

Report No. 117802-PL

Poland:
Toward a Strategic, Effective, and
Accountable State

Systematic Country Diagnostic

JULY 31, 2017



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Abbreviations

CAP	Common Agricultural Policy (EU)
ETS	Emissions Trading Scheme
EU	European Union
FDI	foreign direct investment
GDP	gross domestic product
GHG	greenhouse gas
GUS	Central Statistical Office
HEIs	higher education institutions
ICT	information and communication technology
KRUS	Agricultural Social Insurance Fund
LiTS	Life in Transition Survey
LTC	long-term care
MoH	Ministry of Health
NCBR	National Centre for Research and Development
NDC	notional defined contribution
NEET	not in employment, education, or training
NFZ	National Health Fund
OECD	Organisation for Economic Co-operation and Development
O&M	operations and maintenance
PAYG	pay-as-you-go
PISA	Program for International Student Assessment
PIT	personal income tax
PM	particulate matter
PMR	product market regulation
PM _{2.5}	particulate matter less than or equal to 2.5 microns in diameter
PROST	Pension Reform Options Simulation Toolkit
R&D	research and development
SCD	Systematic Country Diagnostic
SMEs	small and medium enterprises
SOEs	state-owned enterprises
TFP	total factor productivity

WFD	Water Framework Directive (of the EU)
WSS	water supply system
VAT	value added tax
ZUS	Social Insurance Institution (<i>Zakład Ubezpieczeń Społecznych</i>)

Overview

The pathway to shared prosperity in Poland is built around growth, inclusion, and sustainability objectives, but success will ultimately depend on a more strategic, effective, and accountable state. Poland has done remarkably well, boasting strong growth over three decades. Looking forward, this Systemic Country Diagnostic (SCD) argues that a new level of sophistication is required to meet the challenges of a rapidly aging population and evolving global economy. This includes developing a more strategic, effective, and accountable state that can facilitate a strong consensus around consistent policies to foster growth, inclusion, and sustainability (Figure O.1). Continued productivity growth will depend on Poland's ability to transition to an innovation-led growth model. This transition, in turn, will require improved consistency and commitment to sound policies, as well as improved coordination between the public and private sectors. Demographic trends make it critical for Poland to invest in its people, ensuring that everyone can participate and benefit from growth. To that end, policies must be consistent—both across sectors and between local and national government institutions—such that every person has equal opportunity, participates in the labor market, and is able to move to where they are most productive. To grow sustainably, a new social consensus will be needed to confront difficult trade-offs between the needs of an aging population and the associated fiscal costs. Similarly, Poland will need to weigh the fiscal and economic costs of transitioning to a low-emissions economy against the social and environmental costs associated with business as usual. Consensus will be needed to ensure consistency of policies around agreed-upon principles, commitment to staying the course, coordination across all stakeholders, and cooperation from the private sector based on trust in government.

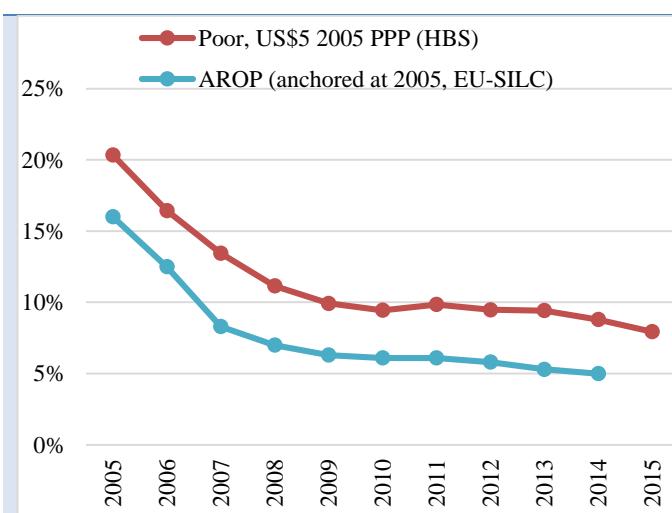
Figure O.1. Pathways to Shared Prosperity



Progress and Both New and Persistent Challenges

Poland is in many respects a development success story: broad-based productivity growth over the past decade has translated into remarkable progress in poverty reduction and shared prosperity. Real gross domestic product (GDP) in 2016 was 2.5 times what it was in 1990, implying average annual real growth of 3.6 percent. Fast and stable growth, driven by productivity increases, was accompanied by the establishment and strengthening of pro-competitive institutions, market-oriented upgrading of human capital, and sound macroeconomic management. Moreover, Poland's economic growth has been inclusive in the past decade, as evidenced by growing employment and earnings for all income groups, which led to a substantial reduction in poverty and stronger-than-average growth of the bottom 40 percent of the distribution (Figure O.2 and Figure O.3). Poland has moved from a society in which citizens were assumed to be equal before the law and facing nominally equal opportunities to one in which these assumptions have become, to a large extent, reality. Also, Poland's economic success has been associated with the decentralization and public administration reforms, which led to an increased role for subnational governments in the country's development and improved provision of public services.

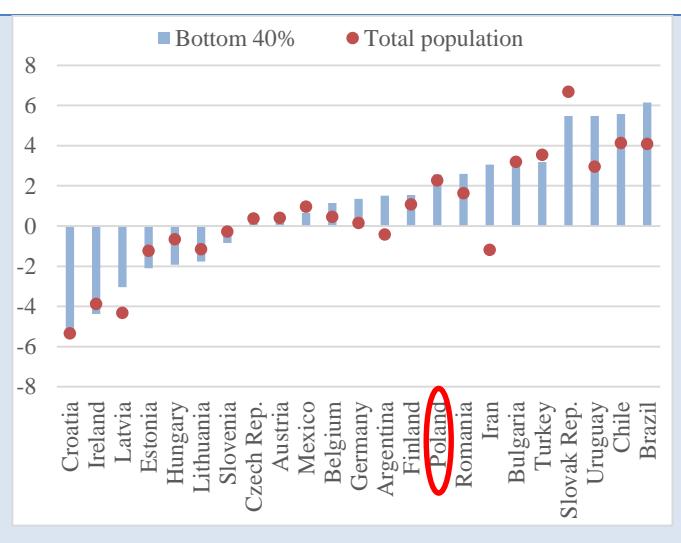
Figure O.2. Poverty Headcount at \$5-a-day, \$10-a-day (2005 PPP), and Anchored EU Poverty Lines, 2005–15



Sources: Household Budget Survey (HBS); European Union Statistics on Income and Living Conditions (EU-SILC); and Eurostat database (accessed April 2017).

Note: AROP = at-risk-of-poverty rate, measured as 60 percent of median income anchored in 2005 EU-SILC. PPP = purchasing power parity.

Figure O.3. Income Growth of the Bottom 40 Percent Relative to Total Population, Selected Countries, Circa 2008–13



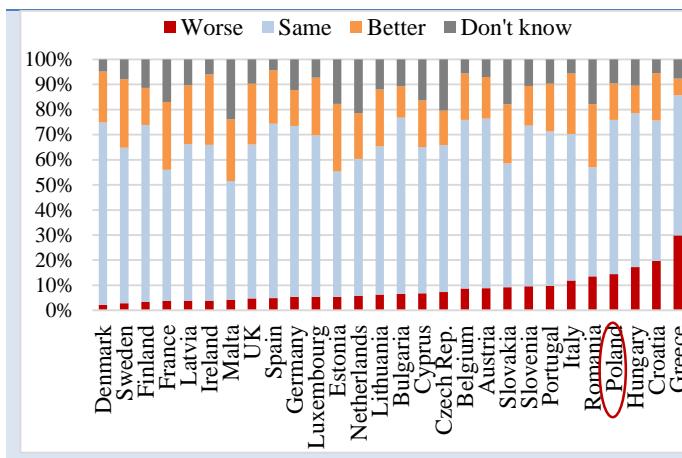
Source: World Bank Global Database of Shared Prosperity (accessed November 1, 2016).

Note: Income growth for Bulgaria is for 2007–10.

The future prospects for Poland require addressing the underlying constraints to shared prosperity and sustainable economic growth. Although extreme poverty has been nearly eradicated in Poland, the goal of shared prosperity continues to be challenging. First, despite improvements in employment and earnings, recent growth for the bottom of the distribution comes on the heels of a period when growth was not inclusive. Real wage gains for average workers have been slower than increases in productivity while

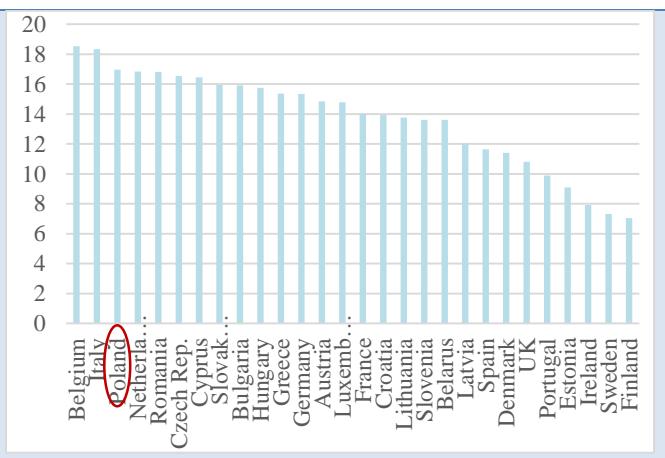
the returns to labor have been growing more slowly than the returns to capital, potentially signaling pressures that can lead to rising inequality. Moreover, to the extent that the aspirations of the population are for faster convergence of incomes with the levels of Germany, perception of improvements in welfare differ from objective measures of well-being (Figure O.4). Poland's ability to meet these aspirations quickly is limited by fiscal constraints. Poland has had a persistent fiscal deficit, and the public debt-to-GDP ratio has continued to rise over the past decade despite strong growth. Although public debt remains sustainable and its profile resilient to macro-fiscal shocks over the medium term, long-term fiscal sustainability has recently been weakened by the rollback in the statutory retirement age, as the number of people relying on the subsidized minimum pension is expected to increase given the decline in the replacement rates. Finally, Poland has made only slow progress on environmental challenges and faces significant challenges in transitioning to a low-emissions economy (Figure O.5).

Figure O.4. Perceptions of Current State of Affairs Regarding Personal Job Situation, EU-28 Countries, 2016



Source: Eurobarometer 2016.

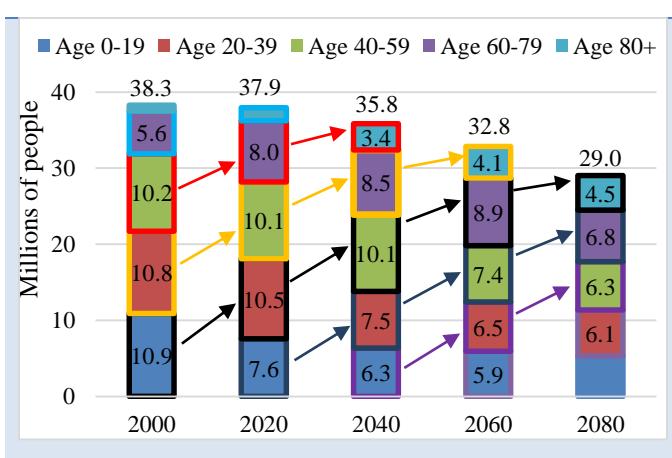
Figure O.5. Mean Annual Exposure to PM_{2.5} Air Pollution, EU-28 Countries, 2013



Source: World Development Indicators database.

Rapidly evolving internal and external factors will require new strategies. First, relatively fast demographic changes will lead to increased dependency on a shrinking labor force, which could have impacts on growth. Demographic changes will also pose fiscal challenges and place a strain on the health care and pension systems, thus posing both fiscal sustainability and inclusion challenges (Figure O.6). Second, the global slowdown in innovation in frontier markets due to the financial crisis could translate into a reduction in productivity for a country like Poland, which has a high trade exposure to Western Europe. Third, inclusion will be threatened by technological improvements that favor high-

Figure O.6. Poland's Demographic Challenge: A Smaller, Older Population



Source: World Bank, based on Eurostat data.

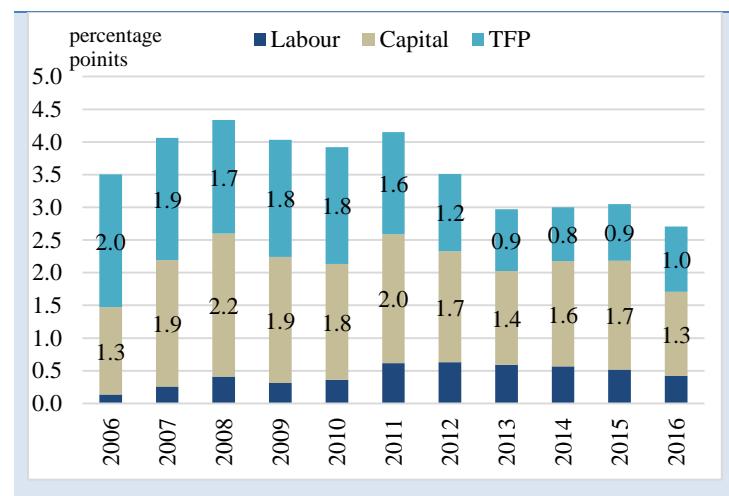
skilled, nonroutine tasks, leading to higher inequality as income levels in Poland converge with those of advanced countries. In this context, efforts to guard against social exclusion will be needed given the remaining disparities between regions and between local communities in access to high-quality education, health, and other services. Finally, increasing urbanization will challenge the sustainable management of natural resources, including water and air quality management.

Success will depend on the quality of institutions to implement sound policies in a strategic, effective, and accountable manner. This is critical if Poland would like to move to an innovation-led growth model, but it is also key for human capital investments so people can participate where they are most productive as well as to guarantee fiscal, social, and environmental sustainability. Improved consistency, commitment, coordination, and cooperation would strengthen Poland's institutions, making them more strategic, effective, and accountable in delivering shared prosperity.

Boosting Poland's Growth Potential

Further increases in productivity will require successful implementation of an innovation-led growth model, a task that will prove difficult in the absence of a more strategic, effective, and accountable state. Recent estimates of Poland's potential output and its drivers suggest that productivity growth has had a markedly diminishing role in total GDP growth since 2010 (Figure O.7). In the past, growth in productivity has been due to structural transformation, as resources moved from less-productive to more-productive sectors. More recently, the reallocation within sectors has been more prominent as resources were reallocated to higher-productivity firms within sectors as the pace of structural transformation and the associated productivity gains across sectors declined. In contrast, the contribution to productivity from firm turnover has so far remained small. Although further improvements within and across sectors are still possible, as Poland converges with high-income standards, continued productivity growth will be difficult to achieve unless it can foster innovation-led growth in which more-productive firms survive while lower-productivity firms are allowed to exit. The next five years provide a window of opportunity to prepare for this transition, during a period when the country still benefits from generous European Union (EU) support. Enhanced competition, removing barriers to entrepreneurship, and allocating scarce resources to maximize entrepreneurs' potential will require institutional changes, and commitment to such policies could potentially disrupt the status quo.

Figure O.7. Estimated Potential GDP Growth and Its Decomposition in Poland, 2006–16



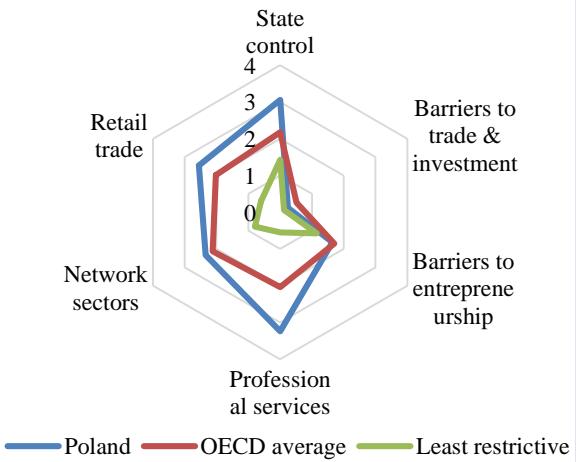
Source: EC 2017a.

Note: TFP = total factor productivity.

Competition

Enhancing competition will be critical to foster innovation and ensure future productivity growth. Reducing barriers to competition will allow for innovative, productive firms to grow. The single most important unresolved challenge weighing on product market competition is the significant role of state-owned enterprises (SOEs), which account for almost half of all revenues of the biggest enterprises listed on the stock exchange with around 10–20 percent in the Czech Republic, Hungary, and Figure O.8. An effective corporate governance framework on SOEs is still pending while some SOEs can generate fiscal risks. The continued significant role of the state remains a challenge that cuts across several sectors and constrains a greater role for the private sector in the economy. To the extent that SOEs stand in the way of competition or inhibit innovation, they could curtail productivity growth. Free trade and investment are also critical to ensure competition. Poland has a strong track record of liberalized foreign trade that has attracted sizable foreign direct investment (FDI) and led to large improvements in productivity in the past. However, mounting overregulation or increased policy uncertainty could discourage new investors in the future. More generally, improving the consistency and predictability of regulations should help to limit uncertainty, an increasingly important concern for businesses.

Figure O.8. Constraints to Competition in Poland and Other OECD Countries



Source: World Bank, based on OECD 2013 data.

Note: OECD = Organisation for Economic Co-operation and Development. The indicators vary from 0 (no restrictions to competition) to 5 (highly restricted).

Removing barriers to entrepreneurship and investment will also support productivity growth. Four areas which pose barriers to entrepreneurship and investment are recognized in the report. *First*, Poland's regulatory environment suffers from discrepancies between the laws on the books and the performance of laws in practice—largely because of the lags in judiciary proceedings. *Second*, there are broader implementation gaps, including late payments to private suppliers, slow administration proceedings, excessive reporting requirements, and frequent changes in regulations. Although these issues are present throughout the country, there is significant variation in regulatory performance across regions that will need to be addressed to ensure continued convergence between leading and lagging regions. *Third*, more attention needs to be given to safeguarding recent advances by insulating the regulatory process from capture by interest groups. Poland has one of the shortest comment periods for regulatory proposals of all Organisation for Economic Co-operation and Development (OECD) countries, and the length of public consultations compares unfavorably with many middle-income countries outside the OECD. Public hearings in parliament are rare, as parliament usually decides upon laws quickly, which limits the ability of stakeholders to inform and participate in lawmaking. Finally, there is need for greater diversification of the capital market for financing entrepreneurial ventures. Poland's financial sector depth is in line with its income level, and the country performs better than its peers in access to finance for firms. Although capital markets play a minor role in small and medium enterprise (SME) financing (as small enterprises prefer to use their own funds), an innovation-led growth strategy requires further diversification of the financial sector through capital market development or venture capital. Public sector facilitation that

would allow this type of financing, and a clear regulatory framework, will be needed to ensure consistency of policies and coordination with the private sector. All of these challenges point to the need for strengthened institutions, improved consistency of policies, and enhanced coordination within and outside of government to make government more effective and accountable.

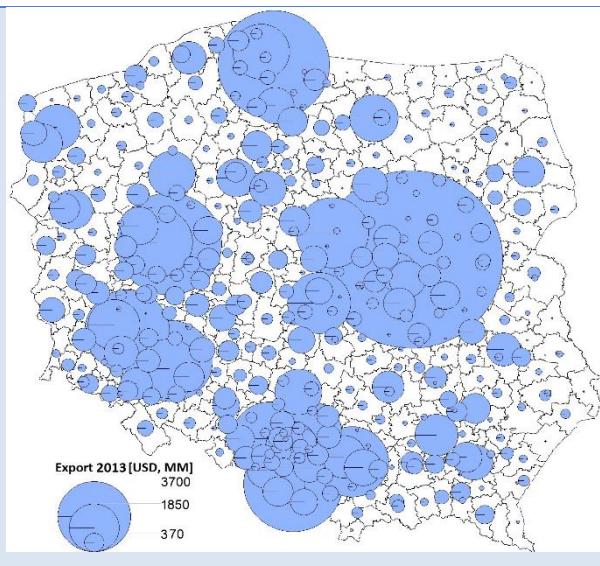
Strategic Public Investment

To address the challenge of reconciling growth with budgetary discipline, Poland must become more strategic in terms of its public investment policy and make the best use of EU funds. Given finite fiscal resources and an aging population, public investment will need to be more strategic, focusing on a limited number of growth-enhancing areas with high potential and positive externalities. In particular, the quality of trade and transport infrastructure remains still a constraint to Poland's infrastructure connectivity and to private sector investment. A long-term life-cycle approach to managing and financing transport and information and communication technology (ICT) infrastructure will help to improve spending efficiency, prepare for the likely phasing-out of EU financing, and reduce the overall infrastructure gap, including the digitalization agenda. To improve the efficiency of EU funds, increased use of revolving financial instruments (instead of grants), private sector participation, and innovative instruments that "lengthen" the availability of EU funds could prove effective.

An important element of a more strategic state is ensuring that resources devoted to less-developed regions are effective in reducing differences in development outcomes. Growth has not been evenly spread across space, with economic activity concentrated in some cities and regions (Map O.1). Arguably, growing disparities between leading and lagging regions can be interpreted as a natural result of rapid development. However, Poland also faces differences in opportunities across regions, with persistent differences in health and education outcomes. For instance urban-rural differences in math, reading, and science scores through the Program for International Student Assessment (PISA) were large relative to the rest of the EU, surpassed only by Bulgaria, Hungary, Lithuania, and the Slovak Republic. Similarly, access to health care depends on place of residence, with the number of stable cases waiting for an appointment with selected specialists varying dramatically across Polish regions. Moreover, businesses face important different environments in terms of the ease of conducting business because of differences in services, regulations, access to the judiciary, and to access to finance. It is up to the state to reduce these differences, ensuring that individuals have equal opportunities regardless of where they were born, and ensuring businesses can thrive based on their productive potential and not as a consequence of regulatory differences.

The focus on investments in lagging areas could focus more on building the capacity of local actors. Although less-developed regions have so far been the beneficiaries of most EU funding, the evidence

Map O.1 Total Volume of Exports in Poland, by County, 2013



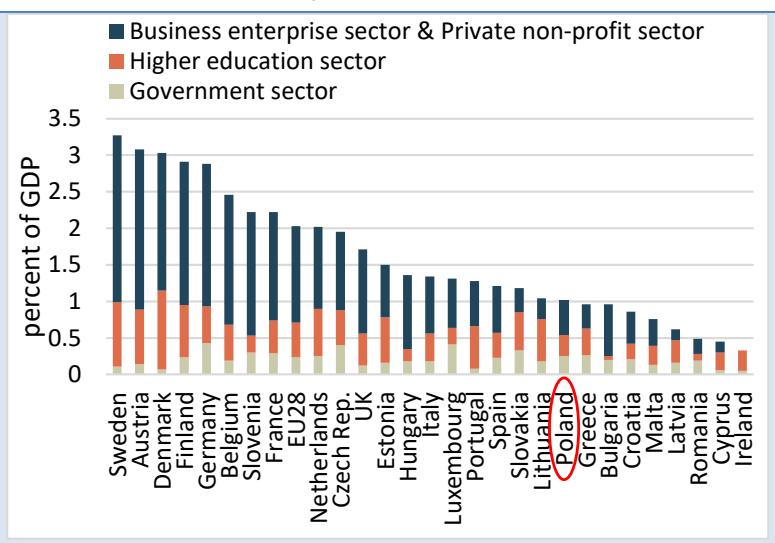
Source: Sivaev 2017, based on Ministry of Foreign Affairs data. ©World Bank. Further permission required for reuse.

shows that more urbanized and developed municipalities and counties have received a larger share of EU funds than the rest. Continued investments in less-developed areas, could focus on improving education and health outcomes and on promoting private sector development policies that start with building the capacity of local actors. In general, place-based policies have not worked—and, when they have, it was because they had broad-based coalitions of actors and rather sophisticated, capable governments. This experience suggests that place-based policies should be driven by empowered local actors and implemented only if coordination of multiple actors and their capacity for joint prioritization of investments can be demonstrated. More generally, the coordination function of the government through strengthened institutions will be critical to promote common expectations and investments of both the public and the private sectors across regions, counties, and municipalities.

Finally, there is scope for a more coordinated, strategic approach to R&D policy. Poland has hundreds of innovation support programs funded by both the government and the EU and implemented by different local and national government agencies. This dispersion of initiatives leads to duplication of objectives, higher administrative costs for the public sector as well as beneficiaries, and lack of strategic focus. Moreover, weak links between business and public science organizations continue to be a challenge in Poland, with business funding of research performed by academia being one of the lowest levels in the EU-28. Before aiming to boost investment in research and development (R&D)

from its current low levels (Figure O.9), the country needs a more strategic approach to R&D policy, streamlining the fragmented system of enterprise innovation support and focusing the existing resources on basic research and on spurring greater cooperation between science and industry.

Figure O.9. R&D Spending in EU Countries as a Share of GDP, by Sector, 2015



Source: World Bank calculations, based on Eurostat data.

Sound Macro-Fiscal Policies

Finally, continued improvements in growth will depend on commitment to a sound macroeconomic environment and greater certainty around government policies. Prudent financial supervision and countercyclical monetary and fiscal policy are sine qua non conditions to boost productivity. Fiscal rules have contributed to the stability of Polish public finance, and their credibility needs to be preserved. In light of expected weaker inflows of foreign investments and the prospects of lower inflows of EU funds after 2020, higher domestic savings will be necessary. Given the demographic trends, it becomes more critical for the public sector to play an exemplary role in maintaining budget discipline and generating savings in good times. Finally, strengthening budget institutions and upgrading the country's tax system to ensure higher-quality public finance, on both the public spending and revenue sides, will be important to ensure public trust. Critical to this task will be the consistency of policies across levels of government

and ensuring trust and cooperation in their implementation from private agents, again pointing to the fundamental role of strong institutions.

Enhancing Inclusion

To ensure that growth is inclusive, Poland needs to strengthen the capacity of households to diversify their assets base and to engage productively. Despite improvements in shared prosperity over the past 15 years, demographic changes will reduce the available labor force and strain existing health and social protection systems. Although income inequality is low and has been declining, Poland is not immune to skill-biased technological improvements across the globe, which could lead to a polarization of incomes. To guard against increases in inequality resulting from skill-biased technological change, Poland will need to improve the quality of its labor force to ensure that incomes can continue to rise across the population. In addition, Poland continues to face exclusion of some groups, with high economic costs for society, including the unemployed or precariously employed, rural populations, the elderly, the disabled, women, and youth. To ensure inclusive growth, the challenge is to expand high-productivity employment across the population, while at the same time improving the efficiency and sustainability of the social protection system to ensure that no one is left behind. Facing these challenges will require a more strategic, effective, and accountable state.

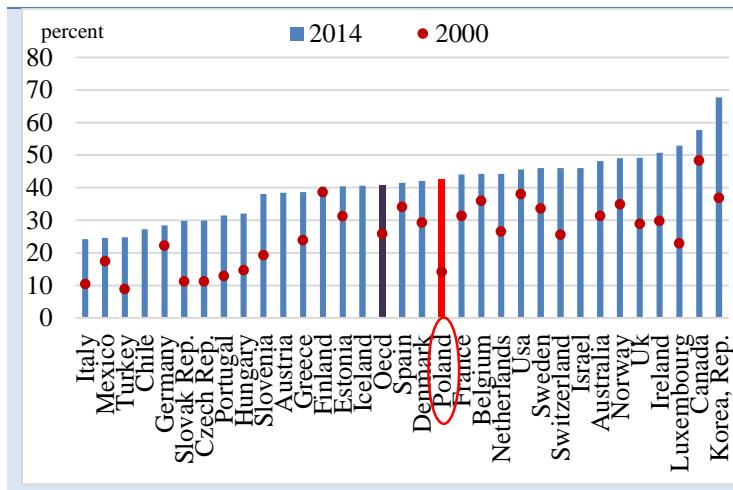
Skills

First, continued investment in education and training will be critical for inclusion, but it will also be a determinant of innovation-led growth. It is difficult to achieve inclusive growth when there is still work to be done to ensure equal opportunities in education. Beginning at the earliest stages in life, access to early childhood education is low and unequal. Although Poland performs well in PISA scores, recent results show that socioeconomic background and location still matter for performance in primary and secondary education. Worryingly, planned reforms to secondary education may undermine previous success in improving learning performance, and there are equity concerns related to the underrepresentation of certain groups in higher education. A more effective state will be needed to face the skills divide, coordinating interventions at the local, regional, and national levels to ensure equality of opportunities through quality education, regardless of the place of residence, and to be vigilant of reversals through rigorous evaluations of new initiatives.

At the same time, innovation-led growth will require frontier researchers and good universities. Poland witnessed a substantial increase in the proportion of university graduates (Figure O.10), but declining birth rates have induced a continuous decrease in student enrollment and a change in sector composition. Research funding has become more competitive, but further efforts are needed to improve the quality of tertiary education. This will require coordinated and concerted efforts by education providers, the private sector, and the government. Such initiatives could be particularly relevant for companies from the more innovative and faster-developing sectors of the economy, for which skill shortages are a particular concern, including for larger firms that benefit from international (technological) exposure through substantial FDI. Looking ahead, increased demand for skills driven by technological change could aggravate the existing skills divide to the extent that jobs in Poland increasingly require cognitive tasks. To ensure that this strategy is inclusive, adults will need to continue to adopt new skills to keep up with technology and demographic changes. Unfortunately, adult learning opportunities remain scarce in Poland, where a larger proportion of the adult population lacks basic skills by comparison with other OECD countries (Figure O.11). Reducing the existing skills divide, and

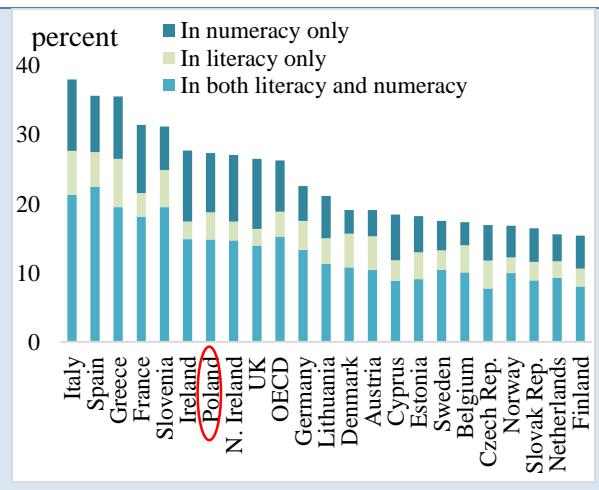
improving the quality and relevance of education provision and adult learning possibilities will be needed, alongside a strategy to improve the quality of tertiary education to ensure shared prosperity going forward. Government institutions will need to lead the way, coordinating approaches with academia, the private sector, and other stakeholders and strategically aligning its scarce resources toward the objective of achieving an environment where research and innovation can flourish.

Figure O.10. Tertiary Education Attainment Rates of Individuals Ages 25–34 Years, OECD Countries, 2000 and 2014



Source: OECD 2016e.

Figure O.11. Percentage of Low-Performing Adults in Basic Skills, Poland and Comparator Countries, 2012



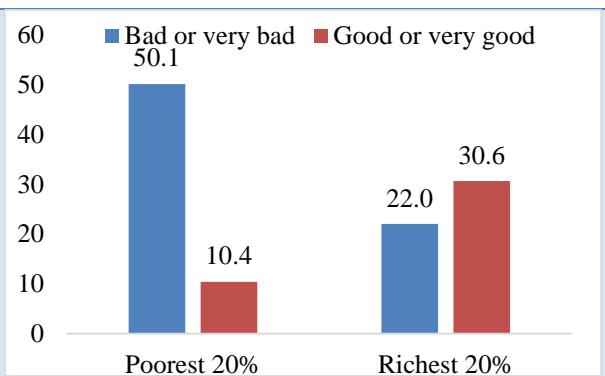
Source: OECD 2016b, based on 2012 International Assessment of Adult Competencies (PIAAC).

Note: Reflects the percentage of adults who score at or below Level 1 in literacy and/or numeracy.

Health Care

Second, access to high-quality health services will continue to be an important determinant of inclusion and productivity that also depends on strengthened and more strategic public institutions. Poland is plagued by mortality and morbidity rates above the EU average. It faces large inequalities in life expectancy and worrisome and increasing disproportions in mortality and morbidity rates between socioeconomic groups. Critically, access to care largely depends on an individual's place of residence, education, or wealth level, with potentially important impacts on equity (Figure O.12). The health care system is understaffed and suffers from significant inefficiencies, poor coordination, and fragmentation of responsibilities and accountability. Greater financial and human resources will be needed to provide adequately for diseases related to aging.

Figure O.12. Self-Perceived Health in Population Ages 65 Years and Older in Poland, Poorest vs. Richest Quintile, 2016



Source: 2016 Eurostat data.

Labor Force Participation

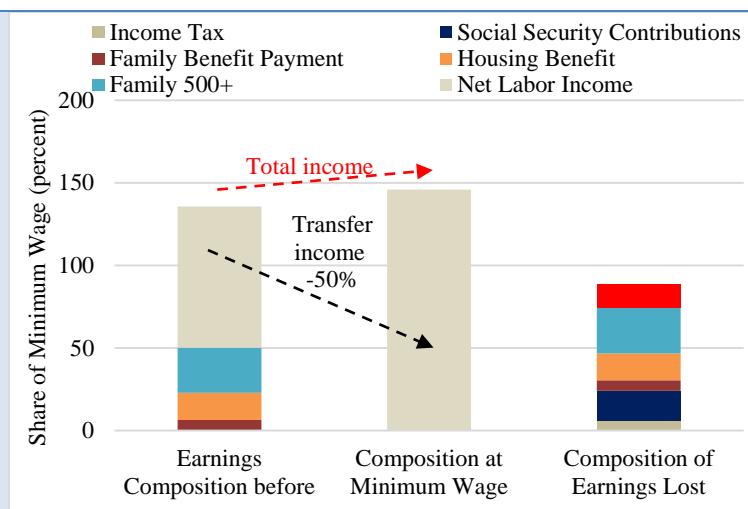
Third, improved consistency of policies fostering female labor force participation would boost shared prosperity. Poland cannot expect to grow inclusively if a large portion of the population does not participate in the labor market. Inactivity among women is driven by early retirement, lack of care services for children, and sick or elderly dependents. This is because the providers of care in Poland are almost exclusively mothers or grandmothers, because formalized early childcare facilities have not been a priority across levels of government. Similarly, access to long-term care facilities remains low, and there is a strong social preference to provide long-term care within families.

Improving the quality and availability of child and elderly care has the potential to boost the low levels of labor market participation of women in Poland, allowing them to participate and benefit from growth—something that will become more urgent in the face of demographic changes. In addition, increased labor force participation will require consistent activation policies regarding old-age and family benefits, which currently provide disincentives to work. In particular, more can be done to reduce labor market disincentives. With the introduction of the Family 500+ program and recent improvements to the progressivity of the personal income tax, the redistributive and poverty-reducing impact of tax and benefit policies has improved in Poland. However, the social assistance system remains complex, and the Family 500+ program may create disincentives to workforce entry (Figure O.13Figure O.3).

Worker Mobility

Fourth, reducing labor market barriers through more flexible labor contracts, better worker protection, and improved mobility will be difficult to achieve without more strategic, effective, and accountable institutions. Encouraging people to work is not enough to ensure inclusive growth if workers cannot find good jobs. The nature of the labor market has been changing in Poland, with temporary contracts (as opposed to part-time employment) as the main source for labor market flexibility over the past decade (Figure O.14). Increased labor market flexibility has helped Poland to weather the crisis better than other countries in the region. However, the ease of hiring temporary workers at a lower cost for business has also led to labor market segmentation and little or no worker protection for those unable to find permanent employment, particularly among lower-skilled workers. What is now needed are flexible work arrangements, including part-time employment, and a reduction in administrative burdens and implicit costs associated with permanent labor contracts. Aligning the tax and social contribution burden for different types of employment contracts and strengthening unemployment assistance would improve the flexibility of employment contracts while at the same time enhancing worker protection. An effective and strategic immigration policy could be complementary to these efforts, focusing on areas

Figure O.13. Incentives in Poland's Tax-Benefit System for a Married Couple: Principal Earning Minimum Wage, Impact of Spouse Working



Source: World Bank estimates using OECD's de jure Tax Benefit Model, updated to 2016.

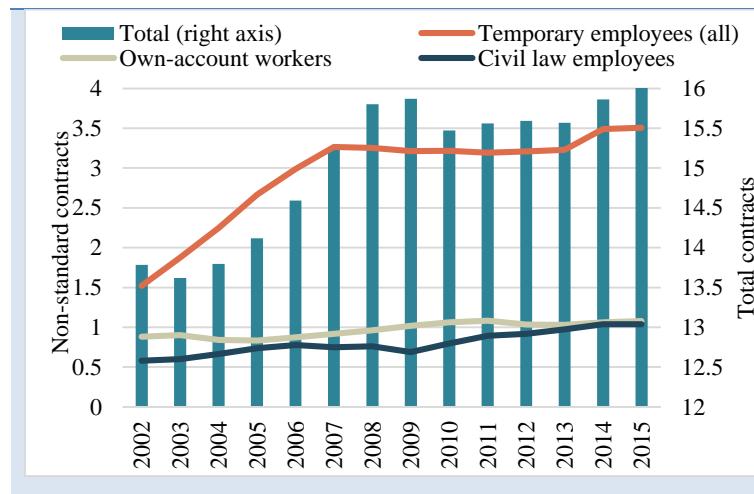
where there are clear labor shortages, as a way to help Poland cope with the challenge of a shrinking workforce and an aging population. Without migrants, in particular from Ukraine, Poland would already suffer from labor market bottlenecks in some sectors.

Ensuring that workers have access to markets and can easily move around will help to ensure that they can maximize their earnings. Figure O.15 shows low levels of mobility in Poland with respect to other European countries, according to the 2011 Eurostat Census. Although Poland has made considerable progress in reducing the housing deficit and improving housing quality, the overcrowding rate in Poland is the second worst in the EU. The share of households living in overcrowded dwellings and the share of housing of poor quality remain large relative to other European countries, indicating a lack of affordable housing alternatives. Housing affordability and limited diversity of the housing stock remain important challenges to mobility. Barriers

to transferring land pose further limits. Although Poland has a nondiscriminatory legal system that protects and facilitates acquisition and disposition of all property rights (including land, buildings, and mortgages), investors complain that the judicial system is slow in adjudicating property rights cases. Moreover, two new land use laws, in force as of April 2016, restrict the free purchase of land by investors. Tackling these challenges will require improved coordination across the government and greater consistency of policies to ensure that people can afford to move to locations where they will be most productive.

In particular, mobility out of agriculture for a large share of the rural population continues to be a challenge. Poland continues to have high share of employment in agriculture compared with other EU countries, and although it decreased since 2008, there is still large potential for increasing productivity in that sector and reallocating labor to more productive sectors, leading to higher incomes and broader inclusion. EU accession has greatly benefited the agriculture and

Figure O.14. Number of Total and Nonstandard Employment Contracts in Poland, 2002–15

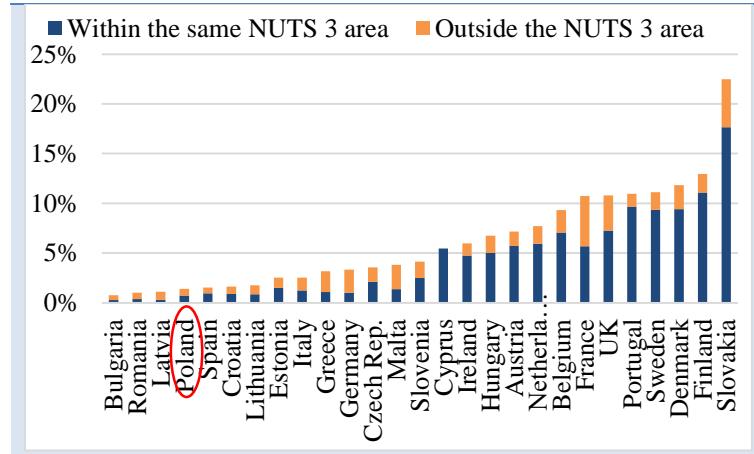


Source: Aldaz-Carroll, Skrok, and Van Den Brink 2017.

Note: “Own-account workers” stand for self-employed persons outside agriculture without employees.

Housing affordability and limited diversity of the housing stock remain important challenges to mobility. Barriers

Figure O.15. Share of Persons Who Changed Residence Since the Previous Year, EU Countries, 2011



Source: Eurostat 2011 Census.

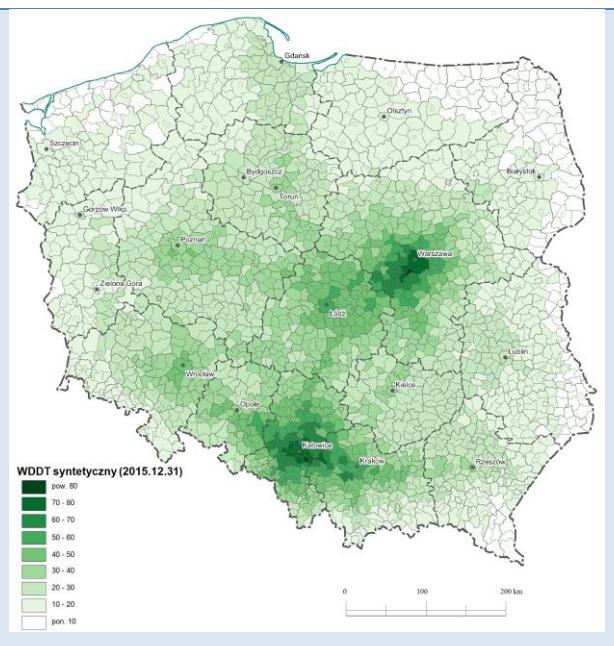
Note: NUTS 3 refers to the Classification of Territorial Units for Statistics, Level 3.

rural sector in Poland, and the country is often seen as one of the most successful new member states in terms of taking advantage of the opportunities of EU membership. However, EU integration has not benefited all farmers equally. The agriculture sector is still characterized by a pronounced duality and high inequality across farmers, with 54 percent of all agricultural holdings being smaller than 5 hectares (Eurostat 2013 data). Small farms operate on 13 percent of the agricultural land and take up 42 percent of the total labor force in agriculture (measured in total agricultural work units) but produce only 17 percent of the total standard output. On the other hand, good preparation prior to EU membership turned the development of the food industry in Poland into a “success story”: above all, Poland was able to take advantage more fully of growing export markets, particularly in the EU. Although more research is needed, to the extent that EU Common Agricultural Policy (CAP) payments are not based on how much a farmer produces, but rather on how much land farmers use and how they use it, CAP payments could provide incentives to remain in agriculture.

For workers who would like to commute regularly, improvements in connectivity between towns and regional centers in Eastern and North-Western regions could substantially enhance mobility and access to labor markets.

With the top standard highway and railway systems already significantly developed, further investments are likely to deliver only marginal travel-time savings at much higher cost and will be unlikely to significantly improve the competitive potential of businesses in less developed regions. Eurostat data (based on the Labour Force Survey [LFS]) show that the number of commuters in Poland has increased by 20 percent since 2004. However, there is limited connectivity between towns to regional centers, particularly in Eastern and North-Western part of Poland (Map O.2). The availability, level of integration, convenience, and cost of access to public transit in metropolitan functional areas and between rural locations and regional and subregional socioeconomic centers is still limited in many regions. Policy reforms and further improvements in operations, tariff structure, intermodal integration, modernization of ticketing systems, and investments in public transport in metropolitan and peripheral areas—along with revitalization of road infrastructure connecting towns and regional centers—are therefore needed to make it a more attractive alternative to private cars. Given the likely decrease in EU funding beyond 2020, strategic spending on safety, maintenance, and improvements of road and rail infrastructure will largely depend on increasing transport revenues and the effectiveness of the specialized state administrations and state-controlled companies.

Map O.2 Accessibility by Road in Poland, by Municipality, 2015



Source: Komornicki et al. 2015. ©Institute of Geography and Spatial Organization, Polish Academy of Sciences (IGSO PAS). Reproduced, with permission, from IGSO PAS; further permission required for reuse.

Ensuring Sustainability

A new social consensus is needed to ensure fiscal, social, and environmental sustainability.

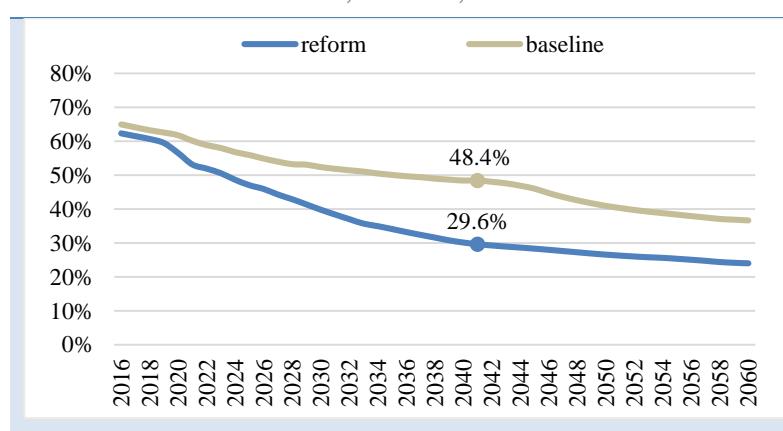
Removing constraints on productivity growth will contribute to a more competitive economy. At the same time, if individuals enjoy equal opportunities, the resulting higher productivity will mean new and more productive jobs that generate higher incomes for all, ultimately increasing shared prosperity. However, these gains cannot be achieved in the absence of consistent policies to address fiscal, social, and environmental sustainability. Ensuring sustainability necessarily requires facing difficult trade-offs that are often highly debated in the public arena. For instance, under the current rules, efforts to guarantee the fiscal sustainability of the pension system run counter to the objective of ensuring that all citizens enjoy their twilight years with dignity, because the expected benefit amounts will be low. Similarly, moving to a low-emissions economy carries with it economic costs, but failure to face these costs could bring even higher costs in terms of health and other risks. It is impossible for any government to make decisions on how to face these challenges without a social consensus that would lay out a clear direction to guarantee long-term fiscal, social, and environmental sustainability.

Adequate Pensions

The future of old-age pensions in the context of an aging population will have long-term fiscal and social sustainability implications and will be determined by the state's effectiveness in reaching a social consensus. Age-related spending in the next decades is expected to remain broadly stable, mostly because pension spending is expected to go down and offset increases in health care and long-term care spending. This is largely because the stability of the pension spending is embedded in the nature of the actuarially balanced pension system. However, the projected trends cannot be regarded as socially sustainable because of a dramatic decline in future replacement rates, particularly for women. Based on simulations over the 2015–60 period, the rollback in retirement ages that will take effect in October 2017 will have a negative impact on the size of labor markets, the size and adequacy of expected pension benefits, and the size of required government transfers to the pension system.

Most importantly, replacement rates—the average pension benefit divided by the average wage of contributors—is expected to decrease from already low levels, particularly for women. Prior to the reform, the projected replacement rate for 2040 was 48 percent for women (in other words, the average pension benefit would be only 48 percent of the average wage). After the rollback of retirement ages, this projected replacement ratio falls to an estimated 30 percent (Figure O.16). For men, additional savings in private defined-contribution funds can to some extent make up for falling replacement rates. For women, the situation is

Figure O.16. Projected Replacement Rates for Old-Age Pensioners, Females, 2016–60



Source: World Bank Pension Reform Options Simulation Toolkit (PROST) model simulations.

Note: The “reform” results simulate the effects of the retirement age rollback taking effect in October 2017.

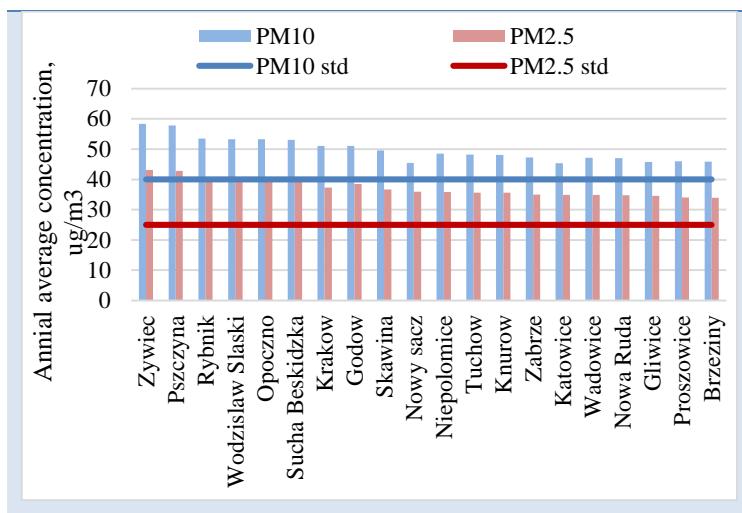
dramatically worse. Women will now need an incremental voluntary savings of 11 percent of their annual gross salary to reach the replacement rates that were expected prior to the reform, but as much as 17–18 percent additional savings per year would be needed to ensure a 60 percent replacement rate. Such a high level of voluntary savings may be unrealistic. In addition, within the next few years disability benefits will be higher than old-age pensions, providing an incentive for each successive generation of workers to seek disability pensions rather than old-age pensions in order to maximize their lifetime pension income. These estimates highlight the fact that Poland faces a trade-off between ensuring fiscal sustainability under the current rules and confronting the fact that the resulting pension benefits may be too low to be socially sustainable. Working toward a new social consensus could effectively reset the current trajectory toward one that is truly in line with shared prosperity—and prevent an escalation of tensions.

