20, and EU funds are likely to be gradually phased out thereafter. In addition, much of the current infrastructure funding relies on increased borrowing from the European Investment Bank (EIB) and the state-owned development bank, BGK. The current level of borrowing may be unsustainable, as infrastructure needs remain substantial, and maintenance costs are increasing. Large-scale investments, which require external funding, may put additional pressure on public finances, notably for local governments that are subject to tight budget constraints and binding debt rules.

Figure 2.9. **EU structural and cohesion funds, 2007-13 and 2014-20**[1]



1. Only recipients from both periods are shown.

Source: European Commission (2014), "Summary of the Partnership Agreement for Poland, 2014-20"; European Commission (2013), *Analysis of the Budgetary Implementation of the Structural and Cohesion Funds in 2012*.

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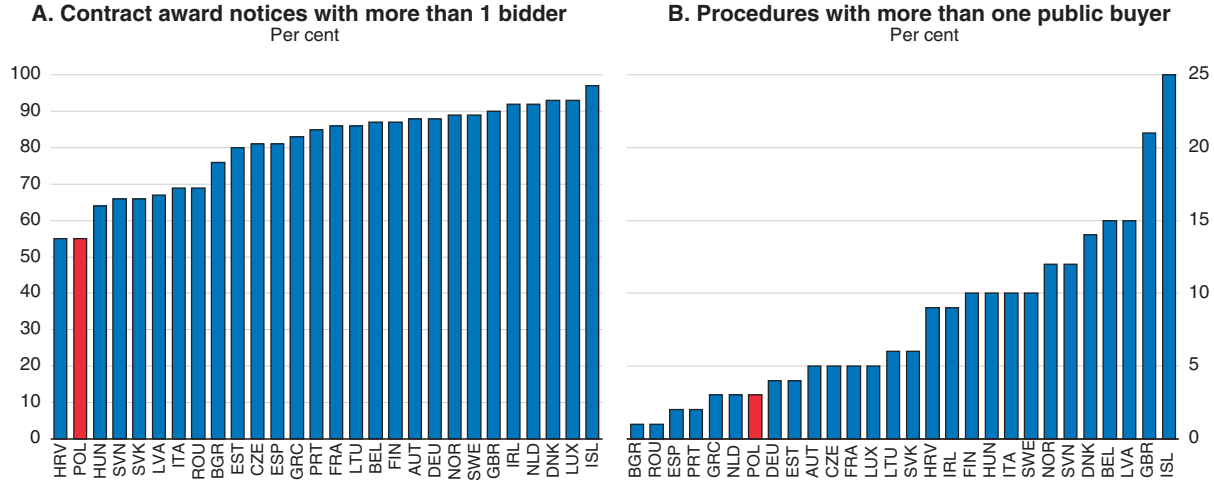
Strengthening public procurement capabilities

Strengthening public procurement capabilities would improve investment quality and value for money. Poland made substantial progress in achieving efficient infrastructure spending during the 2007-13 programming period for EU structural and cohesion funds (Kierzenkowski, 2008). However, red tape and a lack of competition still appeared to affect public procurement practices in 2014 (European Commission, 2015e). Though the speed of the procedures and the proportion of contracts involving competitive tenders were above the EU average, 45% of award notices registered in the European electronic tender database attracted only one bidder, the EU's largest share with Croatia (Figure 2.10, Panel A). Large

projects, notably road infrastructure development tenders, attract more bidders according to the data collected by the Public Procurement Office: for public work contracts, 40% of procedures received five or more tenders in 2014. However, the low number of bids for smaller tenders may prevent efficient road and rail network maintenance. Tender advertising has been dematerialised and information is easily available, but the government should introduce simplified procedures, and the use of information notices prior to the tender advertising could be developed further, notably for contracts with values below the EU public procurement thresholds (NIK, 2015a). Administrative requirements in public tenders often remain complex, especially compared with the limited capacities of SMEs and young firms. Indeed, only 14 percent of SMEs bid for any public contracts, though this may also be explained by contracting entities' distrust of them (European Commission, 2014b). The 2014 rise in the threshold for application of the Public Procurement Act from 14 000 to 30 000 euros could allow simplified procedures, but risks of corruption and anti-competitive practices will need to be closely monitored. In any case, the Public Procurement Office should continue to collect data on these small contracts.

The initial choice of contractor does not take well into account quality considerations, despite recent legislative changes. In August 2014, the public procurement law has required the use of additional criteria in public tenders beyond price. Moreover, in July 2015 the Council of Ministers adopted recommendations on the application of social clauses in the governmental administration. These recommendations oblige public authorities to analyse the possible application of social clauses in all procurement procedures in order to promote employment of disabled persons, unemployed persons, other disadvantaged persons, and youth in vocational training, as well as firms employing staff on permanent contracts. However, in about 90 % of awarded contracts, price was the only contract-award criterion until 2013 (Public Procurement Office, 2015) and a lack of attention to quality considerations in award criteria still hamper public procurement. Indeed, technical performance was used together with price in only 15% of the procedures concluded between October and end-2014 (Public Procurement Office, 2015). Contracting authorities should define the requirements of the contract to provide the contractors with enough

Figure 2.10. **Public procurement procedures in 2014**



Source: European Commission (2015), *Single Market Scoreboard – Public Procurement*.

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freedom to propose different technical solutions and use quality criteria to assess the different tenders. In particular, for complicated projects, such as new infrastructure, technical details, methodologies, execution and organisation should be more systematically taken into account both in contract specifications and bid assessment, in addition to timing, guarantees and references that are frequently assessed by contracting authorities. Environmental impact should also be explicitly considered (OECD, 2014a). The insufficient use of technical performance criteria and excessive emphasis on the lowest price could lower quality and increase the risks of leaving projects unfinished if contractors go bankrupt. A well-known example is COVEC, a Chinese company, which was supposed to build a stretch of the A2 highway but pulled out because the final costs would have been twice the amount of its initial bid. In addition, international evidence found that favouring low prices at the awarding stages may induce larger ex post renegotiation if the initial commitments are not binding (Decarolis, 2014). Though not often used, competitive dialogues should be developed, as they could help civil servants appreciate crucial technical details for large infrastructure projects. In this context, the recent introduction by the railway infrastructure manager (PKP PLK) of a two-stage system, in which contractors will be vetted at the outset for production and financial potential, is welcome.

Ensuring an efficient application of public procurement procedures would require additional central government assistance for local governments and developing joint purchasing offices, as procedures combining several public buyers are relatively infrequent (Figure 2.10, Panel B). Many local governments lack in-house capacity, and sometimes the financial resources, to conduct procedures and hire external advisors. Indeed, numerous irregularities have been found in local roadbuilding projects (NIK, 2014b), and, as in other OECD countries, the market concentration of the construction sector makes it fertile ground for bid-rigging, notably for large projects. A first step would be to introduce additional central government technical assistance through expertise and upfront resources for the preparation of large projects. For example, a dedicated central preparation facility could reap economies of scale as local governments cannot all develop skills to deal with infrastructure projects. It could also help local government in organising financing (EIB, 2014) and would avoid potential conflicts of interest when hiring external experts. More generally, 16 106 Polish institutions held public tenders in 2014 (Public Procurement Office, 2015), and developing central purchasing offices, boosting cooperation between municipalities through an integrated e-government system, and enhancing staff skills to deal with complex selection criteria would help ensure more efficient practices. It is encouraging that the establishment of a central purchasing group in the railway company PKP at the end of 2012 led to significant savings. The announced introduction of mandatory e-submissions for public tenders in 2016 is an opportunity to increase cooperation across local governments, as current e-government procedures remain fragmented and lack common standards (European Commission, 2015c). A comprehensive e-procurement strategy, as recommended by OECD (2014d), to encourage the transition to e-procurement and to co-ordinate its implementation would save money, improve transparency, reduce delays and increase competition. The authorities acknowledge this and plan to introduce better coordination through the 2014 National Integrated Informatisation Programme (PZIP).

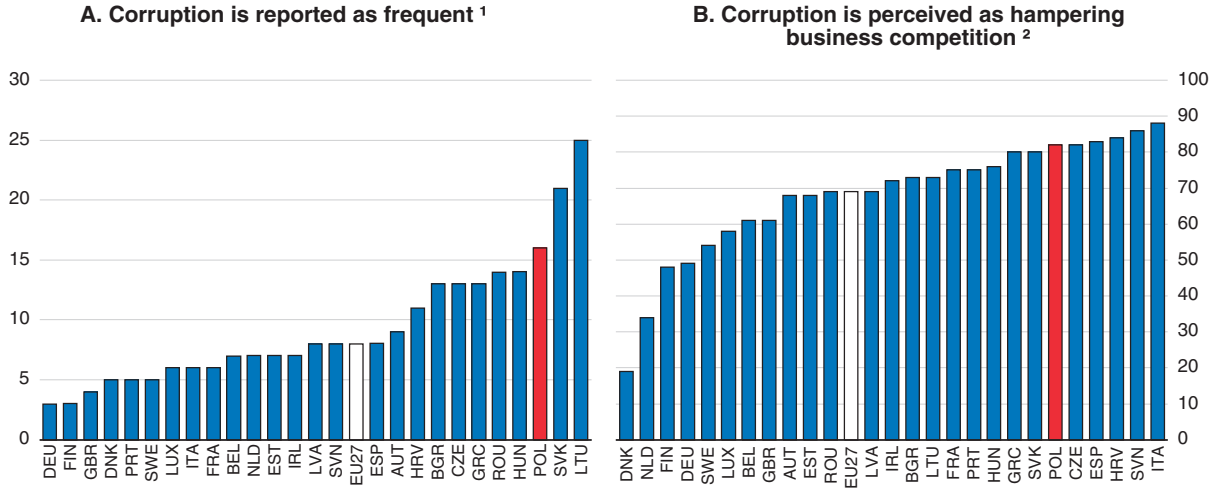
Improving the judicial review of public procurement disputes and appeals and strengthening ex post monitoring capacities would increase the effectiveness of procurement practices. In particular, equal treatment of different appeals by the national

chamber of appeals (KIO), which reviews public procurement decisions, is unlikely, as many appeal procedures are instructed by a unique civil servant (NIK, 2015a). Moreover, on-site monitoring has been sometimes lacking. As much as 70% of the national road sections built in 2008-13 have defects, according to the court of auditors, and many local road managers exercise weak supervision over maintenance and investment works (NIK, 2014b and 2015b). This may increase incentives for strategic low bidding with prospective renegotiation. Therefore, the government should aim at increasing information available to tendering authorities about the costs borne by private companies. Encouraging the use of joint purchasing offices for local governments and providing additional central-government assistance and training for civil servants would help.

Road and rail infrastructure investments and procurement procedures are particularly at risk of corruption in Poland (CBA, 2013). International corruption cases involving Polish officials have been frequent (Escresa and Picci, 2015), and corruption is still perceived as widespread and hampering business competition (Figure 2.11). Preventing public entities from artificially dividing contracts into parts and awarding them without applying the rules and procedures set out in the Public Procurement Law would limit some of the risks (NIK, 2015a).

Broader measures are also needed to address corruption risks. Management and supervisory board positions in the numerous state-controlled companies may be subject to potential conflicts of interest; the establishment of a non-partisan appointments committee to select candidates would help alleviate them (European Commission, 2014c). Introducing "cooling-off periods" for senior civil servants leaving the public sector would reduce revolving-door opportunities. Strengthening whistle-blower protection and the independence of the Central Anti-Corruption Bureau, which is responsible for verifying the declarations of private interests, would also be helpful (European Commission, 2014c). Currently, Polish public officials are not even temporarily restricted from lobbying and interacting with their former subordinates or colleagues when they leave the public sector,

Figure 2.11. **The perceived risks of corruption are high, 2013**



1. Percentage of respondents admitting they experienced or witnessed a case of corruption in the 12 months preceding the survey.
2. Percentage of respondents who agree with the statement that favouritism and corruption hamper business competition.

Source: European Commission (2014), *Special Eurobarometer 397, Corruption Report*.

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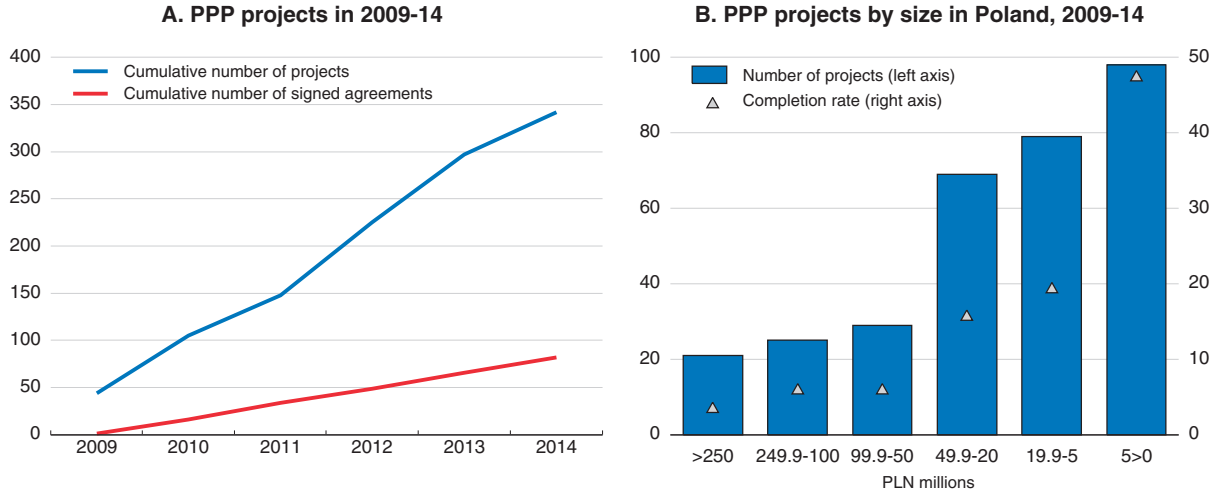
unlike in most OECD countries. The level of disclosure and public knowledge of the private interests of political advisors and senior civil servants is relatively low (OECD, 2015e). Furthermore, there is no specific legislation concerning the protection of whistle-blowers apart from general provisions in the Labour Code on unfair dismissal, which in any case does not apply to those on civil law contracts. Therefore, fear of employer retaliation may discourage whistle-blowing. A first step would be to rapidly implement the previous government's 2014-19 anticorruption strategy that included developing awareness campaigns, revising public tender rules and strengthening the monitoring of state-owned enterprises (Ministry of Interior, 2014).

Mobilising private sources of infrastructure investment

Private investor participation in infrastructure provision could lead to greater efficiency in its management and delivery (OECD, 2015f). Developing Public Private Partnerships (PPPs) could thus lower expenditures over the medium and longer term. As elsewhere in Europe, the complementarity between PPPs and EU funds has been weak (EPEC, 2012): only a dozen projects combining EU funds with a PPP structure have been completed to date in Poland. In particular, PPP use for infrastructure projects has so far been limited, and large projects have been difficult to complete (Figure 2.12). Almost all of the 342 procedures started in 2009-14 were by local governments (Ministry of Economy, 2015b). Completion rates were particularly low for transport infrastructure and in the energy sector: among those 41 cases, only 4 were finalised. The Ministry of Infrastructure and Development released a draft version of changes to the law on Special Purpose Vehicles in September 2015 to boost road construction based on commercial rules.

Infrastructure projects are, in principle, attractive assets for private equity investors and debt providers. They tend to offer stable returns, low volatility and good hedges against inflation surprises. However, the experience of other OECD countries, such as Portugal and Spain, shows that careful design of PPPs is needed to avoid cost overruns, limit renegotiation risks and contain future fiscal liabilities. In areas where PPPs are deemed to potentially improve infrastructure delivery and operation, the authorities

Figure 2.12. **Large public-private-partnership projects have been difficult to complete**



Source: Ministry of Economy (2015), *Raport PPP*.

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should make their decisions based on feasibility analysis and collect relevant data to allow ex post assessment at a predetermined date. This would help to develop procedures to assess longer-term value-for-money differences between standard public procurement and PPPs (Burger and Hawkesworth, 2011; OECD, 2012b). The current and estimated future fiscal costs of each PPP needs to be transparently accounted for in public budgets. Only in this way can these costs be adequately scrutinised through CBA.

Limited administrative capacity hinders PPP development in Poland. Despite the new 2008 PPP law, the procedures may be too complex to be carried out by inexperienced local governments that sometimes lack funding and capacity to hire external advisers. In addition, central responsibilities are split between different ministries, though two ministries in charge of PPPs were merged into the Ministry of Economic Development in 2015, and there is no central PPP unit (EPEC, 2014). Existing structures allow information sharing between different public PPP stakeholders, but the development of a central structure advising local governments in designing and implementing PPP procedures could be helpful, and the government is currently working on developing such a structure. It could ensure further monitoring and appropriate renegotiation guidelines and skills and avoid potential conflicts of interest when hiring external consultants. Encouraging co-operation between local governments would also be positive. For example, the City of Poznań and nine neighbouring municipalities have recently invested more than 200 million euros (including 82 million euros from the Cohesion Fund) to reorganise waste management (European Commission, 2015f), and other municipalities could build on this experience. Further public-sector involvement in PPPs' preparatory phase could also help improve the completion rates. In a recent ITF study for a PPP port-rail link in Slovenia, a full business case, CBA and risk analysis of the project, including land acquisition, had all been completed before the authorities issued a call for interest (ITF, 2015). Only then the private partners inspected the design and whether they could improve it. This would reduce the current long time-frame of PPP projects for infrastructure (preparation, implementation and operation) that poses significant political risks.

Strengthening long-term finance tools would support infrastructure financing. Poland benefited from funding by the EIB and the European Bank for Reconstruction and Development (EBRD) of around 0.1% of Polish GDP in 2014 (EUR 5.5 billion and EUR 0.6 billion, respectively). Both institutions raise funds on capital markets and relend them on favourable terms, notably for infrastructure projects. Recent initiatives, notably the European Fund for Strategic Investments (EFSI) and Polish Investment Programme (PIR) and the announced Polish Development Fund (PFR) (Boxes 2.2 and 2.3), aim to facilitate the provision of long-term loans and to crowd in private finance, though they may also be used for public investment. However, such measures may have large deadweight losses. Indeed, lending by public entities may favour market-viable but politically favoured activities, distorting competition in a context where public ownership remains widespread (OECD, 2014a).

The national road fund and local governments have been able to issue substantial amounts of debt since 2007. Nevertheless developing the long-term investor base would increase the supply of finance for infrastructure investment. While pension funds were among the main buyers of the bonds issued by the state-owned development bank (BGK), their size has begun to decrease (Figure 2.13). The 2014 pension reforms shrank their role, as most people switched to the public pension scheme for their mandatory contributions, and voluntary contributions to private pension funds remain small. In addition, pension

Box 2.2. **EU initiatives to attract private infrastructure investment and the EFSI**

Three main EU instruments aim to attract private infrastructure:

The Connecting Europe Facility (CEF) is intended to be a catalyst for further private and public funding by giving infrastructure projects credibility and lowering their risk profiles, thereby attracting private investors. One of the CEF's key elements is more systematic use of innovative financial instruments, such guaranteed loans, to provide a funding alternative to traditional grants and fill financing gaps for strategic investments.

The Loan Guarantee Instrument for Trans-European Transport (LGTT) has been introduced to partially cover risks for network projects of common interest and to receive income from user charges. The LGTT normally guarantees a maximum of 10% of senior debt (20% in exceptional instances) up to a maximum of EUR 200 million per project. This support substantially enhances credit quality, thereby encouraging a reduction of risk margins applied to senior project loans. It is available for as much as 5 to 7 years after project completion.

In addition, the Commission and the European Investment Bank (EIB) set up the European Fund for Strategic Investments (EFSI) in July 2015. Its capital consists of a EUR 5 billion contribution from the EIB and a EUR 16 billion guarantee from the EU budget, half of which is to be paid in, in a back-loaded manner, over 2016-20 by reallocating existing budget funds. The EFSI capital of EUR 21 billion will be used to raise around three times as much funding by issuing bonds, and the funds thus raised will be used as "first-loss protection" to attract other private or public sources to finance projects of about four times the risk-bearing capacity. Hence, every EUR 1 of EFSI capital is expected to result in about EUR 15 of real investment, with estimated total investment volume of EUR 315 billion (2.2% of 2014 EU GDP) (OECD, 2015a). Poland announced that it will contribute EUR 8 billion (0.1% of 2014 Polish GDP) to EFSI projects through the state-owned development bank (BGK) and the Polish Investments for Development (PIR) (European Commission, 2015g).

The EFSI focuses on financing infrastructure investment and innovation and SME financing. Such funding may help correct market failures and trigger further private-sector investment. The implementation of the EFSI started with the appointment of its steering board in July 2015. Projects seeking EFSI support will be submitted to the EIB (and the European Investment Fund for SME financing), which will carry out project selection. In turn, the EIB will seek the approval of the EFSI Investment Committee to benefit from the EFSI guarantee. This is expected to allow the EIB to finance riskier projects.

funds had to hold a minimum of 75% of their assets in equities in 2014, and that floor will only gradually decrease to 15% in 2017. Moreover, pension funds are now forbidden to invest in Treasury securities and State Treasury guaranteed securities, including bonds issued by BGK on behalf of the National Road Fund. In principle, foreign institutional investors could supply long-term project finance, but European capital markets remain fragmented. Moreover, bank funding for infrastructure may be constrained in maturities and volume, while pressures on public finance may reduce state transfers to BGK over the medium term. Therefore, strengthening the local long-term investor base would be helpful, as only the largest investors have the capacity to directly fund infrastructure projects because of their large size and long-term horizon (Della Croce and Yermo, 2013).

Some regulatory reforms would also foster private investment in infrastructure. OECD evidence suggests that reducing barriers to entry in network industries can foster higher rates of infrastructure investment (Sutherland et al., 2009). Formal entry barriers have decreased substantially in Poland, according to the OECD indicators of the stringency of regulations in network industries – ETCR – (Figure 2.14, Panel A), but widespread public

Box 2.3. **The state-owned development bank (BGK), the Polish Investments for Development (PIR) and the Polish Development Fund (PFR)**

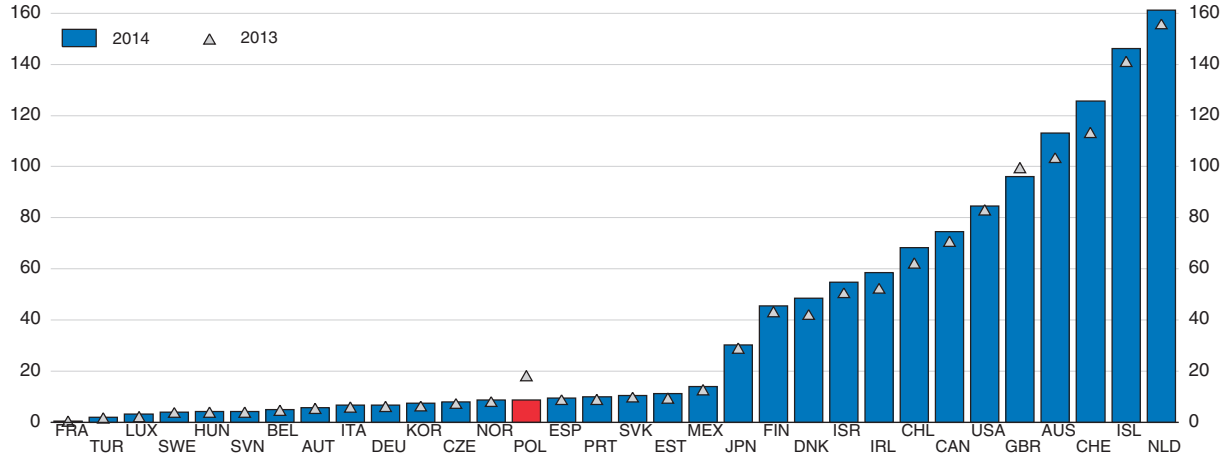
The state-owned development bank (BGK) was established in 1924 and managed assets worth 3% of GDP in 2014. It is in charge of several welfare and housing policies and a low-interest loan programme for SMEs. It also manages the national road and railway funds. However, it has little autonomy in infrastructure financing for these two funds, focusing instead on project finance. Indeed, the two funds are financed through earmarked revenues from fuel taxes and road tolls, bond issuance, bank and EIB loans and EU funding, while the Council of Ministers and the state-owned road infrastructure manager (GDDKiA) make their own decisions as to their investment programmes.

BGK provided start-up funds for the Polish Investments for Development (PIR), created in 2013. This state-owned investment fund has share capital of EUR 0.3 billion and assets worth EUR 1.6 billion (0.1% of 2014 GDP). It aims to provide long-term finance for commercially viable projects, mostly in the infrastructure sector. Independent investment committees supervise the strategy of four funds targeted at infrastructure, local governments' and business investment, through debt and equity financing.

The new government announced the creation of the Polish Development Fund (PFR) in February 2016. The fund will integrate some existing institutions, notably BGK and PIR, and aims at increasing their efficiency. It will finance not only infrastructure projects but also SMEs, business investment, export promotion and innovation.

Figure 2.13. **Assets of pension funds in selected OECD countries, 2013-14**[1]

% of GDP



1. The figure refers to autonomous pension funds. It includes all pension plan types managed by pension funds (occupational, personal, defined benefit and defined contribution plans). However, it excludes pension insurance contracts, which represent most of the private pension assets in some countries, such as Denmark and France.

Source: OECD (2015), *Pension Funds in Figures*.

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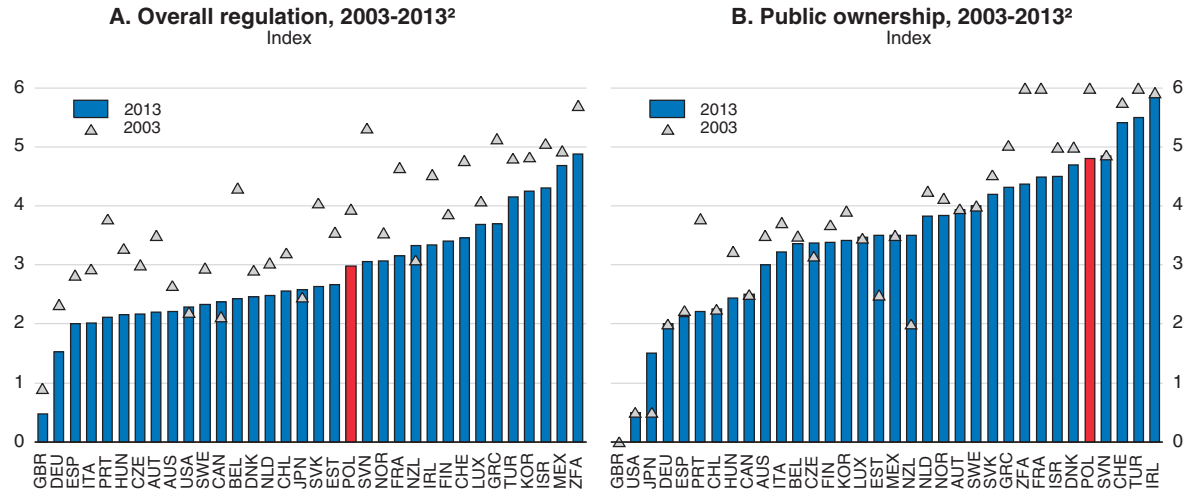
ownership may lead to potential competition issues limiting investment (Panel B). For example, natural gas volumes exchanged on the power exchange are growing rapidly, but the historical supplier (PGNiG and its subsidiary PGNiG Obrót Detaliczny) still controlled 89% of the market for end users in 2014, including production, imports, storage, wholesale and retail sales and distribution, despite legal and functional unbundling (ERO, 2015). Further political involvement in the nomination of the presidents and board members of

Figure 2.14. **Regulation in network industries[1] made significant progress, but bottlenecks remain**



1. Average of the energy and rail sectors.
2. Index scale from 0 to 6, from least to most restrictive. 2008 value for the United States.