Transition to a Low-Emissions Economy

Ensuring environmental sustainability is necessary to sustain growth and foster inclusion. Poland’s environmental sustainability challenges are dominated by the need to move to a low-emissions economy. The existing coal-based energy mix, fast-rising transport emissions, and insufficient energy efficiency are the main challenges for lowering greenhouse gas (GHG) emissions in line with EU obligations. In addition, air quality is not yet at European norms (Figure O.17). To transition to a low-emissions economy, Poland needs to develop and implement a comprehensive long-term strategy focusing on energy supply, energy efficiency, and the transport sector. There are strategic documents at the sectoral level, but there is scope for a more holistic and coordinated approach. Such a strategy could also substantially improve air quality and reduce elevated health

risks, especially among low-income households that burn coal for heating. Similarly, given that Poland has one of the oldest passenger cars fleets in Europe, modernizing transport and making it more efficient will contribute to improving mobility, air quality, and environmental sustainability. Achieving environmental goals will also require facing difficult public policy trade-offs.

Figure O.17. Top 20 Polish Cities in Ambient Concentrations of PM₁₀ and PM_{2.5}, 2013



Source: World Health Organization (WHO) Urban Ambient Air Pollution Database, 2016.

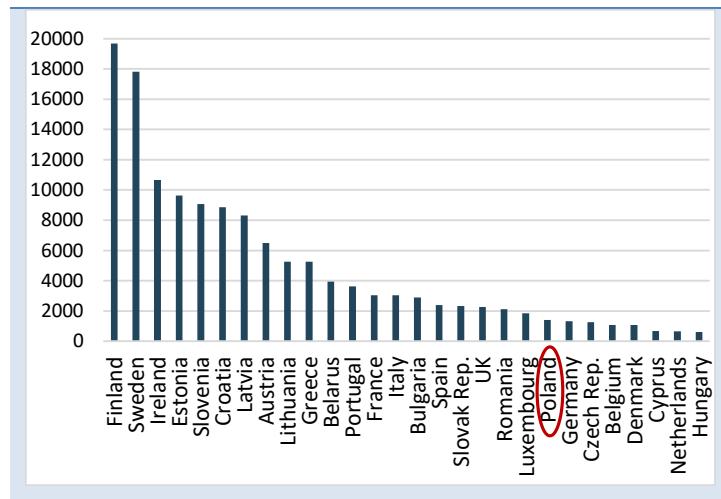
Note: Out of 154 monitored cities. PM_{2.5} is particulate matter less than or equal to 2.5 microns in diameter; PM₁₀ is less than or equal to 10 microns in diameter. As of 2010, 40 is the EU limit value for PM₁₀, and 25 is the target value for PM_{2.5}.

Water Management

Finally, improved water management would help to mitigate the effects of climate change, which are expected to be more severe in rural areas and in agriculture. Poland ranks among the most water-stressed countries in the EU (Figure O.18). The country depends heavily on surface water, which is characterized by major spatial and seasonal variability, yet the total capacity of reservoirs does not exceed 6 percent of total annual water drainage. As a consequence, Poland has a significant vulnerability to floods and droughts. Careful management with respect to early-warning preparedness for water-related disasters (such as floods and droughts) and rapid disaster response are essential to minimizing fatalities and

economic damage. The dual challenges for Poland are likely to be increased severity of weather and reduced water availability, imposing the greatest harm on the agriculture sector and requiring reforms and investments in both water and agriculture.

Figure O.18. Renewable Internal Freshwater Resources (Cubic Meters Per Capita), EU-28 Countries, 2013



Source: World Development Indicators database.

Governance and Institutions for Shared Prosperity

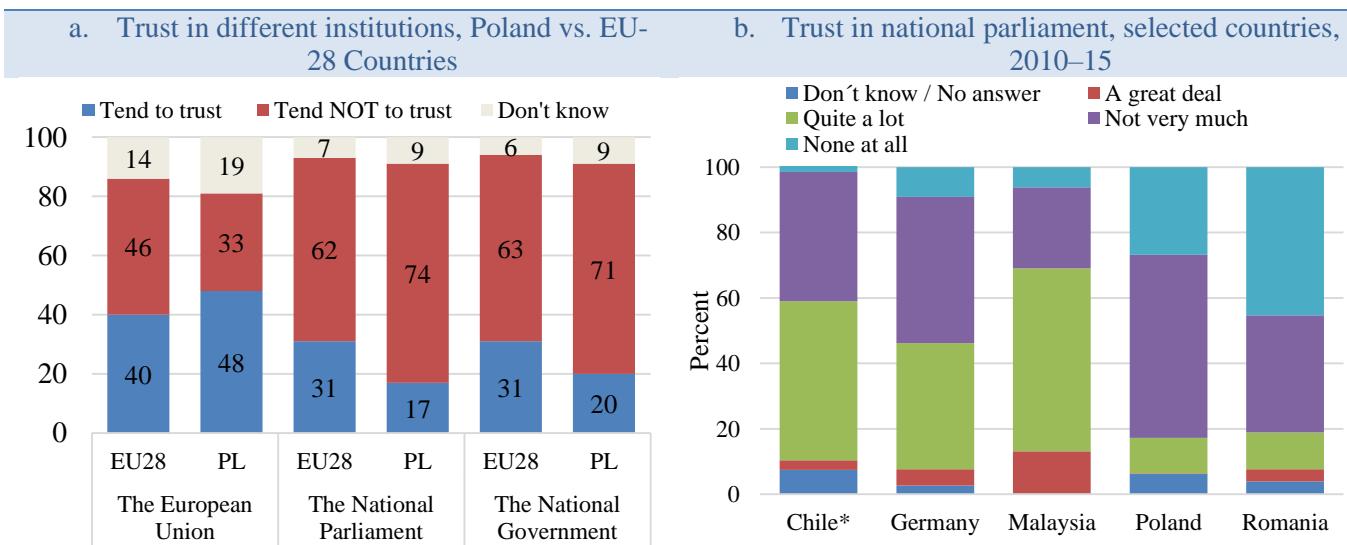
Managing the transition toward innovation-led inclusive and sustainable growth will require institutional adaptation, within a renewed consensus around a more strategic, effective, and accountable state. Policies are effective if they can sustain consensus over time, generate common expectations among actors, and foster compliance. This requires commitment to consistent and predictable policies, coordinated effort of the different state and nonstate actors in the economy, and cooperation toward a common goal in the society. During the recent past decades, the process of EU accession and then EU membership provided a clear coordination mechanism that helped the country's accelerated development. Today, a coordinated approach to competition, labor market flexibility, and sound macro policies is critical to establish an innovation-led growth strategy. Coordinated efforts and strategic government interventions will be needed to undertake research and development that leads to innovations; provide better health service delivery; and adopt cleaner energy sources. In each area, ensuring society's trust and cooperation through transparency and accountability is critical to the successful implementation of policies.

Commitment to laws and their implementation are necessary to secure a safe regulatory environment for investors. This will require a more efficient judiciary system. Although the judiciary system in Poland is independent and effective, it is affected by issues such as delays in adjudicating cases, lengthy pretrial detention periods, slow corruption investigations, and difficulties confronting private businesses that want to challenge government actions or regulations through the legal system. These problems hinder growth because they weaken the commitment function of institutions: securing a safe environment for investors by sustaining agreements and their implementation over time requires

resolutions through efficient, timely litigation. Moreover, the inefficiencies in the judiciary system are more salient at the local level, and the courts' performance varies widely from one city to another despite having the same national legal framework. For instance, starting a new business takes on average one month, but it can take as long as 42 days in Szczecin, or just 8 days in Poznań (as opposed to an EU average of 11.6 days). Tackling corruption is another priority to improve the efficiency of the market. As an economy advances, corruption becomes costlier because it restricts the functioning of the market (World Bank 2017b). Still, perception of corruption in Poland has been consistently higher than the average for EU and OECD countries. Regional differences are also important in this respect: 29 percent of firms in the South-West region think they are expected to give gifts to secure government contracts, as opposed to 0 percent in the Eastern region. Similarly, 26 percent of firms in the Central region believe they are expected to give gifts to public officials "to get things done," as opposed to just 6.7 percent in the South-West region.

To the extent that actors affected by policies are excluded from their design or that specific groups benefit disproportionately, this will weaken trust in institutions, possibly leading to a breakdown of cooperation. Delivering public services of good quality is the prerequisite to ensure compliance. A recurring finding in different chapters of this SCD is that the responsiveness of the state is not homogeneous across regions of the country. Building trust is essential to increase the efficiency of the state and the economic institutions supporting growth, equity, and environmental sustainability—and is particularly important in Poland, where data show lower levels of trust in national institutions than in other EU countries (Figure O.19). Institutional trust can be built by repeatedly delivering on commitments, such as providing quality public services. If not addressed, low levels of trust may lead to a breakdown of cooperation and compliance, in turn hindering the state's capacity to provide quality public service, starting a vicious circle.

Figure O.19. Institutional Trust



Source: Eurobarometer database (survey round EB 83), European Commission.

Source: World Bank elaboration on World Values Survey data.

* Chile's data refer to 2005–10, as this is the latest data.

Citizen engagement is needed for legitimacy. Civil participation, in its different forms, has a critical role in driving the process of societal transformation and institutional change. What policies are chosen is as important as the policy process that is followed, to ensure the buy-in of different actors and avoid lack of compliance. The number of civil society organizations has grown exponentially over 25 years in Poland, but the level of civic participation is not high. According to the OECD, Poland ranks 34th out of 38 countries on voter turnout—better than 37th-place Chile (with a voter turnout of 49.3 percent) but worse than countries like France, Germany, or Italy (where voter turnout is above 70 percent). Making information available through transparency initiatives is an important first step toward increasing accountability, which can help to create a new political consensus on the need for continued reforms. Poland scores poorly with respect to transparency of government policy making (World Economic Forum 2017 data), with the government of Poland providing limited opportunities for the public to engage in the budget process. A “Citizens Budget” (as advanced by the International Budget Partnership) could foster greater understanding of how public money is being managed—a key factor to improve accountability of governments—but transparency is not enough. Information needs also to be accessible and actionable to promote accountability (World Bank 2017b). International actors, such as the EU, are also important influences on the efficient functioning of the domestic decision process.

Priority Areas and Links to Shared Prosperity

Shared prosperity requires progress on productivity, equity, and sustainability. The objective of the “shared prosperity” goal is to raise the well-being of the poorer segments of every society in every period, which requires a dynamic process of economic growth that is inclusive of the poor and promotes sustainability. The ways to achieve shared prosperity for Poland include (a) increasing productivity through an innovation-led growth model; (b) investing in people, ensuring that they can engage productively, and guaranteeing their mobility; and (c) ensuring the fiscal, environmental, and social sustainability of policies. This report argues that a more strategic, effective, and accountable state is a necessary condition to succeed in each of the priority areas.

The report proposes nine priority areas. The priorities have been chosen based on the following criteria:

- Their potential impact on the twin goals of reducing poverty and increasing the welfare of the bottom 40 percent
- The possible time frame for realizing the expected impact
- The degree to which an identified opportunity in one area has complementary positive impacts on other areas
- The existing evidence base

Table O.1 sets out the priority areas and articulates how advances in these areas are expected to affect progress toward shared prosperity and poverty reduction in a sustainable way in the next five years. During this period, the implementation of policy priorities is expected to set the course for progress, although not all objectives will necessarily be accomplished within the five-year time frame. This prioritization exercise also acknowledges that although the full impact of these interventions would be achieved over the longer term, these measures are urgently needed now if Poland is to maintain its progress toward shared prosperity and economic growth and meet the demands of the future.

Table O.1. Policy Priority Areas and Impacts on the Twin Goals

Priority	Expected impact	Time horizon	Trade-offs and complementarities	Evidence base
Enhance competition and remove barriers to entrepreneurship and private sector investment through an enabling regulatory environment; improved efficiency of the judiciary; and the predictability, consistency, and transparency of policies	Supports growth, inclusion, and sustainability	Medium term	Growth and sustainability; potential trade-off with higher inequality	Strong
Shift to a more strategic public investment policy, improving the efficiency of EU funds and enhancing R&D policy	Supports productivity and economic growth as well as fiscal sustainability, but may increase the polarization of earnings and employment	Medium term	Growth and sustainability; potential trade-off with higher inequality	Some knowledge gaps remain
Ensure sound macro policies and countercyclical monetary and fiscal policy and make public finance more transparent, effective, and efficient	Supports medium-term growth and long-term sustainability; fiscal consolidation could have negative short-term impacts on some groups	Medium term	Growth and sustainability; potential short-term impact on some groups	Strong
Improve skills of the workforce, ensuring equal opportunities and improved quality and relevance of education provision and adult learning possibilities across income deciles and regions	Provides those with disadvantaged backgrounds the tools to be more productive and earn higher wages; can have a strong productivity impact	Long term	Growth, equity, and sustainability; no foreseen trade-offs	Strong
Improve access and quality of health care services through better organization and coordination and more efficient use of human and financial resources	Ensures that vulnerable groups (including the elderly) are cared for; improves productivity of labor force	Medium term	Growth, equity, and sustainability; no foreseen trade-offs	Strong
Increase labor force participation through improved quality and availability of child and elderly care services	Supports long-term economic growth and inclusion; facilitates the sustainability of the pension system and therefore fiscal sustainability	Medium term	Growth, equity, and sustainability; no foreseen trade-offs	Strong
Reduce labor market barriers by simplifying labor regulations; improving maintenance, investment, and management of road and rail infrastructure; and ensuring affordable housing	Supports productivity of rural residents, supporting growth and inclusion; could also improve fiscal sustainability	Medium term	Growth, equity, and sustainability; no foreseen trade-offs	Knowledge gaps are substantial
Ensure sustainability of the pensions system through promotion of longer working lives, in particular for women, and promotion of private pension savings	Supports fiscal sustainability, could lead to higher growth due to increased labor, and supports inclusion of elderly in prosperity	Medium term	Growth, equity, and sustainability; no foreseen trade-offs	Strong
Manage the transition to low-emissions economy and strengthen water management	Supports environmental sustainability; may have negative short-term impact on growth and inclusion from higher energy prices	Long term	Equity and sustainability; potential short-term trade-offs on growth	Strong

Priorities to Boost Productivity Growth

- 1. Enhance competition by reducing state control, opening to trade and investment, and removing barriers to entrepreneurship and private sector investment.** This will require fostering an enabling regulatory environment; improving the efficiency of the judiciary; and ensuring the predictability, consistency, and transparency of policies. Improving the predictability of regulations should also help to limit uncertainty, an increasingly important concern for businesses. A more efficient judiciary system is of utmost importance to secure a safe environment for investors and sustain growth. Bolstering innovation will also require balancing the need for greater labor market flexibility and strategic openness to migration with improved job security. Finally, financing innovation will require diversification of the financial sector through capital markets development and development of venture capital.
- 2. Shift to a more strategic public investment policy, improving the efficiency of EU funds and enhancing R&D policy.** This will require investing in growth-enhancing sectors, including universities and research centers, and using a long-term life-cycle approach to managing and financing transport and ICT infrastructure. It will also require using financial instruments (instead of grants) to improve efficiency of EU funds, thus enabling reinvestment, leveraging private resources, and providing incentives for better performance. Finally, R&D policy should be streamlined, and the focus of investment should be on basic research.
- 3. Ensure sound macro policies to reduce uncertainty, including through rule-based fiscal consolidation aimed at increasing domestic savings, a simplified and upgraded tax system, and more efficient public spending.** Sound fiscal, monetary, and exchange rate policies, along with prudent financial supervision, are sine qua non conditions to boost investment. Fiscal rules have contributed to the stability of Polish public finance, and their credibility needs to be preserved. In light of expected weaker inflows of foreign investments and the prospects of lower inflows of EU funds after 2020, higher domestic savings will be necessary, and the public sector could play an exemplary role. Moreover, Poland has room to strengthen its budget institutions and fiscal management to assure higher quality of public finance, on both the public spending and revenue sides.

Priorities to Enhance Inclusion

- 4. Improve skills of the workforce—ensuring equal opportunities across income deciles and regions—and enhance the quality and relevance of education and training throughout the life cycle.** Reducing the existing skills divide, and improving the quality and relevance of education provision and adult learning possibilities, will be needed to ensure shared prosperity. This effort will require promoting early childhood education and ensuring equal access throughout the country. Moreover, given increased demand for skills driven by technological change, there is a need for the educational systems to adapt, fostering the skills required to perform nonroutine tasks as well as socioemotional and higher-order cognitive skills. Given demographic changes, the high concentration of older workers in routine jobs, and the overall growing importance of continuous skill acquisition of individuals in an innovating economy, shared prosperity will also depend on greater efforts to make lifelong and on-the-job training more accessible and relevant. This will require concerted efforts by

education providers, the private sector, and the government. Higher education institutions could play a stronger role in collaborating with the private sector and the government to ensure increased access to demand-responsive training, expanding access to a more diverse student population, and adapting support services to the needs and living conditions of learners. Strong engagement from the private sector is required to ensure that programs are aligned with employers' skill demand. Public sector facilitation of such processes will be required, establishing framework conditions that promote the higher education institutions' engagement in adult education and cooperation among key stakeholders, as well as providing targeted support to higher education institutions. This includes advancing the legislative framework and designing key components of the higher education sector accordingly—namely, quality assurance approaches including accreditation, academic promotion systems, and funding schemes.

- 5. Improve access and quality of health care services.** Poland needs to do more to boost health outcomes to prepare for the aging of its population. Poland already faces higher mortality and morbidity rates than its peers, low affordability due to expensive drugs, and access to care that still depends on individual circumstances. Long waiting times result from poor coordination, fragmentation, and low and inefficient spending. Given the expected increase in health care costs due to population aging, policies and investments are needed to promote improved health outcomes while containing costs. This will require improving coordination and reducing fragmentation of responsibilities and accountability across levels of government, increasing human and financial resources devoted to health, and improving the efficiency of spending through regional and national strategic planning. It will also require capacity building for physicians, nurses, and medical personnel as well as for health system managers. Finally, improved health outcomes will require strengthening prevention and health promotion.
- 6. Increase labor force participation through improved quality and availability of child and elderly care services.** This will require ensuring that people are not unwillingly excluded from the labor market, but more importantly it will require that cross-sectoral policies are well coordinated to provide strong incentives to work, particularly for women, including through concerted efforts to increase the availability of child and long-term care. Moreover, it will require that social protection policies are consistent with this objective by reducing labor disincentive effects. Extended outreach and employment promotion is necessary to reach those who are inactive and far from labor markets. Formalizing and operationalizing coordination among agencies that provide services to vulnerable populations is critical to ensure delivery of a package of integrated services to improve their chances of getting and keeping a job.
- 7. Reduce labor market barriers by simplifying labor regulations, improving the management of road and rail infrastructure, and ensuring affordable housing.** To reduce labor market segmentation while at the same time guaranteeing labor market flexibility, a reduction in administrative burdens and implicit costs associated with permanent labor contracts will be needed. Labor market segmentation could be reduced by aligning the tax and social contribution burden for different types of employment contracts, simplifying and better communicating labor regulations, streamlining legal dismissal procedures, limiting the use of temporary contracts, and strengthening social protection. Notably, an individualized type of targeted job and social assistance program could help to include those who may otherwise be left out. In addition, judicial and regulatory barriers should be addressed that could prevent mobility by restricting land use and potentially limiting the sale of farm property. A systematic review of the range of housing policy instruments and barriers to

transferring land could be helpful in identifying regulations that are inconsistent with improving internal mobility. Similarly, improvements in the management of regional road and rail infrastructure could substantially enhance mobility and access to labor markets. In particular, structural reforms are needed to rebalance existing EU funding toward regional and local networks and improve the capacity, safety, and sustainability of the current system by securing additional revenues for road and rail maintenance beyond 2020.

Priorities to Ensure Sustainability

- 8. Fiscal and social sustainability of the pensions system will require promotion of private pension savings and longer working lives, particularly for women.** The recent decision to roll back the retirement age will have negative impacts on labor force participation, pension adequacy, and budget expenditures. Promoting longer working lives (particularly for women), fostering private pension savings, and equalizing the retirement age for women and men at 65 could all help. A new social consensus, based on the evidence of the existing trade-offs, will be needed.
- 9. Environmental sustainability requires managing the transition to a low-emissions economy and strengthening water management.** Meeting these challenges will require developing and implementing a comprehensive and coherent long-term energy sector strategy that is consistent with the overarching environmental sustainability goals, balances the mix of domestic energy resources and diverse imports, and firmly supports end-use energy efficiency improvement. Adapting to a changing climate requires dealing with substantial uncertainty, but the dual challenges for Poland are likely to be increased severity of weather and reduced water availability. Managing these risks will require continued investments in flood management and an improved governance and institutional framework as well as investments in modernizing and rehabilitating existing water systems and promotion of high-efficiency systems.

Chapter 1: Macroeconomic and Shared Prosperity Trends

Introduction

1. **Poland is in many respects a development success story, making tremendous progress toward European Union (EU) income levels over the past 25 years.** Real gross domestic product (GDP) in 2016 was 2.5 times what it was in 1990, implying average annual real growth of 3.6 percent. Poland's growth was fast and stable, driven by productivity increases (within and between firms), accompanied by the establishment and strengthening of pro-competitive institutions and market-oriented upgrading of human capital, and underpinned by reasonably good macroeconomic management (low external imbalances, persistent but still manageable fiscal deficit, growing but still sustainable debt levels). In addition, Poland's economic growth pattern has been inclusive, witnessing growing earnings for all income groups, and leading to a substantial reduction in poverty and stronger than average growth of the bottom 40 percent of the distribution over the past decade, mainly because of increases in employment and labor incomes. Poland has moved from a society in which citizens were assumed to be equal before the law and facing nominally equal opportunities, toward a society in which these assumptions have become, to a large extent, reality. Equality of opportunity, competitive markets, and solid institutions have combined to produce Poland's success. Moreover, Poland significantly improved its environmental performance, and economic growth has been decoupled from greenhouse gas emissions, energy and water use, and some health-damaging pollutants.
2. **However, there are signs of underlying problems for further gains going forward while, at the same time, people's expectations have increased.** Despite strong growth, Poland has had a persistent fiscal deficit, and the public debt-to-GDP ratio has continued to rise over the past decade. Although public debt remains sustainable over the medium term, long-term fiscal sustainability has been weakened by the rollback in the statutory retirement age. Poland has made only slow progress on environmental challenges and faces significant challenges in transitioning to a low-emissions economy. Moreover, despite improvements in employment and earnings, strong growth for the bottom of the distribution comes on the heels of a period when growth was not inclusive. If citizens perceive the society as unfair, this undermines social trust in institutions. If not addressed, these perceptions can lead to public discontent and pressure to reverse policies that have successfully delivered growth and shared prosperity in the past. Citizens may decide to opt out or exit the existing political processes, leading to a weakening of cooperation and ultimately a weakening of the state—even in the context of effective policies (World Bank 2017b).
3. **Moreover, Poland faces new challenges that will require new strategies going forward.** First, demographic changes will lead to increased dependency on a shrinking labor force, pose fiscal sustainability challenges, and place a strain on social services. Second, recent global developments suggest low potential productivity improvements and a slowdown in innovation in the medium term. Third, given continued changes in technology favoring high-skilled, nonroutine tasks, polarization of incomes could increase. In this context, bigger efforts to guard against social exclusion, particularly in rural areas, will be needed. Finally, sustainable management of natural resources remains a challenge going forward.

4. **This Systematic Country Diagnostic (SCD) seeks to provide an assessment of where Poland stands in terms of poverty reduction and shared prosperity as well as how progress toward these goals can be achieved.** The intrinsic idea of the “shared prosperity” goal is to raise the well-being of the poorer segments of every society in every period, which requires a dynamic process of economic growth that is inclusive and can sustainably promote mobility and equal opportunities. Progressing toward these goals requires an environmentally, socially, and fiscally sustainable growth process within the unique context of Poland (Figure 1.1). This chapter sets the context for where things stand for each of these pillars and then discusses the challenges to achieving shared prosperity. The rest of the report discusses each pillar in more depth and concludes with a prioritization of areas where attention is most critically needed.

Figure 1.1. Pillars for Shared Prosperity

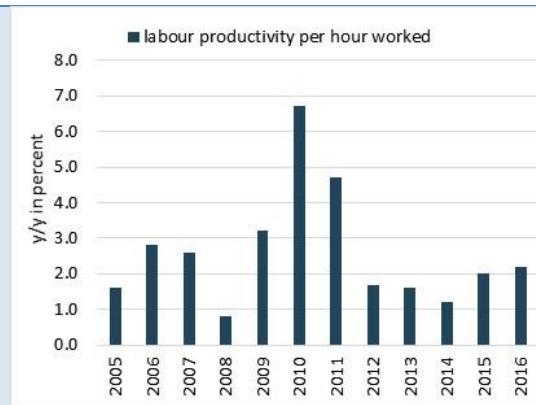


Growth Trends in Poland, 2005–16, and the Economic Outlook to 2019

5. **Poland’s growth over the past decade was structurally grounded in productivity gains within firms and improved allocative efficiency between them.** Resources moved from relatively lower-productivity sectors to higher-productivity sectors (Figure 1.2). This process was accompanied by a process of strengthening of pro-competition institutions and upgrading of human capital. The combination of integration into the global marketplace, domestic reforms conducive to increased competition, and macroeconomic and policy stability were at the core of the growth process that the economy experienced. Economic policies were growth-enhancing and predictable, anchored in deepening integration with the EU, and had a free-floating exchange rate regime acting as shock absorber, as well as monetary policy based on inflation targeting. As described in chapter 2, changes within sectors were more important in driving productivity growth than changes between sectors as firms invest in new technologies, expand, reorganize, upgrade management, and innovate.
6. **Technological progress was transferred through imports of investment goods and foreign direct investment (FDI), which enabled innovation through imitation and increased the export potential of the economy.** The imitation-driven growth model was largely funded from foreign savings, quite natural for the catching-up phase, supported by non-debt external inflows including significant net inflow of FDI and EU funds. Foreign investments were attracted largely by low-cost skilled workers and dynamically growing trade with the EU—the biggest internal market in the world. Poland became strongly connected with the European, and in particular German, markets and

global value chains (Aldaz-Carroll, Skrok, and Van Den Brink 2017). Polish exporters expanded to all markets during the past decade and became sizable subcontractors in the EU market. Despite these gains, the productivity gap between Poland and the EU remains large (Figure 1.3).

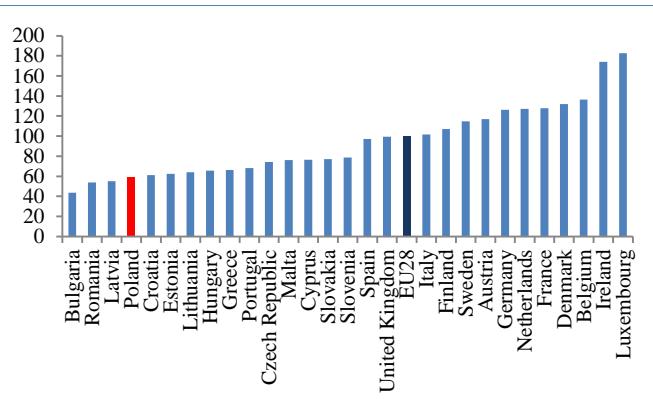
Figure 1.2. Labor Productivity per Hour Worked, Poland, 2005–16



Source: Eurostat.

Note: Labor productivity per hour worked is calculated as real output per unit of labor input (measured by the total number of hours worked). Figure shows the percentage change relative to the previous year.

Figure 1.3. Labor Productivity per Hour Worked, EU-28 Countries, 2015

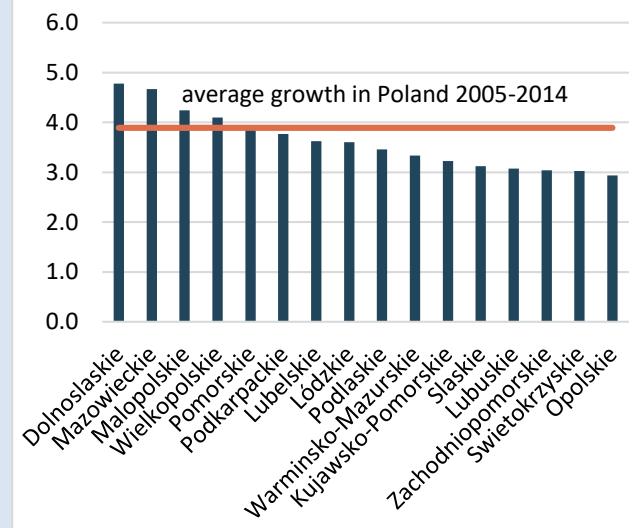


Source: Eurostat.

Note: Index: EU28 = 100. Basic figures are expressed in purchasing power standard (PPS), which eliminates the differences in price levels between countries.

7. Following accession to the EU in 2004, all regions of the country grew, but regional centers such as *Dolnoslaskie* (*Wroclaw*) or *Mazowieckie* (*Warsaw*) drove reallocation of resources in the country and attracted migrants from the East (Figure 1.4 and Map 1.1). At the same time, free movement of capital and labor in the EU enabled outward migration, particularly in the early years after EU accession. Out of a population of 38 million, about 2 million Poles (or 5 percent) left the country in the mid-2000s, while about 1 million migrants (2.6 percent) arrived in Poland from the East, in particular from Ukraine, in the mid-2010s. If compared with the working-age population (26.8 million ages 15–64 years on average in 2005–16), these ratios would be half as much again.

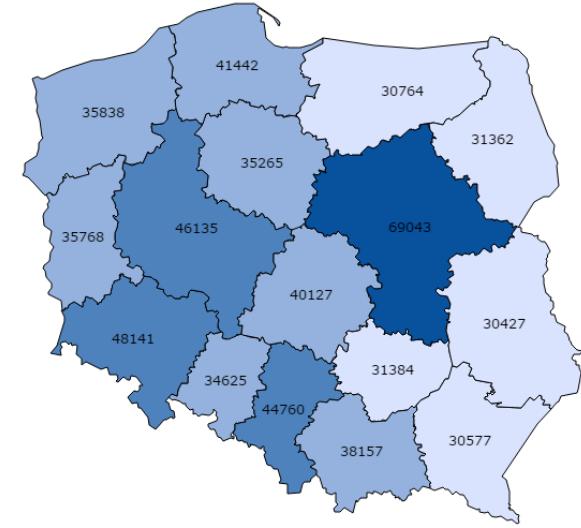
Figure 1.4. Annual Average GDP Growth in Poland, by Voivodeship, 2005–14



Source: Eurostat.

Note: Figure shows the annual average percentage change over the 2005–14 period.

Map 1.1. Annual GDP Per Capita in Poland, by Voivodeship, 2013

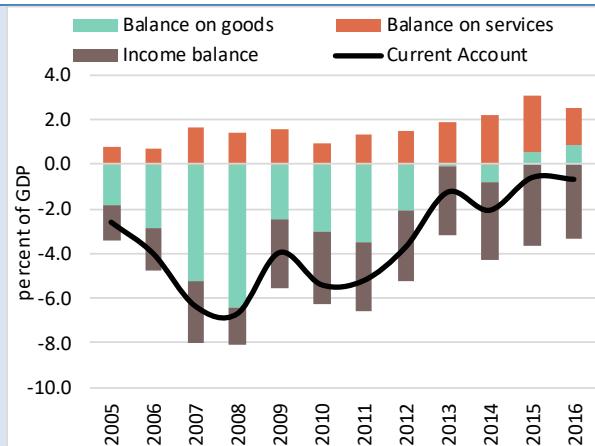


Source: Eurostat.

Note: Numbers indicate GDP per capita (in zloty, current 2013 prices) in each voivodeship.

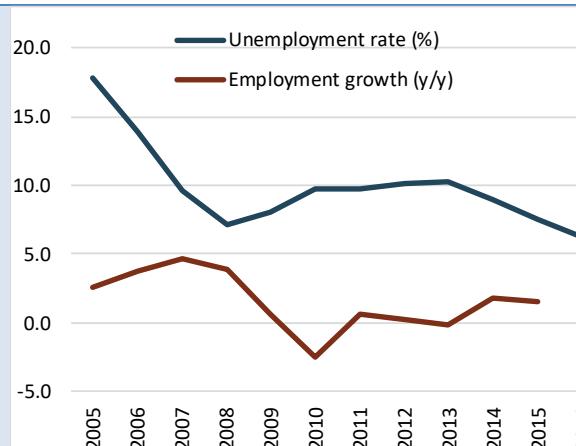
8. **Productivity growth was accompanied by impressive progress in stabilizing the economy by reducing external imbalances.** The country moved from underutilized labor endowments and external imbalances to full employment and external balance. In particular, in 2005, the economy had an unemployment rate of about 20 percent and a current account deficit of 2.6 percent of GDP, both of which improved significantly in the following years (Figure 1.5 and Figure 1.6). By 2016, the unemployment rate had fallen to less than 6 percent, and the current account deficit was close to zero (a current account deficit of 0.3 percent of GDP in 2016). This was mainly driven by a services trade surplus, particularly in information and communication technology (ICT) and business services. Strong merchandise exports and a fall in energy commodity prices translated into a surplus in the foreign trade balance. The diminishing current account gap was comfortably funded from stable sources, such as FDI or net inflow of EU funds.

Figure 1.5. Current Account Balance in Poland, 2005–16



Source: World Bank projections, based on National Bank of Poland data.

Figure 1.6. Unemployment Rate and Employment Growth in Poland, 2005–16

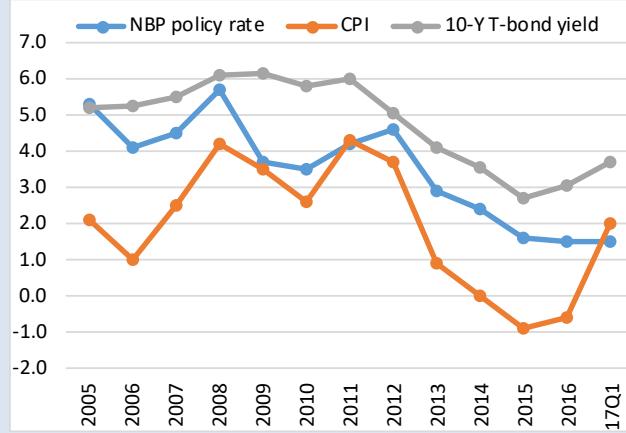


Source: Eurostat.

9. **Poland stabilized prices and built credibility in monetary policy, which translated into lower interest rates and lower T-bond yields.** In the early 2000s, Poland reduced inflation and successfully anchored inflation expectations at low levels, thanks to a persistent anti-inflationary stance of monetary policy. Credible monetary policy based on inflation targeting has been conducted ever since. In recent years, the key policy interest rate was cut gradually from 4.75 percent in late 2012 to a record low 1.5 percent in March 2015 in response to relatively weak growth and emerging deflationary trends. Yields of treasury bonds fell to unprecedented lows of 2–3 percent in 2014–15 for 10-year T-bonds (
- 11.). Upside and downside deviations in inflation were driven mainly by shifts in energy and food prices.

12. **Economic growth was broad-based, driven by consumption on the demand side and by growth in manufacturing and services on the supply side.** The growth pattern from the demand side was largely driven by private consumption, along with strong investment (2005–08 and 2014–15) and net exports (2009 and 2012–13) (Figure 1.8). Final consumption contributed strongly to growth in the second half of 2000s and also more recently in light of weak private and public investment. From the supply side, Poland's services have been dynamically catching up, and the industry base has been strengthened (Figure 1.9).

Figure 1.7. Inflation and 10-Year T-Bond Yields in Poland, 2005–17



Source: World Bank, based on Central Statistical Office (GUS), National Bank of Poland (NBP), and stoq.pl data.

10. Figure 1.7. Inflation and 10-Year T-Bond Yields in Poland, 2005–17

Figure 1.8. GDP Growth Decomposition, Poland, 2005–19 (percentage points)

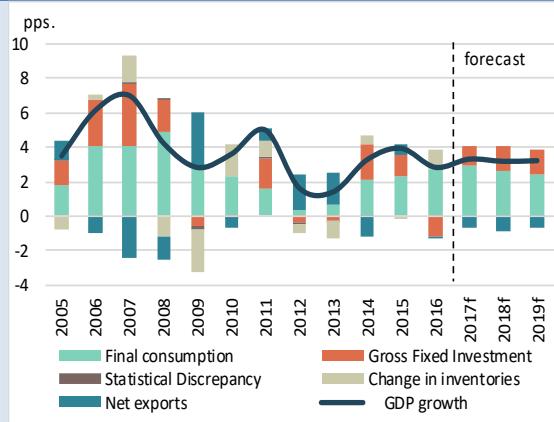
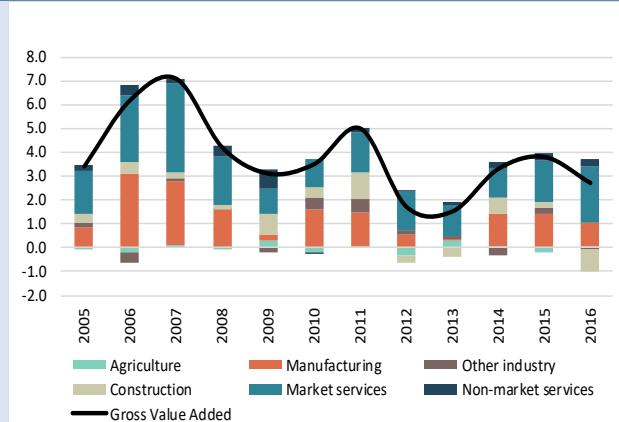


Figure 1.9. Contributors to Value Added Growth in Poland, by Sector, 2005–16 (percentage)



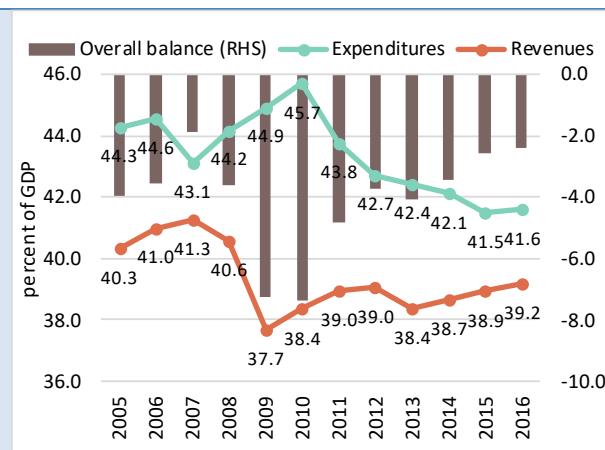
Sources: Eurostat; World Bank 2017b.

Sources: Eurostat; World Bank 2017b.

13. **Despite strong economic growth, some concerns remain, beginning with a persistent fiscal deficit, which has led to a rise in the public debt-to-GDP ratio over the past decade.** Poland had entered the global financial crisis with a large structural fiscal deficit, additionally worsened by cuts in personal income tax (PIT) and social contributions introduced in 2007–09. Together with the negative impact of the cycle and a rise in the value added tax (VAT) gap, this drove headline deficits above 7 percent of GDP in 2010–11 (Figure 1.10 and Figure 1.11). In the recent decade, the public debt-to-GDP ratio kept rising, excluding the one-off effect from the 2014 pension reform (Figure 1.12).¹ The ratio of public foreign debt-to-GDP almost doubled, from slightly above 15 percent in 2008 to around 30 percent in 2016.

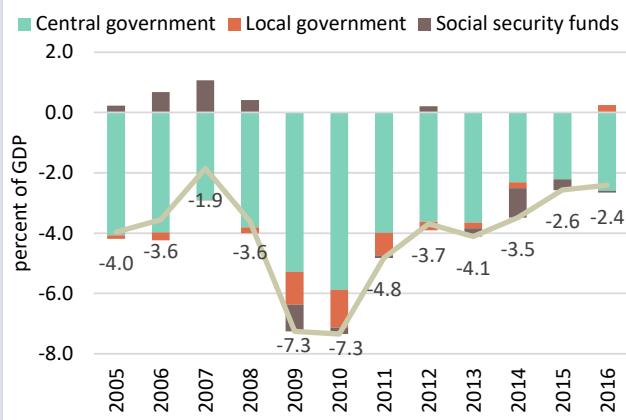
¹ As of February 2014, 51.5 percent of the assets of the open pension funds, composed predominantly of Polish Treasury securities, were transferred to the Social Security Institution (ZUS). The state Treasury bonds were immediately redeemed (cancelled), which resulted in the reduction of the public debt by 7.6 percent of GDP. The consolidation of other bonds issued by general government units translated into further direct debt reduction by 0.9 percent of GDP.

Figure 1.10. Public Expenditures, Revenues, and Balance in Poland, 2005–16



Source: World Bank estimates from Eurostat data and World Bank (2017b) projections.

Figure 1.11. Decomposition of the Fiscal Balance in Poland, by Subsector, 2005–15

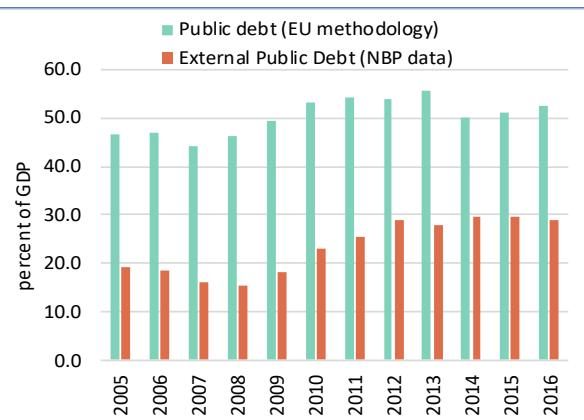


Source: World Bank estimates from Eurostat data and World Bank (2017b) projections.

14. Although Poland is not a high spender in comparison with other EU countries, its revenues are also well below the EU average.

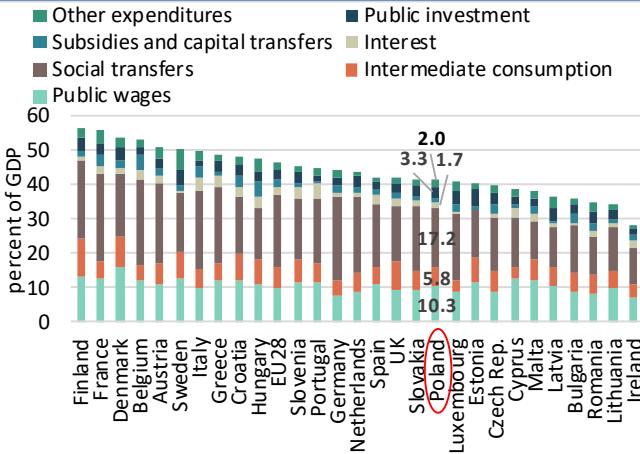
In 2016, the ratio of public spending to GDP was 41.3 percent—slightly higher than the Czech Republic and Estonia and much higher than the Baltic countries and Romania, but lower than Croatia or Hungary (Figure 1.13). These cross-country differences are largely explained by the size of the welfare state and social benefits and transfers, the varied role of the state as a provider of health and education services, and the size of public investment, which is largely driven by EU funds in the converging member states. On the revenue side, at about 39 percent of GDP in 2016, Poland's revenue collections are below the EU average of 45 percent. Poland relies to a large extent on indirect taxes, while revenues from personal and corporate income taxes play a relatively smaller role than in the EU on average (Figure 1.14).

Figure 1.12. Public Debt and External Public Debt in Poland, 2005–16



Sources: Eurostat, National Bank of Poland (NBP) data.

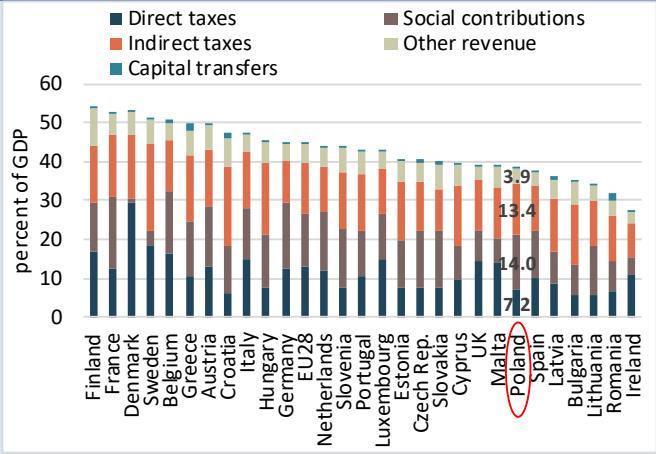
Figure 1.13. Breakdown of General Government Expenditures, EU Countries, 2016



Source: World Bank estimates based on AMECO database.

Note: AMECO is the annual macro-economic database of the European Commission's Directorate General for Economic and Financial Affairs.

Figure 1.14. Breakdown of General Government Revenues, EU Countries, 2016

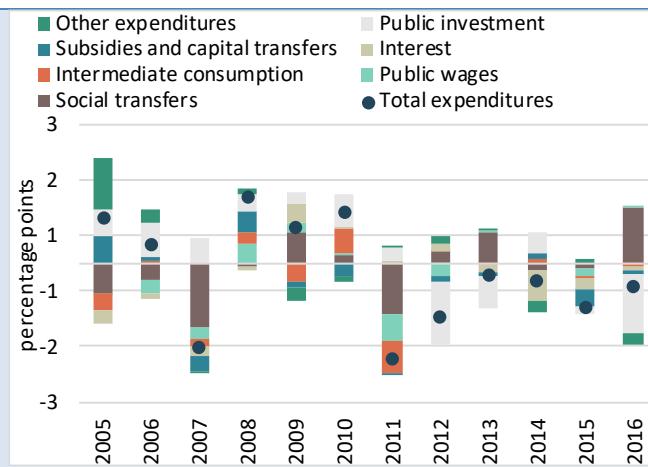


Source: World Bank estimates based on AMECO database.

Note: AMECO is the annual macro-economic database of the European Commission's Directorate General for Economic and Financial Affairs.

15. **Public expenditure and revenue trends have been broadly countercyclical, as reflected by the fiscal response to the global financial crisis and other exogenous shocks in recent years.** Public spending grew to a peak of 46 percent of GDP between 2008 and 2010, largely boosted by public investments and social transfers, gradually declining to 41 percent in 2016 (Figure 1.15). At the same time, revenue bottomed out at 38 percent of GDP in 2009, reflecting lower economic growth and the elimination of the upper PIT bracket and a reduction in the lower PIT rate from 19 percent to 18 percent. In 2007–08, a significant cut in the social security (disability) contribution rate was introduced. As the economy recovered, the standard VAT rate was increased from 22 percent to 23 percent in 2011. Annual changes in overall revenues since then have been smaller than 1 percent of GDP (Figure 1.16).

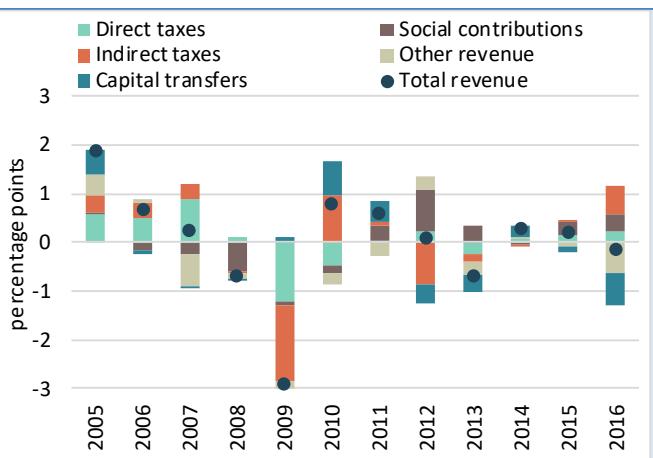
Figure 1.15. Annual Changes in General Government Expenditures as a Share of GDP, Poland, 2005–16



Source: World Bank estimates based on AMECO database.

Note: AMECO is the annual macro-economic database of the European Commission's Directorate General for Economic and Financial Affairs.

Figure 1.16. Annual Changes in General Government Revenues as a Share of GDP, Poland, 2005–16

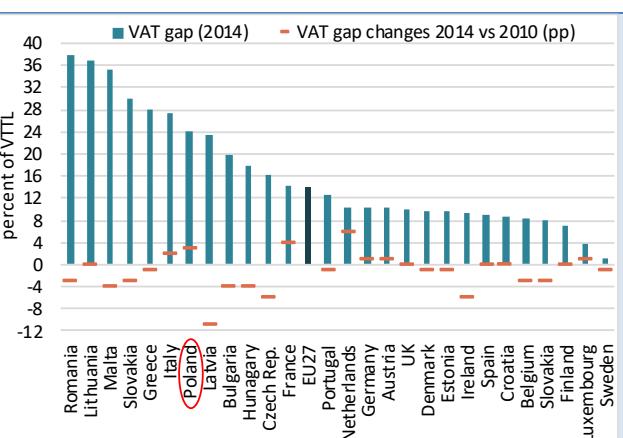


Source: World Bank estimates based on AMECO database.

Note: AMECO is the annual macro-economic database of the European Commission's Directorate General for Economic and Financial Affairs.

16. Although public debt remains sustainable and its profile resilient to macro-fiscal shocks over the medium term, long-term fiscal sustainability has been weakened by the rollback in the statutory retirement age. Public debt sustainability analysis (see more in Appendix A) indicates that public debt remains sustainable, and its profile is resilient to negative shocks to GDP, inflation, and primary fiscal balance. The analysis presented in a heat map highlights risks associated with the rise in short-term debt (albeit from a very low level) and the share of public debt held by nonresidents. This is in spite of the World Bank's projection of a widening fiscal deficit in 2017 (World Bank 2017b) because current and capital spending are expected to rise slightly faster than public revenues, in line with improving economic performance and various legislative, organizational, and information technology (IT) measures aimed at reducing the sizable VAT gap (Figure 1.17). Similarly, the stock of contingent liabilities of the general government has remained below 7 percent of GDP in recent years (Table 1.1). By contrast, long-term fiscal risks have increased in light of the rollback in the statutory retirement age because of lost revenues from those who would have remained in the workforce, leading to higher deficits over the long run (see details in Chapter 4).

Figure 1.17. VAT Gap in 2014 and Its Change Relative to 2010



Source: CASE 2016.

Note: VAT = value added tax. VTTL = VAT total tax liability.

Table 1.1. Contingent Liabilities of General Government Sector in Poland, 2010–16
Percentage of GDP

	2010	2011	2012	2013	2014	2015	2016
Public guarantees	5.2	6.4	6.3	6.7	6.6	6.5	6.9
of which: linked to the financial sector	0.2	0.2	0.2	0.15	0.1	0.1	0.1

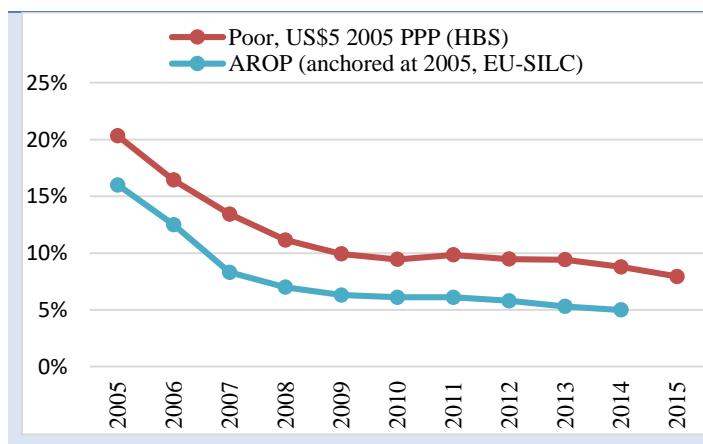
Source: Ministry of Finance.

Note: Data on potential liabilities of other public finance sector entities are not subject to reporting. Guarantees granted for financial sector liabilities presented here refers to the State Treasury sureties and guarantees portfolio (excluding guarantees granted for supporting the National Road Fund, managed by the state-owned Bank Gospodarstwa Krajowego (BGK)).

Poverty and Shared Prosperity Trends, 2005–16

17. Improvements in growth and productivity over the past decade have translated into remarkable progress in poverty reduction in Poland. The at-risk-of-poverty (AROP) rate (measured using a threshold of 60 percent of median equivalized income after social transfers in 2005, and fixed thereafter) declined from 16 percent in 2005 to 5 percent in 2014 (Figure 1.18). Most of this progress took place in the years leading up to the global financial crisis. Although the pace of poverty reduction has slowed down since then, the incomes of those at the bottom of the distribution continued to make steady improvements. The steep fall in poverty was among the fastest in the EU and continued throughout the crisis years. As a result, Poland's \$5-a-day poverty rate in 2012 was significantly lower than most regional comparators such as Bulgaria, Croatia, Hungary, and Romania (Figure 1.19).

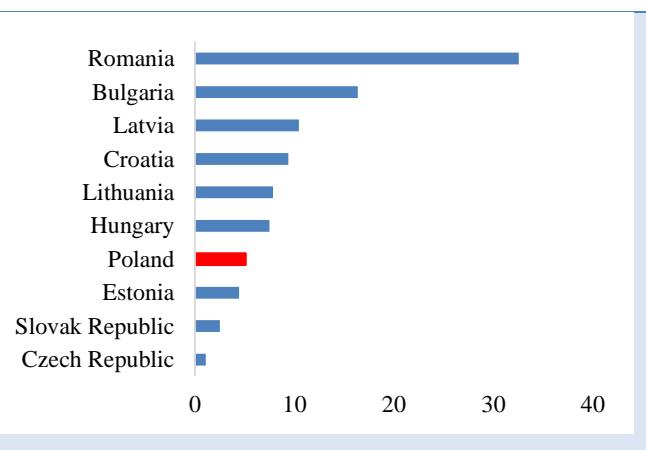
Figure 1.18. Poverty Headcount in Poland, 2005–15



Sources: Household Budget Survey (HBS); European Union Statistics on Income and Living Conditions (EU-SILC); Eurostat (accessed April 2017).

Note: Headcounts measured at \$5-a-day, \$10-a-day (2005 purchasing power parity [PPP]), and anchored (at 2005) EU poverty lines. AROP = at-risk-of-poverty rate, measured as 60 percent of the median income anchored in 2005 (EU-SILC).

Figure 1.19. Poverty Headcount at \$5-a-day Line, Selected Countries, 2012



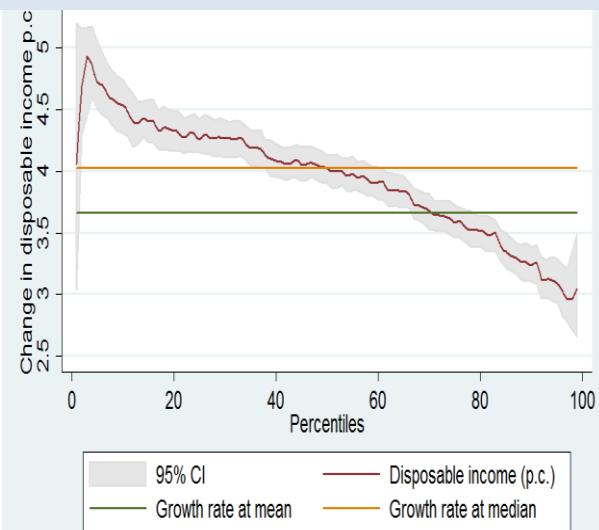
Sources: Household Budget Survey (HBS); European Union Statistics on Income and Living Conditions (EU-SILC); Eurostat (accessed April 2017).

Note: Headcount measured by percentage of population living at \$5-a-day (2005 purchasing power parity [PPP]) poverty line.

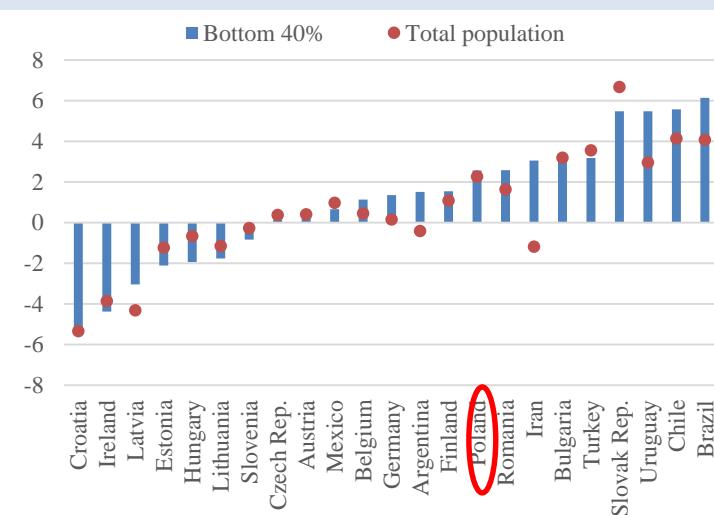
18. Moreover, strong and stable growth translated into increases in disposable incomes across the income distribution in the past decade, but especially for the bottom 40 percent, thus boosting shared prosperity. The per capita income of the bottom 40 percent grew at an annualized rate of 4.4 percent over 2004–15 compared with 3.6 percent growth among the top 60 percent (Figure 1.20, panel a). Most of this improvement happened between 2004 and 2008, when the bottom 40 percent grew at an annualized rate of 8.3 percent, and then slowed to an annual growth of 1.9 percent between 2010 and 2015. Still, this is a commendable outcome given that Poland is one of only a few countries (including Brazil, Chile, and Uruguay) to have achieved both positive income growth and shared prosperity during this period (Figure 1.20, panel b).
19. Strong growth in labor income was the main contributor to poverty reduction, driven mainly by broad-based improvements in education, increasing returns to labor, and overall productivity gains. Labor income growth accounts for most of the reduction in poverty over the past decade in Poland, while the reduction in the real value of pensions relative to earnings resulted in increased relative poverty among the elderly (Aldaz-Carroll, Skrok, and Van Den Brink 2017). Labor income led to poverty reduction in Poland mostly on account of improvements in the level of education and in the returns to individual characteristics, reflecting productivity increases as well as increases in the minimum wage (Aldaz-Carroll, Skrok, and Van Den Brink 2017). The statutory minimum wage increased in real terms nearly twice as fast as the average wage between 2005 and 2014, effectively helping workers at the lower end of the earnings distribution (Figure 1.21, panel a).

Figure 1.20. Income Growth of the Bottom 40 Percent

a. Poland: growth incidence curve for disposable income, 2004–15



b. International comparison: income growth of bottom 40 percent relative to total population, circa 2008–13



Source: World Bank estimates using Household Budget Survey (HBS) 2004 and 2015 data.

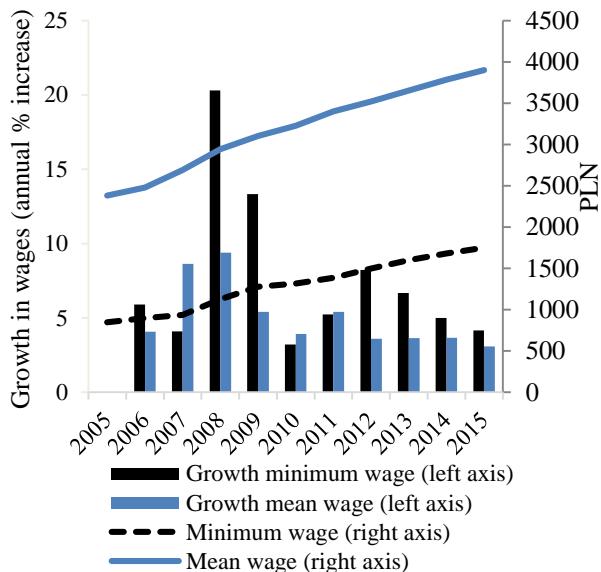
Source: World Bank Global Database of Shared Prosperity (accessed November 1, 2016), <http://www.worldbank.org/en/topic/poverty/brief/global-database-of-shared-prosperity>.

Note: Income growth for Bulgaria is for 2007–10. Argentina covers urban areas only.

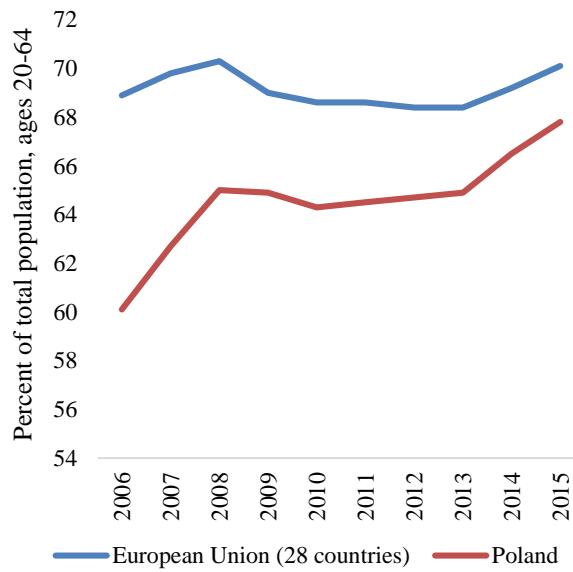
20. Increases in employment were also an important factor in poverty reduction. The overall employment rate was 7.7 percentage points higher in 2015 than in 2006, underpinned by growing labor force participation of older workers (Figure 1.21, panel b). This can partly be explained by changes in the rules concerning early retirement implemented in 2008 and the lagged impact of the retirement reforms implemented in 1999 (Aldaz-Carroll, Skrok, and Van Den Brink 2017).

Figure 1.21. Increases in Employment and Earnings

a. Increases in earnings, Poland, 2005–15



b. Employment, Poland and EU, 2006–15



Source: Aldaz-Carroll, Skrok, and Van Den Brink 2017.

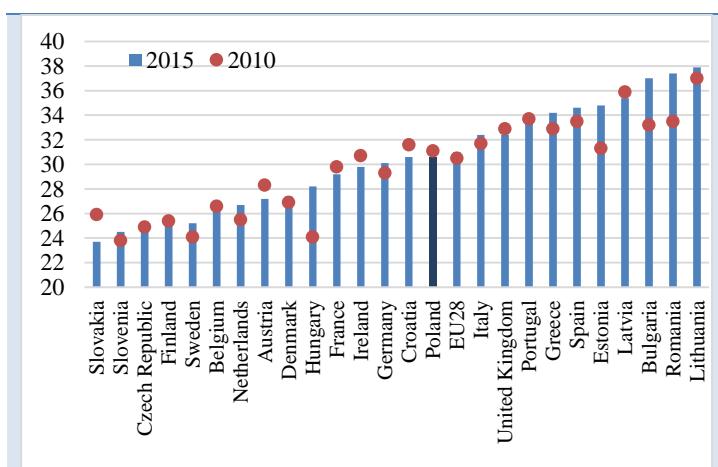
Source: Eurostat.

21. Income inequality also declined slightly in the past 10 years because of declines in labor income inequality, although inequality in hourly earnings remains high.

Inequality in Poland in 2015 is comparable to the EU average (Figure 1.22) and has declined over the past decade (Aldaz-Carroll, Skrok, and Van Den Brink 2017). Wage inequality declined from a Gini coefficient of 41.9 in 2005 to 38.4 in 2014 during the 2005–14 period of fast economic growth, largely because of an increasing share of tertiary educated workers along with a declining educational premium (Aldaz-Carroll, Skrok, and Van Den Brink 2017).

However, inequality decreased mainly in urban areas while staying more or less constant in rural

Figure 1.22. Gini Coefficient, Selected Countries, 2010 and 2015



Source: Eurostat.

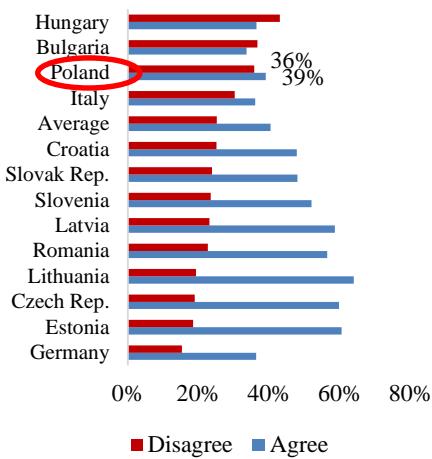
areas, and increasing among farmers (Central Statistical Office [GUS] 2016c data). Moreover, wage inequality remains very high by international standards. Eurostat reports that Poland has the highest inequalities in gross hourly earnings measured as D9/D1 interdecile ratio.² The ratio between gross hourly earnings of highest and lowest deciles ranges between 2.1 in Sweden to as much as 4.7 in Poland. This high level of inequality in hourly wages is related to the labor market segmentation, which persists despite recent improvements.

22. **The decline in labor income inequality was complemented by redistributive fiscal and social policies.** About 44 percent of the decline in disposable income inequality between 2005 and 2014 is attributed to redistributive direct taxes and transfers (Myck 2016), but until recently the redistributive impact of Polish direct taxes and transfers was low compared with other countries, particularly when indirect taxes are considered, with both the VAT and excise taxes being regressive, unequalizing, and poverty-increasing (Goraus and Inchauste 2016). However, the introduction of Poland's Family 500+ program has substantially reduced poverty and inequality across the population (see Chapter 4).
23. **Despite improvements in objective measures of welfare, anxiety and pessimism color perceptions about well-being.** Qualitative evidence from perception surveys shows that although households in 2016 perceive themselves to be better off than they were four years ago, there is some pessimism concerning the recent improvements in welfare and the prospects going forward. For instance, 36 percent of Poles in 2016 believed they are not better off than their parents, a higher share than in 2010 (Figure 1.23, panel a). Similarly, the share of respondents who believe that children born today will have a better life than themselves was smaller in 2016 than in 2010. Moreover, despite the improvements in employment indicators, when asked how their personal job situation has fared in the past decade, 61 percent believe things are the same, while 14 percent believe things have gotten worse, a rate much higher than most EU countries (Figure 1.23, panel b). Why the pessimism? There are both objective and subjective reasons that could explain these trends.

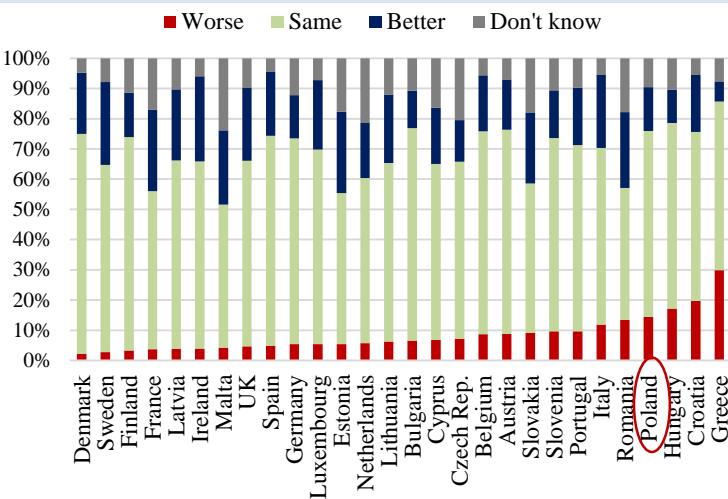
² The D9/D1 interdecile ratio of gross hourly earnings is estimated with Eurostat's Structure of Earnings Survey, which covers companies with more than nine employees and excludes public administration, defense, and compulsory social security.

Figure 1.23. Perceptions of Well-Being in European Countries

a. Level of agreement: better off than parents, 2016



b. Perceived current state of personal job situation, 2016



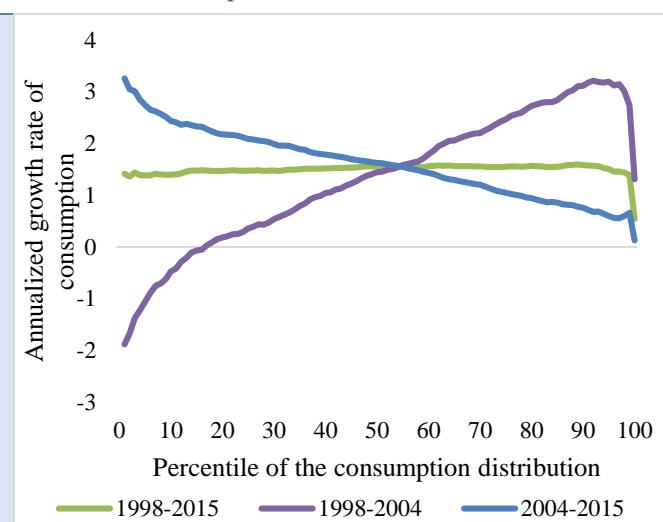
Source: 2016 Life in Transition Survey (LiTS) of the European Bank for Reconstruction and Development (EBRD).

Source: Eurobarometer 2016.

24. First, growth for the bottom 40 percent of the distribution came after a period of less-inclusive growth, so improvements in the past decade only partly mitigated forces from the past.

Growth of consumption between 1998 and 2004 had been much less inclusive than later on, with consumption of the top 60 percent of the distribution growing by an average of 2.5 percent while that of the bottom 40 percent grew by an average of only 0.3 percent (Figure 1.24). In contrast, between 2005 and 2015, consumption of the bottom 40 percent grew by an average of 2.2 percent compared with an average of 1.1 percent for the top 60 percent. The overall growth across the distribution was about 1.5 percent between 1998 and 2015. It is not surprising that, for many people, the changes in the past decade seem less impressive.

Figure 1.24. Growth Incidence Curves for Consumption in Poland, 1998–2015



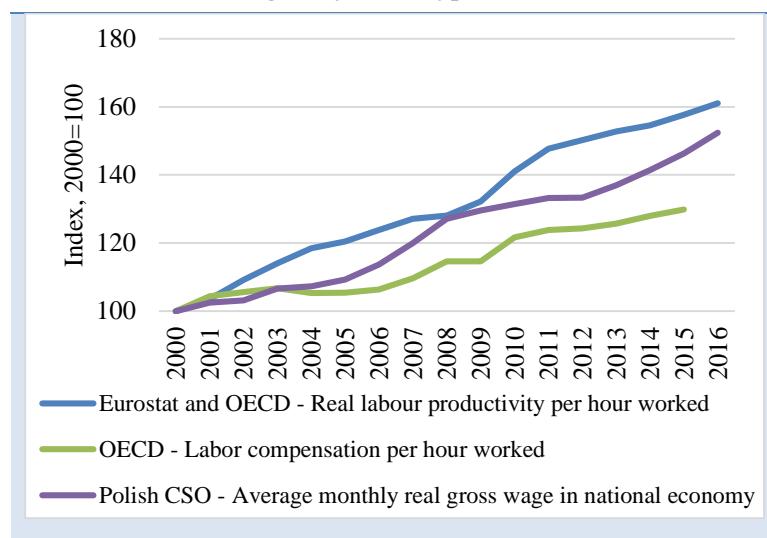
Source: Estimates based on Poland Household Budget Survey (HBS).

25. Second, despite improvements in productivity and earnings, the group of low-wage earners in Poland remains large. Since 2000, growth of labor productivity (defined as the output of goods and services per hours worked) in Poland outpaced that of its neighboring countries, mainly in manufacturing. In parallel, Poland saw the growth of wages, although there is some evidence that labor productivity outpaced compensation for workers (Figure 1.25). However, Polish wages remain at the lower end in the EU, with average hourly labor cost in Poland at €8.6 in 2015, compared with €25.0 in the EU-28 in 2015, placing Poland among the bottom six of all EU-28 countries.³

Combined with the fact that Poland has fourth highest proportion of low-wage earners in the EU (Eurostat 2014 data),⁴ many workers receive low remuneration for their work by both national and international standards.

- 26. **In fact, the returns to labor have been growing more slowly than the returns to capital.** The share of labor compensation in total income ranged from 41 percent in 2000 to 37 percent in 2015, while the share of operating surplus ranged from 47 percent to 51.5 percent over the same period—a historic high (Aldaz-Carroll, Skrok, and Van Den Brink 2017). By EU standards, the share of workers with relatively low skills remains high, and many of these workers have temporary contracts with low bargaining power. At the same time, the strong growth in the supply of higher-educated workers reduced the skills premium. The result has been that the returns to labor have been lower than the returns to capital (Aldaz-Carroll, Skrok, and Van Den Brink 2017).
- 27. **Third, although wealth inequality is relatively low, there are some signs that it has been increasing, in line with strong returns to capital.** Poland’s level of wealth inequality is relatively low but has been increasing. As in most countries, Poland’s wealth inequality is higher than its income inequality but not as high as in most euro area countries, as evidenced by a lower Gini coefficient (Figure 1.26) (NBP 2015). This stems mainly from the fact that a vast majority of Poles own their homes (76.4 percent compared with 44.2 percent in Germany). This is true across the distribution, with over 80 percent of households owning their homes beginning in the third and fourth

Figure 1.25. Growth of Labor Productivity in Poland Relative to Wages, by Data Type, 2000–16



Sources: Eurostat database; Organisation for Economic Co-operation and Development (OECD) database; Central Statistical Office (GUS) database.

³ Mean hourly wages were 10.13 purchasing power standard (PPS) in Poland compared with 15.35 PPS for the EU-28 (in both euros and PPS). By this measure, Poland had the 10th-lowest wages among the EU-28 countries. PPS is Eurostat’s purchasing power standard.

⁴ Eurostat defines low-wage earners as employees earning two-thirds or less of the national median gross hourly earnings. This statistic is estimated with Eurostat’s Structure of Earnings Survey.

decile, and 95 percent in the 5th–10th deciles. This is often not the case in many European countries. Poland is also distinctive in that a relatively high percentage of respondents declare possession of business assets (18.8 percent versus 11.1 percent in the euro area), and the value of these assets is higher than in the rest of the region.⁵ However, there is some evidence of an increase in wealth inequality between 2010 and 2015, with the wealth Gini increasing from 66.8 to 75.6 points compared with the average increase in the EU from 67 to 70 points (CSRI 2010, 2015). This increase is in line with the increase in the number of billionaires in Poland and their net worth (Figure 1.27). In particular, much of the net worth of Polish billionaires comes from sectors prone to capture and rent seeking, including the communication and financial and insurance industries.⁶

Figure 1.26. Wealth Inequality, Poland and Selected European Countries, 2014

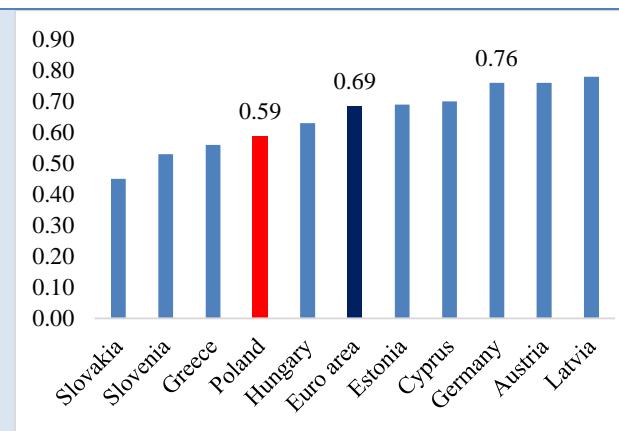
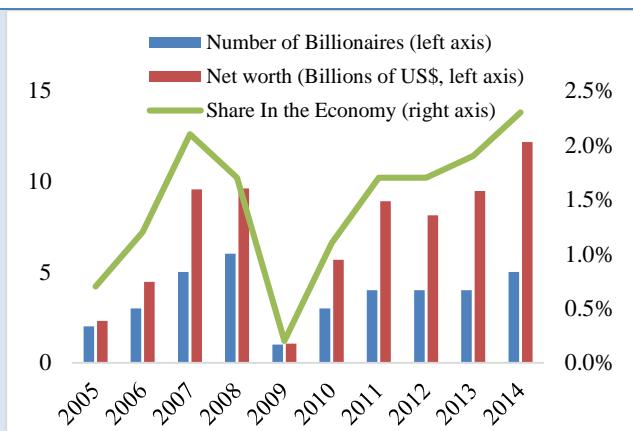


Figure 1.27. Poland Billionaires and Their Net Worth, 2005–14



Source: NBP 2015.

Note: Level of inequality is indicated by Gini coefficient.

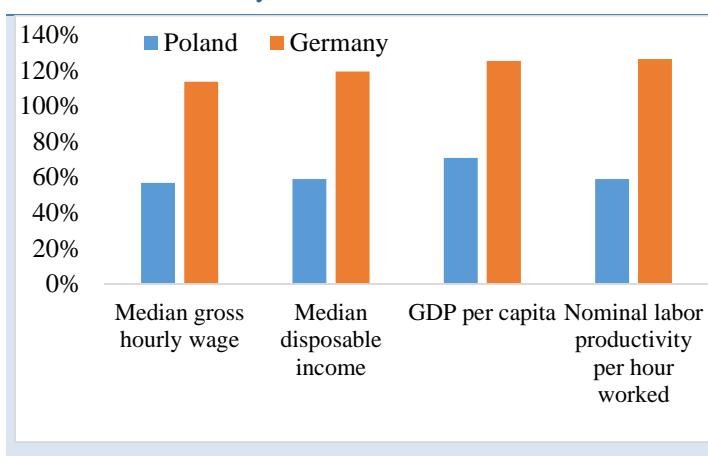
Source: “The World’s Billionaires,” *Forbes* annual list, https://www.forbes.com/billionaires/list/#version:static_header:country.

⁵ Note that the level of inequality reported in these surveys may be underestimated, because they are not representative of the wealthiest individuals despite efforts to oversample the top of the distribution.

⁶ As underlined in World Bank (2017b), high concentration of wealth may result in undue ability to influence the policy process by those at the very top of the distribution and in an inefficient allocation of resources, which further entrenches existing inequalities over time.

28. To the extent that the aspirations of the Polish population are for faster income convergence with the levels of Germany, the perception of improvements in welfare differ from objective measures of well-being. As seen above, Poland is a country that, by EU standards, has high wage inequality, moderate income inequality, and relatively low wealth inequality. Beyond objective measures of welfare, subjective measures may also partly explain low perceptions of well-being. This is common in an environment where everybody experiences welfare improvements and where relative shifts within the welfare distribution can negatively influence individual perceptions of welfare (Hirschman and Rothschild 1973). For instance, comparing themselves with the median EU citizen, to the extent that Poles mainly pay attention to wages, their assessment of inequality and the distance to the wage levels in comparator countries will be much larger (Figure 1.28). This is important because Poles tend to compare themselves with Germans and also tend to have higher perceptions about living conditions in Germany than other EU countries (University of Geneva 2016).

Figure 1.28. Labor and Economic Indicators, Poland and Germany Relative to EU-28, 2014



Source: Eurostat.

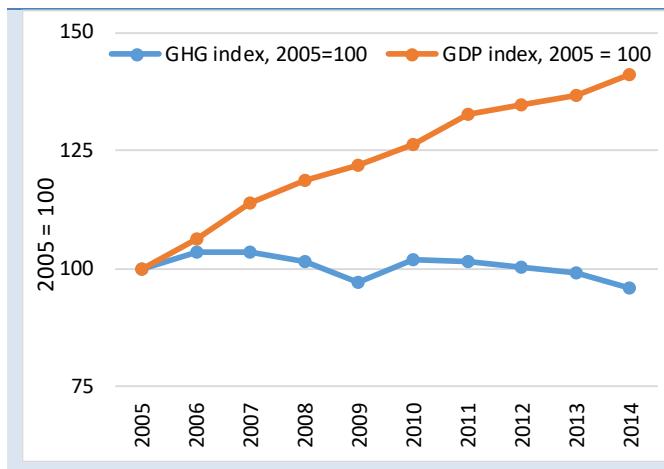
Note: Indicators adjust for price levels in Eurostat purchasing power standard (PPS) terms. EU28 = 100.

Key Environmental Trends in Poland, 2005–16

29. Progress toward shared prosperity has also involved improvements in environmental sustainability. Over the past three decades, Poland significantly improved environmental performance and management, and these advances were reinforced by EU accession in 2004. EU membership not only stimulated the economy but also supported improved environmental management and enhanced the quality of life of Poland's citizens. Supported by EU funds, increased investment in infrastructure has extended access to water services, sanitation, and other environmental services and helped to reduce pollution (OECD 2015d). Greenhouse gas (GHG) emissions, waste generation, water withdrawal, and emissions of several air pollutants have decoupled from economic growth. Between 2005 and 2014, Poland's real GDP increased by around 45 percent, while GHG emissions declined by around 5 percent (Figure 1.29). To some extent, this was a positive side effect of economic restructuring. Also, the international Environmental Performance Index (EPI) shows how Poland advanced on environmental performance relative to other countries (Figure 1.30).⁷ Despite continued improvement over the past decade, the same index demonstrates the large distance between Poland and the EU frontiers in this regard.

⁷ The EPI is a composite indicator, covering more than 20 indicators, and ranks countries in two areas: protection of human health and protection of ecosystems. Within these two policy objectives, the EPI scores national performance in nine issue areas comprising more than 20 indicators. EPI indicators measure country proximity to

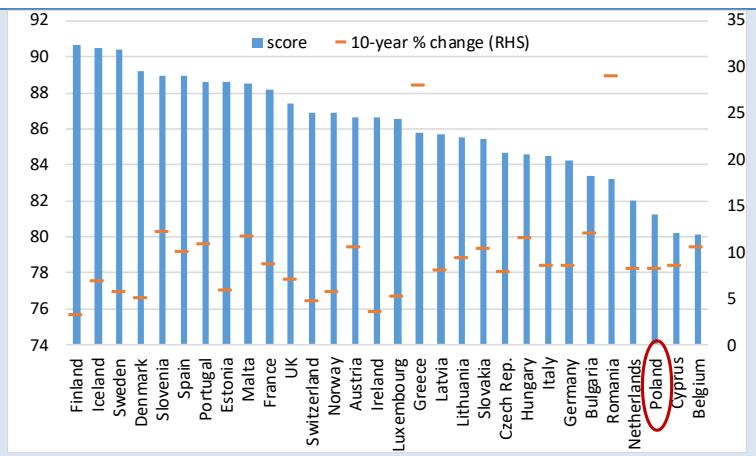
Figure 1.29. Economic Growth and GHG Emissions in Poland, 2005–14



Source: World Bank, based on Central Statistical Office (GUS) and European Environment Agency data.

Note: GHG = greenhouse gas.

Figure 1.30. Environmental Performance Index, European Countries, 2016

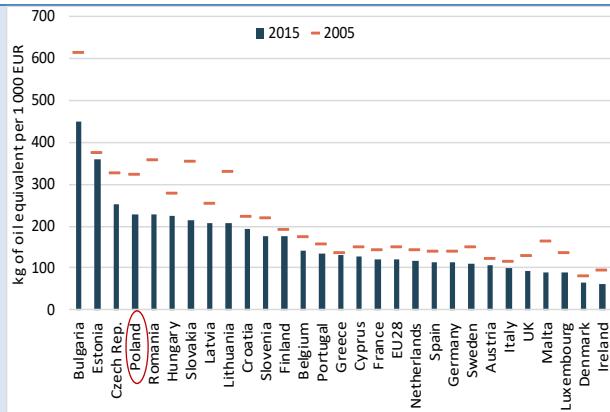


Source: World Bank, based on data of the Yale Center for Environmental Law & Policy.

30. Productivity improvements in Poland's economy were also reflected in more efficient use of energy and water, even though the distance to the best EU performers remains large. Poland has made considerable advances in energy efficiency in the past decade, though it still lags behind (high) Western European standards. Poland's economy is still more than twice as energy-intensive as the EU average per unit of GDP (Figure 1.31). Although consumption of energy per euro of GDP has fallen by 29 percent in the past decade—from 322 kilograms to 227 kilograms of oil equivalent required for every €1,000 of output between 2005 and 2015—Poland still stood at 1.9 times above EU average energy intensity in 2015. In this EU ranking, only three countries are more energy-intensive: Bulgaria, the Czech Republic, and Estonia. Relative to the mid-2000s, water productivity also increased significantly, though—again—Poland remains one of the least water-efficient countries in the EU (Figure 1.32). With water resources of about 1,600 cubic meters available per capita annually, Poland is among the Organisation for Economic Co-operation and Development (OECD) countries with the most limited freshwater resources.

meeting internationally established targets or, in the absence of agreed targets, how nations compare with one another.

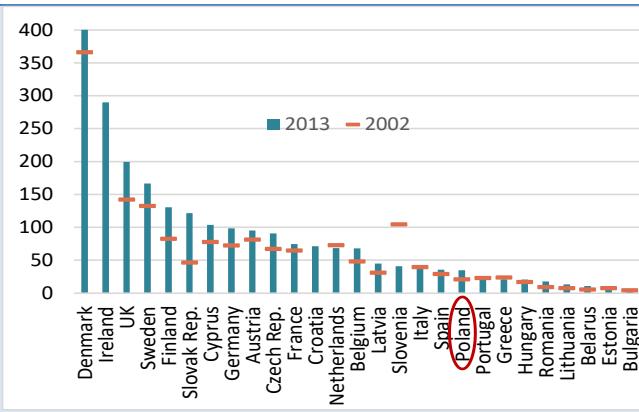
Figure 1.31. Energy Intensity (Inverse to Energy Efficiency) in EU Countries, 2015 vs. 2005



Source: World Bank, based on Eurostat data.

Note: Energy intensity is the ratio of gross inland consumption of energy divided by GDP (kilograms of oil equivalent per €1,000).

Figure 1.32. Water Productivity in Selected EU Countries, 2013 vs. 2002



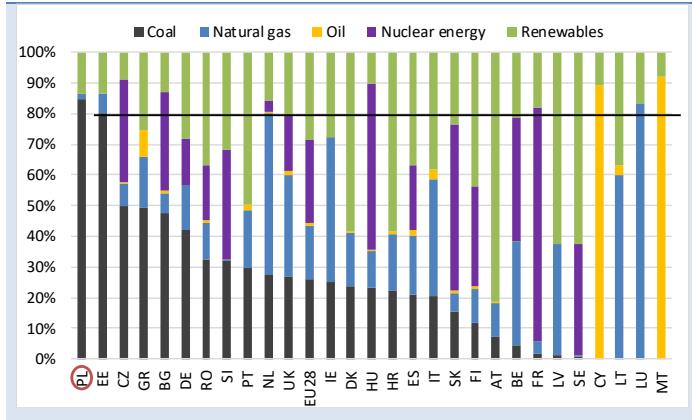
Source: World Development Indicators database.

Note: Water productivity is measured as a ratio of constant 2005 US\$ GDP per cubic meter of total freshwater withdrawal. Luxembourg was omitted as an outlier.

31. Poland is unique in its sustainable forest management on the one hand and its extraordinary dependence on coal and lignite for power generation on the other. On the bright side, Poland has a long tradition of sustainable forest management, which has allowed the potential timber harvest to increase while conserving biodiversity. Among other natural endowments, Poland hosts the only primeval forest remaining in Europe: the Białowieża (OECD 2015d). On the other hand, a critical difference in the makeup of Poland's environmental performance is the extraordinary dependence of the power sector on coal and lignite. Around 85 percent of electricity in Poland is generated from coal and lignite—the highest share in the EU, leaving Poland an outlier both in Europe and globally (Figure 1.33). Poland has no energy generated by nuclear power plants. This heavy reliance on coal leaves the Polish economy among the most carbon-intensive in the EU.

32. Moreover, the average concentrations of health-damaging air pollutants are among the highest in the EU and OECD. In 2012, sulphur oxide (SO_x) emissions per unit of GDP were triple the OECD Europe average, and nitrogen oxide (NO_x) emissions were double, despite significant declines in emissions of these pollutants in the previous decade. However, emissions of $\text{PM}^{2.5}$ and PM^{10} were

Figure 1.33. Electricity Mix in EU Countries, by Fuel Source, 2015

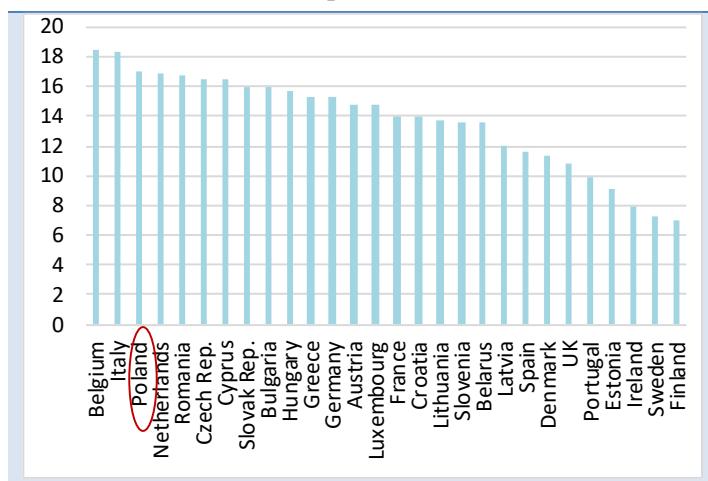


Source: World Bank, based on Eurostat data.

unchanged,⁸ while emissions of non-methane volatile organic pollutants (NMVOCs) increased by 10 percent, and carbon monoxide (CO) by 6 percent. In fact, Poland has recorded one of the highest levels of average concentrations of PM_{2.5} in Europe in recent years (Figure 1.34). Small-scale combustion of coal and biomass and concentrated local pollution (particularly during the heating season) are the main factors in these compliance issues (EC 2013). Also, Poland ranks low for several other air quality measures, such as concentrations of arsenic, mercury, benzene, and benzo(a)pyrene (OECD 2015d).

- 33. In addition, Poland has made only slow environmental progress in waste management and the intensity of fertilizer use.** Municipal waste management has taken years to improve. Only in 2013 did the country establish a solid basis for establishing collection service for all inhabitants and increasing separate collection of recyclable waste. Landfilling was the predominant type of treatment of municipal waste, accounting for 75 percent of total treatment compared with the OECD average of 45 percent. Also, Poland ranks relatively high among the OECD countries on intensity of commercial fertilizer use. Between 2002 and 2012, use of nitrogenous and phosphorous fertilizers increased significantly, albeit from a very low base. Combined with the decrease in area of agricultural land, Poland's intensity of commercial fertilizer use is among the 10 OECD countries with the highest intensity (OECD 2015d), but it is slightly lower than the EU-28 average and substantially lower than in countries with more intensive agricultural production.

Figure 1.34. Mean Annual Exposure to PM_{2.5} Air Pollution, European Countries, 2013



Source: World Development Indicators database.

Note: PM_{2.5} refers to particulate matter no larger than 2.5 microns or 10 microns in diameter, respectively. Figure shows micrograms of PM_{2.5} per cubic meter.

Structural Trends and Challenges to Shared Prosperity

- 34. Beyond the underlying issues challenging shared prosperity noted above, there are long-term structural challenges.** In addition to persistent fiscal deficits, low perceptions of welfare, and environmental challenges, there are additional structural changes that Poland will need to face going forward. The most important has to do with rapid and deep demographic change, which will pose labor market and fiscal challenges and place pressure on the health care and pension systems. Second, recent global developments suggest low potential productivity improvements and a slowdown in innovation in frontier markets and adoption in converging markets such as Poland. Poland may be unable to sustain continued increases in productivity based on the current growth model. Third,

⁸ PM_{2.5} and PM₁₀ refer to particulate matter no larger than 2.5 microns or 10 microns in diameter, respectively.

technology will change the nature of labor markets, affecting relative returns to skills and capital. Poland faces a world in which labor incomes of low-skilled workers may be limited given technological improvements across the globe, potentially further increasing the precariousness of low-skilled workers. Moreover, should economic dynamics worsen, horizontal inequalities would become more salient, given lingering disparities in access to opportunities and the labor market as well as social exclusion among vulnerable groups. Finally, agglomeration and income growth put pressure on natural resource management, posing challenges to improving air quality and water management and to meeting global targets on GHG emissions. These four challenges interact with each other. For example, productivity growth is perhaps the lone remedy for demographic decline; without it, growth, inclusiveness, and sustainability would be at risk. Each of these challenges is described briefly below and addressed more fully in the rest of this volume.

Rapid Aging

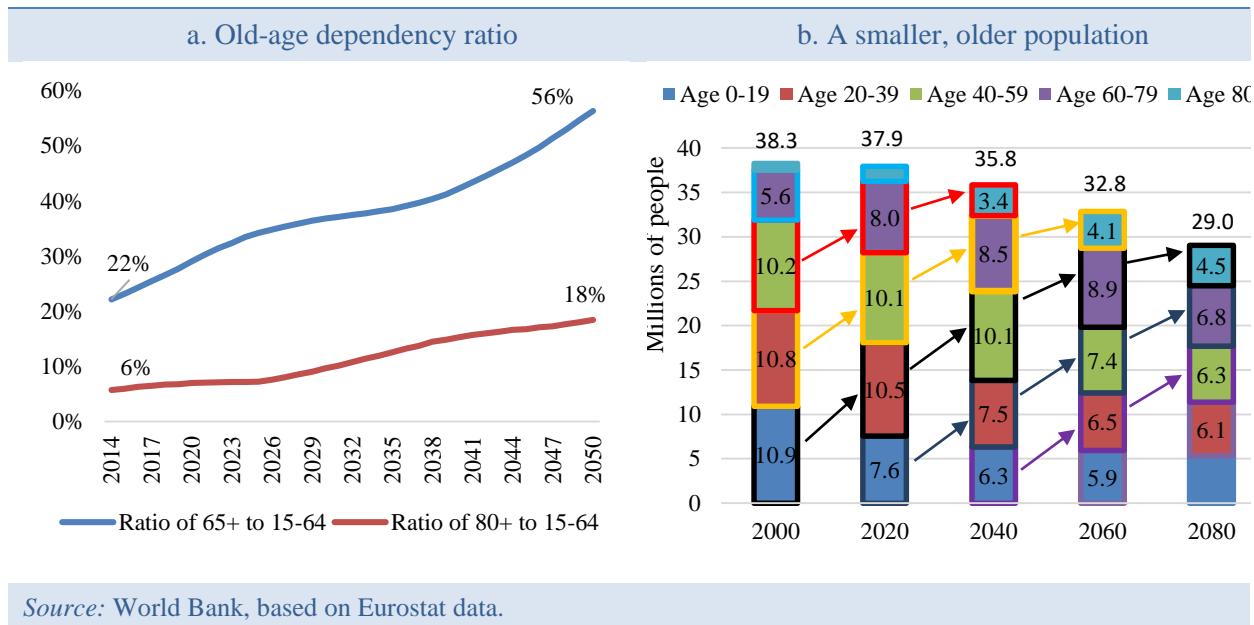
35. First, demographic changes will lead to increased dependency on a shrinking labor force.

Poland is one of the fastest-aging countries in the EU, in part because of low fertility rates. Fertility rates have been well below the simple replacement rate for long, falling to 1.3 in 2013.⁹ The demographic outlook is also adversely affected by migration flows, in particular persistently high outward migration.¹⁰ The forecasted Polish dependency ratio will be one of the highest in the EU, and is expected to increase from 22 percent to 56 percent by 2050 for the population over age 65 years, and from 6 percent to 18 percent by 2050 for the population over age 80 years (Figure 1.35, panel a). Importantly, future generations will face a situation in which a much smaller labor force will need to shoulder a larger number of elderly adults (Figure 1.35, panel b). In fact, Kiełczewska and Lewandowski (2017) demonstrate that if the current participation patterns persist, in 2050 the labor supply in Poland will be 30 percent smaller than in 2015, mostly as a result of an increase in the share of people over age 50 years who exhibit low labor force participation.

⁹ The fertility rate, computed by Eurostat, is defined as the mean number of children that would be born alive to a woman during her lifetime if she were to pass through her childbearing years conforming to the fertility rates by age of a given year, and surviving.

¹⁰ It is estimated that nearly 1.2 million people emigrated from Poland between 2009 and 2013, including 280,000 people in 2013 alone, the fourth largest in the EU in 2013 (EC 2016a). At the same time, inflows of migrants are increasing exponentially (from 10,000 immigrants in 2006 to 220,000 in 2013), and are set to play an important role for the labor market in the future.

Figure 1.35. Poland's Demographic Challenge: Increasing Dependency Ratios



Source: World Bank, based on Eurostat data.

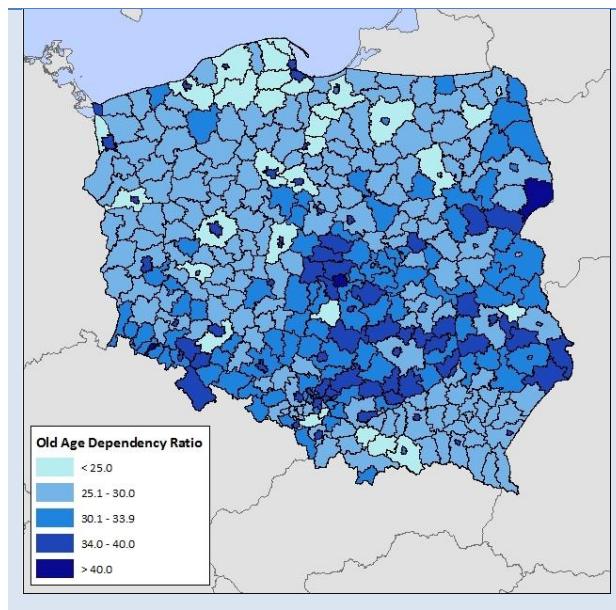
36. Demographic changes will pose fiscal sustainability challenges and place a strain on the health care and pension systems, thus posing both fiscal and inclusion challenges. The number of years over the life cycle when labor incomes are higher than consumption is currently one of the lowest in Europe (Chłoń-Domińczak 2017). Thus, population aging in Poland not only will lead to lower employment, GDP, and incomes but also will undermine the welfare state that finances the consumption of older people. Fiscal sustainability challenges might emerge, despite far less generous replacement rates than in other EU countries, if labor force participation remains relatively low and current younger generations do not mobilize adequate pension savings. As detailed in Chapter 4, the recent reduction in the retirement age will aggravate the problem because it will slash future pension benefits, increasing the incidence of minimum pension and the associated fiscal costs (Malec and Tyrowicz 2017). At the same time, the long-term care system in Poland is underdeveloped, fragmented, and not prepared to deliver adequate care to the growing senior population (Błędowski 2017). Moreover, old-age dependency has a strong regional aspect (Map 1.2).¹¹ Given the low mobility of older people in Poland, there will be significant regional imbalances in demand for age-related services (health care, long-term care), putting stress on regional infrastructure. Given differences in life expectancy, most of the elderly over age 75 in Poland are expected to be women, but many also experience poor health, high dependency, and frailty in their elderly years (see Chapter 3).