Source: OECD (2015), *Regulation in Energy, Transport and Communications (ETCR) Indicators.*

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some state-controlled companies, as envisaged (PAP, 2016), could lead to conflicts of interest and regulatory uncertainty, deterring investment (OECD, 2015g).

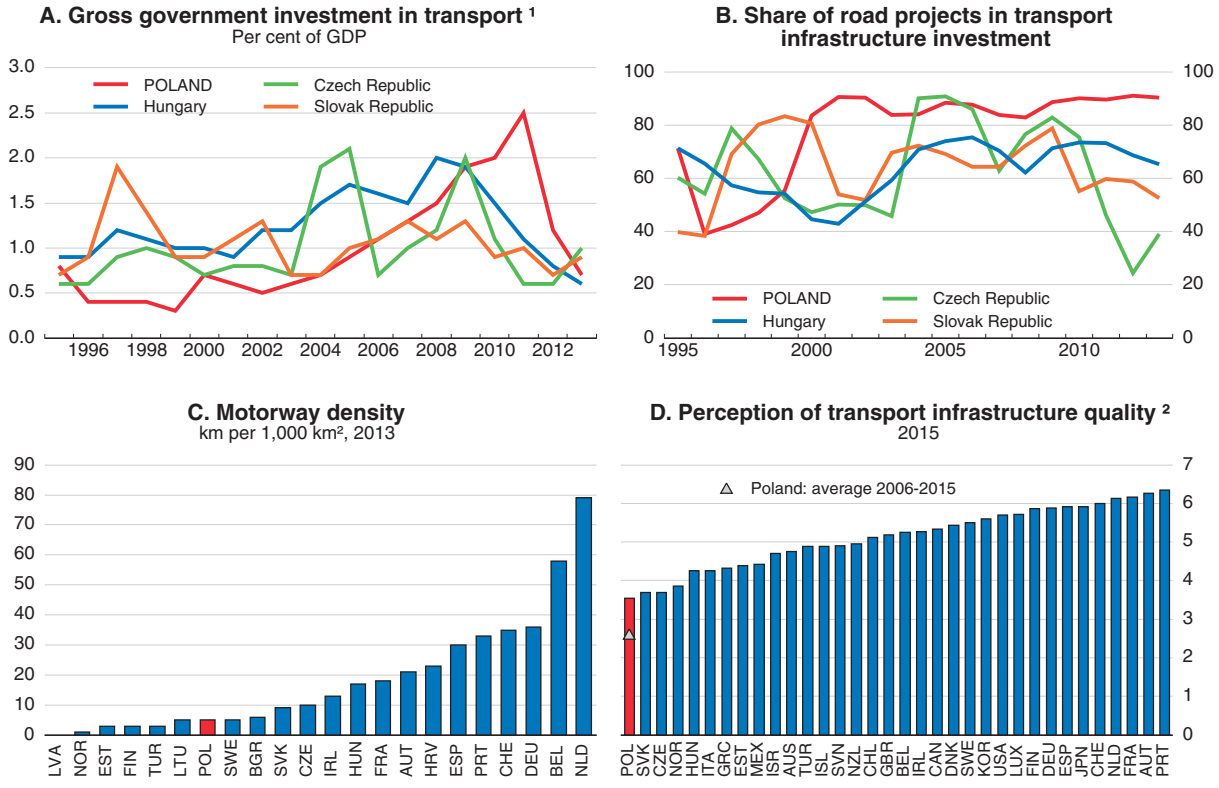
OECD cross-country evidence shows that infrastructure investment is curbed by regulatory uncertainty (Égert, 2009). In Poland's case there is scope to reinforce the independence of the main network regulators, including the Competition Authority, to lower such uncertainty (Égert and Goujard, 2014). All regulators should have fixed-term, non-renewable mandates during which they cannot be dismissed without fault and which prevent revolving-door opportunities. But the railway network regulator, UTK, for example, reports to the Minister responsible for Transport, and its President does not serve for a specific term and may be removed at any time. This creates poor incentives, especially when it comes to supervising the government-controlled infrastructure manager and network operators. Moreover, in September 2013, the open-ended contract of the Energy Regulatory Office President was transformed into a five-year fixed-term contract that can, however, be renewed once. Finally, the political independence of the president of the Competition Authority is not fully guaranteed, despite important improvements. The open-ended contract and the fact that (s)he can be recalled without justification potentially expose the Authority to political pressures.

Improving transport infrastructure would strengthen productivity and health outcomes

Transport infrastructure needs remain substantial. From 2003 to 2011 such investment increased sharply, and was heavily weighted towards roads (Figure 2.15, Panels A and B). The road network's length has risen more than fourfold since 1999. Even so, motorway density remains below neighbouring countries' such as Hungary and the Czech and Slovak Republics, and the perceived quality of the transport network is still poor (Panel D). The next phase of EU funds and the new national investment programmes foresee a more balanced allocation of funds across transport modes (Box 2.1). In addition,

the new perspective aims to improve Poland's transport network connectivity with its neighbours. This focus is welcome, as international road connectivity is low, which can significantly deter foreign trade (Bougheas et al., 1999), and the quality of trade and transport infrastructure is considered as the main impediment to logistics performance in Poland (World Bank, 2014). OECD evidence shows that Polish exports could rise by about 18% if the ratios of road distance to great-circle distance for international road connections were similar to their national counterparts (Braconier and Pisu, 2013).

Figure 2.15. **Public investment in transport has increased but remains unbalanced**



1. Gross general government fixed capital formation.
2. Index from the lowest perceived quality (0) to the highest (7).

Source: OECD (2015), *Transport Infrastructure Investment and Maintenance Spending*; Eurostat (2015), *Road, Rail and Navigable Inland Waterways Network*; World Economic Forum (2015), *The Global Competitiveness Report 2014-15*.

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Developing integrated transport programmes and implementation plans

Transport responsibilities, notably for the management of the road network, are fragmented. National roads, covered by the National Road Construction Programme (Box 2.3), account for 60% of overall traffic (Ministry of Infrastructure, 2011) but represent less than 5% of overall network length. Municipalities were the main level of government responsible for the growth of the overall road network during 2005-13 (Table 2.1). However, many local governments neglect or lack technical capacities to plan the development of their local roads. For example, despite a statutory obligation, many local authorities do not maintain up-to-date records of road conditions (NIK, 2014b). The absence of such information makes it difficult to analyse metropolitan, regional and national needs. The National Strategy of Regional Development 2010-20 aims to strengthen vertical and

Table 2.1. **Structure of responsibilities for the road network, 2005-13**

	Total roads, 2005		Total roads, 2013		Network growth (%)
	1 000 km	*Percentage*	1 000 km	*Percentage*	2005-13
National	18.3	*4.8*	19.3	*4.6*	5.5
Regions	28.5	*7.5*	28.5	*6.9*	0.0
Districts	128.3	*33.6*	125.3	*30.2*	-2.3
Municipalities	206.4	*54.1*	242.1	*58.3*	17.3
Total	**381.5**	***100***	**415.1**	***100***	**8.8**

Source: GUS (2015), *Road Transport in Poland in the years 2012, 2013* and GUS (2011), *Road Transport in Poland 2005-09*.

horizontal partnerships at different levels of development management, through "territorial contracts" between the central and regional governments (OECD, 2011a), but progress has been modest.

The 2014-20 EU perspective is an opportunity to enhance the metropolitan governance framework and improve urban planning. The funding allocation seeks to increase the involvement of urban areas in infrastructure and project management and will delegate certain functions to them. The planned creation of voluntary metropolitan associations in 2016 is also welcome (see above). Recent OECD cross-country evidence suggests that this could have sizeable positive long-term effects on labour productivity (Ahrend et al., 2014), notably by improving transport linkages. However, collaboration among local governments has been limited so far. They prepare transport plans and strategies in the context of EU funds disbursement, but there is insufficient coordination across levels of government, and strategies are only irregularly updated (World Bank, 2011). Moreover, existing Polish metropolitan governance bodies serve primarily as fora for policy exchange, without formal powers, and usually cover a limited fraction of the actual metropolitan area (Ahrend and Schumann, 2014).

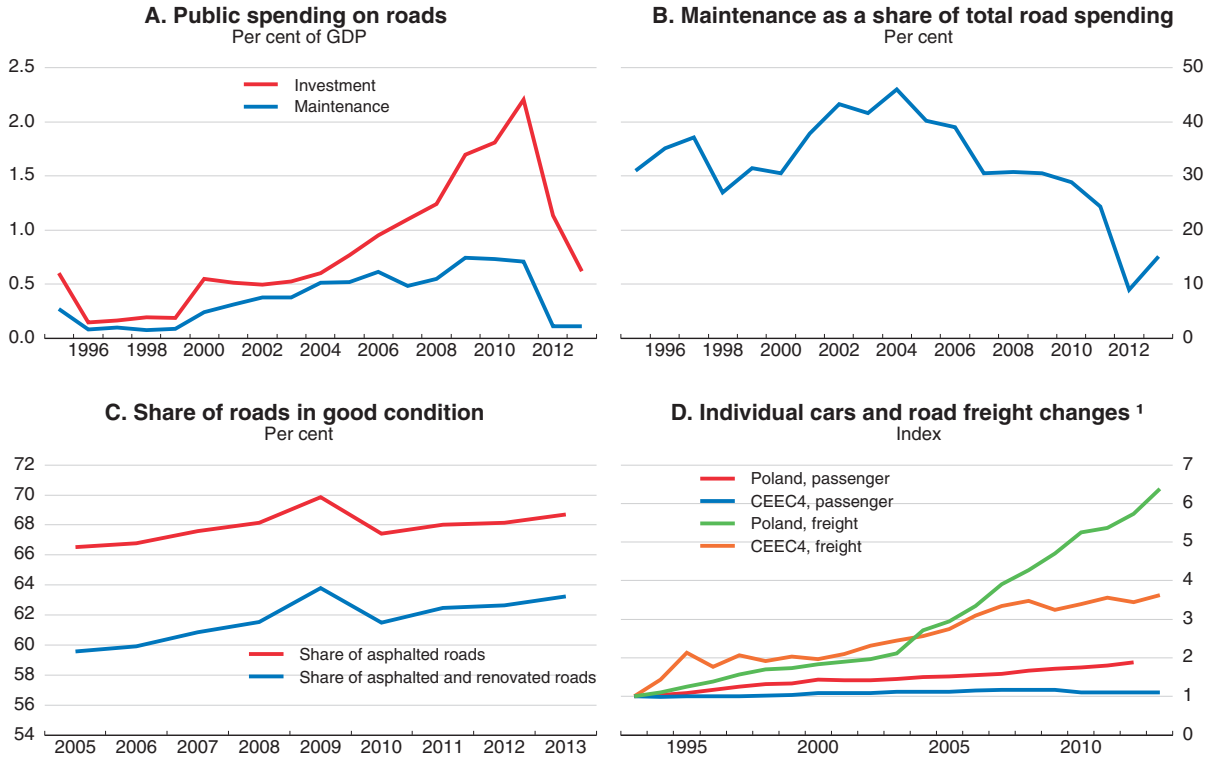
Insufficient public transport and poorly functioning housing markets have negative effects on growth and well-being in urban areas, in which more than half of the population is located (OECD, 2015c; 2013b). In particular, the significant increase in urban sprawl in the main cities (Figure 2.6) has led to lengthening commuting times (GUS, 2015a), while heavy road traffic contributes to high urban air pollution (Figure 2.3). At the same time, low-density development increases the costs of public transport relative to private cars. The integration of the different modes of transport remains poor (European Commission, 2015c), and most Polish cities lack easy ways for passengers to get comprehensive information about public transport and buy tickets. The 2014-20 operational programme for EU funds foresees the construction and modernisation of intermodal terminals for passenger and freight transport, and intermodal projects linking railways, seaports and airports will benefit from extra points when competing for EU grants. This will require significant investments in rail rolling stock and appropriate funding, which may be lacking, despite some dedicated EU funding for passenger services. Better integrating transport infrastructure plans, and land-use and social policies could reduce commuting times, trade costs and negative environmental externalities. For example, residential development should favour relatively high-density construction near existing transport nodes; where local authorities permit linear sprawl, they could be required to set aside dedicated road space for buses or trams along routes that will

inevitably become congested; and planning should facilitate the development of orbital transport links within agglomerations as well. Such policies would also help maximise the benefits of agglomeration externalities.

Improving road asset management and developing road pricing

Spending on roads is heavily tilted towards new investments, given weak incentives to undertake road maintenance. The share of maintenance in total road spending has declined sharply, though the percentage of roads in good condition has risen slightly to over 60% since 2005 (Figure 2.16; GUS, 2011 and 2015b). The savings from deferring maintenance may be outweighed by the resulting need for more expensive measures in the long term (Crist et al., 2013). Many sub-central governments lack asset-management systems and a long-term vision to maintain their infrastructure assets and fully take into account the future costs of new roads (NIK, 2014b). By contrast, the national road manager (GDDKiA) has developed asset-management strategies, and it should try to transfer its experience to local governments through a central platform (World Bank, 2011). However, the financing of national and local roads also poses specific challenges for the development of efficient road-management mechanisms.

Figure 2.16. **The maintenance needs of the road network are set to increase rapidly**



1. Index 1993=1. Volume in passenger- and tonne-kilometres.

Source: OECD (2015), *Transport Infrastructure Investment and Maintenance Spending*; OECD calculations based on GUS (2015), *Road Transport in Poland in the years 2012, 2013* and GUS (2011), *Road Transport in Poland 2005-09*; OECD (2015), *Transport Activity Statistics*.

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Long-term revenues and expenditures of the agencies in charge of managing road infrastructure could be better aligned. Past EU financing plans have focused on new investment and more efforts will need to be dedicated to maintenance in the future. At the central level, spending has been defined according to a long-term horizon (Box 2.1). The National Road Fund collects revenues from road user charges, mostly fuel taxes. The national road manager uses these revenues and specific government grants to finance new national infrastructure and maintenance and reimburse existing debts. However, the structure of local road financing creates uncertainty over the budget for maintenance in the long term, as local governments alone cannot afford to finance the repairs or construction of local roads. Funding is provided via equalisation mechanisms and resources specifically allocated by the central government, and spending decisions are taken as part of annual budget processes. This may hamper the development of efficient road asset-management strategies, such as multi-year contracting with the private sector. Central government grants have recently declined (NIK, 2014b), which partly explains the drop in maintenance spending. The government increased funding for local roads over 2016-19 to PLN 4 billion (0.2% of 2014 GDP) from PLN 3.2 billion over 2012-15 and envisages increasing transfers to local governments to improve road maintenance, notably through greater attributions of VAT revenues. Yet, earmarking effectiveness has been imperfectly monitored in the past, and some local authorities have neglected road maintenance, creating further backlogs.

The authorities should pursue reforms of public infrastructure pricing to ensure that long-term costs, including environmental and health externalities, are fully recovered and avoid cross-subsidisation across transport modes. Road users do not pay the full cost of usage, and this may partly explain the decline of rail transport. Moreover, the National Road Fund needs regular transfers from the state budget, despite the proceeds of road pricing. Poland's main road user charges include fixed registration fees and an excise tax on fuel. The registration fees are largely independent of the vehicle type. Heavy vehicles have to pay specific fees only on a small part of the network, and the regulated fees were less than half their equivalents in the Czech Republic or Slovenia in 2012 (ITF, 2013). As a large part of road maintenance costs are attributable to heavy vehicles, this situation may in turn imply an inefficient allocation of capital investment in the freight sector between rail and road, if it results in a cost advantage for heavy goods vehicles over long distances.

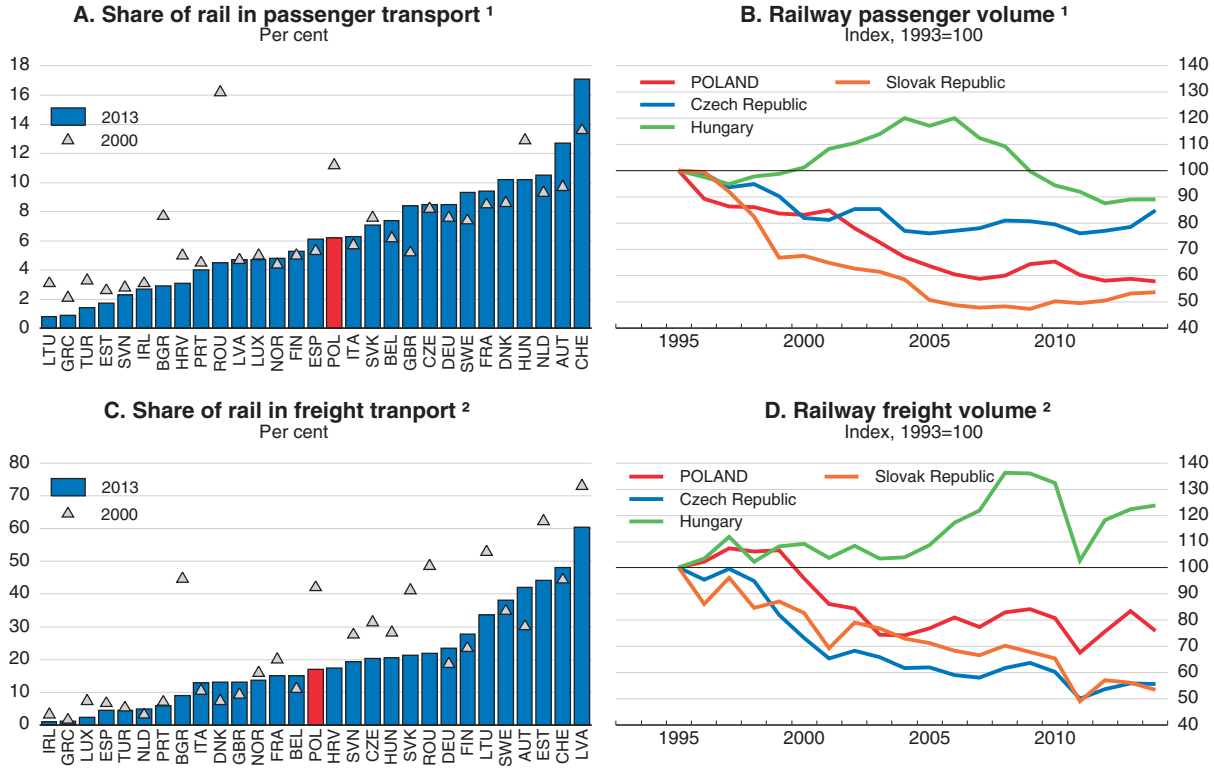
Road pricing could be expanded and include larger weight-related charges on trucks to encourage investment and maintenance. In 2011 an electronic toll system (viaTOLL) replaced the former vignette system for heavy vehicles above 3.5 tonnes and buses. It is enforced on a small part of the national network (initially 3 140 km of national roads, expressways and highways, but extended by 251 km in June 2015) (viaTOLL, 2015). Current legislation foresees that almost all motorways will be tolled, and its implementation would be a step in the right direction. A well-advertised programme of infrastructure investment and maintenance could improve public acceptance of new road charges. More targeted but still market-based measures may be especially suitable for addressing externalities in terms of congestion and local environmental impacts. These externalities are highly variable across time, location and types of road users and are therefore difficult to deal with through regulations or vehicle and fuel taxes. Congestion and urban road charges would lead to a better use of road infrastructure. However, the current legislative framework prevents local authorities from setting congestion fees or urban tolls. They should be allowed to set fees that vary according to time of day or location. This approach

has been used successfully for access to central London, Oslo and Stockholm. Charging fees would make users consider congestion costs when making transport decisions, and the additional funds collected could help finance urban public transport.

Strengthening the rail infrastructure investment framework

The railway infrastructure has only been partly modernised, with the result that the shares of rail freight and passenger transport have declined: indeed, passenger traffic has shrunk by about one-half since 1993, though it regained some ground in 2015 (Figure 2.17; UTK, 2015a). Over 2007-13 the authorities allocated only EUR 5 billion in EU funds to modernise and expand rail infrastructure. Only a few new railway lines were opened by end-2015. Well over half of all trains and numerous small train stations have not been modified to meet the needs of disabled passengers (UTK, 2014), and only a quarter of the network allows speeds greater than 120km/h (Ministry of Infrastructure and Development, 2015b). Poor quality is reflected in public attitudes and passenger satisfaction surveys (Figure 2.18). The allocation of access rights to railway operators also needs to improve. Because of deficient infrastructure monitoring and information systems the 2011 level of Polish access rejections was among Europe's highest, and the punctuality of freight cargo was poor, despite the weak utilisation rate of the network (European Commission, 2014d).

Figure 2.17. **The share of rail transport is declining**



1. Volume of passenger transport in passenger-kilometres.
2. Volume of freight transport in tonne-kilometres.

Source: Eurostat (2015), *Transport Statistics*; OECD (2015), *Transport Activity Statistics*.

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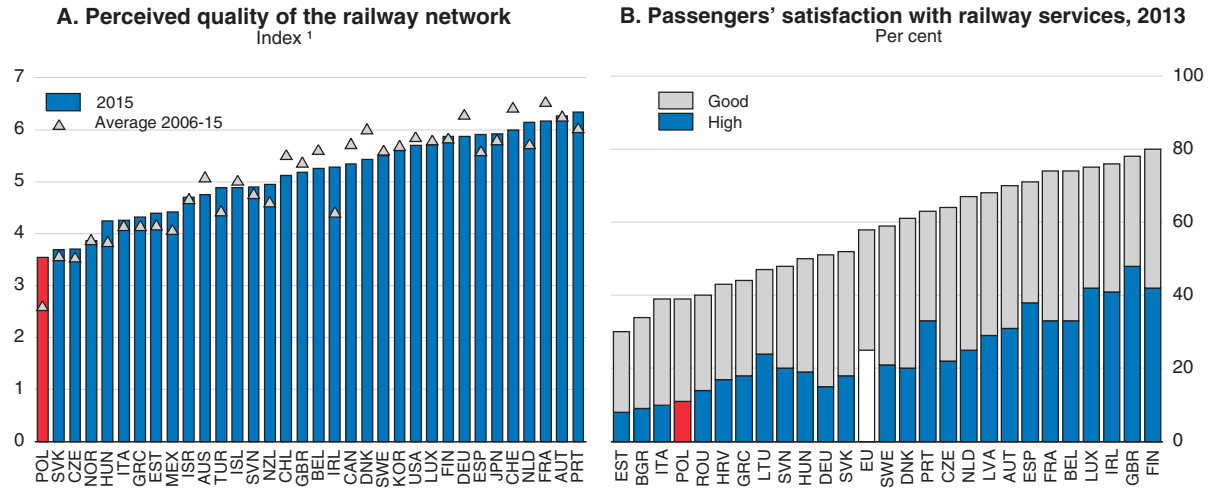
Figure 2.18. **The quality of the rail infrastructure and services is perceived as low**



1. Index from the lowest perceived quality (0) to the highest (7).

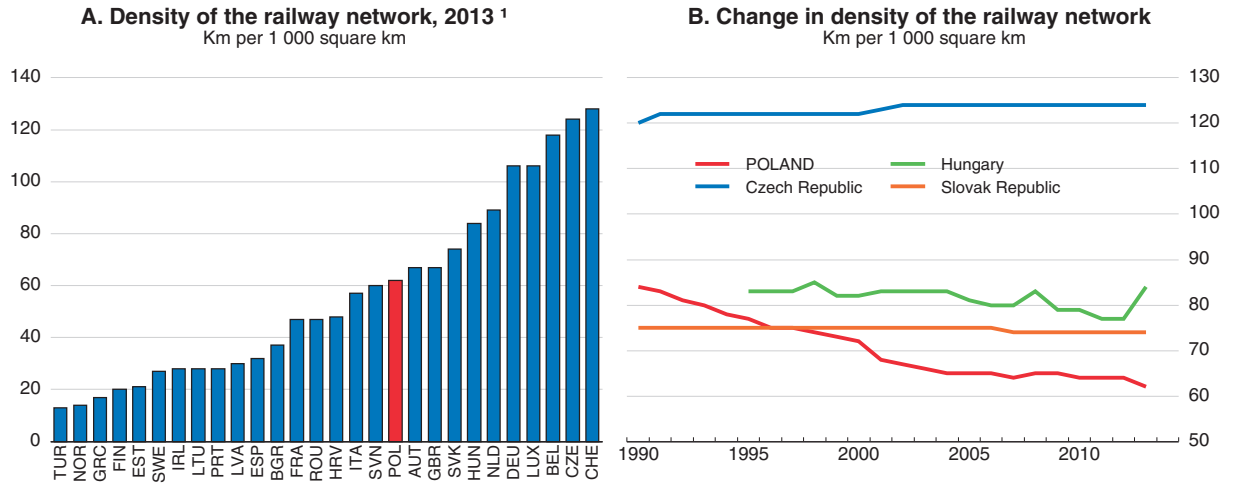
Source: World Economic Forum (2015), *The Global Competitiveness Report 2014-15*; European Commission (2013), *Europeans' Satisfaction with Rail Services*.

StatLink http://dx.doi.org/10.1787/888933339852

The density of the railway system remains above the European average, but it has fallen rapidly whereas it has been constant in other CEECs (Figure 2.19). Railways still suffer from poorly structured financing, and long-term negligence of even the shrunken network has exacerbated maintenance needs. The European Commission (2014e) estimates that there was systematic underinvestment in maintenance from 1996 to 2010. Over half the rail infrastructure requires significant repair work (UTK, 2014). The infrastructure manager, PKP PLK, is aware of these deficiencies, and the Nationwide Railway Programme adopted by the Council of Ministers in 2015 foresees rail infrastructure investments totalling PLN 67.5 billion (3.9% of 2014 GDP) until 2023. The focus on modernisation and maintenance of the most important lines is welcome, as it could lower management fees and lead to closure of unprofitable parts of the network. However, this could also have negative consequences, as freight companies may need to adopt longer itineraries. Passenger stations also require specific attention, as despite the dense network, the number of railway stations is particularly low, and citizens perceive them as remote (European Commission, 2014e).

Despite the planned significant increase in funding, rigid and insecure national financing hampers project preparation and implementation. The infrastructure manager, PKP PLK, signs three-year maintenance contracts with the state, but the specific budget allocations are decided yearly. As large maintenance projects are lengthy and uncertain, this gives PKP PLK little leeway to schedule such work and develop a comprehensive asset-management strategy. Indeed, in the past, funding at specific points in time has sometimes been lacking to ensure the timely delivery of railway projects (NIK, 2013 and 2015c). This led to increased volatility in railway infrastructure access charges. In addition, most local governments offer only one-year contracts to rail service providers for passenger services. This creates high uncertainty and hampers investment in the rolling stock and new entry. Indeed, there are several examples of tenders for public rail service contracts that have not been able to attract a single bidder (European Commission, 2013a). However, a 2014 law increased the predictability of track access charges, and a welcome

Figure 2.19. **Density of the railway network**



1. Or most recent year.

Source: Eurostat (2015), *Road, Rail and Navigable Inland Waterways Networks*.