¹¹ The dependency ratio here is defined as the post-working-age population (M65/F60+) per 100 persons of working age (M18–64/F18–59) in line with GUS data.

Improving Productivity amid External Vulnerabilities

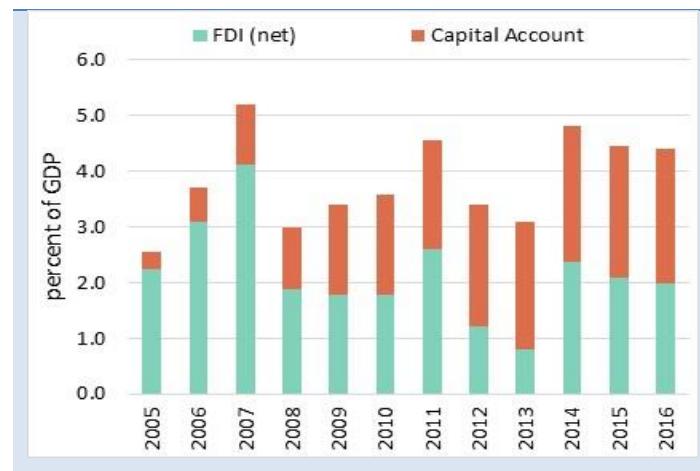
37. **Second, Poland may be unable to sustain continued productivity gains amid a global slowdown in innovation.** Global productivity growth fell sharply and widely following the global financial crisis, adding to structural headwinds in place before the crisis, leaving productivity prospects highly uncertain (Adler et al. 2017). Spillovers from productivity shocks at the technological frontier could translate into a productivity shock for a country with high trade exposure to the frontier. For a country such as Poland, Western Europe remains a frontier market, and a persistent productivity slack there would limit adoption of new technologies and further productivity gains in Poland.
38. **Moreover, external vulnerabilities are set to deteriorate in a context where Poland’s growth has become less diversified.** Poland’s consumption-led growth model is a source of potential risk due to the long-term challenges facing the economy in the next decades—namely, the demographic trends, lower FDI, and lower EU structural funds (Figure 1.36). Also, there are external challenges associated with Brexit, changes to global trade deals, euro-area volatility, and regional problems with the Russian Federation. Growth driven by private consumption has been fueled in part by rising incomes but also by strong and partly foreign-financed credit growth. At the same time, businesses have become reliant on EU-15 countries for exports and capital inflows (World Bank 2014).

Map 1.2. Old-Age Dependency Ratios in Poland, by Poviats, 2015



Source: World Bank, from Central Statistical Office (GUS) data. ©World Bank. Further permission required for reuse.

Figure 1.36. Capital Account and Net FDI in Poland, 2005–16



Source: World Bank, based on Eurostat data.

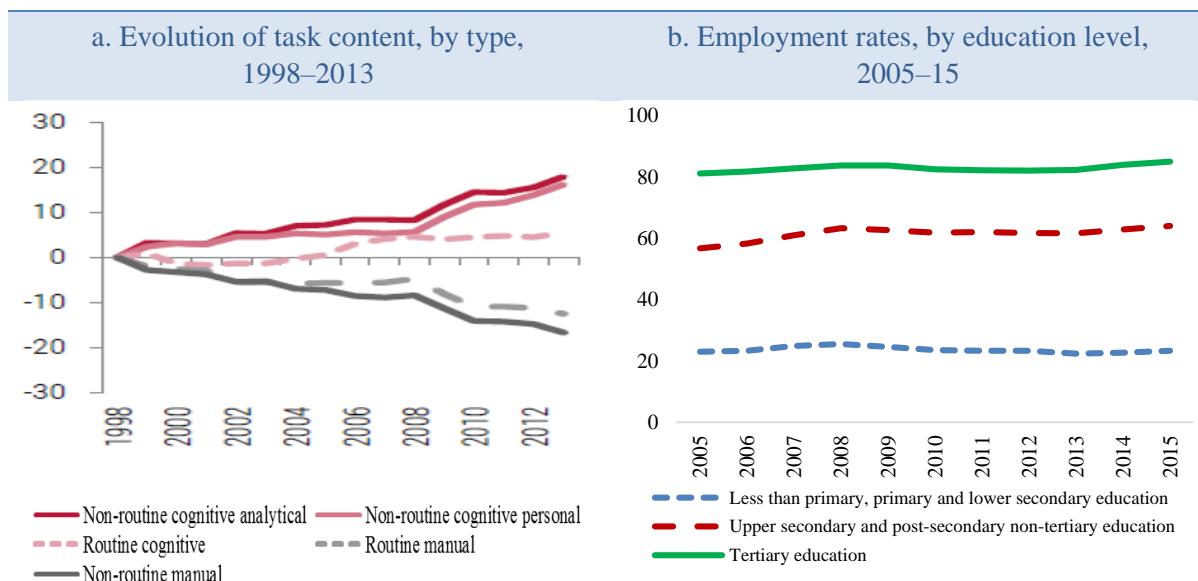
Note: FDI = foreign direct investment.

Technological Change and Labor Market Implications

39. **Third, technological improvements around the world favor nonroutine cognitive tasks, and although this has not been an issue so far, polarization of incomes could increase as income levels in Poland converge with advanced-country levels.** There is a fundamental shift in the nature of work in Europe and other high-income economies, with the task content of jobs shifting toward

nonroutine cognitive tasks, while manual tasks have decreased (Górka et al. 2017; Hardy, Keister, and Lewandowski 2016), as illustrated in Figure 1.37, panel a. In line with the growth in cognitive nonroutine tasks, employment rates among individuals with primary or secondary education lost ground relative to those with higher levels of education (Figure 1.37, panel b). Poland is not immune to these changes, which are driven by technological progress and may lead to fewer jobs and increased uncertainty about job stability and the prospects for achieving a middle-class lifestyle for those with limited educational attainment. In this context, Poland will need to deal with a small, weak research and development (R&D) sector while at the same time having to strengthen its education and social protection systems.

Figure 1.37. Trends in Task Content of Jobs and Related Employment Shifts in Poland



Source: Hardy, Keister, and Lewandowski 2016.

Source: Eurostat.

40. **Technological change could further exacerbate precarious and volatile employment based on atypical contracts among low-skilled workers.** Much of the increase in employment over the past 15 years was driven by the growth of nonstandard contracts (Figure 1.38). By 2016, temporary workers made up 27.5 percent of all self-employed and temporary employees, one of the highest shares among EU countries (Aldaz-Carroll, Skrok, and Van Den Brink 2017). Some temporary employees have civil law contracts,¹² which are characterized by limited social protection.¹³ The

¹²The Polish Central Statistical Office (GUS) estimates that 1.3 million persons had signed civil law contracts in 2015, who did not have labor code employment contracts elsewhere and were not pensioners (GUS 2017).

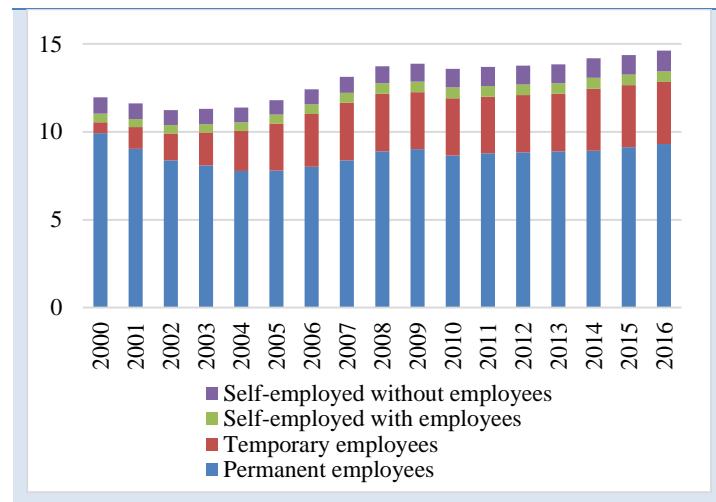
¹³Temporary employment in Poland encompasses both fixed-term labor code contracts (FTLCs) and civil law contracts (CCs). FTLCs provide benefits similar to those of indefinite-duration labor code contracts (IDLCs) except for different termination rules. In contrast, CCs—flexible forms of employment not regulated by the Labor Code—provide a narrow set of benefits, no protection against dismissal, and limited or no accrual of pension rights. There are two main forms of CCs: commission contracts (pol. umowa zlecenia), and contracts of result (pol.

number of own-account workers (self-employed without employees) outside agriculture was also on the rise (from 0.9 million in 2000 to 1.2 million in 2016). These forms of employment contributed to the flexibility of the labor market, which was especially important in the years of economic slowdown after 2008. However, they also gave rise to important inequalities among workers performing identical jobs. Although important steps have been taken to reduce the disparities in employment contracts, disparities persist in terms of the labor force participation of women, older workers, and those living in more remote areas.

41. In this context, bigger efforts will be needed to guard against social exclusion given disparities between regions and local communities.

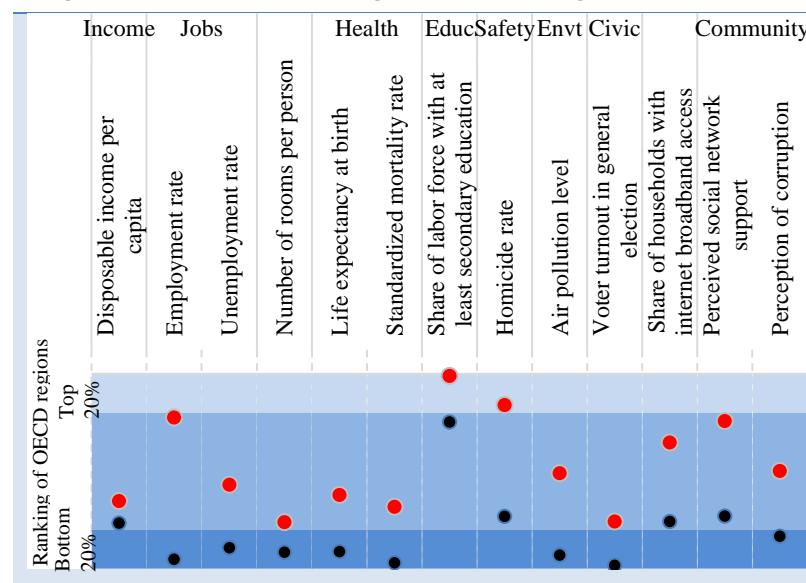
Although the difference between the richest and poorest regions in Poland is smaller in terms of income than in other OECD countries four of Poland's 16 regions, located in the eastern part of the country, have income levels below 50 percent of the EU average and remain among the 20 poorest regions of the EU (Aldaz-Carroll, Skrok, and Van Den Brink 2017). The poorest regions in Poland perform worse relative to the richest when it comes to employment opportunities, wages, and access to physical infrastructure compared with other OECD countries. Moreover, disparities within regions have also been increasing (typically with large cities faring relatively better) and now rank among

Figure 1.38. Nonagricultural Employment (Millions) in Poland, 2000–16



Source: World Bank, based on Eurostat data.

Figure 1.39. Measures of Regional Well-Being in Poland, 2016



Source: Aldaz-Carroll, Skrok, and Van Den Brink 2017, based on OECD Regional Database 2016.

Note: For each category, the ranking of the top- and worst-performing region in Poland is indicated by a red dot and a black dot, respectively.

umowa o dzieło). Although commission contracts, after recent reforms, provide for a statutory hourly minimum wage and obligatory social security contributions (up to the level of minimum wage), contracts of result remain fully flexible and do not provide any benefits (including health insurance).

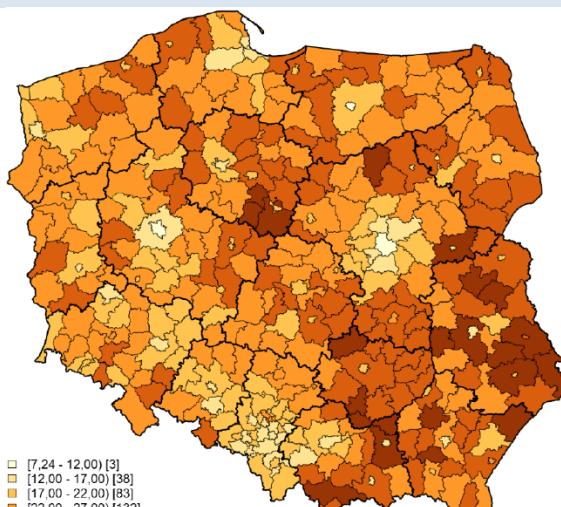
the highest in the EU. Although accelerating internal mobility could speed up poverty reduction, for rural municipalities (gminas), depopulation, including international migration, represents a key challenge to improving living standards. Broad measures of well-being at the regional level find that Poland's regions perform better than when just focusing on monetary measures such as GDP or income (Figure 1.39). However, there are large differences across regions in terms of employment opportunities, safety, and community.

42. In particular, rural families are among those most affected by poverty and in-work poverty.

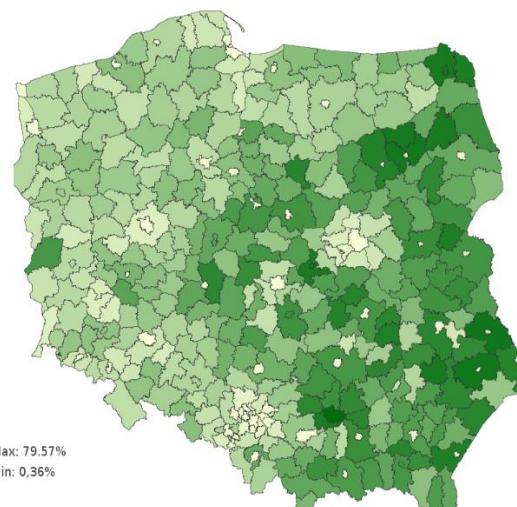
Poverty is concentrated in rural areas in regions characterized by a large share of agricultural workers (Map 1.3). The determinants of rural poverty and social exclusion are many, including aging, remoteness, education, household structure, and other factors. About 50 percent of the rural poor are connected with farming, and, in particular, are associated with small and inefficient agricultural operations. At the same time, Poland remains one of the countries with the highest share of work in agriculture relative to its GDP and one with the lowest rates of internal mobility. Ensuring shared prosperity will require loosening barriers to mobility and enhancing income-generating opportunities for rural households within and outside agriculture.

Map 1.3. Poverty and Agricultural Employment in Poland, by Poviats

a. Spatial variation in poverty rates by Poviats, 2011



b. Share of workers in agriculture, forestry, and fishing, 2013



Source: GUS 2015b. ©Central Statistical Office of Poland (GUS). Reproduced, with permission, from GUS; further permission required for reuse.

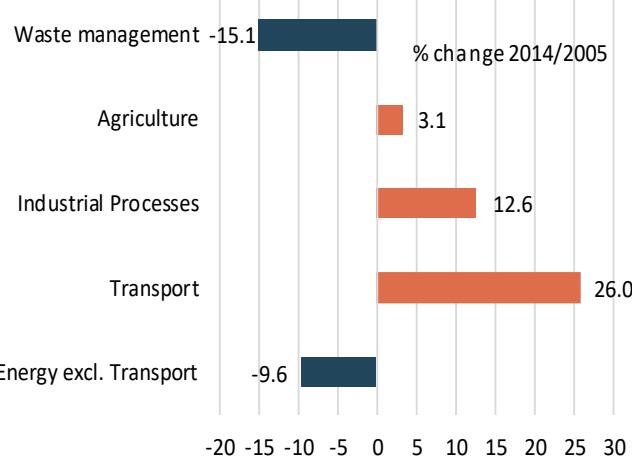
Source: ©Witold Kieńć, <http://kienc.pl/>. Reproduced, with permission, under Creative Commons Attribution 4.0. International license.

Note: Worker occupation concentration data from Central Statistical Office (GUS) Local Data Bank downloaded in September 2015.

Rising Pressure on Use of Natural Resources

43. Finally, economic growth and agglomeration will further challenge the sustainable management of natural resources, including water and air quality management. Most importantly, moving to lower GHG emissions across the economy in the context of the EU's climate action will require vigorous and coordinated action across sectors. Although the energy sector currently dominates Poland's emissions profile, emissions from transport have been growing at a high rate, while those from industry and agriculture at slightly slower rates. Transport and agriculture, while constituting about 15 percent of overall GHG emissions, are a major part of less-energy-intensive sectors that are supposed to cut emissions in 2030 relative to 2005 levels as part of the EU's plan for climate action through 2030 (Figure 1.40). Poland's share of renewable energy (about 10 percent of gross final energy consumption) (Figure 1.41) is also expected to contribute to EU-wide climate action. The combined effects of large energy and carbon efficiency gaps in Poland; huge investment requirements in energy, infrastructure, and housing; and poor air quality suggest there is substantial scope for climate-smart policy choices (World Bank 2011).
44. In addition, Poland needs to consider adaptation to a changing climate, making sensible investments today in infrastructure and key sectors such as agriculture that will need to endure more variable and extreme weather conditions and ensure sufficient water quantity in the decades to come (see Chapter 4). Although extraction levels of freshwater are relatively low, Poland's freshwater resources are under medium to high stress already today, and this situation is likely to worsen with a changing climate in the future.

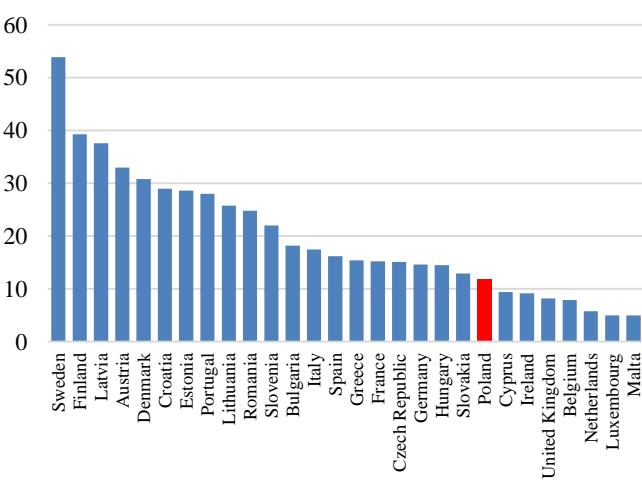
Figure 1.40. Percentage Change in GHG Emissions in Poland, by Key Sector, 2005–14



Source: World Bank, based on Eurostat data.

Note: GHG = greenhouse gas.

Figure 1.41. Renewable Energy as a Share of Gross Final Energy Consumption, EU-28 Countries, 2015



Source: World Bank, based on Eurostat data.

Conclusion

45. **The rest of the report describes how the challenges discussed above will affect each of the pillars of shared prosperity—growth, inclusion, and sustainability—with the aim of then prioritizing key areas for action.** What will it take to ensure continued economic growth that is inclusive and sustainable going forward? How can Poland adjust its labor markets and fiscal and social policies to meet the challenges of an aging population? How can it ensure continued increases in productivity while at the same time ensuring that all citizens are able to benefit from growth? How can it adjust its energy use to ensure environmental sustainability without impinging on growth and sustainability? As discussed in the next three chapters, the set of priorities to meet these challenges include (a) boosting Poland’s productivity through an innovation-led growth strategy, (b) investing in people and their mobility, and (c) ensuring the fiscal, environmental, and social sustainability of policies.
46. **Managing the transition toward innovation-led, inclusive, and sustainable growth will require a more strategic, effective, and accountable state and a renewed social consensus.** Policies are effective if they can sustain consensus over time, generate common expectations among actors, and foster compliance. This requires commitment to consistent and predictable policies, coordinated efforts from the different state and nonstate actors in the economy, and cooperation toward a common goal in the society. During the recent decades, the process of EU accession and then EU membership provided a clear coordination device that helped the country’s fast development. Today, a new consensus and coordination effort is needed. Strong commitment to competition, labor market flexibility, and sound macro policies will be critical to establish an innovation-led growth strategy. Coordinated efforts and strategic government interventions will be needed to reduce the existing skills divide, promote higher education, and undertake research and development that leads to innovations. Similarly, coordinated efforts will be required to provide better health service delivery and adopt cleaner energy sources. In each area, ensuring society’s trust and cooperation will be critical to the successful implementation of policies.

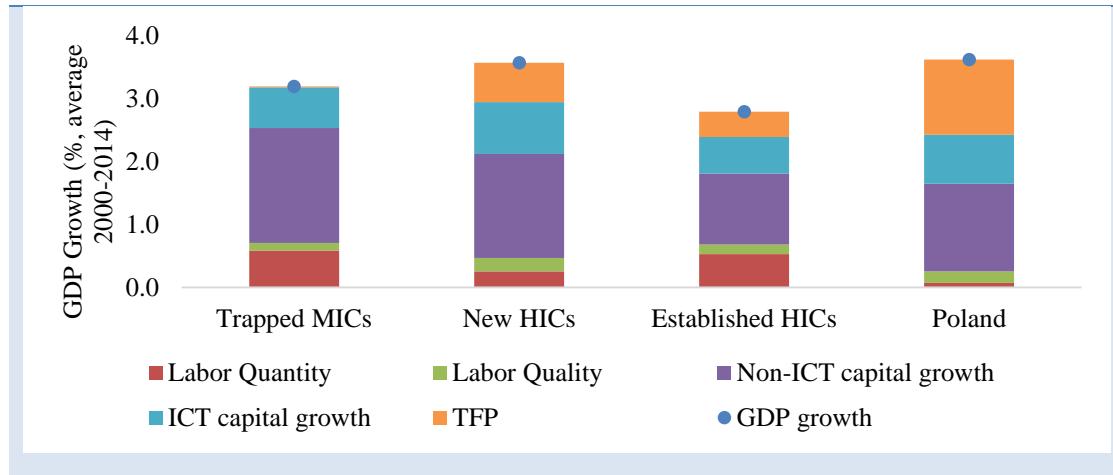
Chapter 2: Boosting Poland's Growth Potential

Poland can realize its potential for growth driven by innovation by keeping its product markets competitive; making labor markets flexible; orienting its tertiary education toward research; and creating an environment for a more risk-friendly, equity-based finance. The state needs to play a more strategic role, beyond its service delivery and regulatory function, by making sound public investment and research and development (R&D) policy decisions as well as by using European Union (EU) funding more efficiently. Countercyclical monetary and fiscal policy and managing public finances effectively remain prerequisites for growth.

Introduction

47. **Two and a half decades of fast and stable growth, grounded in robust productivity gains, drove incomes in Poland to converge toward the EU average.** In 2016, Poland produced 2.5 times more goods and services than it did in 1990. In real terms, this expansion implied an average growth rate of 3.6 percent per annum over two and half decades. Growth was grounded in efficiency gains (measured by the contribution to growth because of total factor productivity [TFP]) and accompanied by the setting up and strengthening of pro-competitive institutions and upgrading of human capital. From 2000–14, TFP gains explained a third of gross domestic product (GDP) growth, corresponding to about 1.2 percentage points' contribution to growth (Figure 2.1). This is high relative to regional peers and was a key driver in Poland's real convergence toward EU average income.

Figure 2.1. Contributors to GDP Growth in Poland, 2000–14



Source: Aldaz-Carroll, Skrok, and Van Den Brink 2017.

Note: MICs = middle-income countries. HICs = high-income countries. ICT = information and communication technology. TFP = total factor productivity. "Trapped MICs" refers to countries that have remained in the upper-middle-income range for decades. "New HICs" refers to countries that have ascended to high-income status since 2000. "Established HICs" refers to countries that have been high-income for a considerable period.

48. In addition to TFP, accumulation of capital was also significant in explaining growth in Poland during 2000–14, while the contribution of labor was relatively small. Information and communication technology (ICT) and non-ICT capital accumulation accounted for 21 percent and 38 percent of growth, respectively. The strong gains in capital accumulation and TFP are likely linked, as growth in the latter raised the quality of and returns to investments. Improvements in labor quality accounted for 5 percent of growth and increased labor quantities for 2 percent. The huge improvement in the composition of employees by educational attainment explained changes in TFP growth in the past (Gradzewicz et al. 2014). Labor quality improvements were likely driven by an education boom that started in the mid-1990s. Although, in the early 1990s, only 10 percent of young Poles continued education at the university level, 25 years later, about 50 percent are doing so (Aldaz-Carroll, Skrok, and Van Den Brink 2017).

49. Structural reallocation of production factors drove productivity advances in the past.

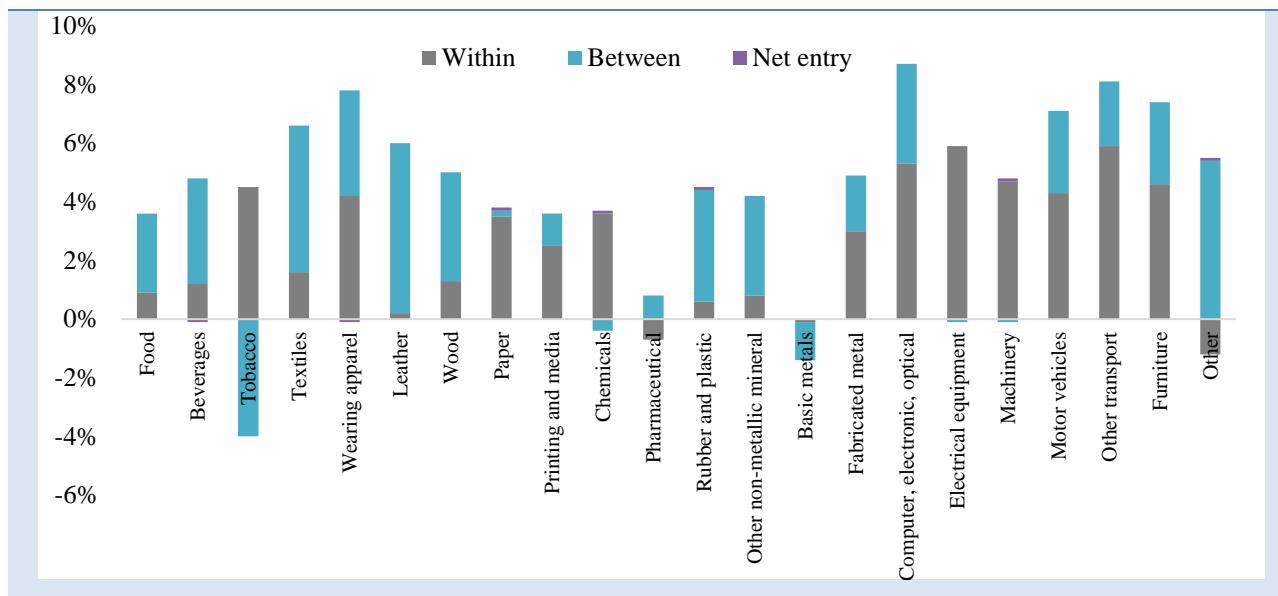
Productivity growth in Poland was driven by three simultaneous processes in the recent decade: structural transformation, within-sector reallocation, and within-firm improvements. Focusing on sectoral and firm dynamics, recent analysis has shown the following (Aldaz-Carroll, Skrok, and Van Den Brink 2017):

- The structural transformation process in Poland was efficiency-enhancing, as resources moved from relatively lower-productivity sectors to higher-productivity sectors.
- Within sectors, resources were reallocated away from low- to high-productivity firms.
- Within firms, substantial efficiency gains were achieved as firms expanded, reorganized, and upgraded human resources (HR) management and marketing strategies.

50. More recently, structural reallocation has been diminishing, while within-sector productivity gains have been rising as more-productive firms gain market share. Appendix B shows that the role of structural transformation declined after 2009, while within-sector productivity gains have been rising.¹⁴ In terms of increases in productivity within firms, detailed analysis of manufacturing firms finds that productivity growth in 2005–13 is attributed mainly to market-share gains among more-productive firms and to within-firm productivity gains rather than to firm entry and exit (Figure 2.2). For instance, the largest increase in productivity experienced by the computer and electronic sector was due to both an increase in firm productivity (60 percent) and a market reallocation toward the most-productive firms (40 percent). The TFP increase in *leather* and the decrease in *basic metals* are extreme examples of sectors changing their TFP entirely by gaining or losing market shares, respectively. On the other extreme, TFP gains in the *paper*, *electrical equipment*, or *machinery* sectors were largely explained by existing firms' increases in productivity.

¹⁴ Because labor productivity analysis does not separate the capital contribution from the labor contribution, the labor productivity gains can be also attributed to some extent to capital accumulation. It is worthwhile to add, however, that such sectoral analysis does not capture the productivity improvements resulting from the reallocation of labor between firms in the same sector.

Figure 2.2. Decomposition of TFP Growth in Manufacturing in Poland, by Sector, 2006–13



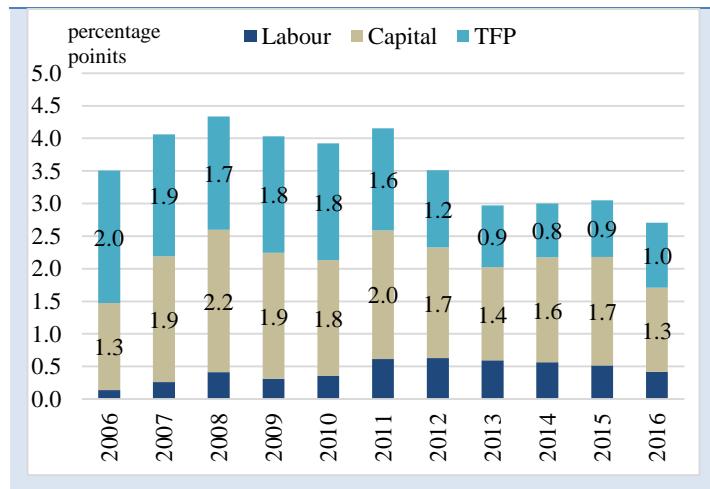
Source: Albinowski et al. 2015, based on firm data collected in Form F01 from the Central Statistical Office (GUS).

Note: TFP = total factor productivity.

51. Despite productivity gains in the past, recent estimates of Poland's potential output and its drivers suggest a diminishing role for productivity. Although Poland's potential growth was estimated at about 4 percent or above in the second half of the 2000s, it fell (because of the global and European financial crisis) to around 3 percent in the first half of the 2010s and to 2.7 percent in 2016 owing to a significantly smaller contribution from capital accumulation (EC 2017a). The contribution of TFP to potential GDP growth declined from 1.6 percentage points to around 1 percentage point between 2012 and 2016, in line with weakening capital contribution (Figure 2.3). Further productivity advances will be more difficult to achieve as Poland's income levels converge with that of advanced economies.

52. Similarly, the contribution of capital to Poland's potential growth has also diminished over time. The contribution of capital to potential growth has declined from 2 percentage points in 2011 to 1.7 percentage points in 2015 and—possibly temporarily—1.3 percentage points in 2016 (Figure 2.4), signaling the need for further efforts to increase investment. Declines in private investment following the financial crisis were largely offset by record-high public investment, benefiting from

Figure 2.3. Estimated Potential GDP growth and Its Decomposition in Poland, 2006–16



Source: EC 2017a.

abundant EU funds (Figure 2.5). Perhaps because of increased uncertainty associated with both external trends and domestic policies, Poland experienced a relatively low contribution from investment to GDP growth in the aftermath of the crisis (2011–16) despite record-low interest rates and high capacity utilization. However, this contribution has been relatively stable (Bank Pekao 2017). Given that the investment rate reached 20.3 percent on average in 2005–16 (and 18.1 percent in 2016), the official 25 percent investment target by 2030 appears ambitious.

Figure 2.4. Investment Rate in Poland, by Sector, 2005–15

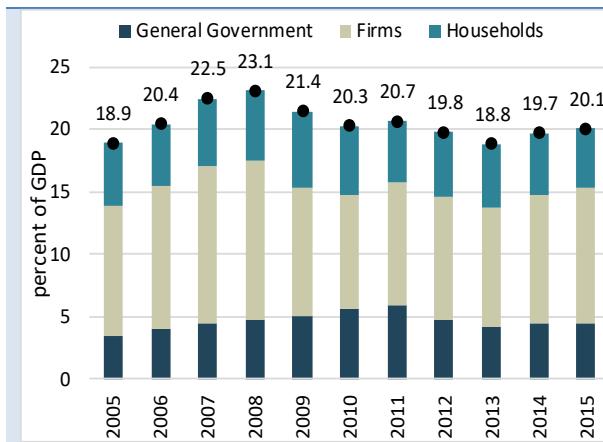
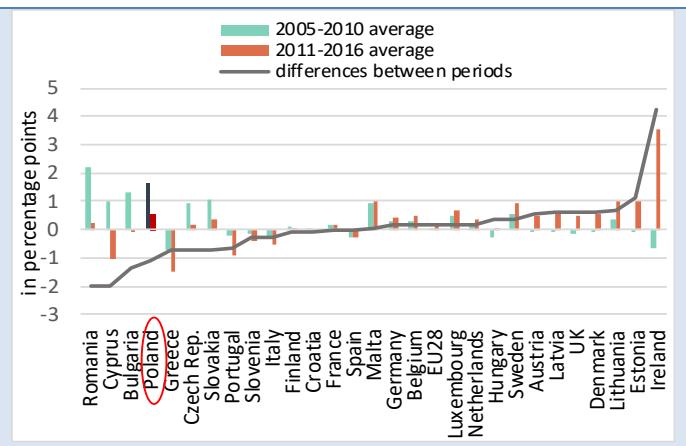


Figure 2.5. Contribution of Investments as a Share of GDP Growth, EU-28 Countries, 2005–10 vs. 2011–16



Source: World Bank, based on Eurostat data.

53. **In this context, further increases in productivity will require a transition to an innovation-led growth model.** Although Poland can continue to make advances across and within sectors, as it converges with high-income country standards, productivity gains based on “catching up” to advanced economies will be exhausted. Moreover, given the demographic challenges it faces, Poland will need to ensure that each worker is as productive as possible. An innovation-led growth model would allow for continued increases in productivity and would allow the country to face the demographic challenge head on. However, the transition to an innovation-led model will not be automatic. The next five years provide a crucial window of opportunity to prepare for this transition while still enjoying the benefit of ample EU support and robust growth.

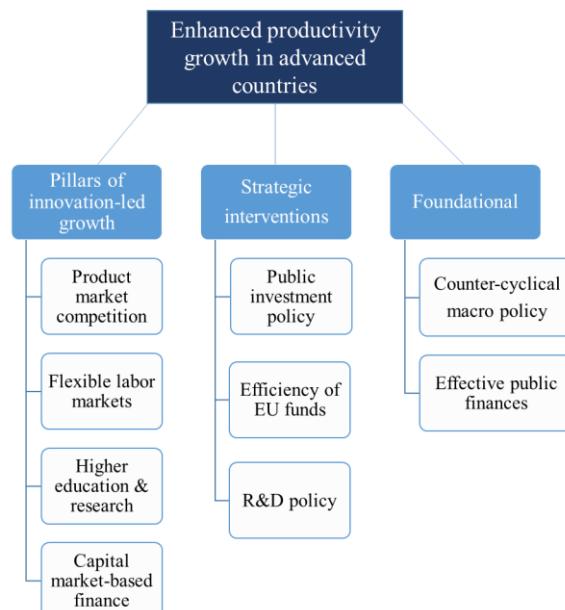
Characterizing an Innovation-Led Growth Model

54. **Innovation-led growth differs substantially from imitation-led growth and will be challenging for Poland.** The main features of the imitation-led model include (a) technology transfers and imitation (Keller 2004), (b) a reallocation of factors toward more-efficient sectors and firms (Hsieh and Klenow 2009), and (c) improvement of management practices (Bloom and Van Reenen 2010). Poland has made productivity improvements based on each of these factors, as discussed above. However, product and labor market flexibility is a sine qua non for an innovation-growth model, while it mattered less for an imitation-led model (Acemoglu, Aghion, and Zilibotti 2006). While bank finance fulfills the needs of imitative firms, equity financing and venture capital are more adequate for innovative firms (Koch 2014). Similarly, although good general education is adequate

for an economy catching up to the technology frontier, tertiary education and high-quality research are required for growth based on frontier innovations (Aghion, Askenazy, et al. 2009).

55. **Following a Schumpeterian endogenous growth model, long-run productivity growth relies on process, product, or organizational innovations** (Aghion and Howitt 1992, 1998) result from investments in R&D, skills, and search for new markets. Under this paradigm, faster growth generally implies a higher rate of firm turnover, because the process of creative destruction generates entry of new innovators and exit of former innovators. Innovations generate positive spillovers, which firms do not internalize fully so they underinvest in R&D. Such a situation justifies a role for the state to (co-) invest public funds in infrastructure or other innovation-enhancing projects and to design R&D policies in a manner allowing for higher overall R&D and achieving an adequate proportion of basic and applied research.
56. **An innovation-led growth model will require a new set of policies and institutions.** Inspired by a Schumpeterian perspective, Aghion and Akcigit (2015) identified the following four pillars of innovation-led growth in advanced countries: product market competition, labor market flexibility, higher education and research, and capital market-based finance. To reconcile the need to invest in the main levers of innovation-led growth with the need to maintain budget discipline, governments must become more strategic. They need to depart from policies that foster growth through indiscriminate public spending and become more selective as to where public funds should be spent. With this in mind, the state could be more strategic in terms of its public investment policy, R&D policy, and efficiency of EU funds. Finally, the key foundations for innovation-based growth include countercyclical fiscal and monetary policy and effective public finances. Each element of the framework is illustrated in Figure 2.6.

Figure 2.6. Framework for Productivity Growth in Advanced Countries



Source: Elaboration based on Aghion and Akcigit 2015.

Note: EU = European Union. R&D = research and development.

57. **A renewed consensus will be needed to strategically align policies toward an innovation-enhancing growth model to ensure continued improvements in productivity.** Thanks to almost three decades of uninterrupted economic growth, supported by a road map to and membership in the European Union in 2004, Poland has undergone deep, broad-based structural reforms. However, when measured against where Poland needs to position itself to ensure continued improvements in productivity, it is clear that there is much more to be done. The main thread throughout the forthcoming analysis is that transforming the economy toward an innovation-led growth model will require clear consistency of policies, enhanced coordination, and a strategic vision that allows for cooperation between public and private sectors. For this to take place, a renewed social consensus will likely be needed to strategically align policies, adapt existing institutions, and enable the transition to an innovation-based growth model. As discussed in more detail in Chapter 4, broader improvements in governance will be required to make this transition feasible (World Bank 2017b).
58. **The remainder of this chapter provides evidence on where Poland stands today with respect to the framework above and proposes policy measures to bridge the existing gaps to an innovation-led model.** The next section discusses Poland's performance in terms of the four pillars for innovation-led growth. This is followed by a section on the strategic interventions that can enhance innovation based on the Schumpeterian growth model. The last section discusses Poland's performance with respect to the foundational requirements of sound macroeconomic policy and effective public finances. The final section summarizes the priorities for innovation-based growth in Poland.

Pillars of Innovation-Led Growth

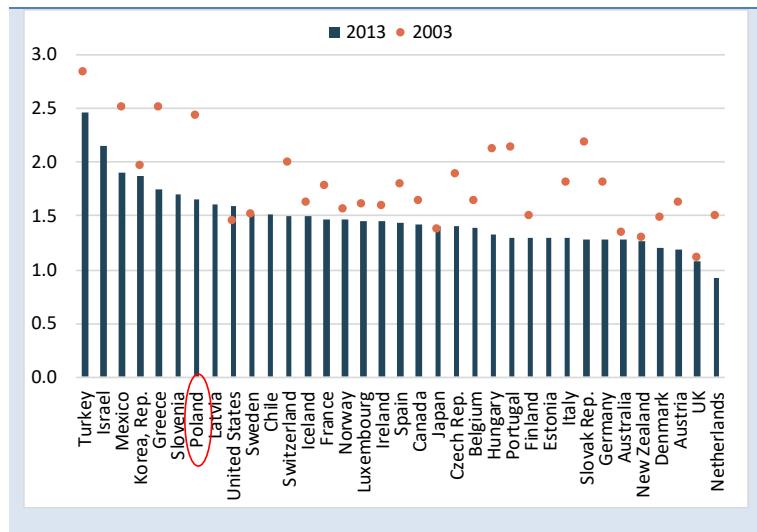
59. **In the innovation-led growth model, product market flexibility goes hand in hand with flexible labor markets, high-quality higher education and R&D, and a market-based financial system.** Aghion, Blundell, et al. (2009) show that competition and more flexible labor markets facilitate the process of creative destruction and foster productivity growth. This process is supported by better schools and universities and market-based based or equity financing. Poland's achievements in establishing each of these pillars is presented below.

Product Market Competition

60. **Competition is the first and foremost element of an innovation-led growth framework.** Competition here refers to a broad-based set of policies regulating product market competition, and is reflected well by economywide product market regulation (PMR). This is a comprehensive and internationally comparable set of indicators that measure the degree to which policies promote or inhibit competition in areas of the product market where competition is viable. (For further details, see Koske et al. [2015].) The PMR can be decomposed into three broad subcategories—state control, barriers to entrepreneurship, and barriers to trade and investment—that inhibit competition in a country.

61. Poland undertook steady reforms of its product markets over the past decade, but its ranking relative to other Organization for Economic Co-operation and Development (OECD) countries remains broadly unchanged. With EU integration, virtually all restrictions on foreign trade and investment were removed, and in the year of its accession, Poland repealed more than 600 licenses and permits, limiting domestic barriers to entrepreneurship. Poland also reduced public ownership of assets to fewer than 1,000 entities in 2015 and gradually liberalized its network industries: energy, transport, and communication. This positive trend is reflected in the significant improvement of the economywide PMR index between 2003 and 2013 (Figure 2.7). Nonetheless—given that almost all OECD countries improved their performance during this period—Poland’s low ranking relative to other countries in this group has remained broadly unchanged.

Figure 2.7. Economywide PMR Indicator in OECD Countries, 2003 and 2013



Source: World Bank, based on OECD 2013 PMR dataset, <http://www.oecd.org/eco/growth/indicatorsofproductmarketregulationhomepage.htm>.

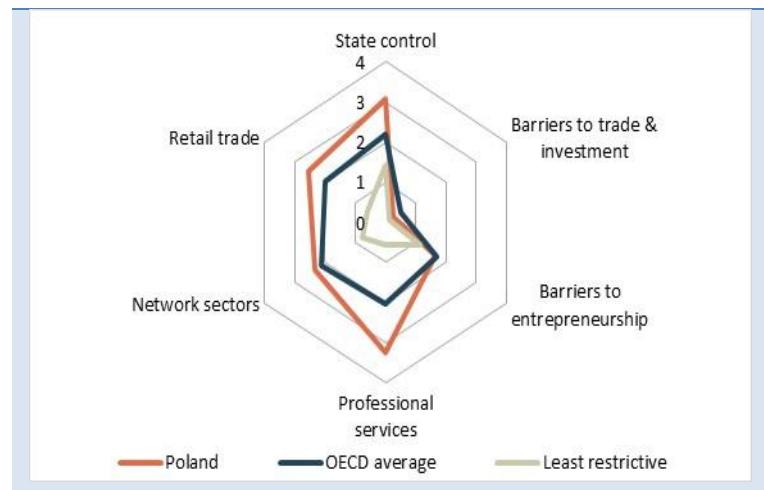
Note: PMR = product market regulation. OECD = Organisation for Economic Co-operation and Development. The indicators vary from 0 (no restrictions to competition) to 5 (highly restricted).

62. Product market regulations largely determine the speed and efficiency of firm turnover because they govern entry and exit market rules for incumbent and new firms, including foreign ones. High entry barriers become increasingly more detrimental to growth as the country approaches the frontier (Acemoglu, Aghion, and Zilibotti 2006). The same applies to increasing the rule of law: average firm size increases where the rule of law is stronger because it enables creative destruction and smoother reallocation among firms within economies (Aghion and Akcigit 2015). A stronger rule of law calls for regulations and policies supporting structural change and level-playing-field competition on the product markets. Openness to foreign trade—including building tighter links within the global value chains or improving physical infrastructure—also contribute to reallocation of production factors across sectors and countries, within sectors, and finally across firms and within firms. To better understand the barriers to competition in Poland, the main components of PMR are discussed below state control, barriers to trade and investment, and barriers to entrepreneurship. Overcoming the barriers to competition will require commitment to competition and consistency of policies.

State Control

63. Product markets in Poland retain some anticompetitive features such as state control and restrictions in professional services and retail trade. The 2013 PMR indicators are the latest available and show a higher degree of state control and more restrictive regulation of professional services and retail trade in Poland than in other OECD countries (Figure 2.8). However, recent improvements were made as Poland undertook serious reforms since 2013: the government reduced restrictions in professional services for 250 professions and canceled them for 71 professions. The reforms concerned professions accounting for 6 percent of the labor force (about 1 million people). The range of professions affected varied from low-skill, popular jobs (such as taxi drivers) to high-skill, niche employment (such as actuaries). Also, the liberalization of the gas sector is under way though gas prices are regulated. However, a monopolistic market structure exists in the public ownership of airlines and gas production, importation, transmission, distribution, and supply. In retail trade, the restrictions include registration and licensing requirements; special regulations of large outlets; protection of existing firms (including local or national legal monopolies); regulations of shop opening hours; price controls of selected products (for example, gasoline, tobacco, and pharmaceuticals); and rules for promotions and discounts. In this context, a Sunday trading ban has been under consideration in parliament for a long time and was endorsed by the government in 2017.

Figure 2.8. Constraints to Competition in Poland and Other OECD Countries



Source: World Bank, based on OECD 2013 PMR dataset, <http://www.oecd.org/eco/growth/indicatorsofproductmarketregulationhomepage.htm>.

Note: The indicators vary from 0 (no restrictions to competition) to 5 (highly restricted).

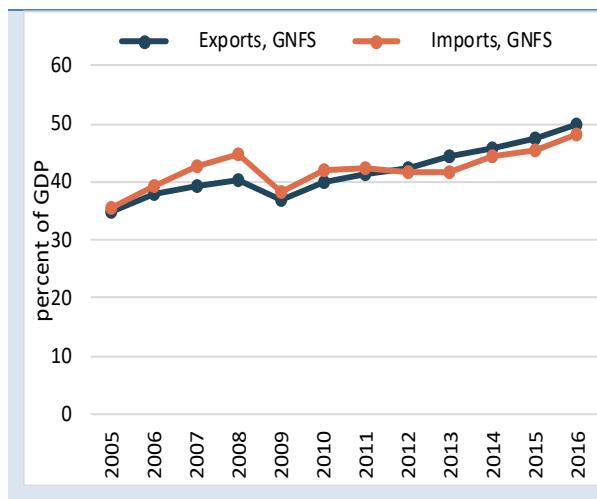
- 64. The single most important unresolved challenge weighing on product markets concerns the state-owned enterprises (SOEs).** Although the number of SOEs has shrunk, they still represent an important share of the economy. The State Treasury owns stakes in half of the largest 20 companies in the stock market, and SOEs account for almost half of all revenues of the biggest enterprises in Poland, compared with around 10–20 percent in the Czech Republic, Hungary, and Slovakia. The largest SOEs are considered “strategic assets,” and their privatization is constrained by law. An effective corporate governance framework in SOEs is still pending while some SOEs can generate fiscal risks. The continued strong role of the state remains a challenge that cuts across several sectors and constrains a greater role for the private sector in the economy.
- 65. Similar to SOEs in other countries in the region, most of Poland’s SOEs are in energy and include a gas monopolist, a mining conglomerate, and electricity producers and distributors.** But unlike the other three Visegrád Group states (the Czech Republic, Hungary, and Slovakia), the mix of SOEs in Poland also includes companies in the financial sector. The state bought back shares

in the second largest bank, Bank Pekao, and holds on to shares in insurance giant PZU as well as PKO BP, the biggest bank in the country. The state has also a track record of decisions infringing on minority investor rights—for example, reducing dividend payments that would benefit all shareholders and generating tax income by increasing the capital of listed firms.