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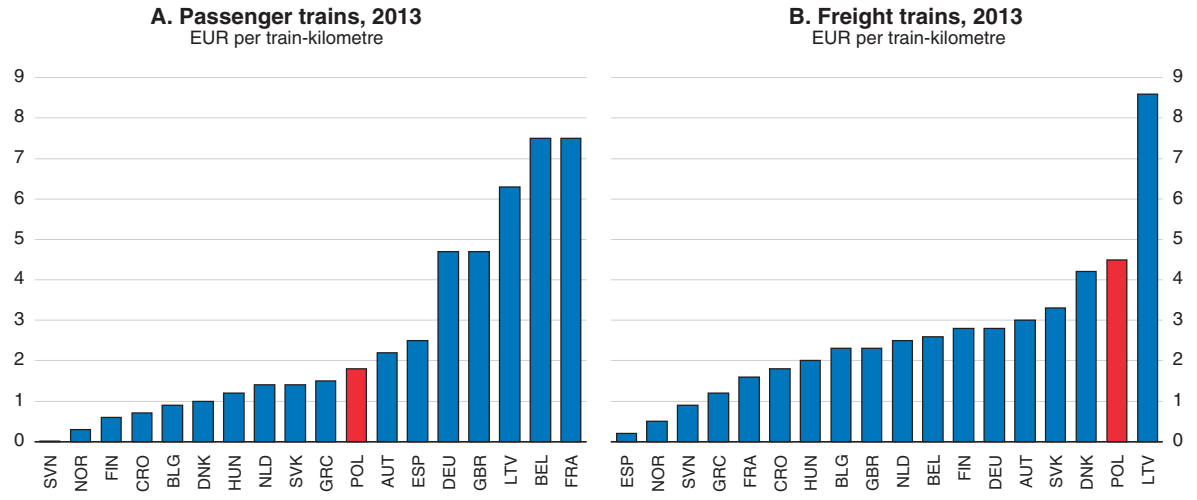
draft programme aims to ensure more stable financing over 2016-23, notably for maintenance.

Strengthening the position of the regulator (UTK) and the rail infrastructure manager would help ensure proper incentives for investment. Poland has liberalised the freight sector, and the burden of regulation in the sector appears limited, according to OECD indicators (Figure 2.14). The infrastructure manager's legal and financial independence is safeguarded through accounting separation (European Court of Justice, 2013), and the main freight company, PKP Cargo, was partly privatised in 2013. However, several railway operators and the infrastructure manager are controlled by the state and local governments, which may in principle lead to conflict of interests when it comes to allocating infrastructure use to competitors. It is the role of UTK to ensure application of all regulations covering the issue of access to infrastructure. UTK independence is not fully guaranteed, although it regularly imposes penalties in case of lack of maintenance or refusing the rail access charges proposed by PKP PLK (UTK, 2015b). As in other network industries with strong public ownership, the President of UTK is appointed for an indefinite period and can be recalled by the Prime Minister at his/her discretion. In fact, the Prime Minister used this prerogative in 2012 and dismissed the UTK's last President. Enhanced political independence could be insured through a fixed-term non-renewable mandate defining clear dismissal conditions. In the period 2004-13 the Competition Authority found anti-competitive conduct in the cargo market six times: five involved abuse of dominance, the other was a case of an anti-competitive agreement (OECD, 2013c). Rail access charges for freight were high in international comparison in 2013, notably compared to those for passenger operators (Figure 2.20; World Bank, 2011), but rail access charges declined on average by about 20% and 12% in 2014 for freight and passenger trains, respectively.

There is room to improve the administrative and organisational capacity of the railway infrastructure manager. In the past, PKP PLK has been unable to make full use of the dedicated EU funds, infrastructure projects suffered from many delays, and the supreme

Figure 2.20. **Rail access charges for freight are high by international standards**



Source: Independent Regulators' Group – Rail (2015), *3rd Annual Market Monitoring Report 2014.*

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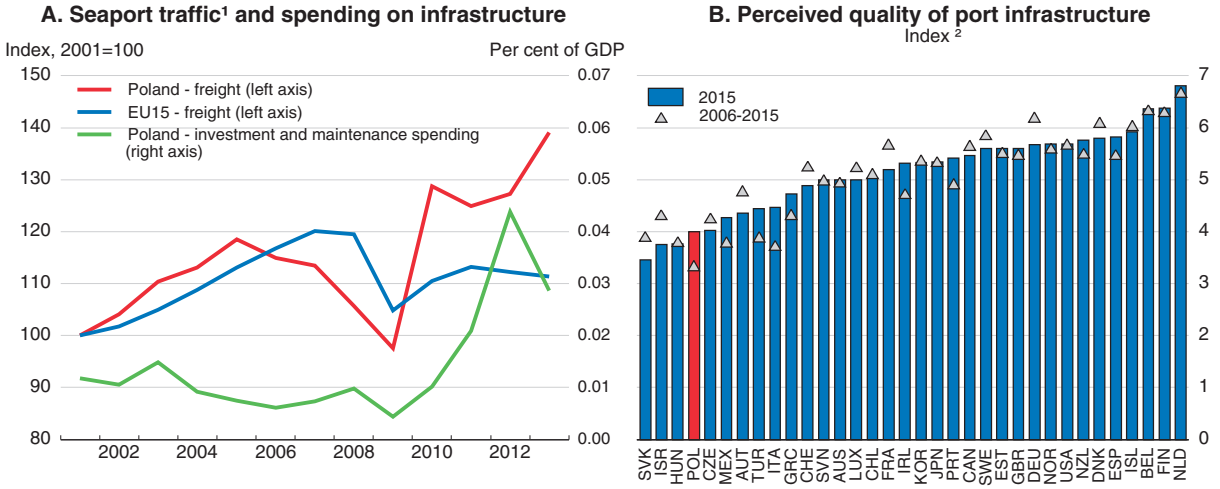
audit office concluded that it was not properly prepared to use EU funds (NIK, 2013). The delays mostly resulted from errors in pre-design, design and as-built documentation, frequent changes in projects and unforeseen additional costs. In this context, the current plans of PKP PLK to streamline operations and improve investment quality are welcome. Under the 2014-23 National Railway Programme (Box 2.1), new documents and tender rules will be set, increasing attention paid to co-operation with contractors, some activities standardised, and additional training opportunities made available to staff.

Cumbersome regulations also hamper the procedures for designing and implementing projects (European Commission, 2015c). In the bidding over the 2007-13 EU structural funds, it took on average more than a year from when documents were submitted until a financing agreement for rail infrastructure projects was signed (NIK, 2013). In January 2015 new procedures were introduced to facilitate the implementation of such investment. They set a deadline of 45 days for the delivery of building permits, simplify some administrative requirements for project location when land ownership is not settled and introduce more advantageous conditions for the use of land during the construction phase (Republic of Poland, 2015). If efficiently implemented, such measures should increase investment. In addition, sidings operators who connect freight stations to the main railroads could be allowed to conduct small-scale maintenance work in-house. This could lead to some savings and reduce PKP PLK's legal and organisational requirements. However, such possibilities should be limited to small-scale work and could impose additional work on the regulator, UTK.

Ensuring appropriate development of seaports and airports

Large-scale port projects have major implications for investment in regional transport systems. In Poland the recent expansion in seaport activity has led to increased investment after a drop through most of the 2000s (Figure 2.21, Panel A). New investment in equipment, more favourable VAT treatment for some importers and the congestion at other large European ports led to a sharp increase in turnover in 2015. In the first semester, goods handled in the port in Gdansk increased by 12 percent year on year. However, the

Figure 2.21. **The perceived quality of seaport infrastructure remains low, but spending is rising**



1. Freight tonnes handled in all ports.
2. Index from the lowest perceived quality (0) to the highest (7).

Source: OECD (2015), *Transport Infrastructure Investment and Maintenance Spending*; Eurostat (2015), *Gross Weight of Goods Handled in all Ports*; World Economic Forum (2015), *The Global Competitiveness Report 2014-15*.

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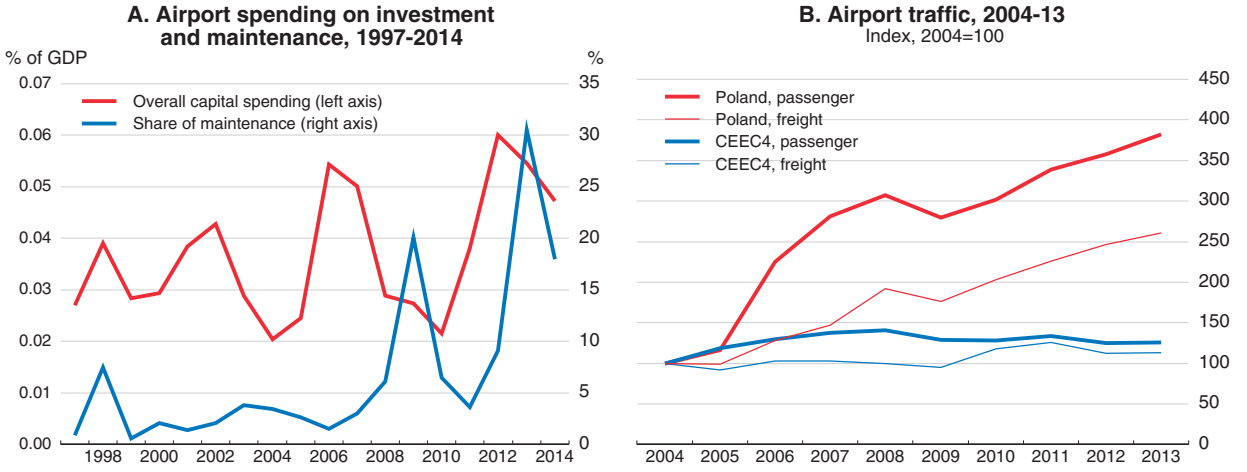
perceived quality of seaport infrastructure remains poor (Panel B), and ports had low apparent labour productivity in 2012 (Eurostat, 2015a). Procedures for obtaining project documentation and making relevant administrative decisions are slow, while public administration proved partly ineffective in the past (NIK, 2012a). This, together with port fees that are administratively regulated, may hamper the funding of future investments, especially those with private-sector involvement.

Seaports remain insufficiently connected to the rail network, and the low quality of inland waterways limits their catchment areas. Besides the need to upgrade overall rail infrastructure (see above), particular attention should be paid to ports' accessibility. Indeed, inefficient trans-shipment from road to rail also hinders rail and sea transport, though national strategic documents foresee future integrated development. Modernising inland waterways, as planned by the government (which created a new full minister for the development of the maritime economy and waterways) could also be effective. Insufficient funding has led to a rapid degradation of inland waterways, and 90 % of inland routes no longer meet the legal requirements for their use (NIK, 2014c). In turn, the poor infrastructure prevents ship owners from investing in new river fleet. The share of inland waterways in freight transport declined steadily from 0.2% in 2008 to close to nil in 2013 (Eurostat, 2015b).

By contrast, air transport has increased significantly over the past decade (Figure 2.22), and significant progress has been made to assess airport infrastructure needs and develop infrastructure. In a recent survey of the European Court of Auditors (2014), Poland was the only country among Estonia, Greece, Italy and Spain that had developed a global framework for the development of aviation infrastructure, and the two examined airport investments (Gdańsk and Rzeszów) were positively assessed. However, capacity for investment planning and monitoring may sometimes be lacking. The supreme audit office recently concluded that Warsaw-Modlin airport failed to properly prepare investment projects, specify tender requirements and efficiently monitor ongoing investments

Figure 2.22. **Airport infrastructure spending and air traffic**



Source: OECD (2015), *Transport Infrastructure Investment and Maintenance Spending*; Eurostat (2015), *Freight and Mail Air Transport and Air Passenger Transport*.

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(NIK, 2015d). Moreover, the existing infrastructure still suffers from a lack of integration with public transport systems. A few large airports still do not have direct rail links; they are only being progressively set up.

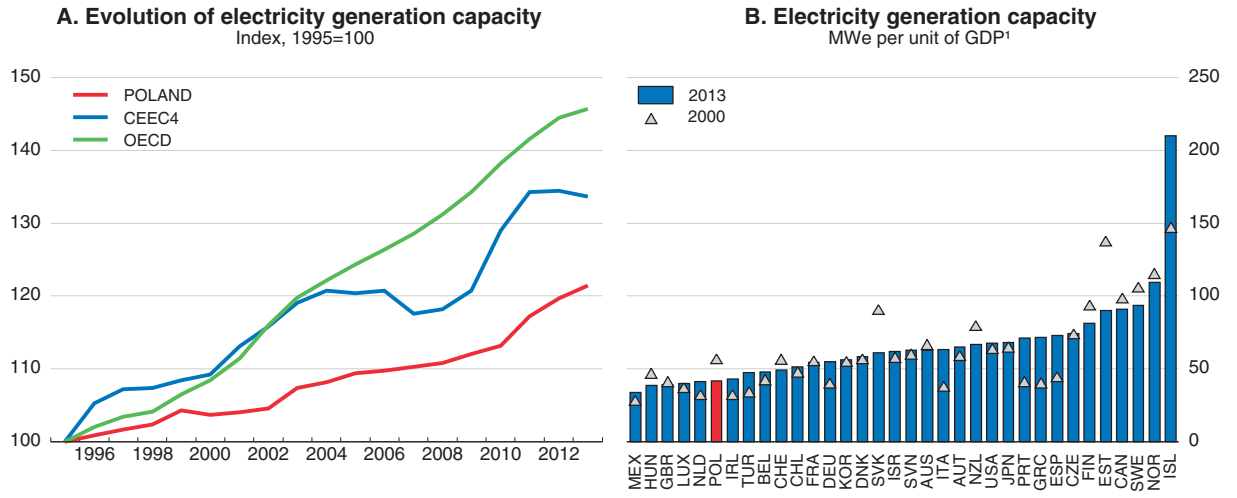
Promoting appropriate energy infrastructure investment

Poland's electricity sector faces two main challenges: ensuring the replacement of old capacity and providing incentives for diversification of the energy mix away from coal. The power generation stock is ageing – nearly half of today's generating capacity is more than 30 years old (IEA, 2011) – and offers little spare capacity (Figure 2.23). Heavy reliance on coal has led to high emissions of CO_2 and other pollutants (Figure 2.24), which have heavy human health costs not only to Polish residents but to wide swathes of neighbouring-country populations (EEA, 2011). Substantial new investment is required in the short and medium term to satisfy electricity and heating demand. Increasing supply diversification could allow more resilience to extreme temperatures and drought, such as those that occurred in summer 2015, when large-scale end-users suffered brown-outs, as coal-fired plants are heavily reliant on water for cooling, and wind generation was almost not working at all. The switch to low-emissions power generation will need to rely on the development of renewables and investment in technologies that are more capital intensive than those based on fossil fuels. In addition, improving energy efficiency and demand management through "smart" grids and meters also call for efficient price signals and new investments.

Ensuring better incentives for new generating capacity

The draft "Energy Policy of Poland until 2050" (set to replace 2009's "Energy Policy of Poland until 2030") foresees significant changes in power supply and generation by 2050 (Figure 2.25). Existing hard-coal-fired power plants would be partially replaced and complemented by high-efficiency coal plants and a sharp increase in renewable energy sources supported by new gas plants that would constitute reserve capacity and would be

Figure 2.23. **Electricity generation capacity**



1. Thousand US dollars at 2005 purchasing power parities and prices.

Source: IEA (2015), *Electricity Information 2015*.

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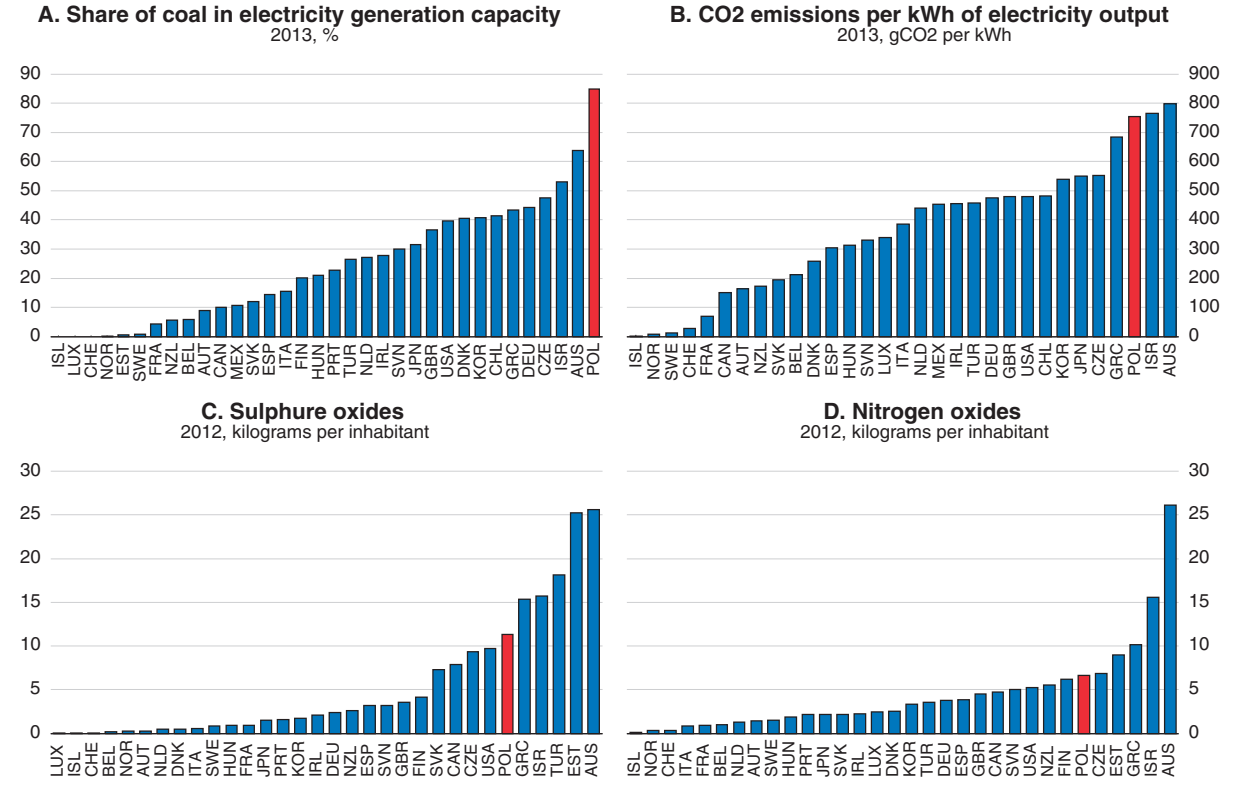
Figure 2.24. **Share of coal and emissions from the power sector**



Source: IEA (2015) *Electricity and Heat Generation* and CO_2 *Emissions from Fuel Combustion*; OECD (2015), *Emissions of Air Pollutants*.

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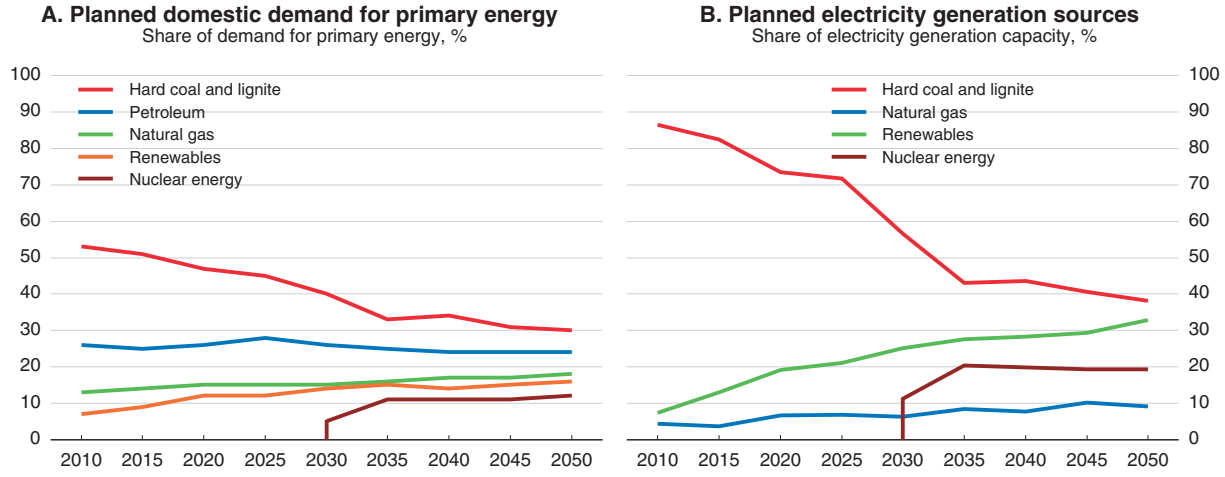
Figure 2.25. **The draft Energy Policy of Poland until 2050**



Source: Ministry of Economy (2015), *Draft of the Energy Policy of Poland until 2050.*

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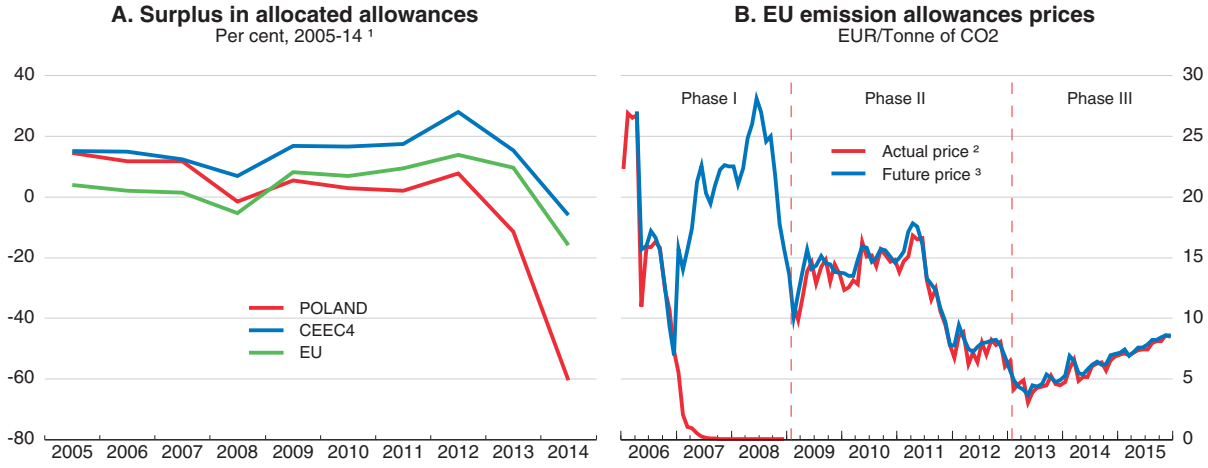
used in combination with heat production. In addition, by 2030 a first nuclear power plant will be commissioned. Government policies aimed at a higher share of nuclear power need to take fully into account tail risks and its short- and long-term environmental costs to ensure competitive neutrality between different electricity sources. For the Polish nuclear programme to cover long-term costs the final price of electricity should cover the full costs of long-term waste management and decommissioning. Already in 2012 Poland put a tax on radioactive waste, levied per MWh of electricity generated by nuclear energy (OECD, 2015b), and 2012-13 amendments to the Atomic Law Act imposed strict safety and environmental standards. However, cost estimates for long-term waste storage are extremely uncertain, nuclear technologies are very capital-intensive, and differing regulatory requirements, technical capacities and financial conditions lead to a wide range of estimated costs in OECD countries (NEA/IEA/OECD, 2015).

As in other European countries incentives for power generation investment are partly determined by the EU-ETS. Polish emissions in sectors covered by the EU-ETS are dominated by those from coal-fired power generation (EEA, 2013). As in the rest of the European Union, the average level of emissions has fallen below the allocated amount of permits, except in 2008 under the first two phases of the system. Under the third phase of the EU-ETS (2013-20), a declining cap is set on the total amount of emissions, and companies receive or buy emission allowances, which they must surrender for each tonne of CO_2 emitted from covered facilities. Prices rebounded slightly as total emissions permits fell in 2013 and 2014 (Figure 2.26). Moreover, the majority of permits are no longer given away for free but are sold at auction to the power, heating and other participating sectors. Though Poland received a derogation of EUR 405 million worth of free allowances for distribution to certain generating installations, conditional on modernisation investment of equivalent value, the remaining allowances, worth about EUR 703 million over 2013-20, will be auctioned. The auction revenues are intended to further support the transition to lower-carbon energy sources. Such "earmarking" is potentially problematic, however, leading to dependence of expenditure on an uncertain revenue stream; yet, using some of the revenue in this way may help promote public acceptance for the policy. This, together

Figure 2.26. **The EU Emissions Trading System (EU-ETS)**



1. Difference between allocated and verified emissions divided by allocated emissions permits. CEEC4 is the weighted average of Hungary and the Czech and Slovak Republics.
2. Settlement price (monthly averages).
3. Future contract price for December of year t+1 (monthly averages).

Source: EEA (2015), EU ETS data viewer (database), *www.eea.europa.eu/data-and-maps/data/data-viewers/emissions-trading-viewer;* ICE Intercontinental Exchange and Datastream.

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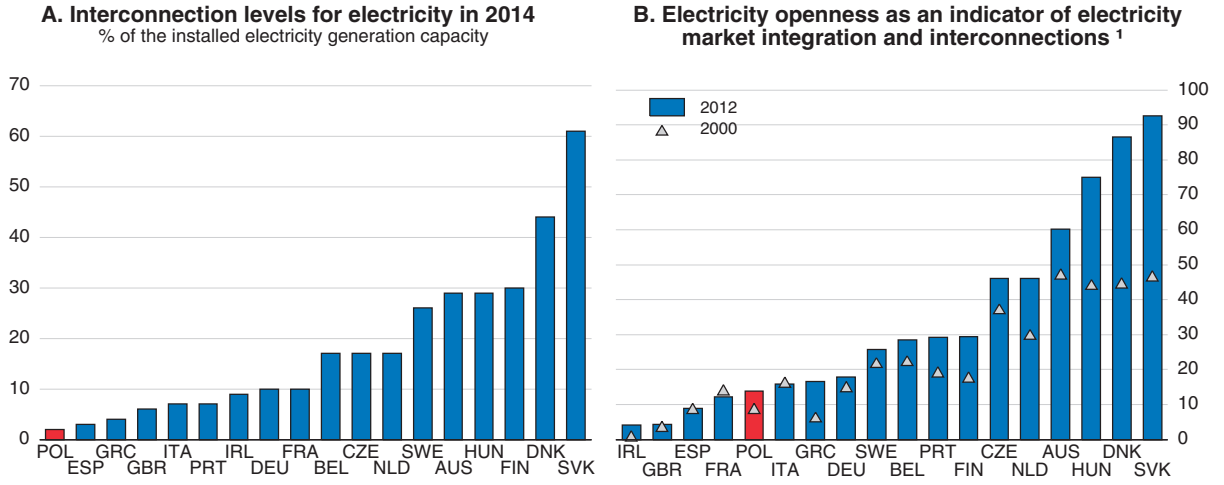
with the carbon price increase resulting from the lower level of the overall cap and the 2018 introduction of a market stability reserve for allowances that would guarantee minimum carbon prices (European Commission, 2015h), will affect the energy mix. However, several practical barriers, such as regulated tariffs, national market fragmentation and regulatory uncertainty may still prevent the EU-ETS from endogenously determining an optimal energy mix.