Barriers to Trade and Investment

66. **Over the past decade, Poland has opened up its economy.** Its trade account—merchandise and services—has expanded faster than the rest of the economy, raising the trade-to-GDP ratio from about 70 percent of GDP in 2005 to about 100 percent of GDP in 2016 (Figure 2.9). Over the past decade, Poland has systematically gained a bigger market share, in contrast to the shrinking market share of the euro area, albeit from a very low base (Figure 2.10). Also, Poland increased the number of destination markets and products exported—thus reducing its vulnerability to external shocks—and improved the quality of its exports to a level on a par with its high-income peers in terms of country reach and product scope. This successful export diversification is now responsible for more than one-third of export growth, up from a sixth of export growth in mid-2000s.

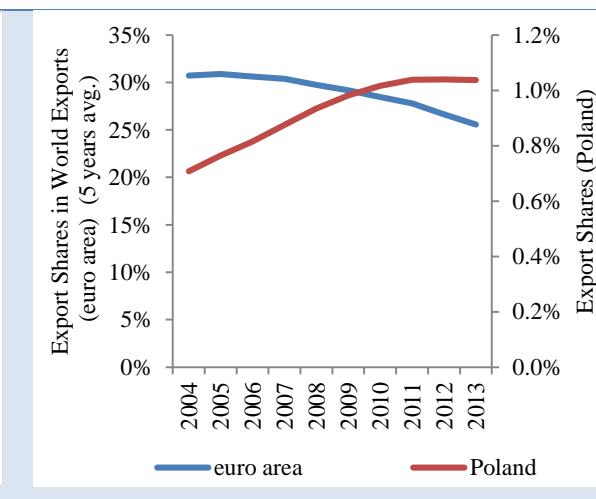
Figure 2.9. Exports and Imports as a Share of GDP in Poland, 2005–16



Source: World Bank, based on Eurostat data.

Note: GNFS = goods and nonfactor services.

Figure 2.10. Exports as a Share of World Exports, Poland and Euro Area, 2004–13



Source: Aldaz-Carroll, Skrok, and Van Den Brink 2017.

67. **The country has also achieved a greater quality of exports and substantial diversification.**

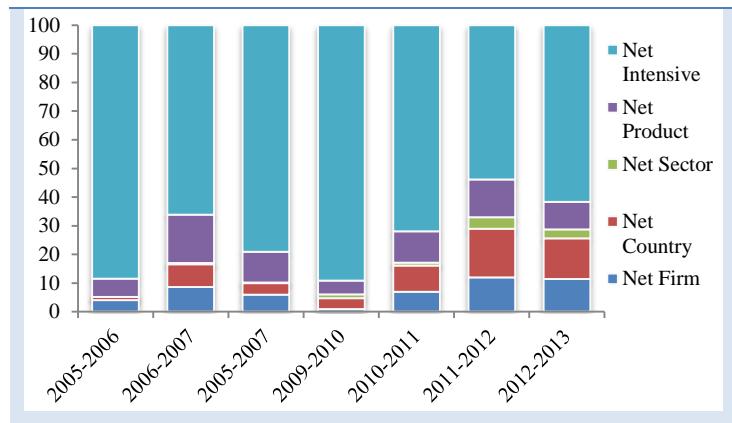
Within narrowly defined product varieties, Polish firms manage to fetch higher prices in international markets, which attests to higher export quality (World Bank 2016). Competition on international markets drives quality and productivity improvements as firms deal better with the fixed costs associated with searching for clients abroad, learn the tastes of new customers, and comply with quality or safety standards abroad. This is evidence of learning-by-exporting, whereby exporting improves technical efficiency (Atkin, Khandelwal, and Osman 2014). As for diversification, in the early 2010s Poland's exports spanned more than 3,700 products and reached more than 200 markets, with the machinery sector reaching the highest number of destinations. This placed Poland's diversification performance on a par with Spain's. In addition, competitiveness is not restricted to a handful of products or sectors. Diversification is important for export growth and

for resilience: it helps firms remain in the export market longer because it facilitates the process of reorienting exports following a demand shock (Albinowski et al. 2015).

- 68. The existing trade links with Germany were fundamental to helping Poland integrate into global value chains.** Polish exporters gained market shares in all of the top 10 destinations over the past decade. Exports also achieved substantial market and product diversification. Poland increased the number of destination markets and products exported, making it now on a par with its high-income peers in terms of country reach and product scope. Such dual diversification reduced the country's vulnerability to product- and country-specific shocks and in 2012–13 was responsible for more than one-third of export growth, up from one-sixth in 2005–07 (Figure 2.11). Trade integration benefited small as well as large firms, with the number of exporting Polish firms increasing from about 32,000 in 2005 to 44,000 in 2013. An examination of Poland's export sophistication also suggests a steady increase in quality and sophistication (Aldaz-Carroll, Skrok, and Van Den Brink 2017).

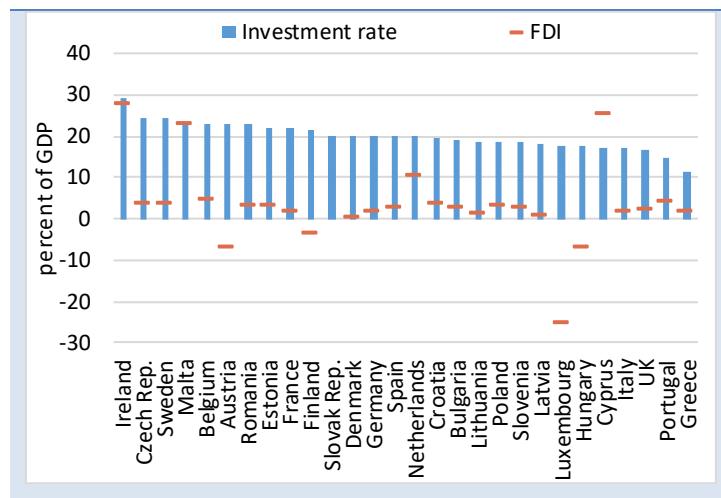
- 69. Foreign direct investment (FDI) was the main channel through which Poland has benefited from global technological progress, although some recent policies could be seen as discouraging FDI.** In the recent decade, FDI inflows constituted around one-fifth of the total investment rate (Figure 2.12 shows 2016 data) and enabled the transfer of technology. Moreover, FDI accounted for 5–30 percent of the TFP gains observed in 2005–13 in most sectors (World Bank 2016). Foreign sourcing promoted *vertical spillovers* (for example, either through foreign buyers or lead firms subcontracting domestic firms and transferring knowledge or know-how, or by supplying more varied or better-quality inputs for the processing in Poland) as well as *horizontal spillovers* (for example, through increased competition and circulation of workers trained in foreign companies). However, some decisions of the current government—for example, introduction of new taxes in sectors with high

Figure 2.11. Contribution to Export Growth in Poland, by Factor, 2005/06–2012/13 (%)



Source: Aldaz-Carroll, Skrok, and Van Den Brink 2017.

Figure 2.12. Investment Rate and FDI Inflow in EU Countries, as a Share of GDP, 2016



Source: World Bank, based on Eurostat data.

Note: FDI = foreign direct investment. Luxembourg, an outlier, was omitted from the sample.

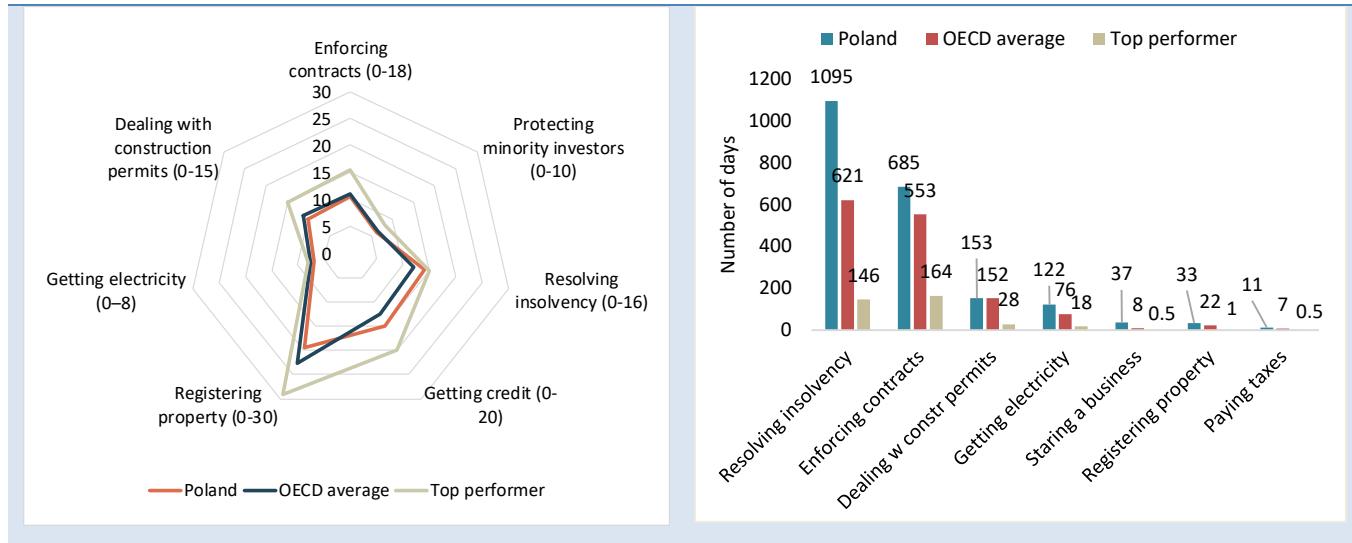
concentrations of foreign assets, such as the financial or retail trade sectors—could suggest more testing conditions for FDI than in the past.

70. **Openness to trade and FDI will continue to offer Poland the chance to move to higher-value-added tasks.** Poland has greatly benefited from absorbing technology from more-advanced economies through trade, FDI spillovers, and technology transfers. However, so far, Poland attracted investors mainly because of low labor costs. For example, Poland has become the third-biggest center for outsourcing in the world (after China and India), with over 650 business service centers employing over 150,000 accountants. Similarly, banks operating in Poland are offering online accounting services. Going forward, more gains can be reaped both from the adoption and diffusion of existing innovations among firms as well as from frontier innovations. Moving to a higher-value-added growth model that focuses on innovations as opposed to low labor cost as the driver of competitiveness will continue to rely on a competitive environment bolstered by openness to trade and FDI.

Barriers to Entrepreneurship

71. **In 2016, Poland ranked 24th among 190 economies in the ease of doing business, higher than the EU average, having achieved more progress since 2007 in the World Bank's annual *Doing Business* index than all other high-income countries.** Poland owes this success to systematic, continuous improvements in all stages of a firm's life cycle and in every year since 2007: Poland made all transactions easier, faster, and cheaper. However, Poland's *Doing Business* performance is uneven, with half of all indicators below the averages for OECD high-income countries (World Bank 2017a). Poland scores well on measures of regulatory quality; in terms of the laws and procedures on the books (Figure 2.13), it is close to the global regulatory frontier on at least three out of the seven dimensions of regulatory quality covered by *Doing Business* (resolving insolvency [in spite of a lengthy procedure], protecting minority investors, getting electricity). Poland has also made great strides to reduce the complexity of its regulations (Figure 2.14). As a result, it takes the same number (or fewer) procedures to start a business, get electricity, pay taxes, and deal with construction permits in Warsaw than in an average OECD capital. Property registration is the only transaction that remains more cumbersome than in comparator countries. Moreover, Poland needs to reduce delays encountered by firms. In particular, the performance of the courts remains the Achilles' heel of Poland's regulatory environment (Figure 2.15). Good contract enforcement is important for investment and will become more relevant for Poland as its firms become more sophisticated in international production networks.

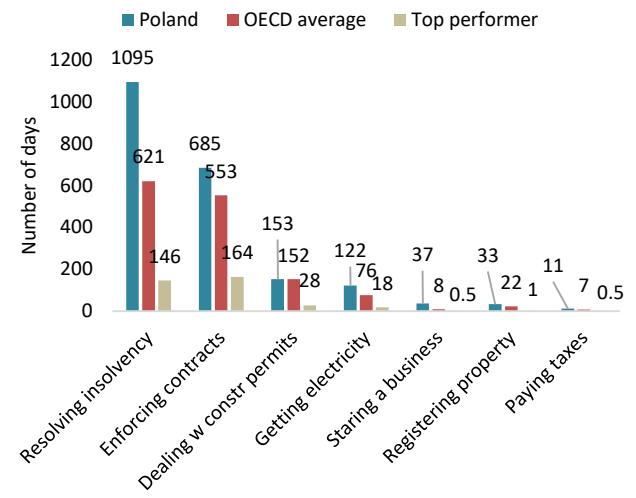
Figure 2.13. Regulatory Quality Performance in Poland vs. OECD Average and Top-Performing Country, 2016



Source: World Bank, based on World Bank 2017a.

Note: Numbers indicate the regulatory quality score (ranges of individual scores are given in parentheses).

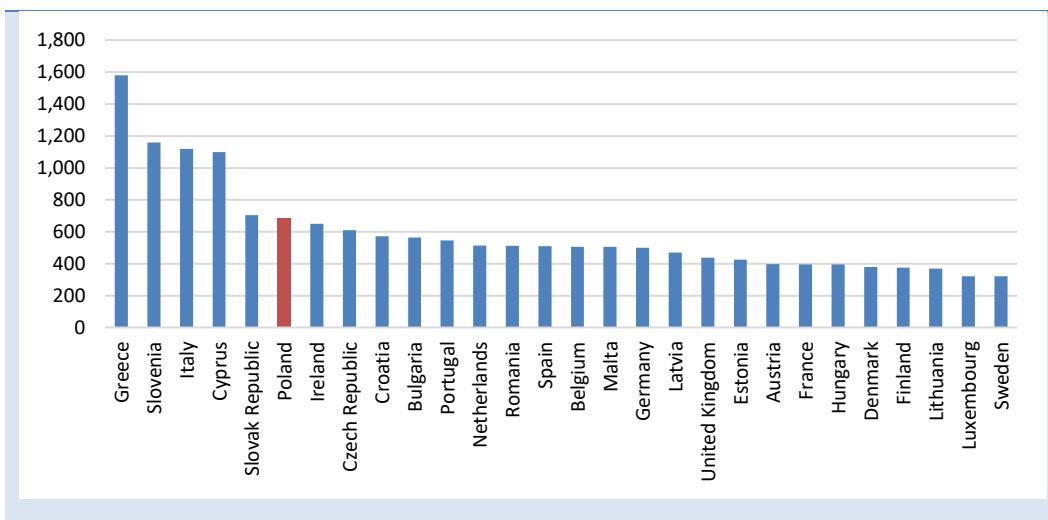
Figure 2.14. Regulatory Efficiency in Poland vs. OECD Average and Top-Performing Country, 2016



Source: World Bank, based on World Bank 2017a.

Note: “Regulatory efficiency” refers to the number of days needed to complete the designated transactions.

Figure 2.15. Days Needed to Enforce Contracts in EU Countries, 2016

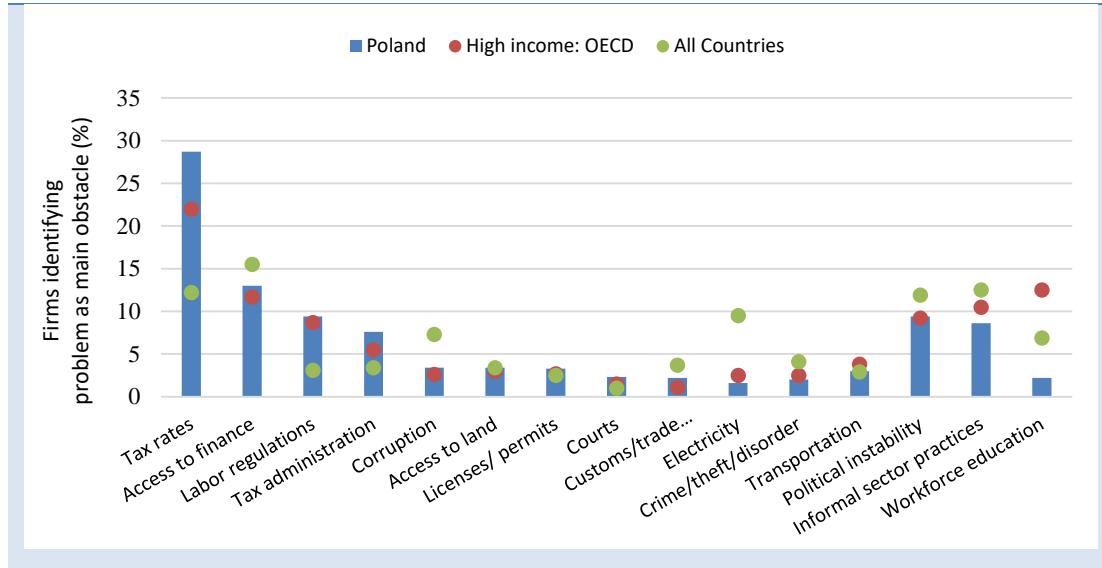


Source: World Bank, based on World Bank 2017a.

72. However, Poland’s business environment is more mixed if benchmarked to other countries based on data on the ease of business transactions, competition, or regulatory policy. According to firms, Poland’s business environment differentiates itself from that of other OECD countries with high tax rates, burdensome tax administration, and onerous regulations (Figure 2.16). In addition, access to finance, labor regulations, and political instability were important considerations for about

every 10th firm in Poland and other OECD countries. On the other hand, the education of the workforce was not seen among the major obstacles to the business environment.

Figure 2.16. Firms' View of Major Obstacles to Business in Poland, OECD Countries, and Global Averages, 2013



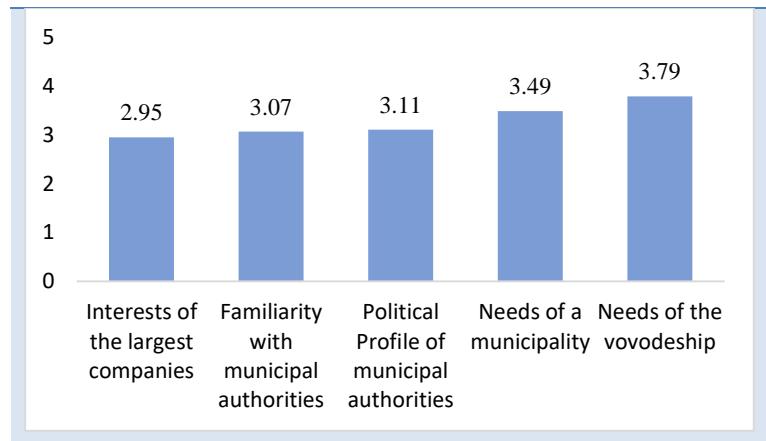
Source: World Bank, based on enterprise surveys of the World Bank and European Bank for Reconstruction and Development (EBRD).

73. Late payments, slow administration proceedings, excessive reporting requirements, and frequent changes in regulations also surface in surveys of Polish businesses. In 2016, 82 percent of small and medium enterprises (SMEs) identified late payments as an important obstacle to business (Millward Brown 2016). Three in five firms indicated that late payments are common, suggesting a coordination failure. Credit bureau representatives frequently describe late payments as “contagious,” citing that about 70 percent of payers in arrears attribute their behavior to not receiving payments on time themselves. Business associations frequently indicate the complexity of tax regulations, excessive reporting requirements, frequent changes to regulations, delays in administrative proceedings (for example, dealing with construction permits), and other red tape as major obstacles. To some extent, this might be linked to limitations of perceptions-based measurement of business environment.

74. Moreover, redundant regulations and enforcement place burdens on firms that are not tracked in international comparisons. For instance, firms in Poland are required to keep for 50 years records related to employment (such as payrolls, work contracts, and so on). In Germany firms keep such records generally for 6–10 years, in the United Kingdom for 6 years, and in the United States for 3–4 years. Apart from redundant provisions in the country’s regulations, Polish businesses also face challenges linked to regulatory enforcement. Poland has over 20 institutions that regularly inspect businesses. Inspections in Poland have overlapping mandates, inspect businesses frequently, rely on sanctions and fines in lieu of guidance, and enforce redundant requirements. Most of these institutions have local structures at voivodeship or county (powiat) level that add to overlap and duplication. Also, SMEs are overburdened with both tax and financial reporting, which increases the cost of doing business.

75. **In addition, discrepancies between laws on the books and the performance of laws in practice limit the effectiveness of institutions in preventing coordination failures.** For instance, although business legislation often follows best practice, Poland does not have an efficient judiciary system that can implement insolvency rulings, enforce contracts promptly, protect property rights, and register business partnerships (registration of limited liability companies is the remit of courts in Poland). Spatial plans, an important tool to coordinate investments and generate spillovers through clustering, are mandatory but only cover less than half of Poland's urban areas. In addition, the significant presence of SOEs in some sectors affects how the rules of the game are enforced, consequently disadvantaging minority investors, distracting from investments, and making it harder to create a level playing field for all businesses.
76. **Further, more attention needs to be given to safeguarding advances by insulating the regulatory process from capture by interest groups.** Ensuring transparency, adequate public consultations, and ex ante impact analysis are ways to prevent undue influence (World Bank 2017b). Poland has put in place central databases listing regulatory plans, while draft and final regulations have been set up by the national government. However, the extent, length, and depth of public consultations are insufficient. Poland has one of the shortest comment periods for regulatory proposals of all OECD countries, and the length of public consultations compares unfavorably with many middle-income countries outside the OECD (for example, Brazil and Romania). Public hearings in parliament are rare, as parliament usually decides upon laws quickly, which limits the ability of stakeholders to inform and participate in lawmaking. Finally, regulatory impact assessments should be used in parliament and not be limited to the executive branch.
77. **Indeed, some economic actors might have undue influence in the decision process, undermining the efficiency of resulting policies.** According to a recent publication (Hasan et al. 2014), politically connected businesses have better access to credit (while, as mentioned above, access to finance is a major constraint for Polish firms). Also, the allocation of EU funds seems to be substantially influenced by the largest companies (Figure 2.17), which may distort the efficient distribution of resources and affect growth and equity.
78. **Moreover, there is significant variation in regulatory performance across regions.** The latest within-country *Doing Business* study suggests that, a common nationwide legal framework notwithstanding, the performance of institutions varies across the country, and regional differences could constrain equality of opportunity (Box 2.1). Similarly, the presence of SOEs affects how the rules of the game are enforced.

Figure 2.17. Drivers of EU Funds Allocation from the Regional to Municipal Level, 2015

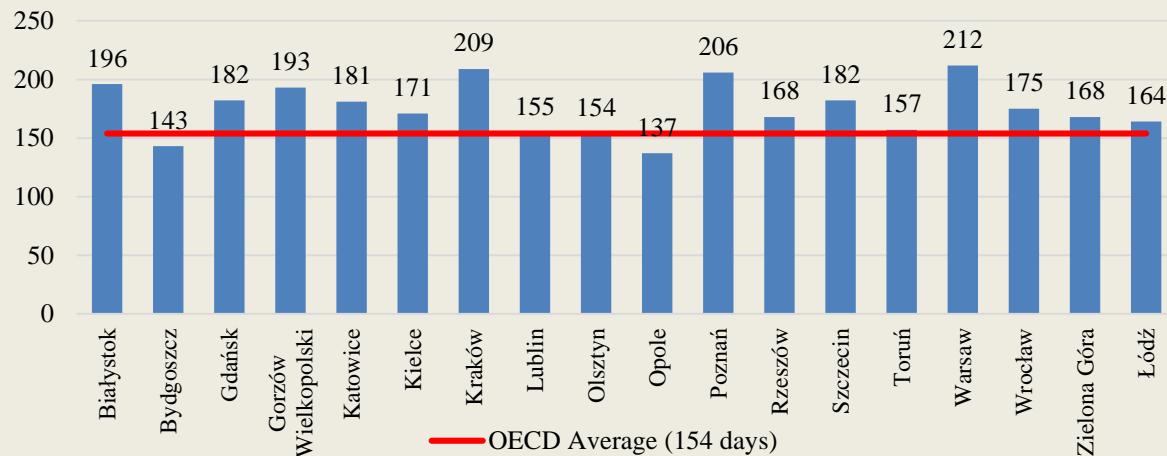


Source: 2015 Municipalities Survey, Centre for European Regional and Local Studies (EUROREG), University of Warsaw.

Box 2.1. Regional Disparities in the Polish Regulatory Environment

Despite being a unitary state and applying business regulations across regions, Poland exhibits significant in-country variation in regulatory performance. A 2015 subnational report of the World Bank's *Doing Business* series, found that the time to obtain construction permits in Poland can vary by up to 80 days between the best- and worst-performing cities in the country, with the top city hall beating the OECD average, as shown in Figure B2.1.1. However, the worst performers are trailing behind the OECD average.

Figure B2.1.1. Regional Variation in Days Needed to Obtain Construction Permits in Poland vs. OECD Country Average, 2015



Source: World Bank elaboration from World Bank 2015a.

79. **Finally, the lack of predictability of regulations leads to regulatory uncertainty, an increasingly important concern for businesses.** According to the theoretical literature, increased uncertainty depresses investment (Dixit and Pindyck 1994). Empirically, the links between policy uncertainty and investment and growth have been confirmed both cross-country (Aizenman and Marion 1993) and for individual states (Arza 2006). Bearing in mind recent and expected economic policy swings globally and in the EU, Poland should aim to stabilize its policies as much as possible and avoid falling into a spiral of constant changes, as experienced in Argentina over recent decades. In the World Economic Forum's most recent Global Competitiveness Report, regulatory uncertainty advanced from the sixth to the third most important challenge to doing business cited by Polish executives (Schwab 2016). Policy instability has been also noted as a factor of concern in the European Commission's most recent country assessment conducted as part of the European Semester, the EU's annual cycle of policy surveillance and guidance launched in the aftermath of the European debt crisis (EC 2017a).

Flexible Labor Markets

80. **Flexible labor markets facilitate the process of creative destruction and therefore foster productivity growth in more-advanced countries** (Aghion, Askenazy, et al. 2009). They lift restrictions to the efficient allocation of labor, thus fostering improvements in productivity. Poland's labor market regulations are moderately flexible in comparison with other OECD countries. The

OECD indicators of employment protection legislation (EPL) are synthetic indicators of the strictness of regulation in three categories: (a) protection of permanent workers against individual dismissal, (b) specific requirements for collective dismissal, and (c) regulation on temporary forms of employment. By these standards, Poland had greater protection of permanent workers and more regulations on temporary forms of employment than the OECD average (Figure 2.18 and Figure 2.19) but fewer requirements for collective dismissal.

Figure 2.18. Protection of Permanent Workers against (Individual) Dismissal in OECD Countries, 2013

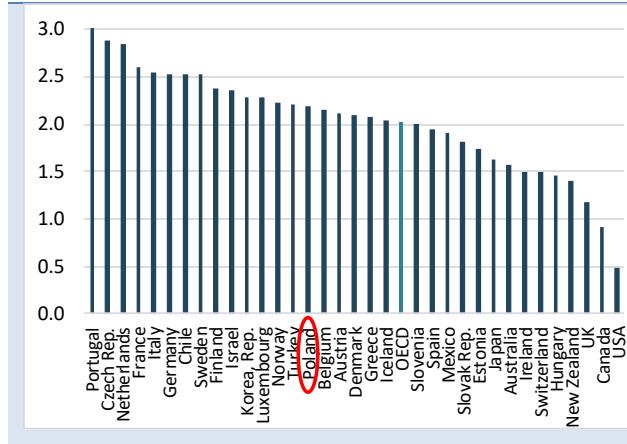
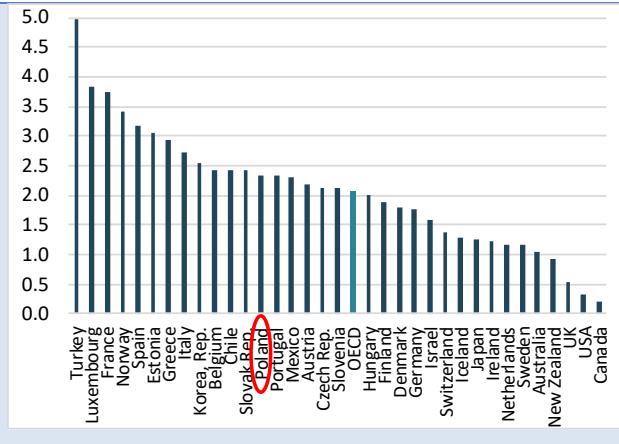


Figure 2.19. Regulation on Temporary Forms of Employment in OECD Countries, 2013

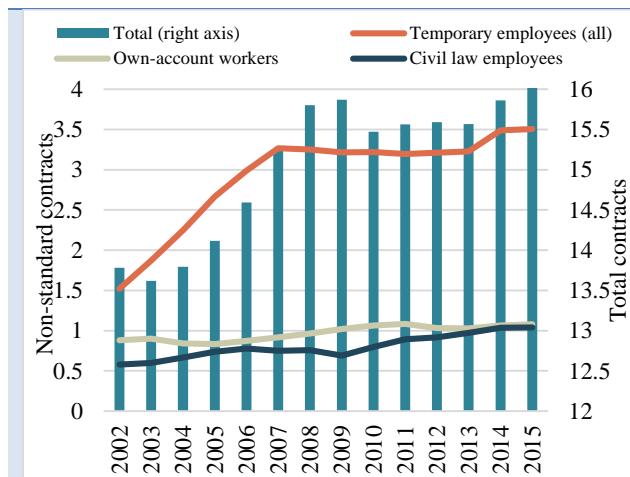


Source: World Bank, based on OECD Employment Protection Database.

Note: The scale varies from 0 (fewest restrictions) to 6 (most restrictions).

81. **Strong employment growth in Poland over the past decade helped to boost shared prosperity, but the high share of temporary contracts remains a concern.** Between 2000 and 2016, the number of workers hired through temporary contracts increased by 3 million (Eurostat 2016 data). A portion of those contracts represent employment arrangements based on civil law, which are characterized by limited social protection (Figure 2.20). Permanent contracts decreased by 2 million between 2000 and 2004, and then increased by 1.5 million between 2005 and 2016. Overall, temporary employment represents the net employment growth since 2000, with the bulk of these jobs created between 2001 and 2007 (Figure 2.21). Survey data shows that most of the employment on temporary contracts is involuntary, with the exception of freelance professionals (who prefer civil law contracts for taxation reasons and because they are providing service to several clients) and older workers. As discussed in Chapter 3, the recent increase in labor costs of civil law contracts has some potential to reduce their appeal among employers, but given that the stock of such contracts remains high, labor market duality and different rules for permanent and temporary workers remain issues.

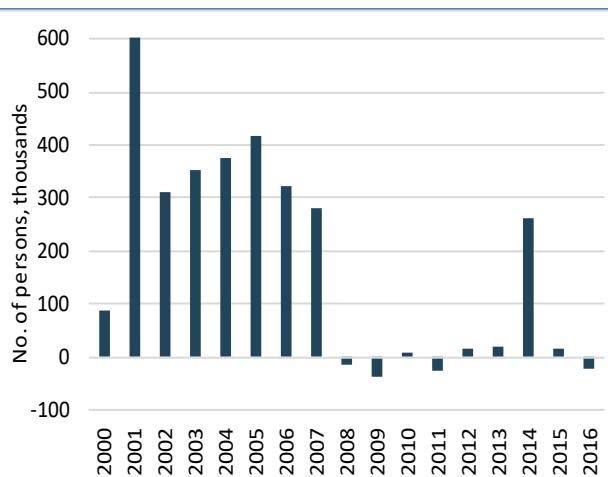
Figure 2.20. Number of Total and Nonstandard Employment Contracts in Poland, 2002–15



Source: Aldaz-Carroll, Skrok, and Van Den Brink 2017.

Note: “Own-account workers” refers to self-employed persons outside agriculture without employees.

Figure 2.21. Annual Growth in Temporary Employment in Poland, 2000–16

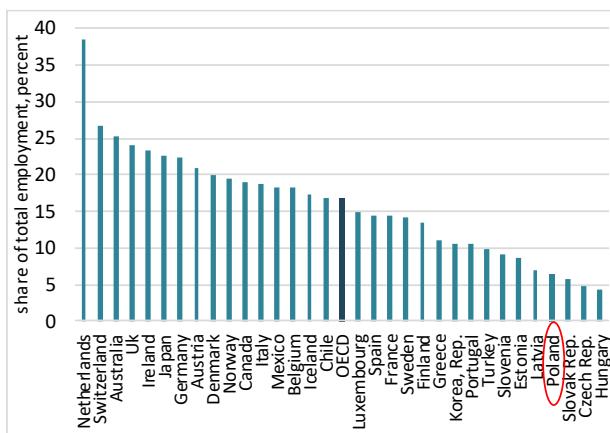


Source: World Bank, based on Eurostat data.

82. In contrast, part-time jobs in Poland do not serve as an instrument for labor market flexibility.

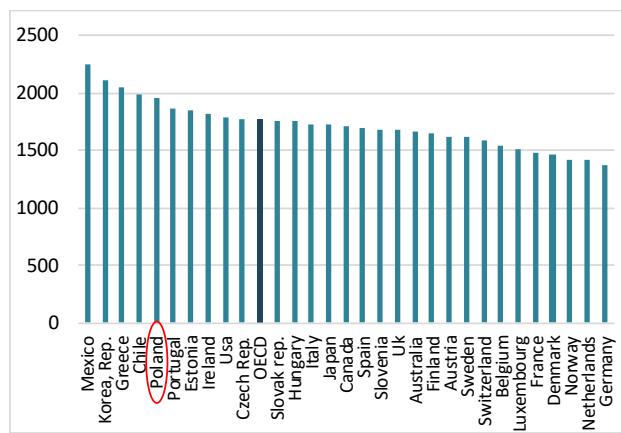
In 2015, only 7 percent of employment was part-time, compared with a 20 percent average in the EU-28 (Figure 2.22), and the share of part-time jobs has been decreasing. Moreover, most of the part-time employees in Poland claim that such arrangements are related to inability to find full-time jobs. In fact, Poland remains one of the countries with highest number of annual average hours worked per worker among OECD countries, and among EU countries it ranks second after Greece (Figure 2.23).

Figure 2.22. Part-Time Employment in EU-28 Countries, 2015



Source: OECD database, <http://data.oecd.org>.

Figure 2.23. Average Annual Hours Worked per Worker in OECD Countries, 2015



Source: OECD database, <http://data.oecd.org>.

- 83. A better balance between labor market flexibility and worker protection is needed.** Flexible work arrangements should include greater flexibility to find part-time work and a reduction in administrative burdens and implicit costs associated with permanent labor contracts. As discussed in Chapter 3, segmentation of the labor market could be reduced by making all contracts subject to the same tax and social contributions regime, simplifying and better communicating labor regulations, streamlining legal dismissal procedures, limiting the use of temporary contracts, and strengthening unemployment assistance. Notably, an individualized type of targeted job and social assistance program could help to include the unemployed who may otherwise be left out. In addition to these efforts, a more strategic approach to migration may help to reduce labor shortages and add labor market flexibility, as discussed below.
- 84. Focused and strategic openness to migration could assist with labor shortages and contribute to labor market flexibility as well as to the higher-productivity, technology-intensive economy needed for sustained growth.** Appendix C summarizes recent migration patterns and the existing arrangements for immigrants. Poland's working-age population is projected to shrink by 40 percent between 2015 and 2060, and migration at its current level is not sufficient to mitigate the sharp decline (Brandt 2016). As labor shortages are starting to emerge (Brandt 2016; EC 2017a; OECD 2016e), it is most important to boost labor force participation (especially for women) and to enhance efficiency by removing barriers to internal labor mobility (OECD 2014b).¹⁵ Although priority should be placed on maximizing the productive capacity of the population and resolving structural issues in the labor market, a well-designed immigration policy that is based on a comprehensive assessment of the labor market can help address short-run labor shortages. A system that is flexible enough to quickly respond to labor shortages, yet transparent and efficient in its process of admitting and managing immigrants, can go a long way toward meeting the labor demands of a more dynamic economy. At the same time, it is also important to make better use of the skills of existing migrants. A recent survey indicates that 24 percent of immigrant workers claimed to have qualifications higher than required by the current work they do, which is higher than the 20 percent reported for Polish citizens (GUS 2015a).

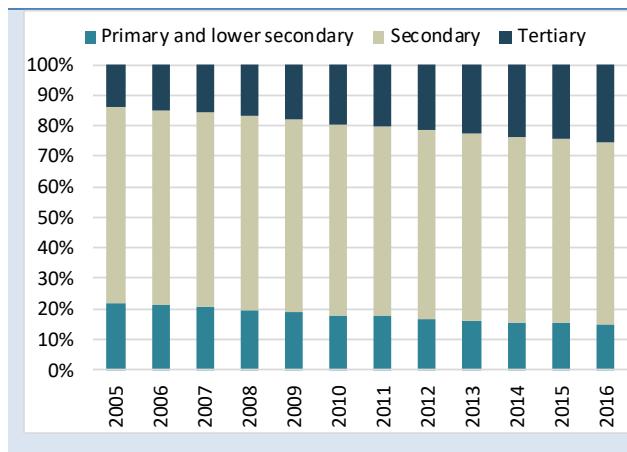
Solid Skills and High-Quality Tertiary Education

- 85. Innovation requires frontier researchers and thus good universities and research centers, whereas good undergraduate education is sufficient for imitation.** For instance, Aghion, Blundell, et al. (2009) find that research and development enhances productivity growth the most in frontier U.S. states (such as California and Massachusetts), where a higher fraction of firms are "frontier firms"—that is, firms whose productivity is close to the best practice in the corresponding sector. On the other hand, two-year college education is what enhances productivity growth more in less-advanced states (such as Alabama and Mississippi), where imitation (that is, catch-up growth) is the main source of technological progress, and good undergraduate education enhances imitation. Similarly, Vandenbussche, Aghion, and Meghir (2006) find that higher (and especially graduate) education enhances productivity growth more in countries with higher per capita GDP.

¹⁵ Low labor mobility is attributed to several factors: regional variation in the generosity of unemployment benefits; a uniform minimum wage despite differences in cost of living across regions; an underdeveloped railway system, restricting accessibility to job opportunities; and the lack of housing supply in the urban rental market, combined with the high share of owner occupancy (OECD 2014b; also see Chapter 3).

- 86. Poland has shown success in expanding tertiary education.**¹⁶ Poland witnessed a substantial increase in the proportion of university graduates among its cohorts of workers: in the mid-2010s, 25 percent of individuals, ages 15–64 years, had tertiary education compared with around 12.6 percent in the mid-2000s (Figure 2.24). Strong increases in tertiary education (Figure 2.25) and high-skilled, high-paying jobs suggest that Poland’s investments in higher education over the past two decades have paid off.

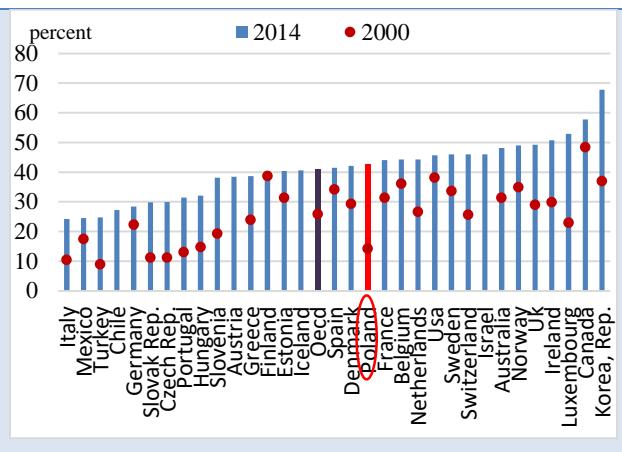
Figure 2.24. Educational Attainment of Working-Age Population in Poland, 2005–16



Source: World Bank, based on Eurostat data.

Note: “Working-age” is ages 15–64 years.

Figure 2.25. Tertiary Education Attainment Rates of Individuals Ages 25–34 Years in OECD Countries, 2000 and 2014



Source: OECD 2016e.

- 87. However, declining birth rates, complemented by various other factors,¹⁷ have induced a continuous decrease in student enrollment and a change in sector composition.** The number of students increased from 0.40 million in the academic year 1990/91 to a peak of 1.95 million in 2005/06 (GUS 2016a). With declining births, student numbers have declined by more than 25 percent, to 1.41 million in 2015/16 (GUS 2016a)—the 10th consecutive year with a decline in student numbers. This has resulted in a reduced number of higher education institutions (HEIs) and a shift toward public higher education provision as private sector provision has contracted since 2006, partly because of a constant number of publicly sponsored, non-fee-paying students in public institutions despite lower enrollment numbers (Arnhold and Püttmann 2017).

- 88. Poland needs to improve the quality of its public research.** Poland’s research performance is below many of its EU peers, as evidenced by its research system rankings in the 2016 European Innovation Scoreboard. For example, it ranks near the bottom of the EU in international scientific

¹⁶ “Higher education” and “tertiary education” are used interchangeably throughout the document.

¹⁷ Among those factors are the vanishing effect of a rapidly increasing enrollment of nontraditional (older) students who seized the chance to study that opened up after the political changes in 1989/90; reduced incentives to postpone labor market entry via higher education enrollment due to less-critical economic circumstances; and labor migration of Polish youth following Poland’s EU accession in 2004 (Socrates Institute 2011, 25–26).

copublications¹⁸ as well as in scientific publications that are among the top 10 percent most cited.¹⁹ The Polish research output is also less internationally oriented, with only about one-third of publications copublished internationally (the lowest value among all EU-28 member states), because the current evaluation system incentivizes quantity rather than quality of publications. Poland benefited in total from only 1.1 percent of all FP7²⁰ funding allocated to beneficiaries from the EU-28 and has even lower results in the first calls of Horizon 2020 (EC 2017a). Poland also underperforms OECD averages in terms of public R&D expenditure (per GDP), top 500 universities (per GDP), and publications in the top journals (per GDP), as shown in Figure 2.26.

89. Research funding for HEIs has become increasingly competitive, potentially helping to improve the performance of Polish science and innovation. Research funding was long characterized by the importance of institution-based funding. This changed with the establishment of two independent research councils: the National Science Center (NCN), which distributes state funding for basic research, and the National Centre for Research and Development (NCBR), which distributes state funding and EU Structural Funds resources for applied research and university-business links.²¹ The introduction of those two councils increased the importance of competition-based funding in the field of research. It is envisaged that from 2020 onward at least 50 percent of all research funding will be allocated on a competitive basis. The new mode of research funding has the potential to improve the research performance of HEIs and, thereby, the Polish science and innovation system's overall performance—an important objective in the face of comparatively low performance (OECD 2016f), as illustrated in Figure 2.26. However, the new funding modalities induced a vertical stratification within the research sector. Of all NCN grants, more than 40 percent were awarded to the 10 best-performing institutions in 2014 (NCN n.d.). Those institutions that have a strong research base are at a systematic advantage concerning the acquisition of research funding, leading to a self-reinforcing stratification over time.

90. The situation of higher education funding is furthermore affected by the Institutes of the Polish Academy of Sciences. These institutes employ around 3,700 research staff members and are responsible for a relevant share of publications (PAS 2016), therefore constituting a considerable part of the Polish science system. They furthermore receive a significant share of public research funding, which diverts funding away from HEIs. This overall situation has induced discussions on their future as separate institutions. One option considered is to merge them with universities; another is to consolidate them into a single university that offers education at all three program levels (bachelor's degree, master's degree, and doctoral levels).

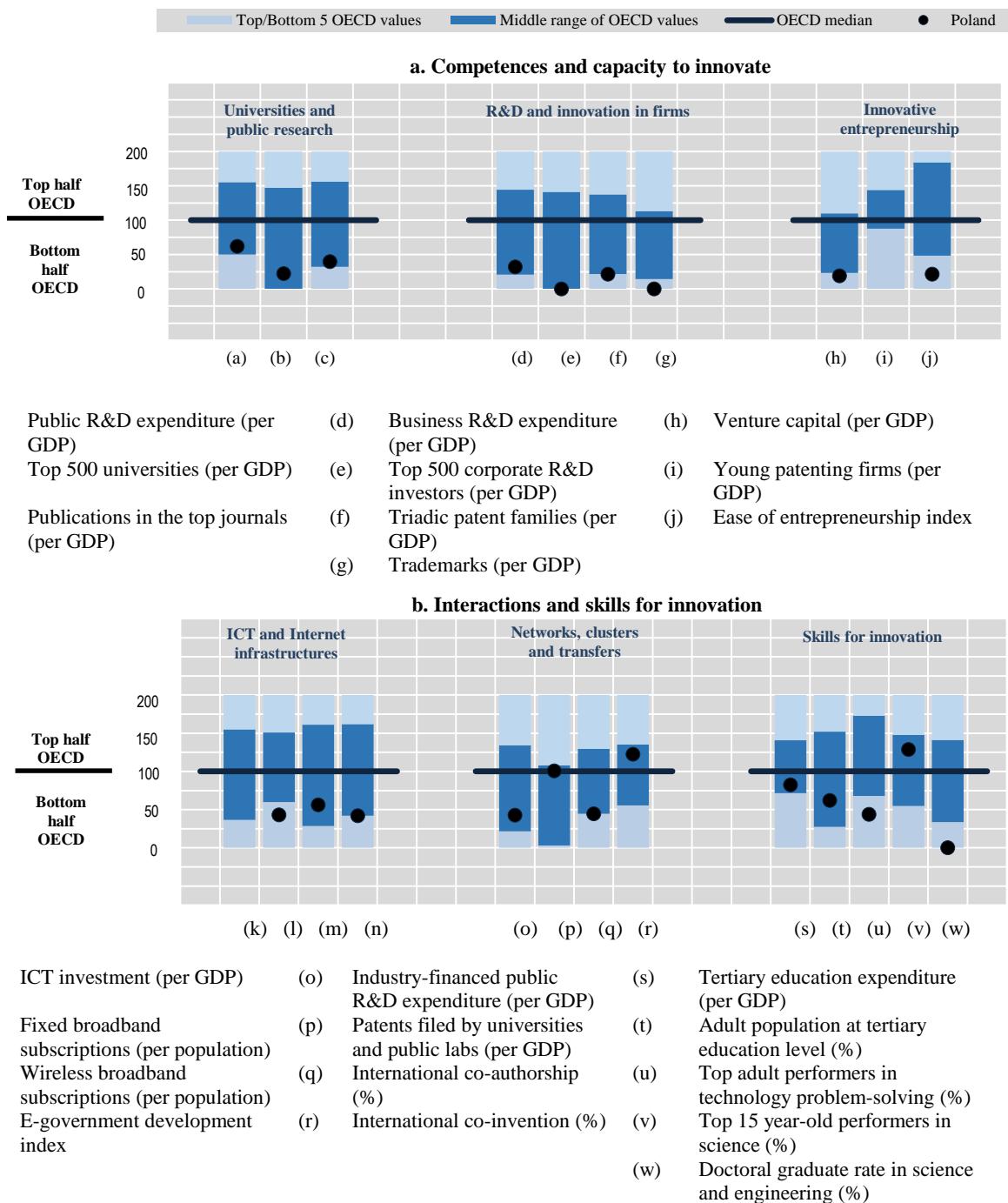
¹⁸ Poland has 251 scientific publications with at least one coauthor based abroad (per million population), compared with 661 in the Czech Republic and 2067 in Denmark.

¹⁹ Poland has 5 percent of scientific publications (as a percentage of total scientific publications of the country) among the top 10 percent most-cited publications worldwide, compared with 7 percent in the Czech Republic and 15 percent in the Netherlands.

²⁰ FP7 refers to the 7th Framework Program for Research and Technological Development.

²¹ The NCBR commands a budget several times bigger than the NCN's (NCBR n.d., 22; NCN n.d., 41).

Figure 2.26. Comparative Performance of Poland's Science and Innovation System, 2016



Source: OECD 2016f, 4.

91. **Focusing on the core challenges ahead, two broad tasks for the Polish government and the higher education sector stand out: finding the right response to the effects of the demographic developments, and taking further reform efforts to improve the quality of tertiary education.** In the face of the far-reaching impact of the decline in student numbers, there is a need for a comprehensive vision for the Polish higher education sector. Such a vision would, among other

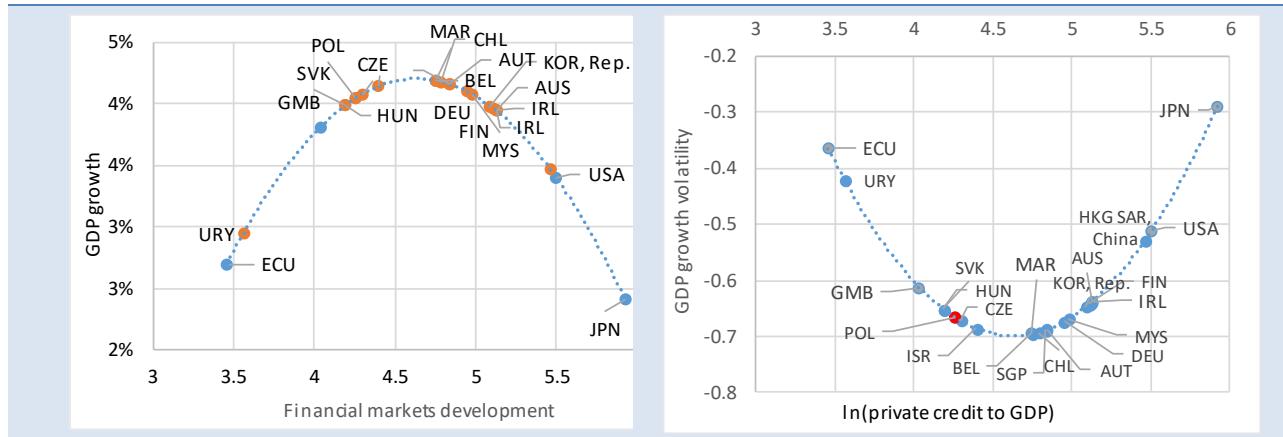
motivations, be required as the basis for strategic sector steering. The issues that a new vision would have to address include the changing composition of the sector, particularly the relation between public and private provision; the inevitable consolidation process of institutions; and the future landscape of the sector more generally and its diversity, including diversity of regional coverage (Socrates Institute 2011).

92. **Implementing quality higher education will require coordination and concerted efforts by education providers, the private sector, and the government.** HEIs appear well placed to (a) increase the relevance and quality of their training offerings by devising programs and courses in line with skill demand; and (b) expand access to a more diverse student population by offering various modes of delivery (for example, including e-learning possibilities) and adapting support services to the needs and living conditions of learners. Strong engagement from the private sector is required to ensure that programs are aligned with employers' skill demands. The needed engagement includes, among other things, private sector involvement in designing and implementing training programs and activating groups of learners currently underrepresented in adult education (as detailed in Chapter 3). Such initiatives could be particularly relevant for companies from the more innovative and faster-developing sectors of the economy, for which skill shortages are a particular concern, including for larger firms that benefit from international (technological) exposure through substantial FDI. Public sector facilitation of such processes will be required to ensure coordination and clear framework going forward, as discussed in Chapter 3.

Equity-Based Financing

93. **The fourth pillar for innovation-led productivity growth is equity-based financing.** A bank-based financial system enhances productivity growth more in less-advanced countries, whereas a more market-based financial system enhances productivity growth more in countries that are more at the frontier (Koch 2014). This is because frontier innovation entails a higher level of risk than imitation activities, which are already well defined. However, outside financiers involved in frontier innovation will demand a higher share of upside revenues and higher control rights, hence the role of equity in financing frontier innovation.
94. **Poland's financial system has been expanding rapidly and remains dominated by banks.** Poland's financial sector depth is in line with its income level and the country performs better than its peers in access to finance for firms. The banking sector is liquid and well capitalized amid declining profits due to narrowing interest margins and higher administrative costs, including the bank asset tax and additional contributions to the Bank Guarantee Fund. The country has room for further financial development to support stable economic growth (Sahay et al. 2015) (Figure 2.27, Figure 2.28).

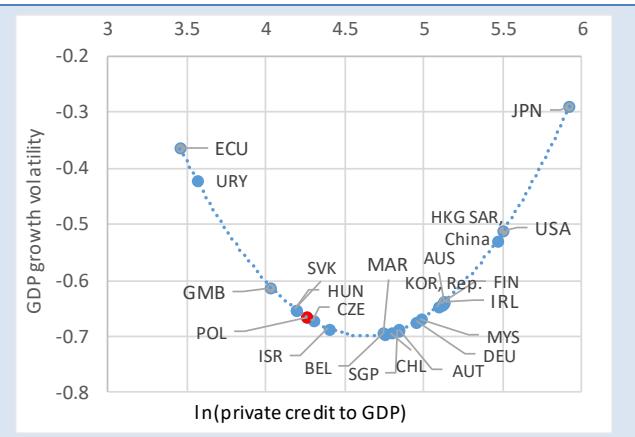
Figure 2.27. Financial Sector Development Relative to GDP Growth in High-Income Economies, 2014



Sources: Sahay et al. 2015; World Development Indicators database.

Note: Financial markets development is measured by a comprehensive index capturing the depth, access, and efficiency of financial institutions and markets.

Figure 2.28. Output Volatility Relative to Financial Development in High-Income Economies, 2014

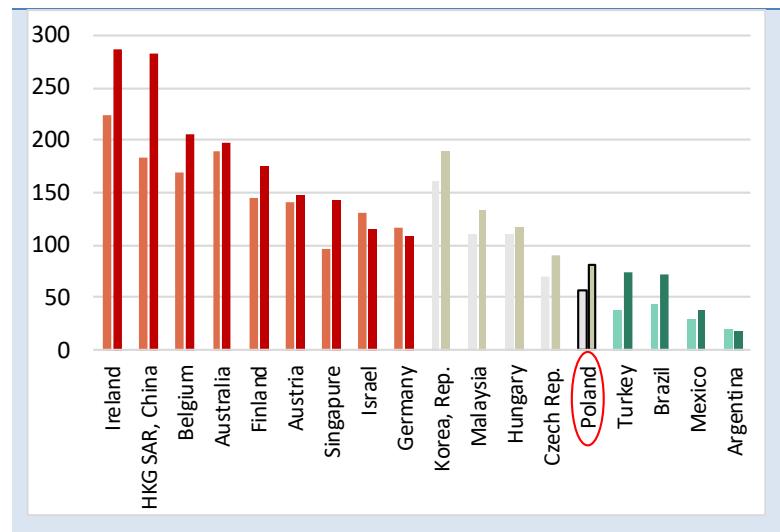


Sources: Sahay et al. 2015; World Development Indicators database.

95. The Polish nonfinancial sector is moderately leveraged, and access to credit for SMEs seems to be impaired. Credit to the private sector relative to GDP, and the share of firms using bank lending for working capital, are well below EU and high-income country averages (Figure 2.29). The ratio of deposits to GDP and access of households to financial services are also well below the average of high-income OECD countries. Research by the state development bank, Bank Gospodarstwa Krajowego (BGK), on BGK's "Gwarancja de minimis" (de minimis guarantee) program shows that loan

guarantees led to up around two-thirds of all new loans to SMEs, and more than a half of all beneficiaries of loan guarantees claim that they would not have been able to obtain loans without the

Figure 2.29. Total Credit to the Private Nonfinancial Sector as a Share of GDP in High-Income Economies, 2007 and 2014



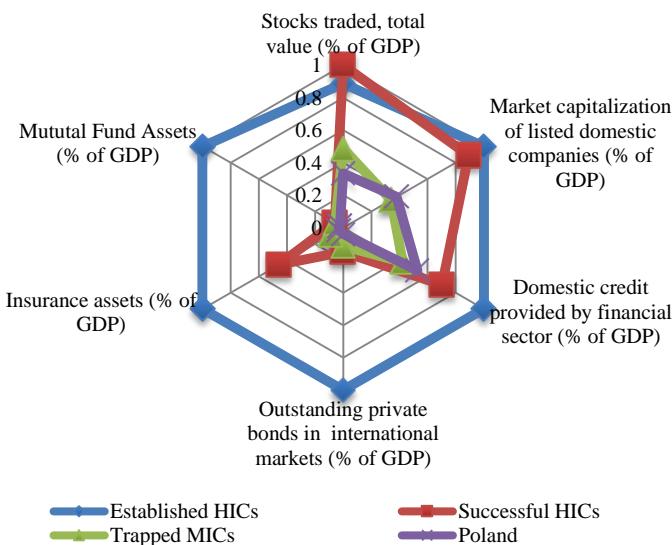
Source: World Bank 2016, based on Bank for International Settlements data.

guarantees.²² Almost 40 percent of those reporting to have access to loans claim that the scheme enabled them to obtain a bigger loan, suggesting additionality of support.

96. Moreover, there is need for further diversification of financial sector through capital markets development, in line with the innovation-led growth strategy. Risk capital for real sector companies remains underdeveloped, and the private equity industry in Poland significantly lags behind the neighboring markets, as illustrated in Figure 2.30. Funds face challenges in raising equity because foreign investors are hesitant to allocate capital to a country perceived as limited in size and in investible projects. Domestic institutional investors, namely pension funds, are constrained in investing in this underdeveloped asset class. The Survey on the Access to Finance of Enterprises (SAFE), Poland outperforms the EU-28 average almost in every category except use of equity capital (ECB 2016). The banking sector is more

focused on extending loans to the household segment, with household loans making up 28 percent of total loans in 2015 compared with the EU average of 18 percent. The equity market is heavily used by the financial sector firms, and the market capitalization (29 percent of GDP in 2015) is below the EU average (53 percent of GDP). Bond markets are liquid—but dominated by T-bonds—while nonfinancial corporations' share in total debt issuance amounted to only around 10 percent in 2016. Also, the quality of corporate sector financial reporting needs to be improved, along with the transposition of the EU audit legislation into the national law order. The European Commission's “Capital Markets Union” framework²³ provides a good anchor in this regard to implement institutional reforms and upgrade infrastructure.

Figure 2.30. Financial Sector Diversification Indicators for Poland Relative to Established and Successful High-Income Countries and Trapped Middle-Income Countries, 2013–15 Averages



Sources: World Development Indicators and International Monetary Fund Financial Soundness Indicator (FSI) databases, 2013–15 averages.

Note: The figure uses a “best in class” normalization, where the highest (lowest for nonperforming loans and loan-to-deposit ratios) is given the value of unity and all other regions are measured relative to this level. The size of the resulting diamond reflects the strength of the banking system.

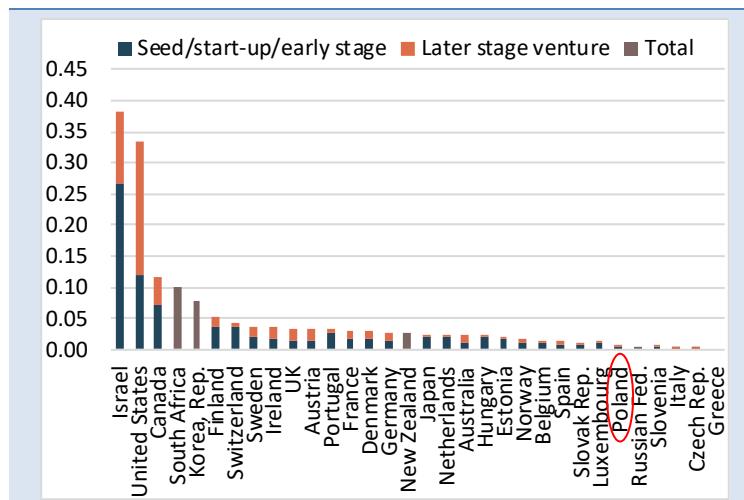
²² A de minimis guarantee, or warranty, is one of the forms of de minimis aid granted under admissible state aid to secure repayment of working capital or investment credit for micro, small, or medium-size entrepreneurs.

²³ See “Capital Markets Union: A Plan to Unlock Funding for Europe’s Growth” on the European Commission website: https://ec.europa.eu/info/business-economy-euro/growth-and-investment/capital-markets-union_en.

97. Moving toward a more market-based financing model, particularly venture capital investment, is also key to support innovation-led growth in Poland.

Supporting market-based financing models can be particularly effective for increasing productivity in upper-middle-income countries (Dabla-Norris, Ho, and Kyobe 2013). In particular, deeper and more efficient venture capital markets play a key role in the financing of innovation for seed and early-stage start-ups, while guarantee schemes are suitable for firms at more-developed stages. In recent years, Poland has been increasing its use of guarantee schemes, partly thanks to the EU programs. However, it lags significantly behind OECD and other countries in venture capital investments (Figure 2.31) and needs to prioritize addressing challenges in this area to support innovation-led growth. Public sector facilitation will be needed to ensure consistency of policies and coordination with the private sector.

Figure 2.31. Venture Capital Investment as a Share of GDP, Selected High- and Upper-Middle-Income Economies, circa 2015



Source: OECD 2016c.

Strategic Interventions to Enhance Productivity Growth

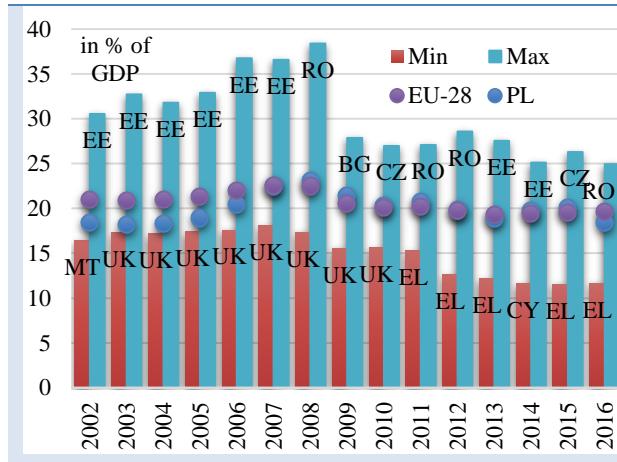
- 98. To reconcile the need to invest in the main levers of innovation-led growth with that of maintaining budget discipline, governments must become more strategic.** In the transition to innovation-led growth, the state needs to accompany the process of creative destruction by implementing sectoral policies that are competition-friendly. However, the existence of knowledge externalities (reinforced by the existence of credit constraints) implies that the state cannot completely withdraw from the economy. To address the challenge of reconciling growth with budgetary discipline, governments and states must become strategic (Aghion and Roulet 2011) in terms of their public investment policy; improving the efficiency of EU funds, and R&D policy.

Strategic Public Investment Policy

- 99. Investment in Poland is comparable to the EU average, supported by buoyant public investment and less salient private investment.** Investment averaged 20 percent of GDP during 2002–16—very close to the EU average but substantially lower than top performers such as the Czech Republic, Estonia, or Romania (Figure 2.32). Although the private sector has dominated Poland’s growth, private investments remain substantially below those for the EU as a whole (Figure 2.33). This is even more evident if compared with peer countries, such as the other three Visegrád Group countries (Czech Republic, Hungary, and Slovakia) or other new member states of the EU. In

contrast, public investment remained strong throughout the cycle, averaging 4.1 percent of GDP in the past 15 years.

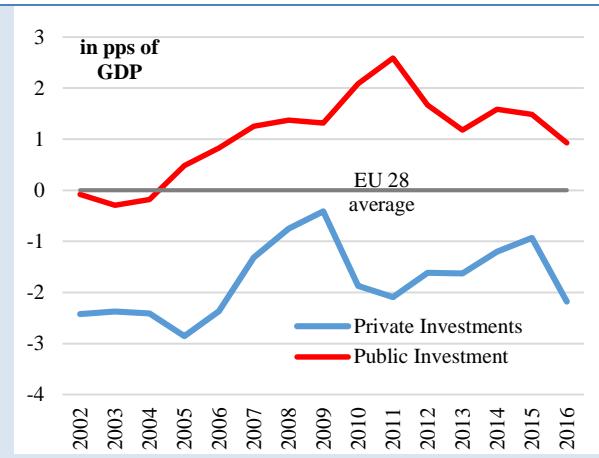
Figure 2.32. Investment Ratios, as a Share of GDP, 2002–16



Source: Calculations from the European Commission's Eurostat and Annual Macro-Economic (AMECO) databases.

Note: Country abbreviations are BG (Bulgaria), CY (Cyprus), CZ (Czech Republic), EE (Estonia), EL (Greece), MT (Malta), RO (Romania), and UK (United Kingdom).

Figure 2.33. Private Investment, as a Share of GDP, Poland vs. EU-28 Average, 2002–16



Source: Calculations from the European Commission's Eurostat and Annual Macro-Economic (AMECO) databases.

100. Private sector investment has been weak in Poland and has not managed to maintain the same pace as the overall output. The private sector in 2016 invested somewhat less than 15 percent of GDP in capital stock, which puts Poland at the lower end of all EU countries. In addition, Poland differs from the EU average in terms of composition of total investment. Construction is lower than the EU average, while equipment investment is above the EU average (reflecting the high share of industry and continuous technological catching-up), and investment in intangible assets (such as intellectual property rights and R&D) is particularly low in comparison with the EU average. Given the extent of state involvement in the economy, public-private partnerships (PPPs) as well as private concessions, particularly in infrastructure, remain underdeveloped in Poland.

101. This strong performance of public investment is highly connected with the availability of EU funds. Around one quarter of total public investment is funded by EU funds. Poland has fully used the available funding for the 2007–13 EU budget period. At €68 billion, the EU Cohesion Fund transfers to Poland were among the largest in the EU, amounting to, on average, around 2.2 percent of GDP per year. The importance of reliance on EU funding was confirmed in 2016 when investment activity declined significantly because of low utilization of the EU funds at the local government level. The EU funds, which on average represented a third of the overall local government investment, collapsed to around one-tenth of their overall investment in 2016.

102. Investment is a key channel for innovation and adoption as new capital vintages embed technological progress. Upgraded capital stock enables the development of new products,

processes, production or marketing techniques, and finally output expansion. However, there is also a feedback loop between weak investment in physical capital and productivity, which materialized during the latest global crisis. In reaction to the crisis, vulnerable firms reduced their R&D expenses and slowed down the adoption of new technologies, which in turn translated into lower productivity gains (Aghion et al. 2012; Adler et al. 2017). R&D expenditure becomes procyclical as weaker balance sheets led to a reduction in investment in intangible assets. Then, weaker productivity gains led to even weaker demand and investment.

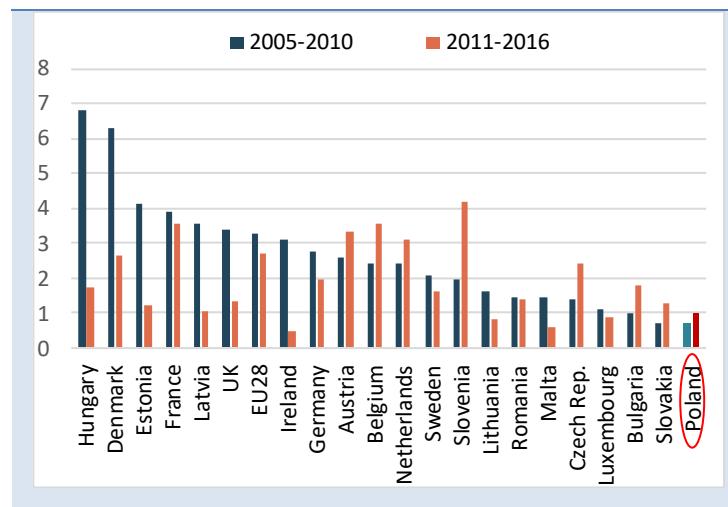
- 103. Investment in Poland continues to bring high returns, but the diminishing quality of investment appears to be an issue, as it is in many EU countries.** In the second half of the 2000s, Poland's incremental capital-to-output ratio (ICOR)—which measures the amount of investment needed for each additional unit of GDP—was among the lowest in the EU (Figure 2.34). This implies that investment activity in Poland brought high returns relative to other EU members. However, this ratio increased in the first half of the 2010s, and rising ICOR frequently translates into higher debt levels in the economy, which ultimately might affect productivity dynamics in firms. Diminishing returns to assets in

Poland over time may be linked to projects that are important from the social but not necessarily economic perspective (such as stadiums, swimming pools, regional airports, and others).

- 104. The state has an active role to play in innovation-led growth provided it is more strategic in its public investment policies.** A strategic state manages to reconcile growth with budget discipline, and instead of Keynesian policies to foster growth through indiscriminate public spending, it becomes selective in public investment management (Aghion and Roulet 2011). Strategic governments focus public investments on a limited number of growth-enhancing areas such as education and universities (as previously discussed); sectors with high growth potential and positive externalities (such as infrastructure investments in transportation, energy, and broadband networks); and R&D efforts. In this subsection, we focus on infrastructure investments in transportation and the ICT network. The next subsection focuses on improving the efficiency of EU funds to stimulate private investment, and the following subsection addresses R&D policies.

- 105. In particular, the quality of trade and transport infrastructure remains a constraint to Poland's infrastructure connectivity and to private sector investment.** A long-term life-cycle approach to managing and financing transport and ICT infrastructure will help to improve spending efficiency, prepare for the likely phasing-out of EU financing, and reduce the overall infrastructure

Figure 2.34. Incremental Capital-to-Output Ratio (ICOR) in Selected EU Countries, 2005–10 and 2011–16

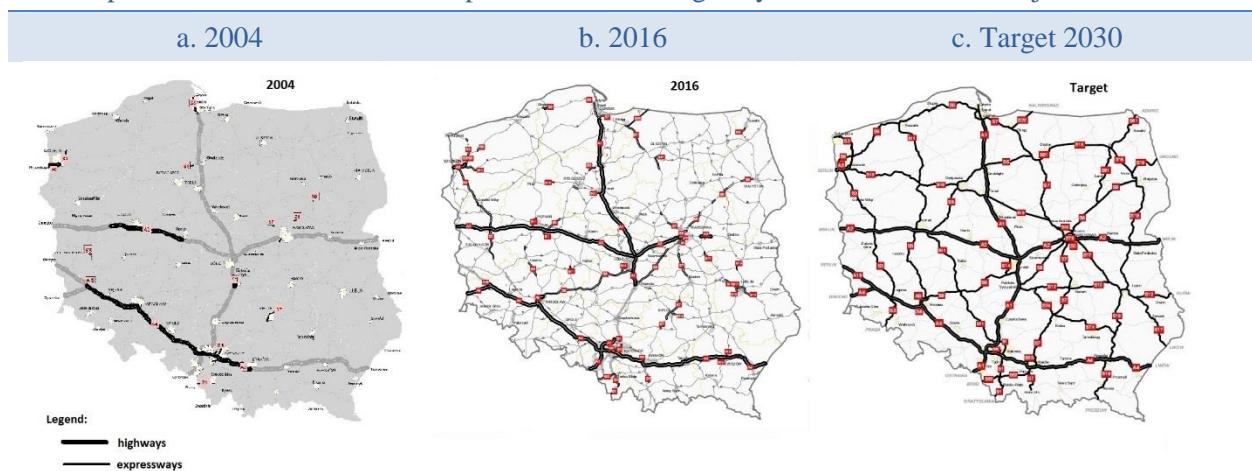


Source: World Bank calculations, based on Eurostat data.

Note: Higher ICOR means lower quality of investment. Some EU countries with highly irregular ICOR shifts from one year to another were omitted from the sample.

gap. Great progress was achieved particularly in road infrastructure, thanks to significant expenditures from the state budget and sizable EU funds: in 2004, Poland had only 470 kilometers of highways and about 200 kilometers of express roads; in late 2016, their total lengths increased to 1,632 kilometers and 1,532 kilometers, respectively. Still, this network seems largely incomplete if compared with the 2030 plans of the road administration (Map 2.1) or with advanced EU countries. In particular, improvements in rail infrastructure lagged behind ambitious plans, which led to a loss of railway transport's share in modal split.²⁴ The lack of coordination of transport investment programs across all transport modes and the limited number of modern intermodal terminals resulted in limited complementarity of the different transport modes and suboptimal use of the existing infrastructure. Progress in rehabilitating road and railway networks, beyond the major transit corridors, was limited, and the number of bottlenecks remains significant. This is particularly noticeable for “last mile” infrastructure, usually managed by local governments. Efficiency and the degree of integration of urban, metropolitan, and regional passenger transport systems is limited, and although intelligent transport systems have been developed by many municipalities, they are often fragmented and have limited impact. The availability of long-term financing for infrastructure remains limited in Poland.

Map 2.1. Poland’s Network of Express Roads and Highways, 2004, 2016, and Projected to 2030



Source: ©General Directorate for National Roads and Highways (GDDKiA). Reproduced, with permission, from GDDKiA; further permission required for reuse.

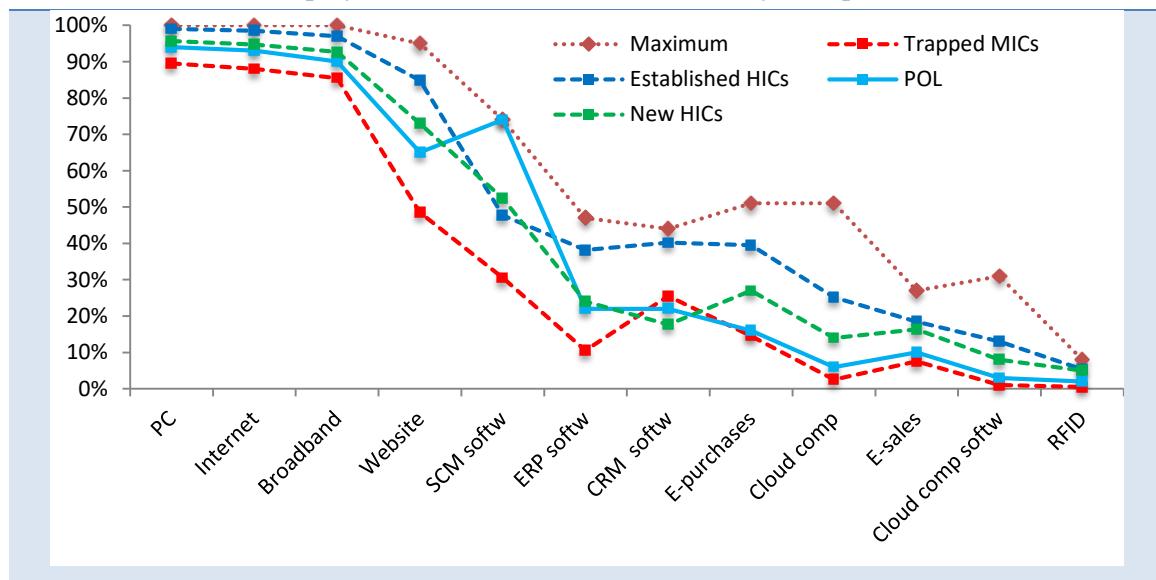
106. **Similarly, the use of ICT services and ICT-enabled services, particularly those based on most innovative technologies, are a constraint to innovation.** Polish firm-level preparedness to integrate new ICT and technologies (such as cloud computing, 3-D printing, and other online buyer-seller platforms) is seemingly weak. Firms in Poland have been slow to adopt the latest available digital technologies. In fact, more-advanced digital technologies have not yet spread widely (Figure 2.35). Although firms in Poland are relatively advanced in using supply chain management software, they lag most European countries in e-commerce, pointing to untapped opportunities for Polish services firms to raise their productivity. Firms in Poland also lag their European peers in using cost-

²⁴ “Modal split” is the percentage share of different transportation modes (such as passenger cars, buses, coaches, and trains) in total inland passenger transport.

efficient cloud computing services to license software or hardware (Aldaz-Carroll, Skrok, and Van Den Brink 2017).

107. Poland can improve access for consumers and businesses to digital goods and services through cross-border e-commerce, enforcing consumer protection, speeding up product delivery, enforcing competition and copyright laws, and reducing the administrative burden of doing business online. Poland can also improve conditions for digital networks and innovative services by incentivizing investment into high-speed broadband; supporting new business models for content distribution; developing cross-sectoral online platforms designed to increase the transparency and availability of information (for example, assuring online access to audited financial statements of companies); and building trust and security in the handling of personal data. Finally, Poland can maximize the growth of its digital economy by ensuring that its citizens have the right skills to take advantage of economic opportunities (including jobs, e-commerce, and e-learning) provided by digital markets.

Figure 2.35. Digital Technology Adoption by Nonfarming, Nonfinancial Enterprises with at least 10 Employees in Poland and Selected Country Groups, circa 2014



Source: Aldaz-Carroll, Skrok, and Van Den Brink 2017, based on Eurostat 2014 data (2012 for Turkey).

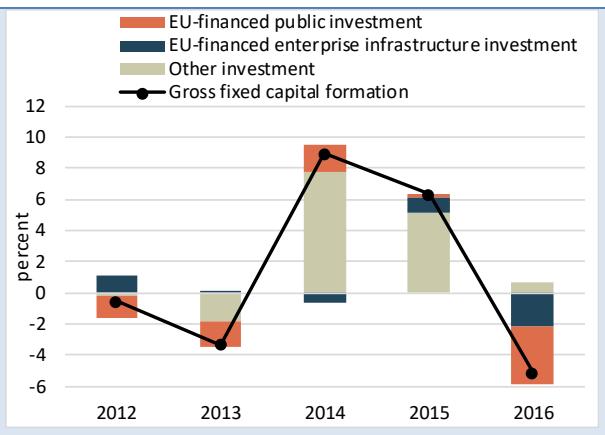
Note: The figure shows the share of all nonfarming, nonfinancial enterprises with at least 10 employees that adopted different digital technologies in Poland; in “Established” high-income countries (HICs) (Austria, Belgium, Finland, Germany, Ireland, and the Netherlands); in “New” HICs (the Czech Republic, Hungary, the Slovak Republic); and in “Trapped” middle-income-countries (MICs) (Romania and Turkey). Maximum refers to the maximum observed in EU countries. SCM softw = supply chain management software integrated with ICT systems of customers or suppliers. ERP softw = economic resource planning software. CRM softw = customer relationship management software. Cloud computing = purchase advanced cloud computing services such as ERP, CRM, or computing power. RFID = radio frequency identification technologies used to connect machines (Internet of things).

Improved Efficiency of EU Funds

- 108. Increasing the efficiency of use of EU funds is essential to stimulate private investment.** Poland will receive more than €82 billion from EU funds (amounting to 20 percent of 2013 GDP) in the 2014–20 period, making it the largest beneficiary from EU funds in the current (2014–20) financial perspective in absolute terms. These funds are expected to significantly contribute to economic growth, as they did in the 2007–13 period. During the former EU financial perspective, structural funds were spent largely on big public infrastructure projects, and corporate infrastructure investment (including SOEs owned by the central government and subnational government) was directed largely toward rail transport, water supply, waste and wastewater disposal, and energy generation. Significant shifts in EU funds from year to year largely affected the dynamics of total investment in Poland.²⁵ For example, in 2016, a substantial decrease in EU funds contributed to the decline in total investment and outweighed the impact of other investment growth, which was positive, according to National Bank of Poland (NBP) estimates (Figure 2.36). More efficient use of EU funds could become transformative in increasing product market competition to the local market.

- 109. Utilizing financial instruments (instead of grants) could increase the efficiency of EU funds and hence prepare for the lower EU budget after 2020.** Given their revolving nature, financial instruments enable reinvestment, leverage private resources, and provide incentives to better performance. So far, the bulk of EU funds have been used in the form of grants. Committed financial instruments (loans, microcredit, or other instruments used to capitalize guarantees and equity) constituted less than 2 percent of the total funds envelope for 2007–13 in Poland compared with the EU average of 4.6 percent. However, as EU policy shifts from pure grant financing to an approach with greater private sector leverage, Poland will need innovative financing and greater efficiency of infrastructure spending. This calls for improved infrastructure planning and financing structures that combine private, EU, and public financing. Developing innovative financial instruments would effectively “lengthen” the availability of EU funds along with use of the current EU-level funding options such as European Fund for Strategic Investments (EFSI).

Figure 2.36. Contribution of EU Funds to Growth in Gross Fixed Capital Formation (in Nominal Terms), Poland, 2012–16



Source: March 2017 Inflation Report, National Bank of Poland.

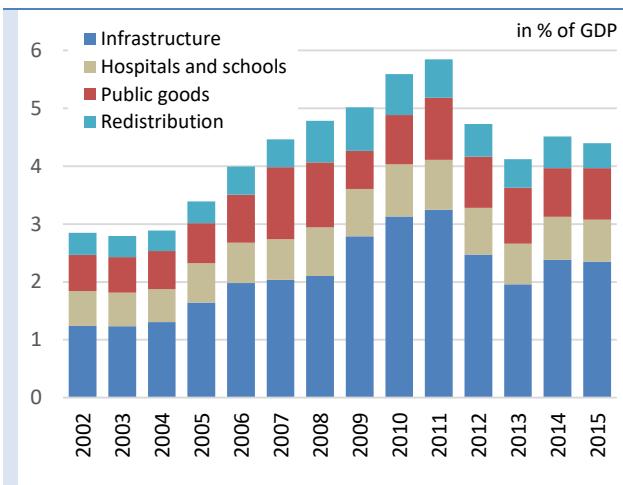
²⁵ EU funds and investment data from the March 2017 Inflation Report, National Bank of Poland.

110. Local governments play an especially important role in public infrastructure investment—accounting, on average, for more than half of public investment.

Relative to the central government, local governments tend to invest in “social” public investment (such as redistribution and hospitals and schools), as shown in Figure 2.37. The degree of decentralization in accessing EU funds is high in Poland as significantly more funds are managed through the regional operational programs. Between 2007 and 2013, local governments ran about a quarter of all funds for Poland; now they are in charge of almost 40 percent. They carry out large infrastructure projects, which require relevant coordination, processing, and oversight. Hence, local governments' administrative, operational, and management capacity largely determines the efficiency and value added of investments.

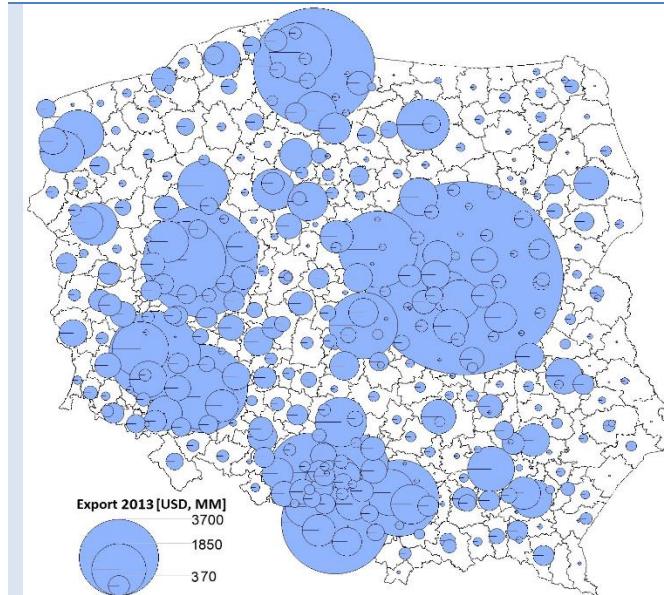
111. In terms of ensuring the efficiency of use of EU funds across regions, it is important to remember that growth is not evenly spread across space, and economic activity tends to concentrate in the most productive areas. The experiences of countries that went through phases of rapid growth (like Poland in recent decades) show that spatial disparity of development and emergence of lagging regions are a common side effect (Map 2.2). Arguably, growing disparities between leading and lagging regions can be interpreted as a natural result of rapid development. Economic growth and development are largely driven by a concentration of people and resources in the most productive areas of the country, which gradually spreads to other areas, including lagging regions, as major cities become more connected and expansive. Those lagging regions, typically located in peripheral areas, have poorer access to markets and infrastructure as well as weaker institutions. However, Poland also faces differences in opportunities across regions, with persistent differences in health and education outcomes (see Chapter 3). Moreover, businesses face important different environments in terms of the ease of conducting business because of differences in services, regulations, access to the judiciary, and to access to finance. It is up to the state to reduce these differences, ensuring that individuals have equal opportunities regardless of where they were born, and ensuring businesses can thrive based on their productive potential and not as a consequence of regulatory differences.

Figure 2.37. Structure of Public Investment in Poland, 2002–15



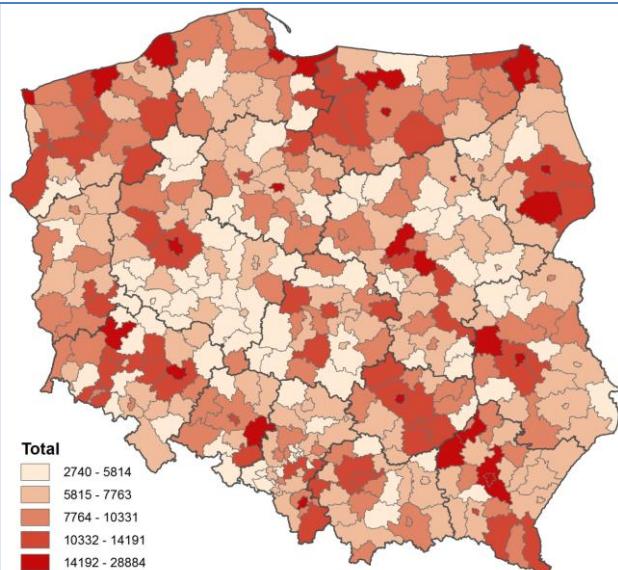
Sources: Eurostat data; European Commission's Annual Macro-Economic (AMECO) database; World Bank calculations.

Map 2.2. Total Volume of Exports in Poland, by County, 2013



Source: Sivaev 2017, based on Ministry of Foreign Affairs data. ©World Bank. Further permission required for reuse.

Map 2.3. EU Cohesion Fund Spending Per Capita in Poland (in Zlotys), by NUTS3 Jurisdiction Level, 2007–13



Source: Sivaev 2017, based on Central Statistical Office (GUS) data. ©World Bank. Further permission required for reuse.

Note: This map does not account for 100 percent of EU funding, because a large proportion of it cannot be disaggregated spatially (for instance, large transport infrastructure projects). NUTS = Classification of Territorial Units for Statistics.

112. In Poland, less-developed regions were the beneficiaries of most EU funding, but the spatial allocation of EU funding within regions was uneven. Less-developed regions (defined as regions achieving less than 75 percent of EU average GDP per capita in purchasing power standard (PPS)) have been the major benefactors of EU cohesion policies in recent decades. For the 2007–13 programming period, lagging regions accounted for 82 percent of funding allocated to Poland through EU Structural Funds (Sivaev 2017). However, the spatial allocation of EU funding within the regions was not even. The more urbanized and developed municipalities and counties received a larger share of EU funds than the rest. The provincial capitals and their functional areas absorbed an especially large share of funds. For instance, among all Polish regions, the biggest funding gap between a capital and the rest of its territory was observed in Podkarpackie (Map 2.3). The agglomeration of Rzeszów received Zl 1,753 (about US\$450) more funding per capita than the rest of the province. Further analysis of the existing regional transfer formulas would be useful, including whether it would make sense to condition regional EU funds on performance and on ways to further interconnect administrative regions.

113. Going forward, the focus of investments in lagging areas should be on education and health. International development experience shows that basic infrastructure and services (along with basic institutional conditions) have the most significant impact at low levels of development, while at latter stages of development, human capital plays a critical role. Recent World Bank analysis of

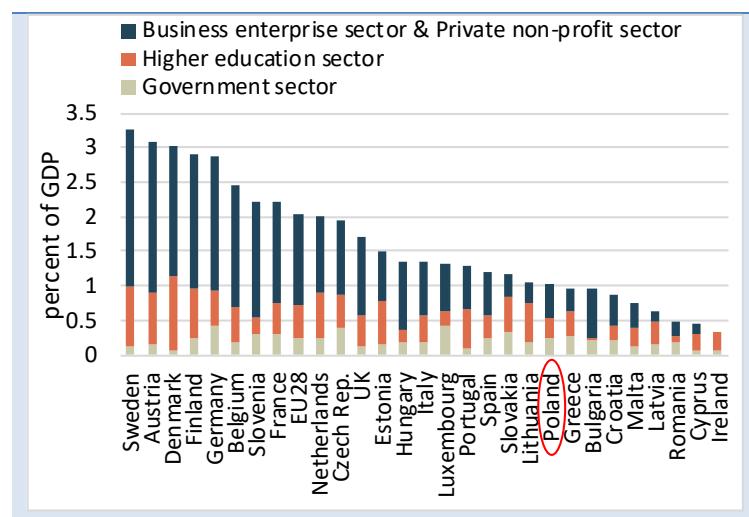
growth patterns in 750 of the world's largest cities showed that human capital and innovation are important determinants of growth for cities of upper-middle and high income but not at the low-income level (Kilroy, Mukim, and Negri 2015). At current levels of development of lagging regions, further growth and transition to high-income status will require innovation. Thus, greater attention should be given to investments in education, health care, and other forms of human capital development and innovation infrastructure.

- 114. Moreover, place-based private sector development policies should start with building the capacity of local actors.** Generally, place-based policies do not work, though there are cases when they do. Cities that have managed to turn themselves around despite adversity were characterized by an inclusive and well-informed approach to policy making at a local level. They often had broad-based coalitions of actors as well as rather sophisticated and capable governments. This suggests that, to potentially succeed, place-based policies should be driven by local actors and only implemented if coordination of multiple actors and their capacity for joint prioritization of investments can be demonstrated. But first, the investments should focus on building the capacity of local actors to design and implement economic development initiatives in an inclusive manner. This effort may include supporting development of formal public-private dialogue structures, technical trainings, improving planning and budgeting practices, increasing transparency and accountability of governing bodies, and optimizing organizational structures to promote focus on implementation.

Streamlining R&D Policy and Strengthening Science-Industry Cooperation

- 115. Overall and business R&D spending is low in Poland, as are the number of patents and the level of sophistication of its exports.** Innovation indicators are typically grouped into *input indicators* (based on R&D expenditure, assuming that this translates into technological improvements) and *output indicators* (based on selected output of the R&D activities, including the number of scientific publications, patent applications, and patents issued). On the input side, Poland spends only about 1 percent of GDP on R&D, and only a fraction of Polish enterprises are involved in R&D activities or implement innovations (NBP 2016). The most innovative countries show high levels of R&D expenditure (up to nearly 3 percent or more of GDP), in particular from private sources. In Poland, private-source spending on R&D amounts to only about 0.5 percent of GDP (Figure 2.38). Moreover, innovative companies are concentrated in a small number of manufacturing sectors, have predominantly foreign ownership, and are export-oriented (although their investment in new technologies is usually in the

Figure 2.38. R&D Spending in EU Countries, by Sector, 2015

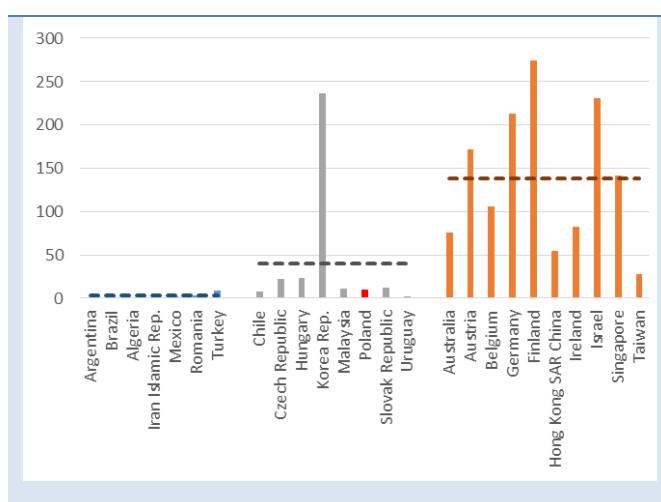


Source: World Bank calculations, based on Eurostat data.

form of purchasing new machinery and equipment—suggesting a process of technology adoption rather than strictly defined innovation).

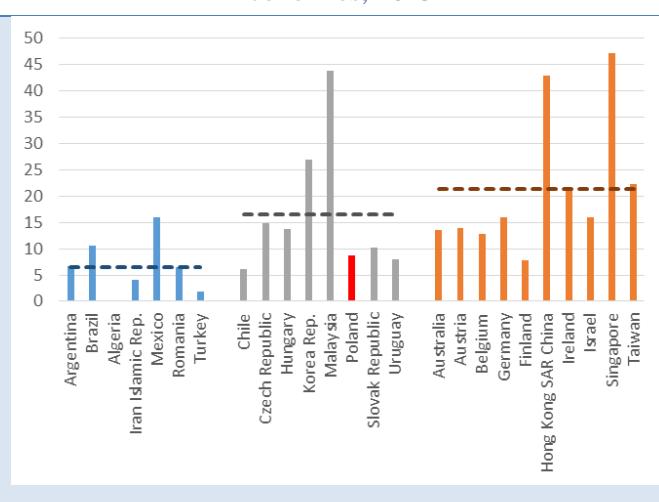
116. As a result, Poland performs poorly in a number of measures of frontier innovation. On the output side, Poland underperforms in international rankings, with a low level of patent applications (Figure 2.39). Poland also stands low in international rankings in terms of technology intensity or export sophistication. In spite of significant increases in trade in the recent decade, the share of high-tech exports in manufactured exports is still below 10 percent (Figure 2.40). Map 2.4 highlights Poland’s position toward the low end of most measures of innovation within the EU—Poland is placed in the “moderate innovators” group and ranked sixth from the bottom on the EU’s European Innovation Scoreboard for 2016.²⁶ Although Poland has been relatively successful in imitating and adapting existing technologies, it will increasingly need to rely more on frontier innovations. A 2016 NBP analysis notes that Poland’s innovative potential is moderate because of relatively low levels of human and social capital, barriers to entrepreneurship, and focus on price competitiveness, as discussed earlier (NBP 2016). However, low R&D spending by companies; only sporadic cooperation between companies and scientific institutes; and lack of transparency in the system of innovation support, both in terms of its strategy and institutions involved, also play a role.

Figure 2.39. Number of Patent Applications per 1 Million Population, Selected Economies, 2015



Source: Aldaz-Carroll, Skrok, and Van Den Brink 2017.

Figure 2.40. High-Technology Exports as a Percentage of Manufactured Exports, Selected Economies, 2015



Source: Aldaz-Carroll, Skrok, and Van Den Brink 2017.

²⁶ The European Innovation Scoreboard rates the innovation performance of EU member states, distinguishing between three main types of indicators and eight innovation dimensions, capturing 25 different indicators in all. The “enablers” capture the main drivers of innovation performance external to the firm, covering Human Resources; Open, Excellent, and Attractive Research Systems; and Finance and Support. “Firm activities” capture the innovation efforts at the level of the firm, grouped into Firm Investments; Linkages & Entrepreneurship; and Intellectual Assets. “Outputs” cover the effects of firms’ innovation activities in two innovation dimensions: Innovators and Economic Effects.

117. Cooperation between science and industry needs to be strengthened to foster frontier innovation.

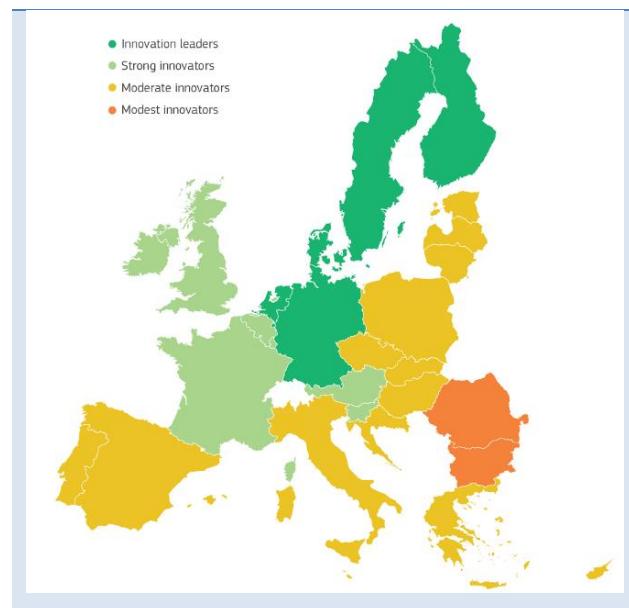
As mentioned above, research excellence is a critical building block of innovation-led growth. Research then needs to be translated to enterprises through science-industry cooperation, including joint research, technology transfer, and commercialization initiatives. However, weak links between business and public science organizations continue to be a challenge in Poland. The bulk of business expenditures in recent years was for the acquisition and absorption of industrially available technologies (supported both by the previous system of tax incentives and by the EU Structural Funds in 2007–13). On the supply side, commercialization of R&D results is not a significant part of the performance evaluations of researchers or criteria for their academic promotion. Until recently, universities and research institutes were not incentivized to acquire external sources of financing. The number of research projects carried out by public universities and research organizations that were contracted by industry remains low. Business funding of research performed by academia was 0.02 percent of GDP in 2015, one of the lowest levels in the EU-28. Of the innovative Polish companies, 10.6 percent cooperate with higher education institutions, compared with 12.2 percent in the Czech Republic and 20.4 percent in Belgium. Joint patent applications and copublications between science and industry are also low. In 2014, Poland had only 4 public-private copublications per million population, compared with 14 in the Czech Republic and 34 for the EU-28 (EC 2017a).

118. The Polish government has recently taken several steps to improve the coordination and governance of the research and innovation system. These include creation of the interministerial Council for Innovativeness; the "#StartInPoland" framework targeting start-ups; the Plan and Strategy for Responsible Development (including a review of Smart Specialization Strategies); the White Paper on Innovation; the Strategy for Scientific Excellence, Modern Higher Education, Partnership with Business and Responsible Research; an ordinance on distributing state subsidies for public and nonpublic higher education institutions; and the First Act on Innovativeness.

119. A number of impact evaluations of innovation support programs have also been undertaken, which is another step in the right direction. One example is a

rigorous evaluation of NCBR's In-Tech program, which provides grants to projects carried out by consortia of firms and research entities. In-Tech provides grants based on peer reviewer ratings: applications with a score above a threshold are offered funding. The evaluation found that projects supported by In-Tech would not otherwise get funded by other agencies or by the consortia themselves. It also found positive impacts on science-industry collaboration, innovation outputs, and product commercialization (Bruhn and McKenzie 2017). See Box 2.2 for more details.