The Polish international trade capacity for electricity is tight and implies a need for more investment in low-emissions technologies to achieve any given emissions-reduction target at the European level, whereas a deeper integration with neighbouring electricity markets would spread the burden more efficiently across countries. More trade capacity is also important for energy security and for competition on wholesale and retail markets. With only 2% of its electricity generation capacity available for trade with other EU member states in 2014 (according to European Commission estimates) and low import and export flows (Figure 2.27), Poland's trade capacity does not facilitate buffering between transmission system operators (TSOs), and power outages are relatively frequent (CEER, 2013). The trade capacity of Polish interconnections is constrained by its use for short-term unscheduled flows from neighbouring countries, notably Germany, to third countries (mainly Austria) (ACER, 2015). However, trade capacity would still reach only 7% of the installed generation capacity, even after accounting for restrictions due to unscheduled flows. New international links with neighbouring countries are planned under the February 2015 European Commission recommendation and the 2014-20 EU funds programme. The recent completion of the construction of the EU "project of common interest" (PCI) interconnection between Lithuania and Poland doubles the level of Poland's trade capacity to 4%. Completion of another identified PCI, the interconnection between Vierraden, Germany and Krajnik, Poland, would bring Poland's trade

Figure 2.27. **International interconnection capacity in the electricity market**



1. Electricity openness is calculated as the ratio of electricity imports plus exports over electricity consumption.

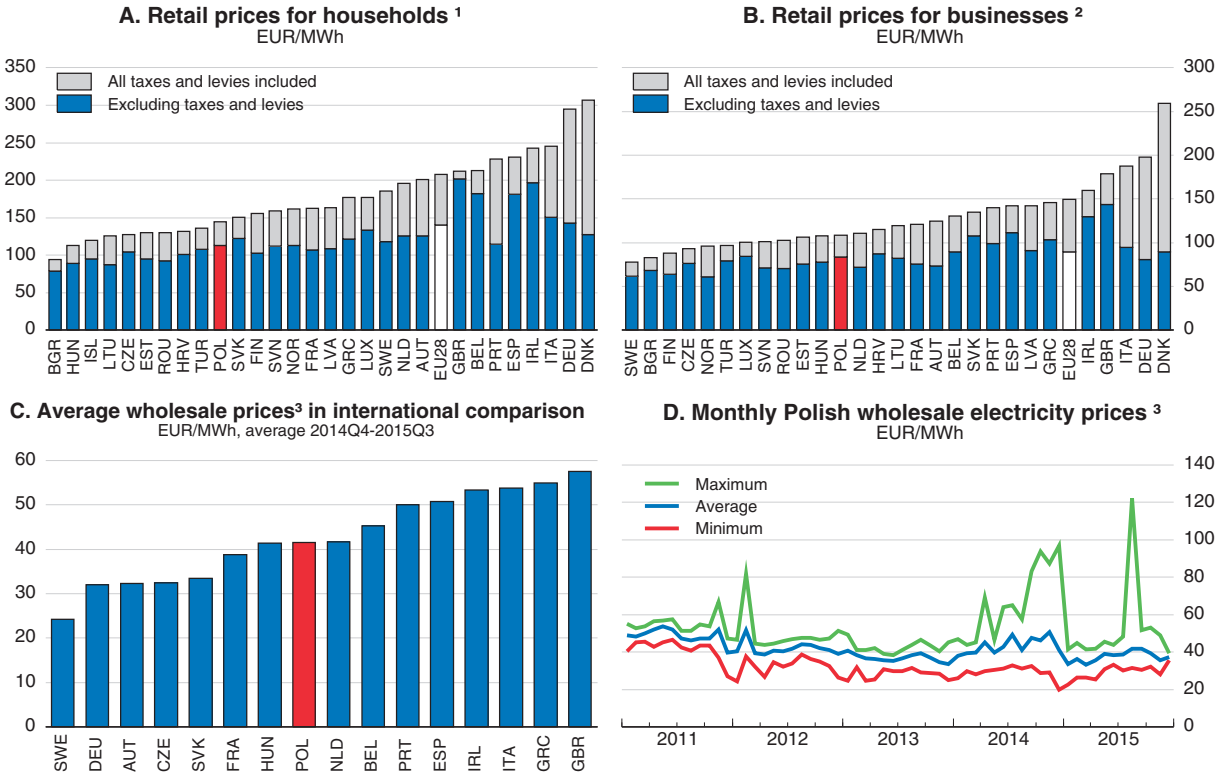
Source: European Commission (2015), *Achieving the 10% Electricity Interconnection Target, Making Europe's Electricity Grid Fit for 2020*; IEA (2015), *World: Electricity/Heat Supply and Consumption*.

StatLink http://dx.doi.org/10.1787/888933339480

interconnectivity above the 2020 threshold of 10% fixed by the European Commission (2015b).

In any case, the current low wholesale electricity prices could lead to significant underinvestment in new capacity and shortages over the medium term. For example, the Polish TSO recently stated that achieving significant investment in new generating capacity will be challenging (PSE, 2015). Retail power prices to households and firms are relatively low (in euro terms) by European standards, and wholesale prices are, as elsewhere in Europe, declining and volatile (Figure 2.28). Marginal cost pricing in a wholesale market for a non-storable good such as electricity and the increasing availabilities of subsidised electricity from renewables have created issues for investment and the long-term financing of fixed costs, in particular in low-carbon generating capacity. Under some conditions, introducing a capacity market, as currently discussed, could favour investment. With such a mechanism, the authorities would certify reliable sources of generation capacity and set mandatory certificate targets electricity suppliers would have to buy. Certificate sales could thus improve the returns from new power stations and encourage investment in both peak-load generation and demand management, including load shedding during critical hours. In 2013 the Ministry of Economy, utility companies and the regulator started working on a capacity mechanism, and in January 2014 the TSO introduced an operational power reserve mechanism. It provides reserve power available in the event of losses of capacity generation. However, it does not have the same characteristics as a capacity mechanism, as prices for capacity are set in advance by the regulator and, at 37.3 PLN/MWh, the 2015 level was below the market price. If Poland decided to introduce a capacity market, it would need to closely monitor risks for wholesale market fragmentation, as such national schemes may limit import competition.

Figure 2.28. **Retail and wholesale prices of electricity**



1. Price in the first semester of 2015 for annual use of 2 500 – 5 000 kWh.
2. Price in the first semester of 2015 for annual use of 500 – 2 000 MWh.
3. Base-load prices, maximum and minimum over daily observations.

Source: Eurostat (2015), Energy Price Statistics; European Commission (2015), *Quarterly Reports on European Electricity Markets, 2014Q4 to 2015Q3,* TGE-Polish Power Exchange.

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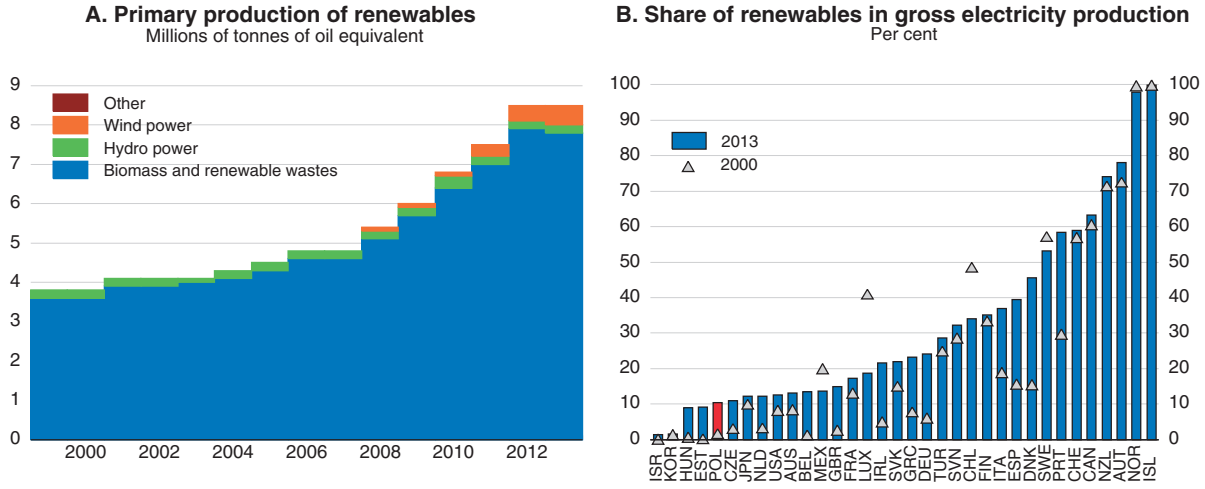
Developing renewable energy sources

Poland's energy policy also aims to diversify the energy mix towards renewables. In line with EU regulations, the renewables share in final gross energy consumption should reach 15% by 2020. Poland is on track to reach this target (European Commission, 2015c). Since 2000, wind power has been the fastest growing renewable source of electricity, followed by solid biomass (which, however, accounts for almost half of all renewable electricity generation), while the share of hydropower has decreased steadily. However, at 11% in 2013, the share of renewables in electricity generation was half the OECD average and stood below the target of Poland's 2010 National Renewable Action Plan, despite significant improvements (Figure 2.29; Ministry of Economy, 2010). Indeed, until 2015, support for renewables was based on "green certificates" (renewables generators got revenue from selling both electricity and "green certificates") and mandatory quotas for power companies, which favoured co-firing of biomass with coal in existing power plants but relatively weak incentives for the development of new technologies, as the price of "green certificates" went down following the expansion in co-firing power plants. Moreover, co-firing plants may not allow a long-term solution. The European Commission is currently revising the technical requirements for large power plants, and the draft

Figure 2.29. **Renewable energy sources**



Source: OECD (2015), *Green Growth Indicators*; Eurostat (2015), *Supply, Transformation and Consumption of Renewable Energies*.

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regulations foresee more stringent criteria for emissions (to take effect in 2020), which would lead to the retirement of old coal plants, which provide the bulk of co-firing.

A new renewable energy law was approved by the Polish government in April 2014 to take effect in 2016. The long elaboration of the new regulatory system, as well as delays in the transposition of the EU Renewable Energy Directive (European Commission, 2013b), have created significant uncertainty that has deterred some investment. The new system will be based on auctions and guaranteed prices, though many details remain undefined. Support to co-firing of biomass with coal will be gradually phased out over 15 years. This could effectively eliminate the current oversupply of green certificates and boost their prices and investment in renewables. However, wind producers appear to have frontloaded their investment in 2013 to benefit from the current support system, as future auction conditions are expected to be less favourable. Indeed, the new law could allow more stable financing but will also probably lower overall public spending on renewables.

Developing electricity transmission capacity and ensuring easy access to the grid by streamlining administrative procedures could also foster the development of renewables. The ability to move generated electricity over long distances inside Poland, from potential windfarm locations in the North to more industrialised regions, remains insufficient. In the North applications for connecting renewables-based installations to the grid by far exceed the available capacity (IEA, 2011). Ensuring third-party access to the grid is especially important for renewable energy developers, as uncertain grid access increases project risk, and delayed connection affects a project's cash flow. Moreover, the long time needed to obtain a building permit also limits the development of wind power. For onshore wind farms the procedures took 43 months in 2008, more than the double the European average, with only Portugal, Spain and Greece having longer delays (EWEA, 2010), and the process was still not transparent in 2014 (NIK, 2014a). The absence of clear requirements with regard to the scope of the environmental impact analysis was a major cause. In addition, developers have to deal with eight authorities for the necessary paperwork (NIK, 2012b and 2014a). Financing may also have been lacking for some private-sector renewables projects that were deemed more risky by banks. The new EFSI and PIR

(Boxes 2.2 and 2.3) could finance new renewables capacity.

Developing high-efficiency combined heat and power (CHP)/cogeneration using renewable energies and gas, as planned in the draft Energy Policy of Poland until 2050, would also help increase energy efficiency and lower urban air pollution. District heating is Poland's most common form of heat supply and holds tremendous potential for cogeneration and reducing GHG emissions (CODE2, 2014). Moreover, new buildings have to be connected to existing heating networks, unless they can be connected to a higher-energy-efficiency heating source. However, 88% of the existing CHP plants rely on coal (Ministry of Economy, 2012), while low wholesale electricity and heat prices limit investment opportunities. Since 2007, another tradable certificate system, comparable to the "green certificates" for renewables, forces electricity distributors to buy some CHP-produced electricity from high-efficiency plants and small producers. In addition, CHP plants benefit from reduced connection fees to the electricity grid. However, regulatory uncertainty has been high: the tradable certificate schemes stopped in 2013 but were reintroduced in 2014 for four years. This led to low and volatile prices of CHP certificates and limited new investments. Moreover, municipalities, responsible for defining local energy and heat plans, have often failed to develop or implement such plans, in the absence of skilled staff and legal sanctions (Ministry of Economy, 2012). Defining a stable support scheme beyond 2018 and providing expert support would encourage investment in new CHP plants.