**Map 2.4. General Country Classifications, 2016
EU Innovation Scoreboard**



Source: EC 2016d. ©European Commission.
Reproduced, from the European Commission.

120. **Yet, the innovation support system remains fragmented, and there is scope for a more coordinated, strategic approach to R&D policy.** Poland has hundreds of innovation support programs, funded by both the government and the EU and implemented by NCBR, the Polish Agency for Enterprise Development (PARP), the Ministry of Economic Development, regional (voivodeship) government agencies, and others. These are largely in the form of grants but also include loans, guarantees, and tax incentives. Risk aversion often steers funding toward low-risk capital expenditures and away from the critical high-risk early stages of the innovation process (Kapil et al. 2013). This dispersion of initiatives leads to duplication of objectives, higher administrative costs for the public sector as well as beneficiaries, and lack of strategic focus.
121. **Based on a Schumpeterian endogenous growth model, the design of R&D policy should be streamlined.** Fiscal instruments such as R&D subsidies and taxes affect firm survival and resource reallocation between incumbent and entrant firms. These instruments can be an effective way of providing innovation incentives to firms while also leveraging the selection margin in the economy (Acemoglu et al. 2013; Aghion and Akcigit 2015; Criscuolo et al. 2012). International evidence suggests that large incumbents are typically better than smaller ones at obtaining government subsidies (Criscuolo et al. 2012). Therefore, one can argue that R&D subsidies to incumbents might be preventing the entry of new firms and thus slowing down the replacement of inefficient incumbents by more-productive new entrants. In fact, Acemoglu et al. (2013) find that subsidizing incumbents reduces the equilibrium growth rate, and welfare decreases because it prevents low-ability incumbents from exiting, thereby inhibiting the entry of high-ability firms.
122. **Moreover, the focus should be on basic research given the cross-industry spillovers it can generate.** Basic research generates fundamental technological innovations and creates within and across industries spillovers that affect subsequent applied innovations and can lead to breakthrough technological advances. In a competitive market economy, there is underinvestment in basic research and overinvestment in applied research (Akcigit, Hanley, and Serrano-Velarde 2014). This is because a large fraction of spillovers from basic research across industries are not internalized. The overinvestment in applied research results from product market competition. As a result, there is a dynamic misallocation of research efforts, which reduces welfare significantly. Akcigit, Hanley, and Serrano-Velarde (2014) show that a uniform research subsidy has limited welfare improvements unless the policy maker is able to discriminate between types of research projects.
123. **More generally, there is a need to shift Polish innovation policy toward frontier-pushing activities using new instruments under the EU funds and attracting R&D-intensive FDI.** Although there is still scope for catching up by closing the gaps in technology adoption, these reserves may be exhausted at some point. Polish innovation policy needs to channel more resources into basic R&D and adopt the toolkit of financing instruments in line with trends in advanced economies, gradually switching from nonreimbursable grants to revolving instruments. The new growth strategy needs to encourage entrepreneurship and to support small businesses and start-ups—especially in the tech area—through a mixture of grants, loans, and venture capital as well as technical advice, mentoring, networking and incubation, greater internationalization of domestic firms, and attracting R&D-intensive FDI (Kapil et al. 2013). Critical to this task will be the capacity of the state to coordinate actions across the public and private sector.

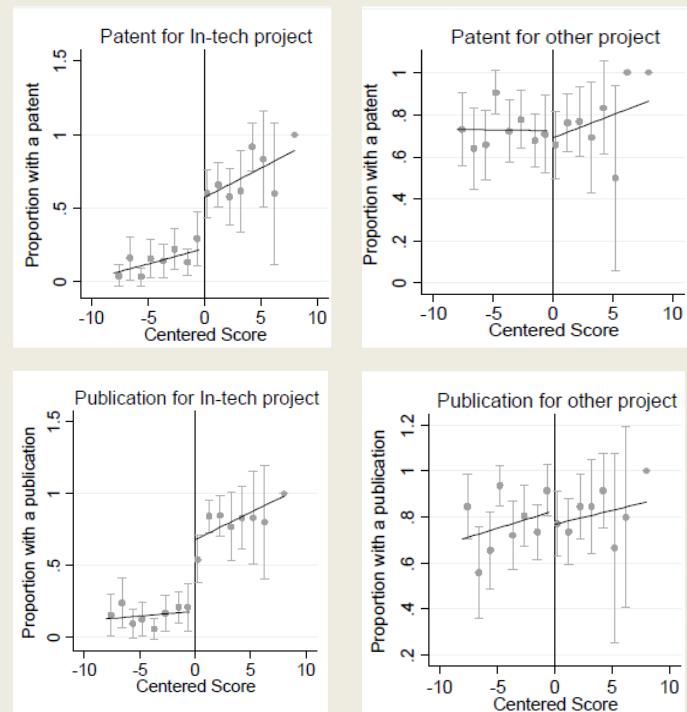
Box 2.2. Subsidies to Spur Science-Industry Collaboration: The Case of Poland's In-Tech Program

The In-Tech program provides grants to consortia of research entities and firms for proposed research projects. Applications receive a score based on peer reviewer ratings: applications with a score above a threshold are offered funding. Based on this funding rule, Bruhn and McKenzie (2017) used a regression discontinuity (RD) design to estimate the effects of receiving In-Tech funding for applicants to the 2012 and 2013 calls for proposals. Data from In-Tech application forms show that applicants above and below the cutoff have similar characteristics, suggesting that the RD approach is valid.

Looking at innovation outputs, they find that receiving In-Tech funding increases the probability that the consortium applied for a patent related to their proposed project (from about 15 percent to 60 percent) and there is no effect on applying for a patent for another project (Figure B2.2.1). Most of the patent applications have been to the Polish patent office, with no significant increase in applications to the European office. Similarly, members of a consortium that received In-Tech funding are more likely to publish a paper related to their proposed project, with no significant effect on publications related to other projects (Figure B2.2.1).

Finally, for commercialization, they find that receiving In-Tech funding leads to about a 20 percentage point higher probability of a product related to the proposed project being ready for sale or currently being sold in Poland. However, these products currently only account for about 1 percent of firm sales.

Figure B2.2.1 Impact of In-Tech on Research and Innovation



Source: Bruhn and McKenzie 2017.

Note: The plots show sample means and 95 percent confidence intervals within one-unit-interval bins on either side of the funding cutoff. Local linear regressions over the eight-point range are plotted on either side of the cutoff.

Countercyclical Monetary and Fiscal Policies and Effective Public Finance as Fundamental for Innovation

124. **Countercyclical policy and effective public finance also belong to the suite of instruments of a strategic state.** They can be treated as foundations for an innovation-led growth model and are complementary to its four policy pillars discussed above: product market competition, labor market flexibility, higher education and research, and capital market-based finance. Countercyclical monetary and fiscal policies contribute to encouraging firms to invest more in R&D and innovation. This is because they enhance growth as they help maintain aggregate consumption and therefore firms' market size over the economic cycle (Aghion and Howitt 2009). Through stabilization of aggregate demand in the economy, more flexible fiscal and monetary policies can help credit-constrained firms to maintain R&D and other types of innovation-enhancing investments over the business cycle. Against this backdrop, debt and deficit targets should be formulated in structural terms and corrected for cyclical variations. Effective public finances contribute to stable and predictable conditions, which are beneficial for doing business and innovation.
125. **Sound fiscal, monetary, and exchange rate policies along with prudent financial supervision are sine qua non conditions to boost investment and enhance productivity.** Over the recent past decades, commitment to a strong macroeconomic policy mix enabled Poland to achieve macroeconomic stability and support growth. First, a credible inflation-targeting regime managed by an independent central bank reduced inflation to low and stable levels, while an open capital account and limited exchange rate intervention ensured an appropriate real exchange rate driven by market forces. In addition, strong fiscal rules helped contain debt and deficits of central and local governments. In the financial sector, a bank privatization program based on diversified investors' base during the transition, combined with effective regulation and supervision, established a sound, resilient financial system (Aldaz-Carroll, Skrok, and Van Den Brink 2017). Commitment to stability and consistency of policies will continue to be needed to reduce uncertainty.
126. **With regard to financial sector stability, cooperative banks and credit unions could pose risks even though they are not systemically significant.** Shares of cooperative banks and credit unions in total assets are relatively low, at 7 percent and 0.7 percent, respectively. Although the headline indicators for the cooperative banks are relatively stable, larger cooperative banks face significant credit and liquidity risks stemming mostly from aggressive growth strategies and higher sectoral credit concentration (as evidenced by the failure of the largest cooperative bank at the end of 2015). The credit unions continue to record losses, and their capital adequacy stands well below the minimum level of 5 percent, with seven credit unions going bankrupt in 2014–16. The total cost of these bankruptcies and payouts related to two cooperative bank insolvencies to the Bank Guarantee Fund were estimated to be around €1.5 billion in 2014–16, causing banks' contributions to increase. Failures of these institutions signaled challenges to the supervisory framework of these sectors—including a need for high-quality financial reporting—and showed that the cost of a relatively small financial institution failure could be significant for the whole sector.
127. **Moreover, the tax on financial sector assets imposes an additional burden on the banking sector along with the uncertainty over the foreign exchange (FX) mortgage conversion.** In early 2016 the government introduced a tax at the monthly rate of 0.0366 percent (0.44 percent annualized) on financial sector assets (except the purchase of government bonds). The asset tax

reduces banks' profitability and constrains their ability to increase prudential buffers in accordance with the EU's Capital Requirements Directive (CRD) and Capital Requirements Regulation (CRR). In the long run, the asset tax can increase the cost of credit, decrease the credit supply in favor of increased purchase of government bonds, raise in cross-border lending, and increase off-balance-sheet transactions. Other European countries that introduced similar asset taxes (including Finland, Hungary, and Slovenia) either fully canceled or lowered the tax in the short term to avoid these challenges. Polish authorities should also consider replacing the asset tax with a tax on profits. Uncertainty over the FX mortgage conversion is another factor posing risks to the financial sector stability. Any restructuring of the FX mortgages needs to ensure the soundness and stability of the banking sector, in line with the recommendations of the Financial Stability Committee on the restructuring of the FX housing loans from January 2017.

128. **Fiscal rules have contributed to stability of Polish public finance, and their credibility needs to be preserved and supported by higher-quality public finance to boost productivity.** The constitutional ceiling on public sector debt (60 percent of GDP) and the lower precautionary debt thresholds in the Public Finance Act as well as legally mandated limits on public sector spending, have restrained fiscal deficits. But the quality of public finance could be improved. Genuine public finance reform could provide for more transparent, efficient public expenditures through modernized and integrated budget classification and charts of accounts in the public sector. It could also result in a higher performance orientation, more vigorous review of spending proposals, or elimination of the least productive programs to broaden fiscal space for investments in the most productive areas—all in line with the strategic and selective management of public investments.
129. **Poland has room to strengthen budget institutions and fiscal management to ensure higher-quality public spending and the best use of the available EU funds.** Poland made important progress in bolstering the public planning, control, and compliance systems required to access and account for EU funds, becoming one of the most successful countries in utilizing EU cohesion funds (World Bank 2016). However, there is room for further progress. For instance, the government disseminates regular, cash-based financial information on the state budget, but that process lacks transparency and is insufficient for monitoring, decision making, or communication with citizens. Accrual-based financial reporting in the public sector is weak: Poland does not produce any set of consolidated financial statements, even for the central government. Also missing are a more comprehensive quantified statement of fiscal risks and contingent liabilities as well as information on nonfinancial assets and asset-related risks. Public investment needs to be better managed and coordinated with the absorption of EU funds, while key aspects for budget management include a narrower scope for automatic indexation of spending, a medium-term framework for the budget, and regular spending reviews to ensure that fiscal policy is appropriate for the stage of the economic cycle.
130. **In light of expected weaker inflows of foreign investments and prospects of lower inflows of EU funds after 2020, higher domestic savings will be necessary, and the public sector could play an exemplary role.** Higher savings would enable Poland to reduce its net negative investment position and its dependence on external debt, including volatile portfolio flows. This is because foreign financing is likely to decline, population aging will place increasingly greater burdens on the pension system, and productivity growth will slow as Poland catches up with productivity in other countries. There is scope for an increase in domestic saving from the private sector, particularly by households. Chapter 4 discusses the role of voluntary pension spending in this regard.

131. Finally, Poland's tax policy and tax administration reform agenda is comprehensive.

Reform requires addressing the existing tax gaps—particularly in the value added tax (VAT) and corporate income tax (CIT)—and harmonizing the labor tax wedge between regular contracts based on the labor code and atypical ones based on civil law. These interventions are about ensuring a level playing field and limiting possible abuse and unfair competition. There is scope to make taxes in Poland simpler, more efficient and progressive, and more predictable at least over the medium term. In general, upgrading the tax system can boost productivity by minimizing differentiated tax treatments across assets and financing; by reducing the unfair cost advantage enjoyed by firms they underreport their sales to the tax authorities; and by reducing compliance costs of small firms (IMF 2017b). There is scope for improvement in Poland in all of these areas.

Priorities for Growth

132. Poland has experienced nearly three decades of fast and stable growth, grounded by robust

productivity gains, but further increases in productivity will depend on Poland's ability to transition to an innovation-led growth model. Capital accumulation was also significant in explaining growth in Poland, while the contribution of labor was relatively small. However, recent estimates of Poland's potential output and its drivers suggest a markedly diminishing role of productivity, as productivity increases resulting from structural reallocation have declined and the contribution of firm turnover is still small. As Poland converges with other high-income countries, it will no longer be able to grow based on low labor costs and will need to transition toward an innovation-led growth model. The next five years provide a window of opportunity for Poland to prepare for this transition while still enjoying the benefit of ample EU funding and continued growth.

133. Only a more strategic, effective and accountable state can successfully manage the

transition toward innovation-led growth, because it will require commitment, coordination, and cooperation. A capable and accountable state can build consensus across actors that can cement trust and ensure private sector cooperation. Otherwise, existing market inefficiencies or negative externalities (such as incumbent firms' privileged position, underinvestment in R&D, and pollution) could be replaced by state failures.

134. Such a change will require competition and improvements in product-market regulations.

More intense competition and free entry enhances innovation and growth as the country approaches the technological frontier. State control, barriers to trade and investment, and barriers to entrepreneurship restrict competition in product markets. The single most important unresolved challenge weighing on product markets is state control and the significant role of SOEs, which account for almost half the revenues of the biggest enterprises listed on the stock market. As for barriers to trade and investment, Poland has a strong track record of liberalized foreign trade and has attracted sizable FDIs, but mounting overregulation or increased policy uncertainty might have discouraged new investors. Regarding barriers to entrepreneurship, Poland's regulatory environment suffers from discrepancies between the laws on the books and the performance of those laws in practice. Late payments, slow administration proceedings, excessive reporting requirements, and frequent changes in regulations also surface in surveys of Polish businesses. Moreover, there are significant variations in regulatory performance across regions. Going forward, more attention needs

to be given to safeguarding advances by insulating the regulatory process from capture by interest groups. Finally, improving the predictability of regulations should help to limit uncertainty—an increasingly important concern for businesses. The state will need to demonstrate continued and credible commitment to competition, which will inevitably require a new consensus to removing the remaining barriers.

135. **Labor market flexibility and strategic openness to migration would also improve productivity.** Poland's labor regulations flexibility is moderate relative to other OECD countries, with the increasing share of temporary contracts having been the main source of flexibility over the past decade. In contrast, part-time jobs are typically not available as a source for greater flexibility. Needed now are flexible work arrangements, including greater flexibility to find part-time work, and a reduction in administrative burdens and implicit costs associated with permanent labor contracts. Segmentation of the labor market could be reduced by making all contracts subject to the same tax and social contributions regime, limiting the use of temporary contracts, and strengthening unemployment assistance. An effective immigration policy could be complementary to these efforts and help Poland cope with the challenge of a shrinking workforce and an aging population. Again, a consensus will be needed to better balance labor market flexibility and greater job security.
136. **Innovation will require frontier researchers and good universities and research centers.** Poland witnessed a substantial increase in the proportion of university graduates, but declining birth rates have induced a continuous decrease in student enrollment and a change in sector composition. Research funding has become more competitive, but further efforts are needed to improve the quality of tertiary education and research. Implementing quality higher education will require concerted efforts by education providers, the private sector, and the government. Strong engagement from the private sector is required to ensure that programs are aligned with employers' skill demands. Such initiatives could be particularly relevant for companies from the more innovative and faster-developing sectors of the economy, for which skill shortages are a particular concern, including for larger firms that benefit from international (technological) exposure through substantial FDI. Public sector facilitation of such processes will be required to ensure coordination and a clear framework.
137. **Financing innovation will require a greater reliance on capital markets.** Poland's financial sector depth is in line with its income level, and the country performs better than its peers in access to finance for firms. However, there is need for further diversification of the financial sector through capital markets development or venture capital investment, in line with the innovation-led growth strategy. To take advantage of an increased supply of venture capital, efforts to increase dealflow and investment readiness of firms will also be needed. Again, public sector facilitation, a clear regulatory framework, the development of alternative long-term funding instruments, and mobilizing a wider investor base will be needed to ensure consistency of policies and coordination with the private sector.
138. **To address the challenge of reconciling growth with budgetary discipline, Poland must become strategic in terms of its public investment policy, improving the efficiency of EU funds to stimulate private investment, and streamlining and better targeting its R&D policy.** Strategic states focus public investments on a limited number of growth-enhancing areas with high growth potential and positive externalities. In addition to education, a long-term life-cycle approach to managing and financing transport and ICT infrastructure will help to improve spending efficiency,

prepare for the likely reduction of EU financing, and gradually bridge the overall infrastructure gap, including in the digitalization agenda. In terms of improving the efficiency of EU funds, utilizing revolving financial instruments (instead of grants) could prove effective. The focus on investments in lagging areas could focus more on education and health as well as building the capacity of local actors. R&D spending is low, the enterprise innovation support system in Poland is fragmented, and the country lacks a strategic approach to R&D policy. Going forward, the design of R&D policy should be streamlined and focused on basic research. Also, better-targeted and more effective innovation support programs will be especially critical if the level of EU funding for innovation falls after the current EU's funding cycle. Also on this front, the capacity of the state will be critical to coordinate actions across the public and private sector.

139. Finally, investment and growth will depend on commitment to sound macroeconomic policies and low uncertainty. Prudent financial supervision and countercyclical monetary and fiscal policy are sine qua non conditions to boost productivity. Fiscal rules have contributed to stability of the Polish public finance and their credibility needs to be preserved. In light of expected weaker inflows of foreign investments and the prospects of lower inflows of EU funds after 2020, higher domestic savings will be necessary, and the public sector could play an exemplary role. Finally, Poland should strengthen budget institutions and upgrade its tax system to improve accountability of public finance on both the public spending and revenue sides. Critical to this task will be the consistency of policies across government levels, and ensuring trust and cooperation from private agents in their implementation.

Box 2.3. Knowledge Gaps Affecting Poland's Growth Potential

Critical knowledge gaps identified in this chapter include

- Economywide impact of reducing labor market duality;
- Mechanisms to smooth shifts in public investment and EU funds absorption;
- Diagnostic of labor shortages where migrants could play an important role;
- Regional transfer formulas, including whether it would make sense to condition regional EU funds on performance and ways to further interconnect administrative regions; and
- Analysis of the composition, effectiveness, and efficiency of R&D and innovation support measures.

Chapter 3: Enhancing Inclusion

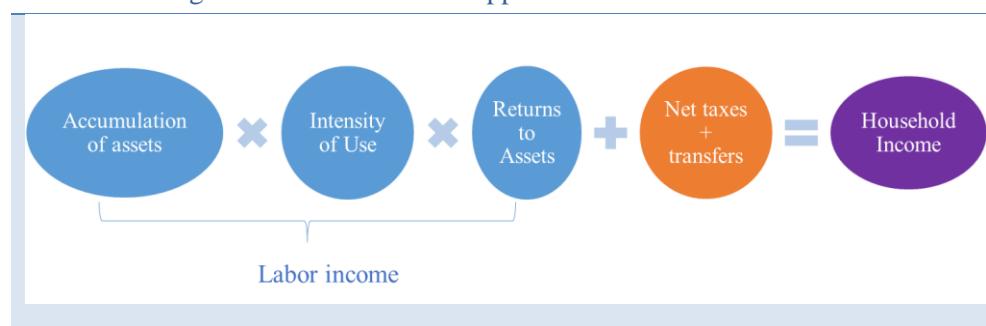
Ensuring that growth is inclusive will require continued increases in labor incomes, which will depend on equitable access to high-quality health and education services, activating the labor force, minimizing labor market exclusion, and reducing barriers to mobility. The redistributive impact of fiscal and social policies will need to complement the increase in labor incomes and address the needs of the most vulnerable. This agenda will require consistent policies, enhanced coordination and cooperation between public and private sectors, and a more effective state.

Introduction

140. **Demographic and technological changes will pose important challenges going forward.** As discussed in Chapter 1, despite recent reductions in poverty and improvements in shared prosperity over the past 15 years, important challenges remain. The most important challenge has to do with the demographic change and what this will mean for shared prosperity. Second, Poland will increasingly have to adjust to technological improvements across the globe by improving the quality of its labor force to ensure that incomes can continue to rise across the population. Third, Poland continues to face exclusion of some groups, with high economic costs for society, including the unemployed or precariously employed, rural populations, the elderly, the disabled, women, and youth. These challenges will inevitably require a more effective state.

141. **Poland needs to strengthen households' capacity to diversify their assets base and to engage productively—improving access to high-quality health and education services, promoting activation, reducing barriers to mobility, and addressing the needs of the most vulnerable.** Economic growth, changes in poverty, and changes in inequality are jointly determined (Ferreira 2010). This chapter relies on an assets-based framework to identify the contributors to these changes and the capacity of households to contribute more actively to economic growth. Following Bussolo and López-Calva (2014), the potential for labor income growth depends on the accumulation of assets in the form of human, physical, financial, and social capital; the intensity of use of those assets; and the returns to those assets. Fiscal and social policies can complement labor incomes through net taxes and social transfers by redistributing incomes and protecting the most vulnerable (Figure 3.1).

Figure 3.1. Assets-Based Approach to Household Income



Source: Bussolo and López-Calva 2014.

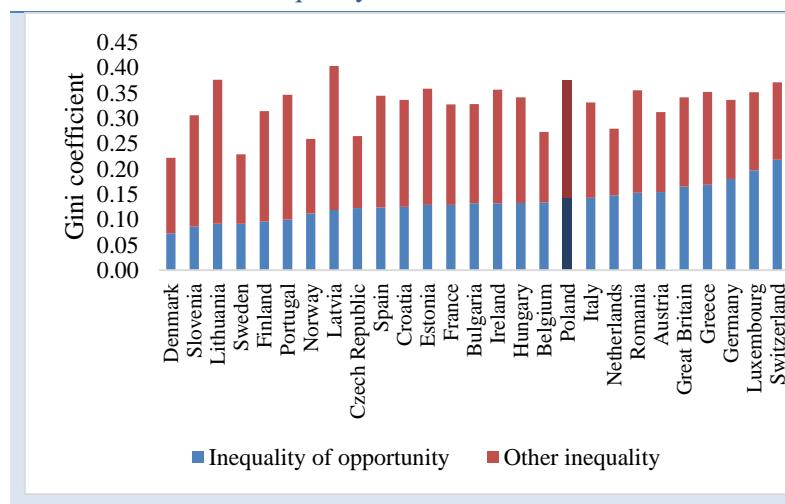
142. **The rest of the chapter is structured following the assets approach.** Regarding labor income, the initial focus is on the accumulation of human capital, and the analysis suggests that Poland will need greater efforts to ensure equality of opportunity in education and health. The analysis on the intensity of use is focused on the need to increase labor force participation, particularly for women. To improve the returns to labor, the focus is on minimizing labor market segmentation and improving mobility. Finally, the focus on nonlabor income highlights the extent to which taxes and social assistance offset or reinforce the pattern generated through markets. The last section summarizes the priorities, policy implications, and recommendations presented in this chapter.

Meeting the Human Capital Challenge to Increase Asset Accumulation

143. **This section explores the opportunities individuals have to build up their human capital, focusing on education and health.** There are normative and instrumental reasons to be concerned about inequality of opportunities. From a normative perspective, a basic notion of justice and equity would dictate that access to key goods and services should not be determined by circumstances outside one's control, such as one's gender or the education level achieved by one's parents. A principle of equality of opportunity would require that an individual's probability of accessing such opportunities is independent of their circumstances at birth. Most societies agree with such a principle, believing that opportunities should not be assigned based on gender, ethnicity, parental background, religion, or other circumstances beyond their control. Recent analysis for Europe finds that gender, age, family background, and country of origin explain about two-fifths of labor income inequality and points to the challenge in reducing inequality of opportunities (Brzezinski 2015; Checchi, Peragine, and Serlenga 2016). In the case of Poland, inequality of opportunity is higher than in all other eastern European countries with the exception of Romania and explains 38 percent of labor income inequality (Figure 3.2).

144. **On the instrumental aspects, inequality of opportunities leads to a skills divide that could be aggravated by aging and technological change.** As documented below, although Poland performs well relative to other countries, education outcomes vary across socioeconomic background, geographic location, and gender. These differences in access to building relevant skills for work (the “skills divide”) could be aggravated as technological change tends to increase the premiums to higher and better-quality education. Education premiums have not shown this trend so far in Poland owing to a large increase in tertiary-educated

Figure 3.2. Inequality of Opportunity as a Factor in Total Income Inequality, EU-28 Countries, 2011



Source: Checchi, Peragine, and Serlenga 2016, based on 2011 EU Statistics on Income and Living Conditions (EU-SILC).

workers. However, the race between skills and technology continues. To face this challenge, concerted efforts to provide high-quality, relevant education and training throughout the life cycle will be needed. Similarly, despite tremendous progress, access to high-quality health care still depends on individual circumstances such as socioeconomic status and location. Poland will need to improve access through greater and more effective allocation of resources if it hopes to meet the needs of a growing elderly population with low skills and activity levels, for whom unequal access to quality services could turn into powerful forces that could increase income inequality.

Needed Efforts to Ensure Equal Opportunities in Education

145. **Despite enormous strides toward improving access to high-quality education in Poland, challenges remain.** Skill formation is cumulative and shaped along the life course. Therefore, it is important to strive for skill formation beginning with the earliest years all the way through mature adulthood. As detailed below, the results of the analysis show that socioeconomic background still matters in primary and secondary education, as measured by school performance among 15-year-olds, with differences in learning outcomes between children of low and high socioeconomic background equivalent to three years of schooling. There are also important regional differences, with learning outcomes in rural areas falling behind urban areas by the equivalent of one year of schooling. Similarly, there are equity concerns related to the underrepresentation of certain groups in higher education and in terms of access to training for older adults.
146. **The race between skills and technology continues.** Globalization and structural changes could lead to important changes in the demand for skills. Moreover, to the extent that technological change drives the demand for skills, the skills divide could increase. The evidence for Poland suggests that educational systems need to foster development of skills required to perform nonroutine tasks, particularly because young, unskilled workers who enter more routine-intensive occupations face a relatively high unemployment risk (Hardy, Keister, and Lewandowski 2016). Older workers have so far been less affected by occupational changes than younger workers. However, given the high concentration of older workers in routine jobs, they may be disproportionately affected if the shift away from routine work intensifies in the future, which calls for the need for lifelong and on-the-job training (Lewandowski et al. 2017).

The “Skills Divide” among Different Population Groups

147. **Beginning at the earliest stages in life, access to early childhood education is low and unequal.** The potential benefits from supporting early childhood development have been documented extensively, ranging from healthy development to greater capacity to learn while in school and increased productivity in adulthood. For instance, a 30-year follow-up study of children in the United States showed that high-quality birth-to-five programs for disadvantaged children can deliver a 13 percent per year return on investment (Garcia et al. 2016; Heckman, Pinto, and Savelyev 2013). From an education perspective, early gaps in cognitive, linguistic, and socioemotional skills jeopardize a child’s capacity and motivation to learn upon entering primary school. The availability of preschool education facilities in Poland is quite varied across regions, with some counties (powiats) covering less than 60 percent of children ages 3–5 years, while others covering 100 percent of children (Map 3.1). Access to childcare is also generally low in Poland, which is discussed in more detail later in this chapter. The government of Poland is emphasizing early childhood

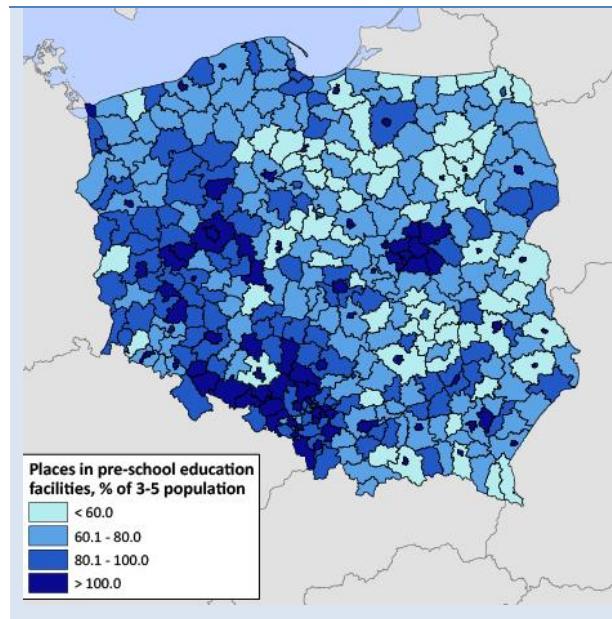
development (ECD) within families. The newly introduced Family 500+ benefit may reduce financial constraints on formal and informal ECD investments. The first opinion polls show that these new resources are being spent on children's extracurricular activities, travelling with parents, or educational materials—all of which support the educational development of children. However, the effect on inequality is hard to predict. It would be important to verify whether children from all socioeconomic backgrounds receive increased (formal or informal) early childhood education, and to potentially implement programs that would support some groups of parents in this role.

148. Educational performance of Polish youth improved significantly over the past 15 years, and the school system became less stratified by socioeconomic background. The quality of basic education rose between 2000 and 2012, as shown by progress among Polish children in the Program for International Student Assessment (PISA) in language, mathematics, and science. A significant and balanced improvement was made across the entire socioeconomic distribution. For instance, average scores in

mathematics improved for all quintiles of socioeconomic status by 42–49 points—the equivalent of about one extra year of schooling (Figure 3.3). Social stratification, measured as the correlation between student and school socioeconomic index, also decreased significantly since the first PISA survey in 2000.

149. The 2015 PISA results indicate an absolute and relative deterioration in PISA scores, but Poland remains high in international rankings. The biggest decline—between 2012 and 2015—happened in science (close to one year of schooling), but declines were also significant for math and reading (a half year of schooling). Poland

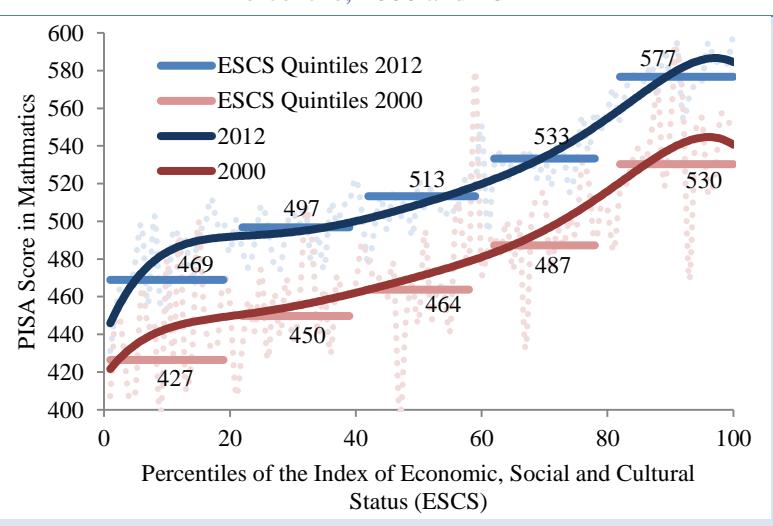
Map 3.1. Coverage of Preschool Education Facilities in Poland, by Powiat, 2015



Source: ©World Bank. Permission required for reuse.

Note: Based on Central Statistical Office (GUS) data.

Figure 3.3. PISA Mathematics Scores in Poland, by ESCS Percentile, 2000 and 2012



Source: Aldaz-Carroll, Skrok, and Van Den Brink 2017, using PISA 2012 data.

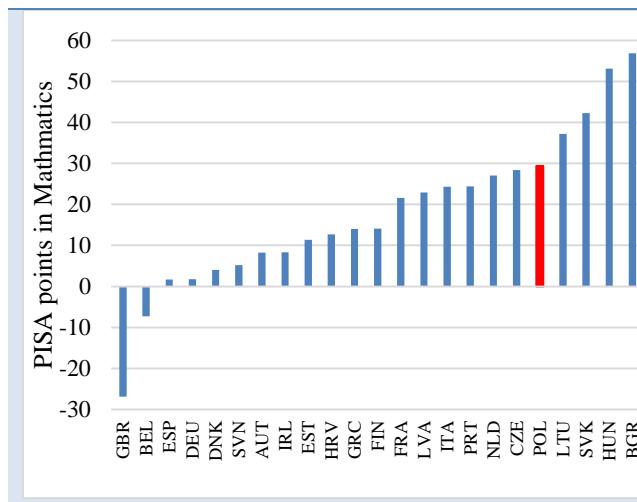
Note: PISA = Program for International Student Assessment. A polynomial of order 6 was used to smooth the dotted lines.

continued to perform above the Organisation for Economic Co-operation and Development (OECD) average and remained high in the country rankings, but the deterioration of its relative position was substantial. Compared with 25 other European Union (EU) countries that participated in both PISA 2012 and 2015 waves, Poland's ranking fell from 4th to 8th in math, from 3rd to 5th in reading, and from 3rd to 10th in science.²⁷

150. The recent results continue to show that socioeconomic background and location still matter for performance in primary and secondary education. Despite improvements in educational equity in Poland over the 2000–15 period, the differences between students with low and high socioeconomic backgrounds are still equivalent to three years of schooling. According to PISA 2015, the difference between top and bottom Index of Economic, Social, and Cultural Status (ESCS) quantiles in Poland were equal to 87 points in math, 90 points in reading, and 95 points in science, with around 30 points being equivalent to one year of schooling. Although the differences in scores between students with different backgrounds are large in Poland, similar or even larger differences are observed in other EU countries. Overall, Poland's school system at the lower-secondary level is less stratified than in other EU countries by socioeconomic background, and relatively little of the variation in overall performance can be explained by the variation in performance between schools. However, the differences between rural and urban students are relatively large from a cross-country perspective. In comparison with the rest of the EU in 2015, urban-rural differences in math, reading, and science were larger only in Lithuania, the Slovak Republic, Hungary, and Bulgaria (Figure 3.4). Moreover, since PISA captures the performance of students during their last year of comprehensive lower secondary school, the survey does not capture potential performance gaps between students in vocational and general education schools. However, PISA assessments for older students in upper-secondary education in 2006, 2009, and 2012 found that performance gaps existed between students in vocational and general schools, with those in vocational schools trailing their peers in general education (World Bank 2015c). Developing a policy response to the performance difference of upper-secondary schools of different types would ideally be based on in-depth analysis of, among other things, the drivers of student selection into different schools as well as those aspects of education in vocational schools that impede the acquisition of the skills measured by PISA. Poland also exhibits important differences in learning outcomes across regions (Figure 3.5).

²⁷ Note that the 2015 PISA was entirely performed on computers for the first time; thus comparisons to earlier waves should be treated with caution. Multiple European countries faced deterioration of results relative to 2012 (IBD 2015).

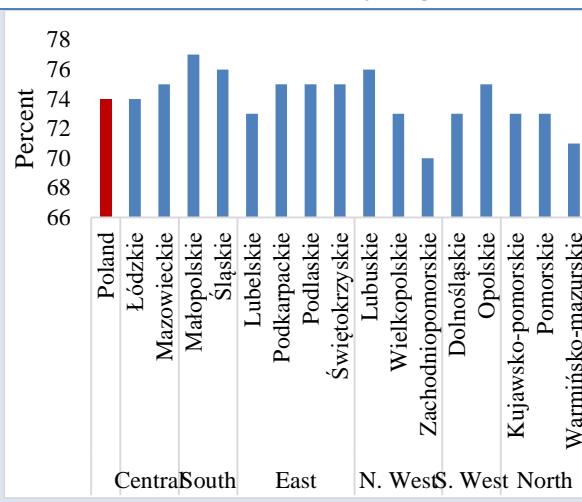
Figure 3.4. Difference between Urban and Rural PISA Math Scores, Selected EU Countries, 2015



Source: World Bank, based on 2015 PISA microdata.

Note: PISA = Program for International Student Assessment.

Figure 3.5. Pass Rate of Secondary School Exam (Matura) in Poland, by Region, 2015



Source: World Bank, based on Central Statistical Office (GUS) data.

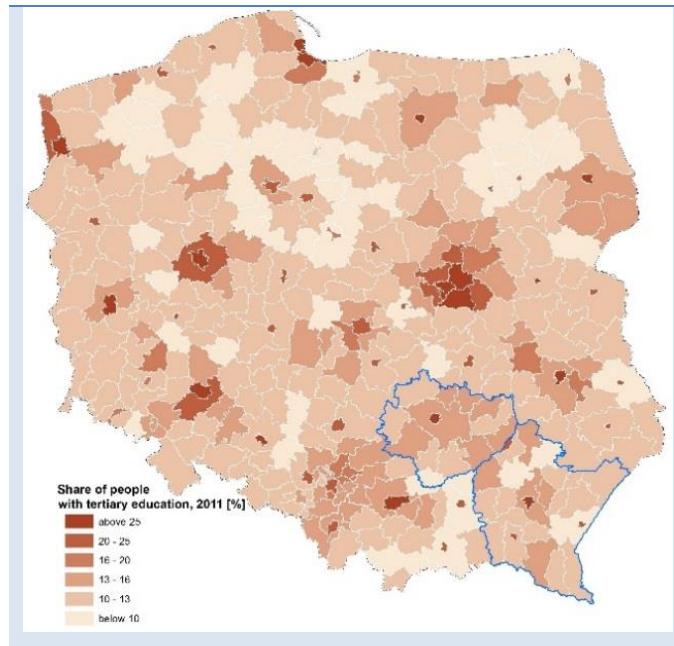
151. **Moreover, planned reforms to the education system may reverse previous efforts to improve performance.** Poland pursued a comprehensive series of education reforms since the early 1990s, including the introduction of standardized examinations, curriculum reform, decentralization, and investment in teachers' professional development. Most fundamental perhaps was the introduction of the comprehensive lower-secondary gymnasium, which delayed selection between the general and vocational tracks and effectively added one year of exposure to the general curriculum for students entering vocational school. This change has been rigorously evaluated and shown to have had a significant positive effect on student performance, with students from poor and well-off socioeconomic backgrounds (who disproportionately tend to go into vocational training) having performance improvements (World Bank 2015c). This is important, because an unusually high share of youth who are not in employment, education, or training (NEET) have vocational training compared with the EU, potentially pointing to weaknesses in vocational training programs in Poland.²⁸ However, the reform separating lower-secondary gymnasiums from primary schools is to be reversed beginning September 2017. An important implication of the reform will be that students will spend one year less in comprehensive schools, and one year more in either vocational or general education. Since the delay in student tracking has earlier been shown to have promoted equity in performance, it is unclear what the impact will be of the announced reforms on equity. In addition, the reforms pose multiple challenges for schools and local governments, because the

²⁸ For instance, in 2016, 16.8 percent of Polish youth ages 20–24 years were NEET, and more than half of them (53 percent) had previously attained vocational education. In the EU-28 on average, the NEET rate among youth ages 20–24 years was similar to the rate in Poland (16.7 percent), but only 35 percent of them had previously attained vocational education (Eurostat data). The NEET rates among youth with previously completed vocational education are overall much higher than among those with general education.

infrastructure, curricula, and teachers' working places must be adjusted within a very limited time.²⁹ Similarly, previous reforms had changed the school entrance age from 7 years to 6 years to allow for a more homogeneous preschool education, but this change was reversed in 2016.³⁰ Although several opinion surveys found strong support for the change in the school structure, the reforms had limited social consultations, and teacher and local government organizations have officially opposed the plan to abolish gymnasiums.³¹

152. In addition, there are equity concerns related to the underrepresentation of certain groups in higher education. Higher-education attainment among those ages 25–34 years is 45 percent in Poland, slightly higher than the OECD average of 42 percent (OECD 2016b). Nevertheless, parents' educational background still has a strong influence on higher-education participation: 81 percent of those ages 25–34 years who had parents with higher education also attained higher education, while only 16 percent of those with parents with education below the upper-secondary level did so (OECD 2016b). Moreover, to the extent that individuals from lower socioeconomic backgrounds had a disadvantage in quality primary and secondary education, they had more difficulty in competing for acceptance in non-fee-paying higher education institutions (Arnhold and Kwiek 2011). This leaves them no choice but to enroll in fee-paying institutions, even while handling the related costs is a particularly severe challenge for this group. Thus, there is still a “skills divide” across socioeconomic groups, and to some extent, this is also reflected by the wide variation in tertiary education across regions (Map 3.2).

Map 3.2. Share of Population with Tertiary Education in Poland, by Municipality, 2011



Source: Sivaev 2017, based on Central Statistical Office (GUS) data. ©World Bank. Permission required for reuse.

Note: The blue boundaries designate the Podkarpackie and Świętokrzyskie regions.

²⁹ In particular, during the next two years, two cohorts will still be in gymnasium (and provision of classes must be ensured there), while the next two cohorts will be first to stay for the seventh and eighth grades in primary schools, which are in many cases too small to accommodate them.

³⁰ There is one year of obligatory preschool education in Poland so that after increasing the school entrance age from 6 years to 7 years, preschool will no longer be obligatory for 5-year-olds but only for 6-year-olds. However, efforts to improve preschool access for younger children started in 2013, and those efforts have continued. Since September 2015, every child at the age of 4 has a right to a place in the kindergarten, and children at the age of 3 will have such right beginning in September 2017.

³¹ A general teacher's strike took place March 31, 2017. Moreover, almost 1 million people signed a proposal for a referendum on the educational reform.

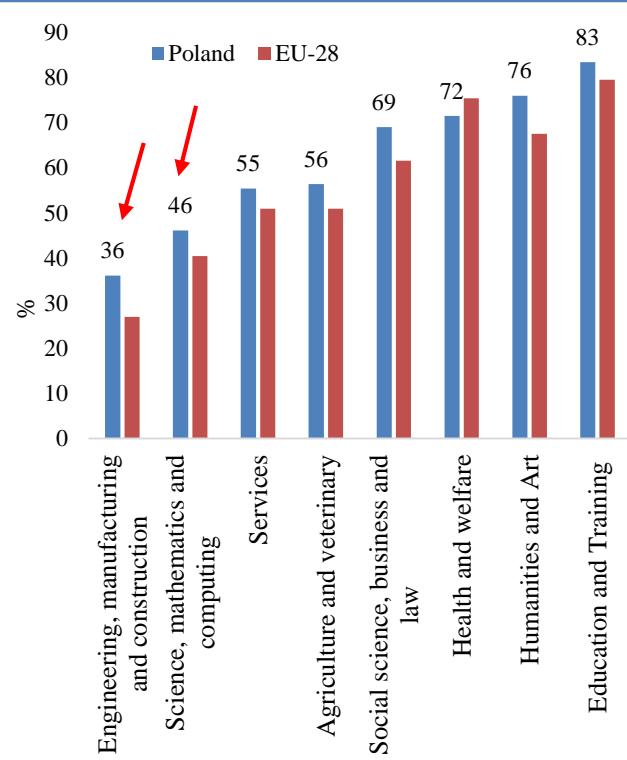
153. Despite a decrease in returns to higher education in recent years, higher education still leads to sizable benefits for individuals. Among these benefits is a reduced risk of unemployment. For those ages 25–64 years in 2015, unemployment of higher-education graduates was 3.5 percent, compared with 7.2 percent for individuals with upper-secondary education and postsecondary nontertiary education, and 15.5 percent for individuals with education below the upper-secondary level (according to Eurostat data). Higher-education graduates also enjoy significant earning premiums. Comparing the earnings of the full-time employed in the 25- to 64-year age group—using the earnings of individuals with upper-secondary education as a reference value of 100—individuals with less than upper-secondary education reached a value of 84, whereas the value for higher-education graduates was 162 (OECD 2016b). This premium is higher than the OECD average (155) for higher-education graduates. That the positive outcomes of higher education can still be observed implies that an inflation of higher education credentials cannot be diagnosed for Poland (Arnhold and Püttmann 2017).

154. In terms of gender inclusion, there are important differences in fields of study across genders. The share of female graduates in science, technology, engineering, and mathematics (STEM) fields is only 36 percent in the case of engineering and manufacturing, and 46 percent in the case of science, math, and computing (Figure 3.6), and although gender segregation among the fields of study is less pronounced in Poland than the EU-average, including in the STEM fields, there is gender segregation of employment across sectors. This is problematic to the extent that job opportunities and wages associated with those fields are greater. Women dominate in “health and social work” and education,” which are “typically female” sectors (Figure 3.7), with more than 70 percent of tertiary graduates in the fields of education, teacher training, humanities, arts, and health being women. In contrast, the representation of women in the traditionally male-dominated sectors of construction, transportation, and manufacturing is low, though in line with the EU average. In addition to the differences in skills, there is a 20 percent gender wage gap in Poland, which cannot be explained by different characteristics and occupations of men and women (Posadas and Hallward-Driemeier 2017).

Adjusting Education and Training to Changing Skill Demand

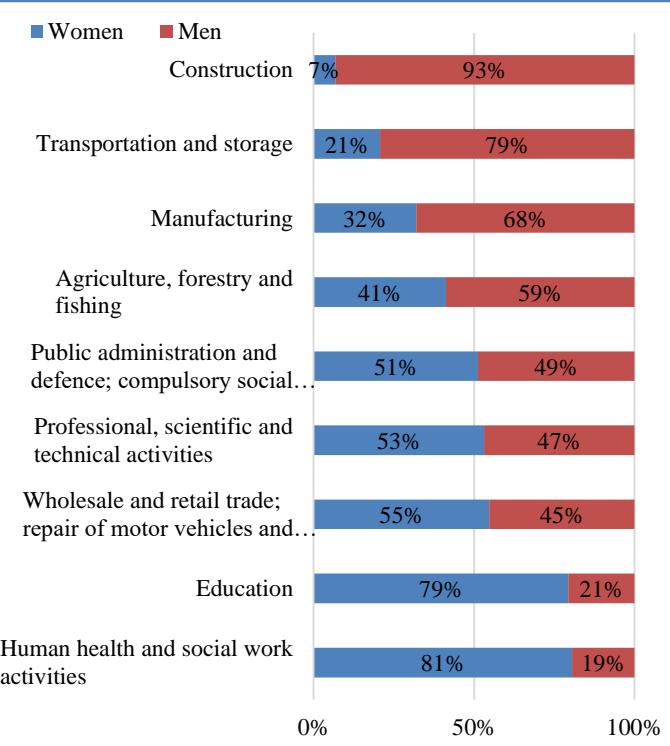
155. Increased demand for skills driven by technological change could aggravate the skills divide, affecting not only the intensity of use of existing human capital assets, but also the returns to these assets. Technology-induced job deroutinization is happening across advanced countries, resulting in an increased share of abstract-task-intensive jobs requiring high levels of cognitive and interpersonal skills. There is a growing literature on the polarization of jobs and the hollowing-out of middle-skilled, routine employment (Autor, Levy, and Murnane 2003; Goos, Manning, and Salomons 2014; Michaels, Natraj, and Van Reenen 2014). For instance, Arntz, Gregory, and Zierahn (2016) find that workers with less than upper-secondary education will bear most of the cost of displacement from automatization (around 9 percent of jobs, on average, for OECD countries). This long-term trend is being partially offset by strong wage-compressing labor policies in the EU (see Broecke et al. 2016 for a comparison with the United States) and the credit bubble during the 2000s (which artificially inflated some low-skill sectors like construction in some EU countries).

Figure 3.6. Female Tertiary Graduates as a Share of Total Graduates in Poland and EU-28 Countries, by Field of Study, 2015



Source: 2015 Eurostat data.

Figure 3.7. Share of Employment in Poland, by Sector and Gender, 2015



Source: 2015 Eurostat data.

Note: Selected sector are those with the highest shares of total employment.