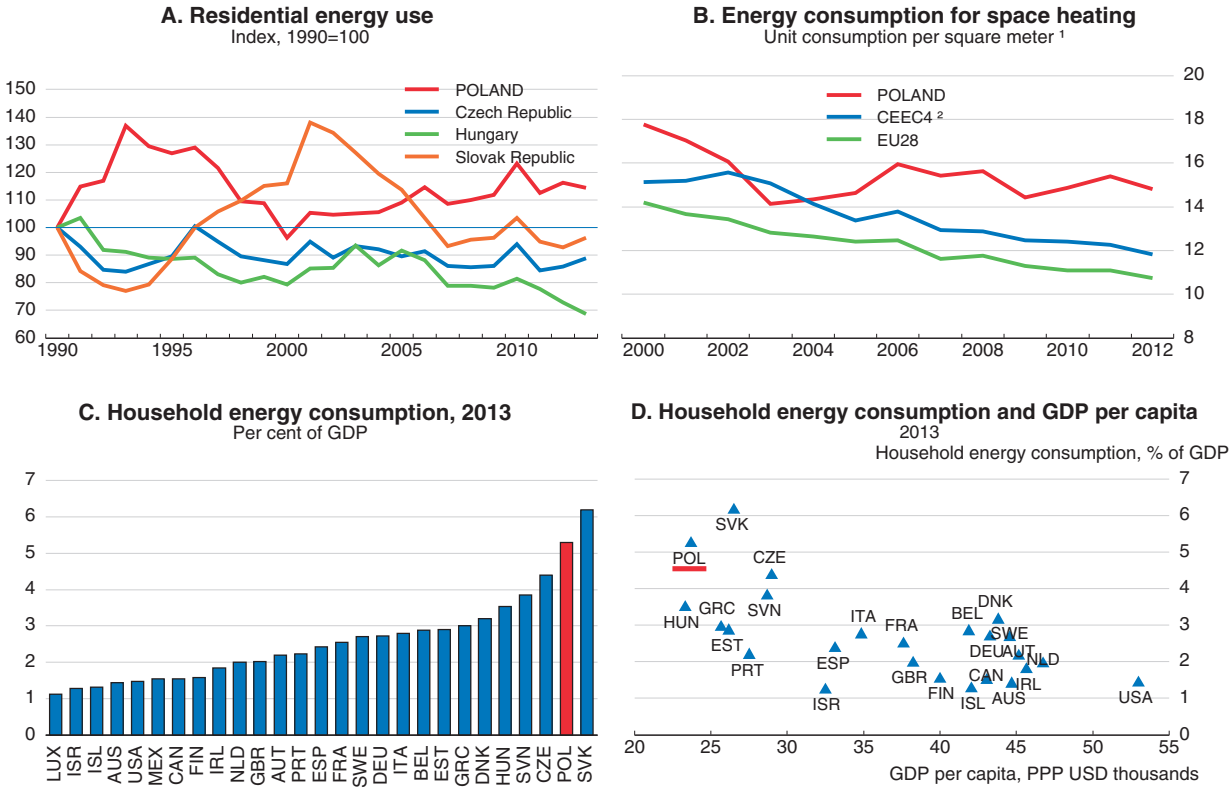
Raising energy efficiency

There is significant potential to improve efficiency in the energy sector, notably by strengthening yet another system of certificates, this one labelled "white". According to the Energy Efficiency Law, passed in April 2011, energy (electricity, gas and heat) suppliers have to improve efficiency via reducing losses in production, distribution, transmission and the end-use sector. The white certificate programme was eventually established in 2013 to favour enhancement of energy efficiency undertakings (OECD, 2012a; Égert, 2012). The law requires that claimed efficiency gains be subject to energy-savings audits, for which firms will be rewarded with such certificates. If they miss their targets, they have to either purchase white certificates or pay a substitution fee. Though the system is supposed to be the main pillar of energy efficiency improvements, results of the first tender were disappointing: only 1.4 % of the obligation was met using white certificates, the rest being met by payment of the substitution fee (OECD, 2015b).

Poland has made some progress in boosting the energy efficiency of residential buildings. However, energy consumption for space heating has been stable at a high level and represents a larger share of household income than in most OECD countries, even those with similar GDP per capita (Figure 2.30). Energy efficiency remains low due to the continuing use of low-efficiency individual boilers for heating and hot water, coupled with high heat losses because of poor thermal insulation in some buildings (IEA, 2011). Moreover, the exposure of the urban population to air pollution by particulate matter continues to be well above the EU average, and the number of deaths attributable to indoor air pollution from solid fuels is high.

The Thermo-Modernisation Fund, overseen by the Ministry of Infrastructure and Development and managed by BGK, has been the key instrument for thermal improvement investment in existing buildings since 1998 (OECD, 2015b). It has provided subsidised loans mainly to building owners and local governments to renovate apartment buildings and has

Figure 2.30. **Household energy consumption**



1. Kilograms of oil equivalent per square meter corrected for climatic conditions.
2. Unweighted average of Hungary and the Czech and Slovak Republics. The 2010 value is used in 2011-12 for Hungary.

Source: OECD (2015), *Final Consumption Expenditure of Households* and *National Accounts Database*; Eurostat (2015), *Final Energy Consumption of the Residential Sector*; Odysee-Mure database.

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helped develop energy audit services. Between 2004 and 2013 its subsidies totalled PLN 1.5 billion, but dependence on transfers from the central government budget has led to severe funding fluctuations: for example, no money was received in 2010, and the funds available were divided by three from 2011 to 2012 (BGK, 2014). In 2015, the Fund's budget was around PLN 300 million (Republic of Poland, 2015). However, besides a lack of sufficient and stable funding, it has been hampered by complexity and the perception of risk, which has put off some commercial banks and potential investors (Rekiel, 2014). Under the 2014-20 EU operational programme "Infrastructure and Environment", EUR 421 million will be available for housing and public-building insulation, and EUR 150 million for energy efficiency projects in large enterprises. In addition, a new support scheme was implemented by the National Fund for Environmental Protection and Water Management (NFOSiGW) in 2015. It aims to improve the thermo-modernisation of single family houses and has a planned budget of PLN 400 million for 2015-23. The first call for applications is planned in the second quarter of 2016.

In 2013, Poland also implemented a new programme of subsidies for the construction of energy-efficient houses (through NFOSiGW), with a budget of PLN 300 million over 2013-18, through the partial repayment of mortgages (Republic of Poland, 2015). However, only 112 projects (for a total of PLN 2 million) had been committed by June 2015. Ambitious technical conditions required by the programme may appear stringent to households, and

the grants are subject to personal income tax, which may limit their attractiveness for investors. As a result, one bank pulled out of the programme in 2015. Besides funding and the regulatory burden, there are many barriers to improve building energy efficiency relating to awareness, information and technical expertise. The 2015 Act on energy performance of buildings aims to increase consumer information by imposing an obligation to conduct an energy performance certification of some buildings. A national plan aimed at increasing the number of low-energy buildings was announced in July 2015, and new technical requirements on the energy performance of buildings were introduced to achieve the objectives of the Directive on the Energy Performance of Buildings (Republic of Poland, 2015).

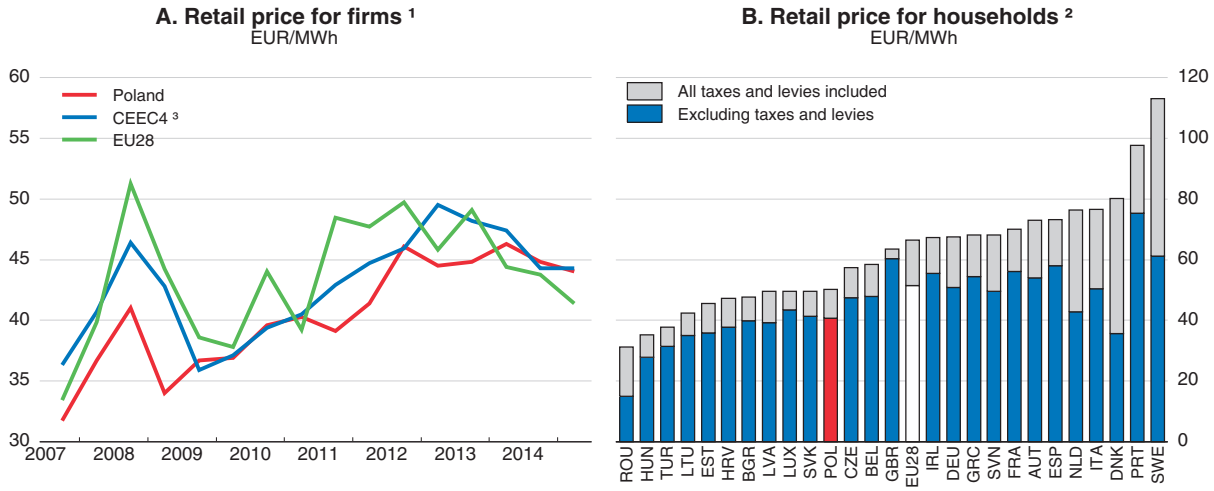
More generally, smart or intelligent grids and smart meters could allow network operators to modulate electricity demand during peak periods via demand withdrawal. By smoothing daily, weekly and annual peak demand they would also be helpful in lowering GHG emissions related to electricity consumption. This could also increase households' awareness of their energy consumption, result in reduced energy consumption and increase the energy efficiency of investment. However, investment in such technologies appears lagging, as in other CEECs (European Commission, 2014f; OECD, 2012a), though Poland plans to finish deploying smart grids by 2020 and EUR 150 million have been allocated to this end under the 2014-20 EU operational programme "Infrastructure and Environment" for smart or intelligent grids.

Strengthening the energy regulatory framework and the gas market

Strengthening the regulatory framework would be instrumental in reducing uncertainty and risks and achieving the right price signals for new energy investments. While Poland has made good progress in complying with EU regulations related to the energy sector, the regulatory protection of incumbents, the complexity of regulatory procedures and state involvement in competitive segments of energy markets are far from OECD best practice (OECD, 2014a; Égert and Goujard, 2014). The historical operator (PGE) is still the most dominant player in generation and wholesale electricity supply, and the Treasury is a major shareholder in four of the five main distributors. These four capital groups are indirectly government owned and vertically integrated by ownership with major generators. They are also heavily involved in supplying businesses and households. The sector regulator reckons this to be a regulatory challenge (ERO, 2012). The preponderance of public ownership and the lack of effective ownership separation between electricity producers and distributors may blur the price signal for investment decisions in generation capacity, limit incentives for cost control and curb entrepreneurial dynamism.

The gas market is being liberalised. Gas prices are close to the EU average for firms and households (Figure 2.31). At the end of 2012, a gas exchange was created, and the volume of gas traded on it is increasing. However, despite legal and functional unbundling, improved third-party access and increasing interconnection capacities to neighbouring countries, competition remains weak. Besides the concentration of the wholesale market (see above), PGNiG has a *de facto* monopoly position in importing, production, distribution and supply, though the imports of gas to Poland by other companies has recently increased (Ministry of Energy, 2015). Moreover, regulated tariffs for final consumers, notably large users, may also lower competitive pressures. Indeed, the European Commission (2013c) has argued that Poland violates EU regulations regarding domestic gas markets by

Figure 2.31. **The gas sector**



1. All taxies and levies included. Price for annual use of 2 778-27 778 MWh.
2. All taxies and levies included. Price in the first semester of 2015 for annual use of 5.6-55.6 MWh.
3. Unweighted average of Hungary and the Czech and Slovak Republics.

Source: Eurostat (2015), *Energy Price Statistics*.

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regulating gas prices for users other than households, and the European Court of Justice ruled that Poland was not compliant with the EU Gas Directive in September 2015. In 2013, 78 % of gas supplies were imported under the long-term Yamal contract from Russia (ERO, 2014), and PGNiG was selling gas to consumers at regulated tariffs below the wholesale price of its Russian imports.

Poland's capacity to import gas from other EU countries has risen, but barriers to trade (including import diversification requirements) should be revised. New gas interconnections and expansion of the existing ones with neighbouring countries would ensure a more diversified gas supply. In turn, this could foster the development of renewables in electricity generation capacity by offering temporary peak-load capacity. Poland has improved considerably its interconnections with Germany, and the investment enabling physical reverse flows at the border with Germany was completed in 2014. In 2016, the liquefied natural gas (LNG) terminal in Swinoujscie (owned by Polskie LNG S.A., a subsidiary of the gas transmission operator, OGP Gaz-System S.A.) will allow gas to be imported from Qatar. The gas transmission operator plans further investment in interconnections, notably with the Czech and Slovak Republics and Lithuania, and intends to strengthen the domestic network, in particular by expanding distribution in the West and South.

Recommendations for improving transport and energy infrastructure investment

Strengthening infrastructure strategy and planning

- Improve the infrastructure selection process: systematically publish cost-benefit analyses (CBAs) with sufficient details; make mandatory independent evaluation for investment projects exceeding a certain amount; bolster the technical quality of CBAs with the creation of a reference centre able to help agencies involved in the analyses.
- Integrate environmental and health criteria to the evaluation of infrastructure projects. Develop ex post evaluations to identify and promote best practices.
- Ensure funding for infrastructure investment includes long-term resources for maintenance. Increase incentives for collaboration across levels of government. Develop and regularly update local spatial plans.
- Improve infrastructure management by reducing the fragmentation of responsibilities across ministries and setting up permanent metropolitan governance institutions.

Enhancing incentives for capital investment

- Develop and implement clear climate change policies aligned with European and international objectives.
- Introduce fixed-term, non-renewable mandates for the President of the Competition Authority and all sectoral regulators, during which they cannot be dismissed without fault, and prevent revolving-door opportunities. Pursue privatisation in competitive segments of the economy.
- Rationalise and standardise purchasing procedures, centralise orders and promote e-procurement take-up, through an integrated national strategy. Bolster local-government capacity by providing central-government technical assistance for large infrastructure projects.
- Strengthen the anti-corruption framework, by better protecting whistle-blowers. Ensure the full independence of the Central Anticorruption Bureau.

Improving the efficiency of transport infrastructure investment

- Ensure total independence of the railway infrastructure manager from the operators. Allocate long-term contracts for railway infrastructure management and services based on tenders.
- Reform arrangements for managing and funding national and local road infrastructure to enhance consistency of decision-making with regard to expenditure and revenue. Allow local governments to design local electronic tolling systems to limit congestion and pollution.
- Review and revise transport taxes and charges, with a view to better internalising the environmental and health impacts of various transport modes. Set appropriate road prices to help finance new investments.

Getting the right incentives in the energy sector

- Invest in interconnections with neighbouring countries in the electricity and gas sectors. Install “smart meters” for electricity more widely to improve demand management.
- Ensure that the new law on renewables, together with the EU-ETS, provides appropriate incentives for investment in new generation capacity. Streamline regulatory procedures for new energy investment projects. Evaluate the need for a capacity market to help finance baseload and peak-load capacity.
- Monitor the development of the market for “white certificates”. Modify its parameters if needed to ensure it effectively supports energy efficiency investment. Reform the current programme for the construction of energy-efficient houses to ensure a higher take-up.

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