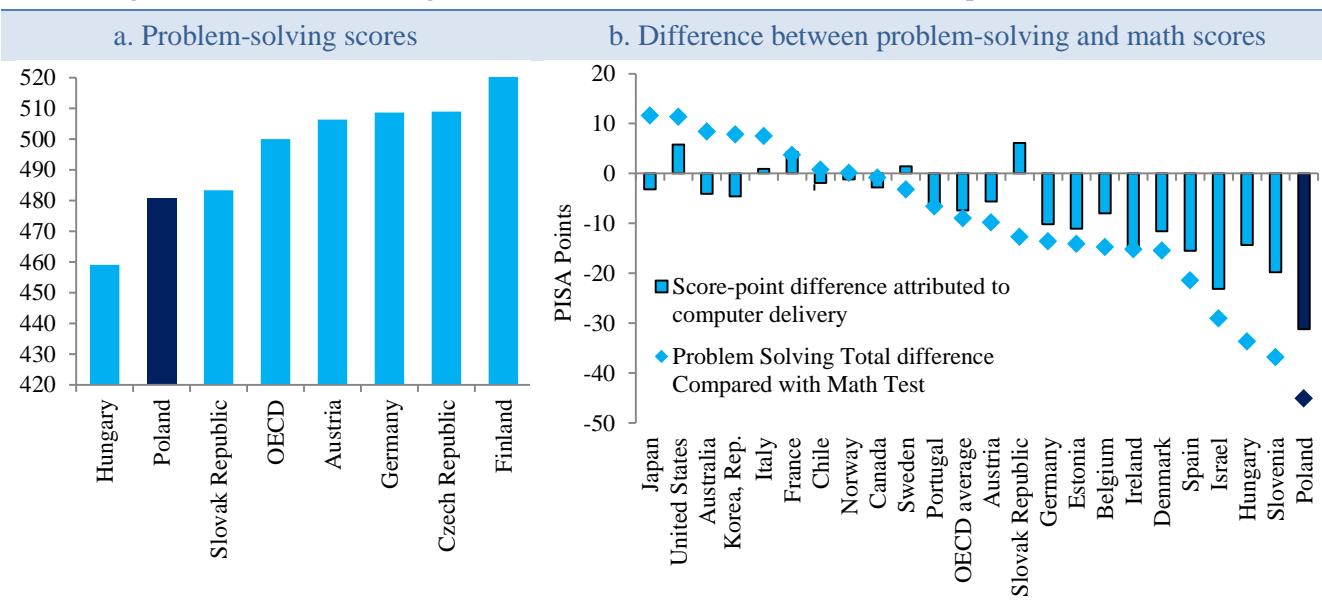
156. **Poland will need to confront this challenge, because jobs in Poland increasingly require cognitive tasks.** Although this trend has not yet affected Poland, there has been an increase in the intensity of cognitive tasks—both those considered routine, thus often done by low-skilled workers, and those that are nonroutine, reflecting a shift in the employment structure between occupations (Hardy, Keister, and Lewandowski 2016). At the same time, the intensity of all manual tasks declined, particularly manual routine tasks. Younger cohorts are experiencing this change more strongly than older cohorts: cohorts born after 1970 contributed most to the overall change in the task content of jobs, while almost no adjustments occurred in cohorts born before 1970. Consequently, younger generations may be increasingly likely to work in computerized jobs, while workers born between 1950 and 1969 have experienced barely any change in their jobs since the middle of the 1990s. However, for those without advanced skills, things have gotten tougher, with unemployment among youth who previously performed routine tasks being more likely and the risk of unemployment in these tasks growing over time, not only in Poland but across countries in the EU (Lewandowski et al. 2017).

157. **Socioemotional and cognitive skills are lacking in the workforce.** An investigation of human capital in Poland revealed that, in contrast to vocational or technical skills, general competencies are

the major concern for employers (Górniak 2015). These competencies include social and communication, analytical, self-organization, and entrepreneurial skills; attitudes toward the self and work; and the ability to learn. A comparison of competencies sought after by employers with the related self-assessments of job seekers confirmed this picture. Discrepancies were greatest for self-organization and interpersonal skills (Czarnik and Kocór 2015). Deficits of this type are a particular concern for companies in the more innovative and faster-developing sectors of the economy (Arnhold and Püttmann 2017).

- 158. Moreover, increased innovation will depend on creativity and problem-solving skills, where there is substantial scope for improvement.** While it is hard to relate the specific PISA scores with innovativeness, relatively low scores of Polish youth in problem solving indicate the need for greater focus. A special 2012 assessment of problem-solving skills shed light on both Poland's relatively low scores on problem solving and the striking differences in Poland between scores in numeracy, literacy, and science and those obtained for problem solving (Figure 3.8). This emphasizes the point that, based on the changing nature of the task content of jobs, educational systems will need to adapt to foster the development of the skills required to perform nonroutine tasks (Lewandowski et al. 2017).

Figure 3.8. Problem-Solving and Mathematics Scores in Poland and Comparator Countries, 2012



Source: World Bank 2015c, using PISA 2012 data.

Note: OECD = Organisation for Economic Co-operation and Development. PISA = Program for International Student Assessment.

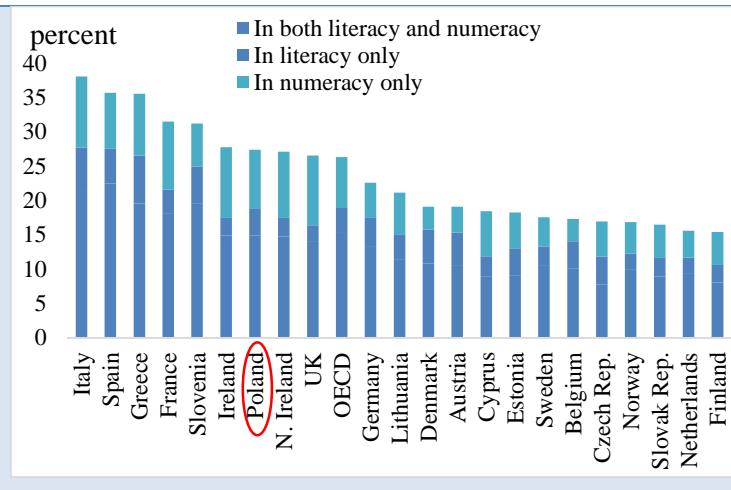
- 159. In addition, to improve competitiveness, spur innovation, and proceed on the path toward a knowledge-based economy, higher levels of formal education are required in Poland.** The groups of occupations where employers faced the largest recruitment difficulties during 2010–14 were professionals, skilled workers, and operators, whereas the opposite was true for elementary workers (Czarnik and Kocór 2015). These findings point toward labor market supply shortages being particularly prevalent among higher-skilled individuals (Górniak 2015).

160. Moreover, technology and demographic changes imply that adults will need to continue to adopt new skills. Older workers have so far been less affected than younger workers by occupational changes but may be disproportionately affected if the shift away from routine work intensifies in the future (Lewandowski et al. 2017). Although Poland is one of the countries with the highest PISA scores for youth, the level of cognitive skills among adults remains an important issue. In fact, Poland started its fast improvement of youth's skills only recently—the PISA 2000 results implied that Poland was below the OECD average. This is reflected in the International Assessment of Adult Competencies (PIAAC) results, which tests literacy, numeracy, and proficiency in problem solving among those ages 16–65 years, where Poland ranks below the OECD average (Figure 3.9). As a result, there is a significant gap between the skills of the younger generation (ages 16–49 years) and that of older workers (ages 50–64 years). Indeed, Poland is an exceptional case, with one of the highest literacy and numeracy scores in PISA but relatively low performance in PIAAC. The Polish labor force consists mainly of cohorts currently ages 25–65 years. Those ages 25–30 years participated in PISA waves 2000–06, when Poland's PISA scores were rather low (in 2000) or medium (in 2003–06). Those ages 30–65 years did not participate in PISA, but according to PIAAC, their skills are low relative to international standards. This applies in particular to those ages 40–65 years. This highlights the fact that intergenerational differences in skills are more profound in Poland

than in other EU countries, emphasizing the need for lifelong learning and on-the-job training to address the challenges that older workers face.

161. However, adult learning opportunities remain a rare phenomenon in Poland. According to the European Lifelong Learning (ELLI) index,³² Poland was assessed in 2011 as one of the countries with lowest lifelong learning indexes (Figure 3.10). The ELLI index is not available for subsequent years, but other sources suggest that the situation is not improving. For instance, the participation rate of Polish adults (ages 25–64 years) in education or training was 3.7 percent in 2016 (Figure 3.11) and has decreased over the past 10 years (by around 1 percentage point), so that it is one of the lowest rates in the EU, far below the EU-28 average (11 percent) and far below leading countries such as

Figure 3.9. Percentage of Low-Performing Adults in Basic Skills, Poland and Comparator Countries, 2012



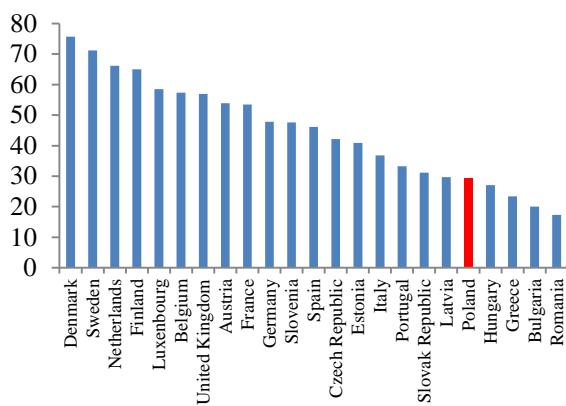
Source: OECD 2016b, based on 2012 International Assessment of Adult Competencies (PIAAC).

Note: Reflects the percentage of adults who score at or below Level 1 in literacy and/or numeracy.

³² The ELLI index shows the conditions for lifelong learning across different learning environments (taken from the United Nations Educational, Scientific and Cultural Organization (UNESCO) framework completed by Jacques Delors): school-based learning, vocational learning, social learning, and learning for personal development. The index was assessed by the European Commission (EC) to be a sound measure for international comparisons of lifelong learning, but it is available only for 2011.

Denmark, Finland, and Sweden, where 25–30 percent of adults participate in education and training (Arnhold and Püttmann 2017). Although the implementation of the new Integrated Qualification System may contribute to promoting lifelong learning, additional measures will be required to ensure participation and effectiveness of adult education and training.

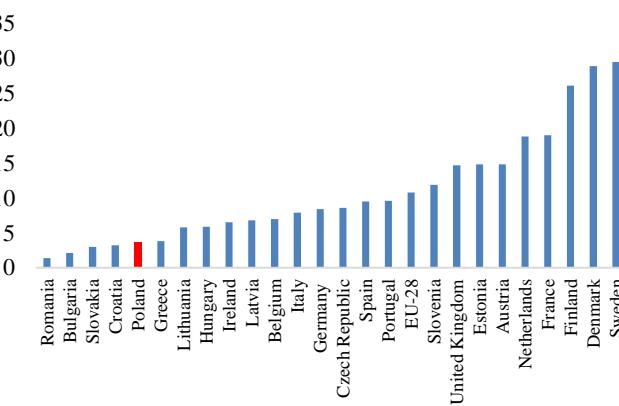
Figure 3.10. European Lifelong Learning Index, Selected EU Countries, 2011



Source: European Lifelong Learning Index (ELLI), Bertelsmann Stiftung, <http://www.deutscher-lernatlas.de/elli/ergebnisse/>.

Note: Data available only for 2011.

Figure 3.11. Adult Participation Rate in Education and Training, 2016



Source: Eurostat.

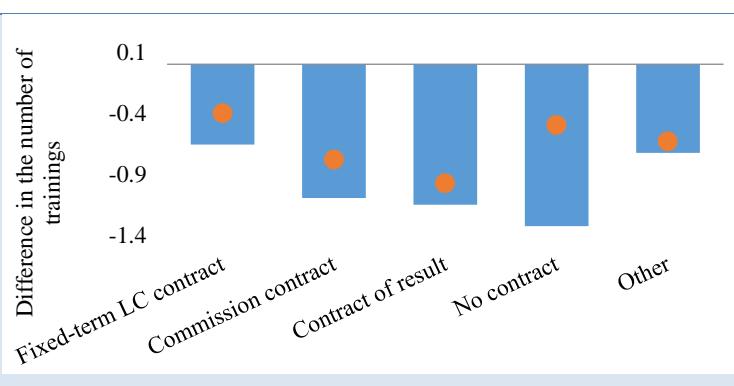
Note: Rates calculated for adults ages 25–64 years who participated in education or training during the four weeks preceding the survey.

162. Participation in adult education is concentrated among younger, urban, well-educated, permanently employed workers and those working as professionals and managers.

There is low learning and development involvement by workers with lower education as well as among those working in occupations not tied to the need for constant development (Worek 2015). There are also significant differences between permanent and temporary workers in terms of access to training opportunities.

Those employed based on indefinite-duration labor code contracts participate in more employer-organized trainings than those having more-precarious contracts (Figure 3.12). Moreover, there are important differences in

Figure 3.12. Variation in Employer-Organized Training Participation in Poland, by Contract Status, Relative to Workers with Indefinite-Duration Labor Code Contracts, 2014–15



Source: Palczyńska 2016.

Note: LC = labor code. Based on post-PIAAC survey data. PIAAC = Programme for the International Assessment of Adult Competencies. Data reflect training differences over 12 months preceding the survey. Differences are significant at 5 percent level. Bars reflect the unadjusted differences in the number of trainings, and dots reflect differences adjusted for following variables: literacy and numeracy skills, age, gender, education, occupation, sector, and full- or part-time arrangement.

participation in adult learning between rural areas and cities (Szczucka, Turek, and Worek 2014).

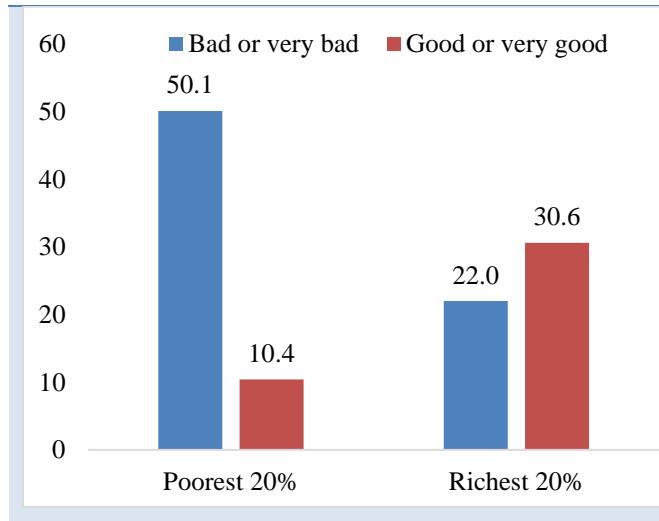
163. **The evidence suggests that reducing the existing skills divide and improving the quality and relevance of education provision and adult learning possibilities are priorities to enhance inclusion and increase productivity.** Reducing differences in school performance across socioeconomic backgrounds, regions, and gender would improve equality of opportunity. Moreover, there is a need for the educational systems to adapt, fostering skills required to perform nonroutine tasks as well as socioemotional and higher-order cognitive skills. Given demographic changes, the high concentration of older workers in routine jobs and the overall growing importance of continuous skill acquisition among individuals in an innovating economy, shared prosperity will also depend on making lifelong and on-the-job training more accessible and relevant through a comprehensive, viable lifelong learning system that reaches all groups of potential learners and orients itself toward the skill demands of its various clienteles and the private sector.
164. **Implementing quality education throughout the life cycle will require concerted efforts by education and training providers, the private sector, and the government.** While various public and private actors are engaged in these efforts, higher education institutions can be envisaged to play a particularly important role in these efforts. For instance, reforms in higher education governance, quality assurance, and financing during 2009–12 have introduced a new steering model based on the autonomy of higher education institutions, complemented by an increased accountability toward the state. Those reforms are likely to be pursued further with a new wave of probably even more comprehensive reforms that are currently under discussion. To address the critical state of adult education in Poland, higher education institutions in particular can be envisaged playing a stronger role in collaborating with the private sector and the government to ensure increased access to demand-responsive training (Arnhold and Püttmann 2017). Higher education institutions appear well placed to (a) increase the relevance and quality of their training offerings by devising programs and courses in line with skill demand; and (b) expand access to a more diverse student population by offering various modes of delivery (for example, including e-learning possibilities) and adapting support services to the needs and living conditions of learners. Strong engagement from the private sector is required to ensure that programs are aligned with employers' skill demand. This engagement includes private sector involvement in designing and implementing training programs, as well as activating groups of learners currently underrepresented in adult education. Such initiatives could be particularly relevant for companies from the more innovative and faster-developing sectors of the economy, for which skill shortages are a particular concern, including for larger firms that benefit from international (technological) exposure through substantial foreign direct investments. Public sector facilitation of such processes will be required; in particular, in the current discussions on higher education sector reforms, sufficient importance would need to be attached to promoting lifelong learning. This public sector leadership could establish framework conditions that promote the higher education institutions' engagement in adult education and cooperation among key stakeholders, as well as providing targeted support to higher education institutions. Public sector leadership will also include advancing the legislative framework and designing key components of the higher education sector accordingly—namely, quality assurance approaches including accreditation, academic promotion systems, and funding schemes.

High-Quality Health Care Service Delivery: A Challenge to Shared Prosperity

165. **As in the case of education, access to high-quality health services is an important determinant of equality of opportunity and also affects productivity.** Poland has made major progress in health system outcomes such as on quality of care, equity, and financial protection since 1990. However, there is significant room for improvement, especially as health system reform becomes more pressing with an aging population. The 2016 Life in Transition Survey (LiTS) found that 43 percent of Polish individuals cite health as the most important problem, a share almost three times higher than the average of European and Central Asian countries included in LiTS.
166. **Poland is still plagued by mortality and morbidity rates above the EU average and by large inequalities in life expectancy.** In 2014, average life expectancy from birth was 73.8 years for men and 81.6 years for women (NIPH-NIH 2016), lower than the average among all EU countries (78.1 years for men and 83.6 years for women) despite significant improvements since 1991. Despite a steady decrease in smoking prevalence, a quarter of the population still smokes in Poland. High male mortality is associated with prevalence of risk factors such as smoking and alcohol-related causes (followed by road traffic injuries) as well as late disease-screening practices (Muszyńska 2011). The prevalence of overweight (36.4 percent) is above the OECD average (34.6 percent) (OECD 2014a) and is increasing, being partly responsible for the high mortality rates in non-communicable diseases.

167. **Moreover, disproportions in mortality and morbidity between socioeconomic groups are increasing.** Inequalities are more persistent in Poland than in Western European countries and were found to increase over the previous decade (Boulhol et al. 2012; Mackenbach et al. 2007; Sowa 2011), pointing to the need for public health actions targeted to the poorer population. Social and economic inequalities in health are also persistent in the older population, with declarations of “poor” or “bad” health being over 50 percent lower in the richest quintile than in the poorest quintile, and declarations of being in “good” or “very good” health being three times higher in the richest quintile than in the poorest quintile (Figure 3.13).

Figure 3.13 Self-Perceived Health in Population Ages 65 Years and Older in Poland, Poorest vs. Richest Quintile, 2016



Source: 2016 Eurostat data.

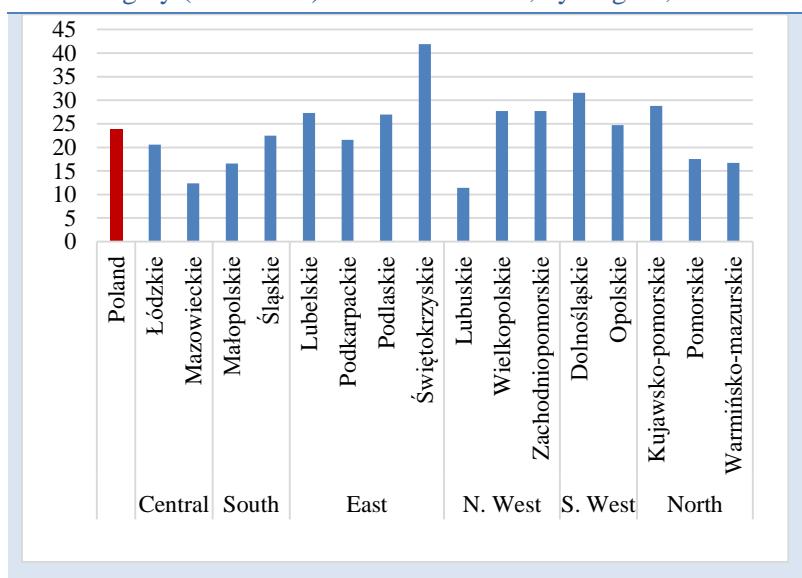
168. Critically, access to care largely depends on the place of residence, education, or wealth level, with potentially important impacts on equity.

For instance, half of those paying for a visit to a specialist are nonpoor, earning more than Zl 1,600 per month in addition to the insurance system in place in Poland, according to Central Statistical Office (GUS) data. Access depends on place of residence, with the number of stable cases waiting for an appointment in selected specialist care ambulatory clinics (neurological, ophthalmological, cardiac, endocrinology, and trauma orthopedic) per 1,000

population varying from 9.1 to 30 across Polish regions in 2014 (PwC 2015). Similarly, wait time for cataract surgery could be up to two years, with over 500,000 patients waiting with significant regional differences (Figure 3.14): in eight regions, the average waiting time exceeds two years except in one region, where it remained below one year (Oct/Nov 2016 WHC Barometer, Watch Health Care Foundation).³³ The Polish health care system could be one of the least accessible systems among the EU-28 countries. In terms of “unmet need,” only Latvia has a lower score than Poland. On average, while only 6 percent of EU citizens reported having been unable to access medical care, the proportion was 13 percent in Poland (OECD 2012).

169. Given the deficiencies in service delivery, the responsiveness of the health care system is considered weak by Polish citizens. Several surveys (the European Commission’s Eurobarometer, LiTS 2016, and Puchta [2014]) point to increasing dissatisfaction with health care service delivery, particularly when it comes to long waiting times (Figure 3.15). Poland has the longest waiting lists in Europe when considering any of the three usual indicators for waiting lists (access to cataract surgery, knee replacement, and hip replacement) (OECD 2016d). Despite recent (2014–15) corrective policy actions, several waiting lists are growing, reflecting the key problems faced by the Polish health care system. As detailed below, the reasons for deficiencies in health care delivery include low and inefficient health spending, insufficient human resources, poor coordination, and fragmentation of responsibilities and accountability.

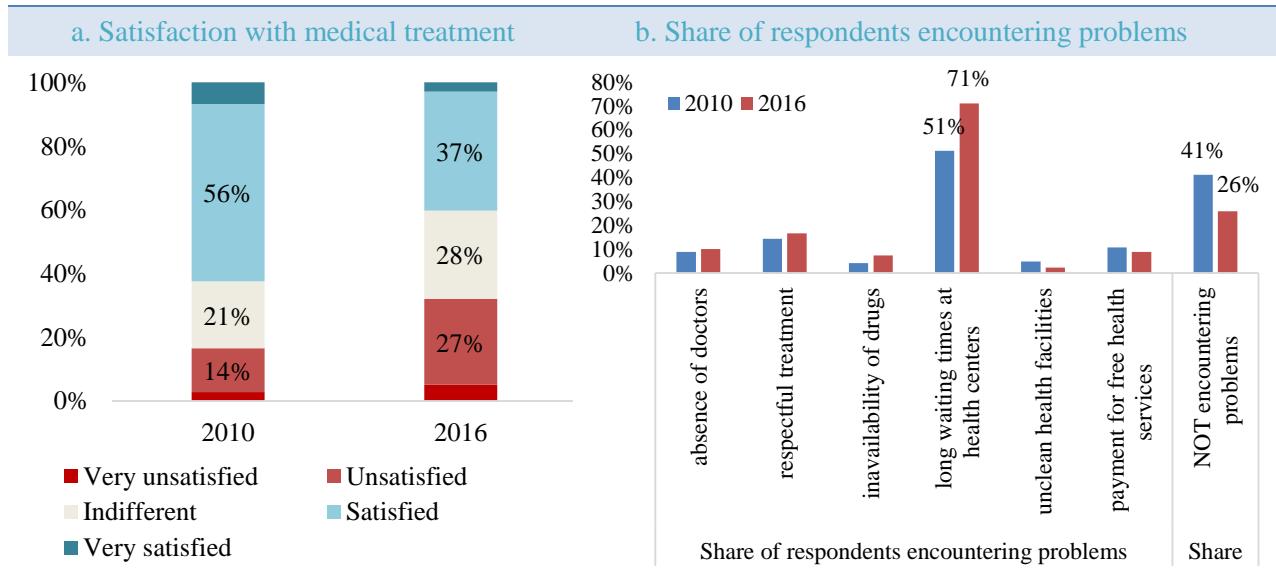
Figure 3.14. Average Waiting Time in Poland for Cataract Surgery (in Months) for a Stable Case, by Region, 2015



Source: Oct/Nov 2016 WHC Barometer, Watch Health Care Foundation, <http://www.korektorzdrowia.pl/en/>.

³³ To shorten the waiting time, patients who can afford it migrate between regions, pay for surgery in the private sector, or go abroad for treatment, with costs subsequently reimbursed by the National Health Fund (NFZ) (as envisaged in EU Directive 2011/24/EU on the application of patients’ rights in cross-border health care). Cataract surgery was the treatment most often claimed for cost reimbursement (64 percent out of 4,872 of claims in 2015). The countries most often visited for cataract surgery are the Czech Republic and Germany (Oct/Nov 2016 WHC Barometer, Watch Health Care Foundation, <http://www.korektorzdrowia.pl/en/>).

Figure 3.15. Satisfaction with Health Services in Poland, 2010 and 2016

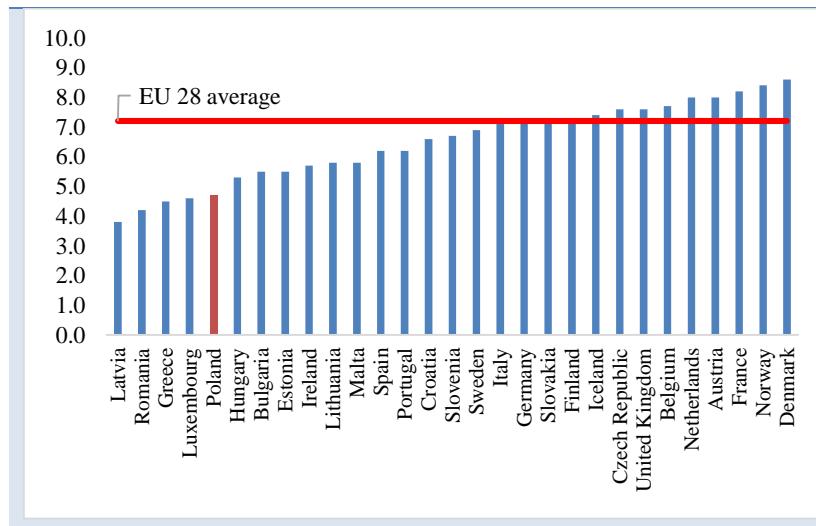


Source: LiTS II (2010) and LiTS III (2016) data.

Note: LiTS = Life in Transition Survey, conducted by the European Bank for Reconstruction and Development (EBRD).

170. Poland faces limited financial protection and low affordability. The percentage of out-of-pocket (OOP) expenditures among total health expenditures remains slightly higher in Poland (24 percent) than the EU-28 average (19 percent) (OECD 2016d). According to the GUS, the main issues are drugs and supplements not covered by health insurance, as well as medical equipment and specialist care. In 2012, the share of drugs that were OOP expenditures, at 61 percent, was one of the highest in Europe (OECD 2016d) because of the narrow range of reimbursable drugs. So few drugs are reimbursable, in part, because public health spending is low. Since the 1990s, total health care spending has increased sixfold, but it remains one of the lowest in the EU as a share of gross domestic product (GDP) or spending per capita (Figure 3.16). A ranking of primary health care (PHC) systems among 31 European countries found that Poland was systematically on the low side

Figure 3.16. Total Health Expenditure as a Percentage of GDP, EU-28 Countries, 2015



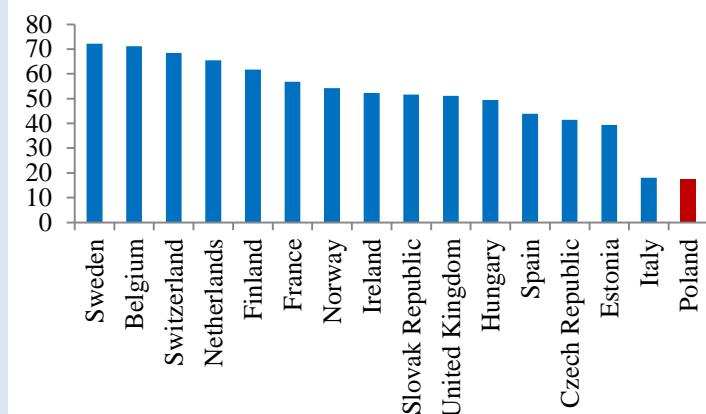
Source: Eurostat.

regarding the governance and resources of its PHC system (Kringos et al. 2013). Similarly, spending on ambulatory care in Poland is the lowest among OECD countries, after Estonia and Hungary (OECD 2016d).

- 171. If demographic changes are taken into account, a larger increase in health care spending will be needed to adequately provide for diseases related to aging.** The need for long-term care (LTC) has grown significantly in recent years because of longevity and deteriorating health outcomes, but funding for and delivery of appropriate services remain inadequate. Only 0.7 percent of GDP is allocated by the government to LTC, while the EU average is 1.8 percent. Among its neighbors in Central Europe and the Baltic states, Poland is comparable to Estonia and the Czech Republic but lower than Hungary, Lithuania, and Romania. Although the number of patients in LTC facilities has grown since 2009, formal care remains underdeveloped in Poland (Figure 3.17). Women are more likely to receive LTC in institutions, with gender differences in LTC utilization rising with the age of the patient.

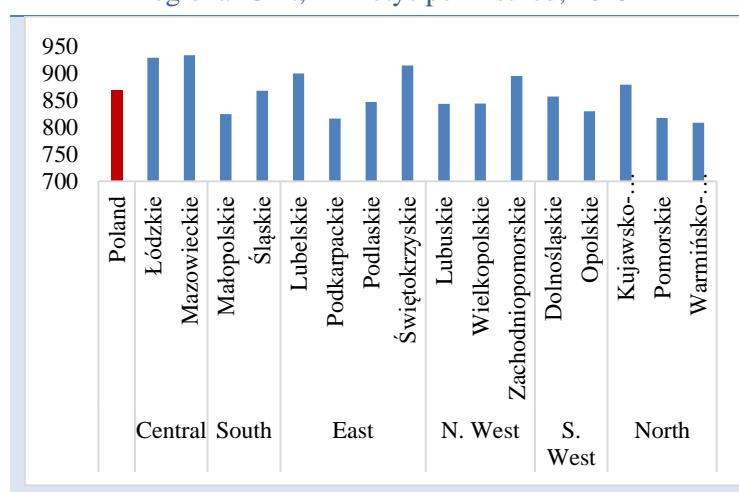
- 172. Poland's health care system also suffers from significant inefficiencies.** Allocative inefficiencies can be seen with the inconsistent allocation of National Health Fund (NFZ) funds among the 16 voivodeships, which fails to capture the differences in health care needs among the regional populations (OECD 2012). There are significant regional differences in financing of ambulatory specialist care and hospital care (Figure 3.18), with differences in allocation of resources and differential pricing of services across regions. Those differences contribute to widely varying waiting times across regions. Compounding the problem are technical inefficiencies, as exemplified by the low utilization of computerized tomography (CT) scans. Similarly, hospital efficiency remains weak. For instance, admissions for asthma and

Figure 3.17. Number of Long-Term Care Beds per 1,000 Population Ages 65 Years and Older, Selected EU Countries, 2014



Source: World Bank 2015g, based on OECD Health Statistics 2014.

Figure 3.18. Cost of Hospital Care in Poland, by NFZ Regional Unit, in Zlotys per Insured, 2015



Source: Central Statistical Office (GUS) data.

Note: NFZ = National Health Fund.

uncontrolled diabetes, both of which are “avoidable hospitalizations,” are increasing and are significantly above EU averages. Similarly, relative to other EU countries, the number of hospital beds is still one of the highest in the EU. More worryingly, the share of inpatient care within total health expenditures has continued to increase over the years, climbing from 27 percent in 2004 to 36 percent in 2012 (OECD 2014a). In practice, the main health risk pooling mechanism (the NFZ) offers reduced financial coverage of key health services and goods.

173. **Although pressure for efficiency and quality is in place in individual hospitals, it is still lacking at higher levels (voivodeships, NFZ, and ministry).** Experience from other countries clearly shows that a more holistic (regional or national) approach is needed to achieve high efficiency and quality of care. Maps of national and regional health care needs for hospital care, 30 disease groups, cardiovascular diseases, and malignant tumors have been produced to identify risk groups, improve preventive measures, and investment planning. In addition, a new health care proposal evaluation instrument was introduced in 2016. However, greater coordination and continued strategic planning at the regional and national levels is needed, which requires (a) strengthened strategic management capacities (at the voivodeship, Ministry of Health [MoH], and NFZ levels); (b) adequate tools and mechanisms; and (c) relevant planning and benchmarking data.
174. **In addition to financial resources, human resources are insufficient in Poland’s care system.** Within the EU, Poland reports the lowest number of physicians as measured by the ratio of physicians per 1,000 people. The country reported 2.3 physicians per 1,000 people, compared with an EU-28 average of 3.5 per 1,000 people in 2014 (OECD 2016d). This trend continues through general medical professionals. A similar problem exists in the number of nurses, recorded at 5.2 per 1,000 compared with the EU-28 average of 8.4 per 1,000 (OECD 2016d).
175. **Poland’s health system challenges could be explained, to some extent, by poor coordination.** Poor coordination includes misalignments between accountability lines, funding flows, and management capacities, as well as limited coordination across settings in clinical care. A first component in the continuum of care that suffers from poor coordination is the ambulatory specialist care subsector.³⁴ The primary care subsector should be a strong player, given its “gatekeeping” function. But this function is severely hampered by too few general practitioners (GPs) (OECD 2012) and the fact that GPs are paid only through capitation (regardless of the quality of provided services), which incentivizes them to refer most of their cases, even simple ones that could be taken care of at the primary health care level.
176. **Moreover, overall health system stewardship is hampered by the fragmentation of responsibilities and accountability within the system.** The problem lies in the diversity of institutions to which providers are accountable (MoH, NFZ, voivodeships, powiats [counties], and gminas [municipalities]). Since 1999, self-governments (voivodeships, powiats, and gminas) operate their own facilities but have very limited direct control over the resources required to finance the facilities, as funding is provided by NFZ. Purchasing practices by NFZ remain focused on short-term perspectives, without much strategic planning (or output-based financing, which influences the quality of care). The regulatory role of the MoH is not clearly defined (Pieprzyk 2013), and no institution controls (through regulation, planning, and funding) either the entire health delivery

³⁴ “Continuum of care” refers to the whole range of health care services, from primary health care to acute and long-term care.

system or the quality of care delivered across sectors. According to an OECD study (Joumard et al. 2010), Poland has suffered from one of the least consistent allocations of responsibilities (regarding health care) across levels of government.³⁵ This fragmentation has major implications for the delivery of health services.

177. Poland needs to do more to boost health outcomes to prepare for the aging of its population.

A World Bank study of the financial impact of aging on Poland's total health expenditures estimated that these expenditures could triple by 2050 (Golinowska, Kocot, and Sowa 2014). Poland already faces higher mortality and morbidity rates than its peers, low affordability due to expensive drugs, and equity concerns to the extent that access to care still depends on individual circumstances. Long waiting times result from poor coordination, fragmentation, and low and inefficient spending. Clearly, adequate policies and investments are needed for promoting improved health outcomes while containing costs. That effort includes broad-based initiatives of capacity building for physicians, nurses, and medical personnel but also for health system managers. Strengthening prevention and health promotion and aligning those objectives strongly to the general health system performance would bring additional benefits to society.

Fostering Higher Labor Participation and Reducing Exclusion to Increase Intensity of Use

178. Improvements in education and health will be insufficient to ensure shared prosperity if people do not participate in the labor market. Using the assets-based framework proposed by Bussolo and López-Calva (2014), individual income growth depends not only on human capital endowments but also on the intensity of use of those assets. In the case of Poland, the most critical constraint to using its assets intensively is the fact that a large share of its labor force does not participate in the labor market. To remedy this situation will require ensuring that people are not unwillingly excluded from the labor market, but more importantly it will require that cross-sectoral policies are well coordinated to provide strong incentives to work.

Coordinated Policies for Increased Labor Force Participation

179. Sustained economic growth has led to a strong labor market, but low labor force participation limits employment. Labor market conditions continue to improve as employment increases; unemployment reached record low levels (5.6 percent) in the fourth quarter of 2016. Still, employment rates in Poland continue to be lower than EU-28 averages for the youngest (ages 20–24 years) and oldest workers (ages 50 years and older). This is particularly the case among young and older women, whose gap in employment with EU-28 averages is around 10 percentage points.

180. Illness and disability drive inactivity among men. For men not in education, inactivity is driven by illness or disability (28 percent) more than in the rest of the EU-28 (19 percent). The

³⁵ Consistency in allocation of responsibilities will be low when several levels of government are involved in key health care decisions (such as major investments) or when this diversity of decision makers generates inadequate incentives (for instance, when one entity is funding hospital operations, while another one is funding hospital maintenance).

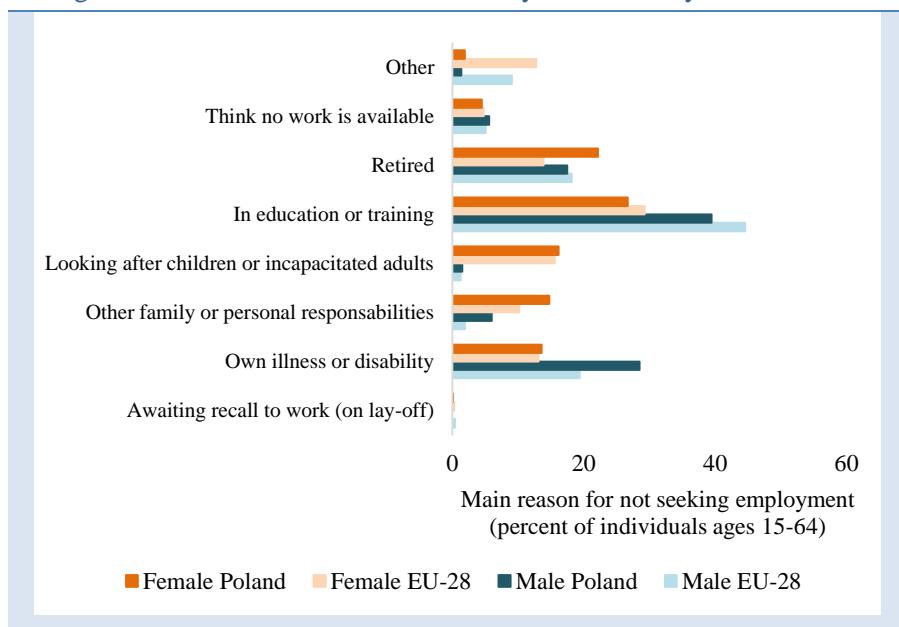
importance of illness and disability among men relates both to higher accessibility of disability pensions (particularly in the past) and to less effective policies than in other EU countries that can enable those with poor health to participate in the labor force. Moreover, as discussed in detail in Chapter 4, given the difference in the benefit formula between disability pensions and old-age pensions, it is now expected that with the recent rollback in the retirement age, there will be an increasing incentive to obtain disability benefits, because the old-age benefits will be lower than disability benefits.

181. **For women, inactivity is driven by early retirement; lack of care services for children and sick or elderly dependents; and legal, regulatory, and social constraints.** Female labor force participation (62 percent) is significantly lower than male participation (75.7 percent) despite higher tertiary education rates among women than men in Poland.³⁶ Three reasons for this low rate of labor force participation follow:

- *Retirement.* Twenty-two percent of inactive women are retired, compared with 14 percent in the EU-28 (Figure 3.19). The gender gap in retirement age stands in contrast to a much higher life expectancy for women. Inactivity among older Polish women (and men) is likely to be amplified by the recent reversal of the reform that increased retirement age for both women and men to 67 years of age.
- *Family caregiving.*

Caregiving and other family or personal duties account for 31 percent of women's inactivity (compared with 7.5 percent among men), which is above the average level in EU-28 countries (26 percent). In fact, the rate of inactivity due to caretaking duties (for the entire population) is decreasing in EU-28 countries, while

Figure 3.19. Reasons for Labor Inactivity in Poland, by Gender, 2016



Source: Eurostat.

it is gaining importance in Poland, which is potentially related to the growing number of elderly who require care. Moreover, mothers work fewer hours and get lower wages, whereas fathers work longer hours and receive higher pay. In fact, mothers receive lower earnings than childless women, even after controlling for unobserved factors and adjustments in working hours (Cukrowska-Torzecka 2015).

³⁶ Labor force participation data from Eurostat 2016 data: activity rates among persons ages 15–64 years.

- *Legal, regulatory, and social constraints.* On the regulatory side, Poland still restricts women's access to some occupations deemed hazardous or not adequate for women.³⁷ In terms of social constraints, barriers to entering the labor market reported by women during recent qualitative research included the perception of discrimination of employers against mothers, the cost and lack of access to transportation to better-paying jobs, and rigid gender norms that confine women to household and childcare activities (World Bank 2015f).

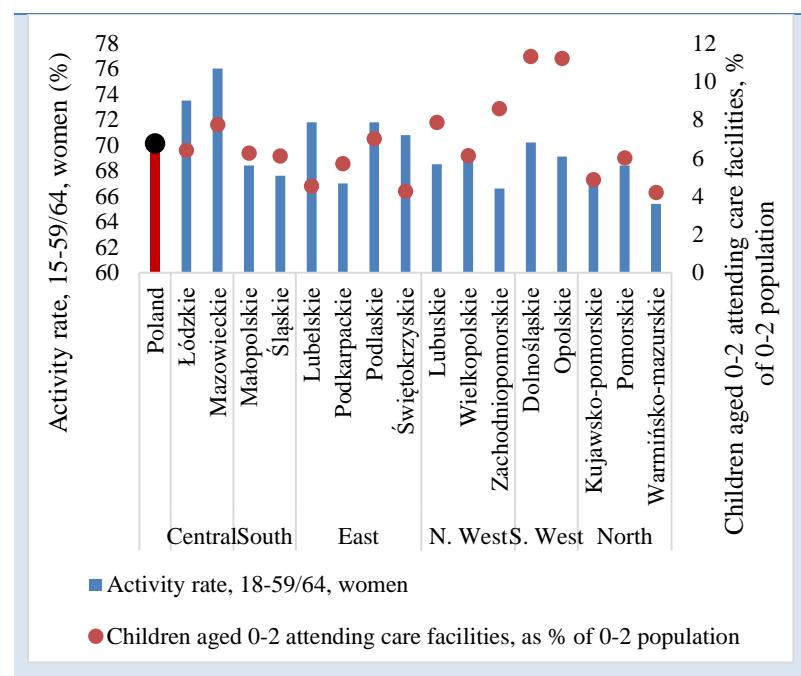
182. Mothers or grandmothers are almost exclusively the providers of care in Poland. The coverage of children with institutionalized care in Poland is well below the EU-28 average. Only 4.2 percent of children under 3 years of age attended 30 hours or more of formal childcare in 2015, compared with an EU average of 15.7 percent (Eurostat). Moreover, only 1.1 percent of children ages 0–3 years were in part-time care (less than 30 hours) compared with the 14.8 percent average in the EU (Eurostat data). Women who seek reemployment after childbirth have very limited opportunities to find formal childcare for young children, particularly in some regions of the country (Figure 3.20).

183. Formalized early childcare facilities have not been a priority across levels of government so far. Strong decentralization of institutional child care passed the responsibility from central to local authorities.

Local governments receive funds to build and maintain care facilities, but until recently they did not have the financial or human capacity to carry the extra burden. Moreover, the childcare agenda was not a priority at the local level, leading to no systemic change in childcare provision for the youngest. Through the Maluch program, the government increased contributions in 2015

to create additional spots in nurseries, children's clubs, and daycare providers in Poland through competitive tender. With this, the funding situation for care services for children ages 0–3 years improved, but wait lists in many localities remain long. However, the allotment of funds to the

Figure 3.20. Activity Rate and Childcare in Poland, by Region, 2015



Source: Central Statistical Office (GUS) data.

³⁷ Labor Code, Art. 176, Regulation No. 545 as of 10 September 1996.

program has stayed constant for 2017.³⁸ There are waitlists in three out of four nurseries, and 30 percent of parents often wait more than a year (Pieńkosz and Matejczuk 2015).

184. In addition to limited supply

of childcare facilities, there is also low trust and low demand for institutionalized child care.

A survey conducted in six powiats shows that even in the powiats with very little supply, the demand was largely satisfied (Pieńkosz and Matejczuk 2015). This can be traced back to multigenerational households, where child care needs are often met within the family.

Nonetheless, these results vary strongly in big cities, where extended families do not cohabit or even live in the vicinity. In some big cities, institutionalized care demand reaches up to 90 percent (Pieńkosz and Matejczuk 2015), as shown in Map 3.3.

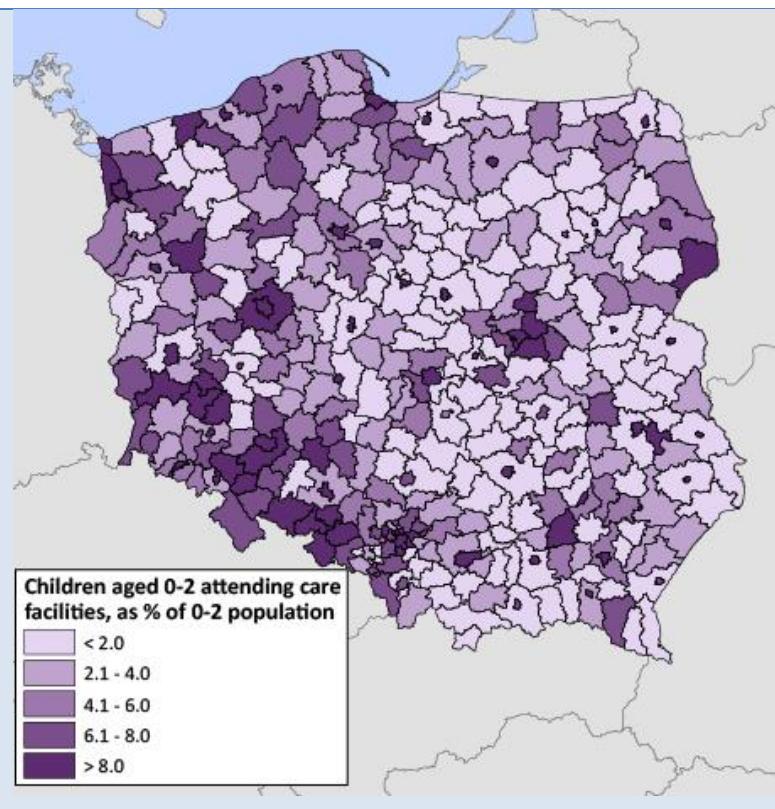
Despite an unsatisfied demand for child care, families prefer other forms of care before choosing institutional care. The main reasons against institutionalized childcare were

general mistrust, a perceived lack of competences of the personnel, and a traditional view that childcare should be provided by the mother or a family member. In addition, researchers pointed out that the unpaid “extended upbringing leave,” which secures a job held before childbirth, may also lower the demand for institutional care arrangements for children ages 0–3 years.

185. Similarly, access to long-term care facilities remains low, and there is strong preference to provide LTC within families.

Only 1 percent of people ages 65 years and older receive formal institutional care in Poland (OECD 2013). Within the OECD countries, Poland has the lowest LTC coverage (Figure 3.21, panel a). Moreover, the support provided is mostly for the sick, with little to no funding to create support systems for families and communities. Families are estimated to provide 80 percent of LTC at home (Golinowska, Kocot, and Sowa 2014). In fact, there is a strong perception that support to the elderly should be provided within the family—and to higher extent by daughters than sons (Figure 3.21, panel b).

Map 3.3. Share of Children Ages 0–2 Years Attending Care Facilities in Poland, by Powiat, 2015

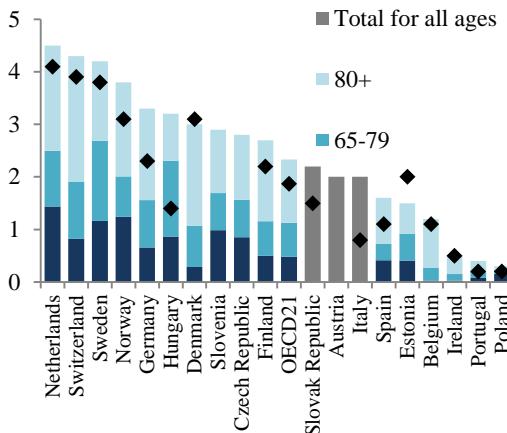


Source: ©World Bank, based on Central Statistical Office (GUS) data. Permission required for reuse.

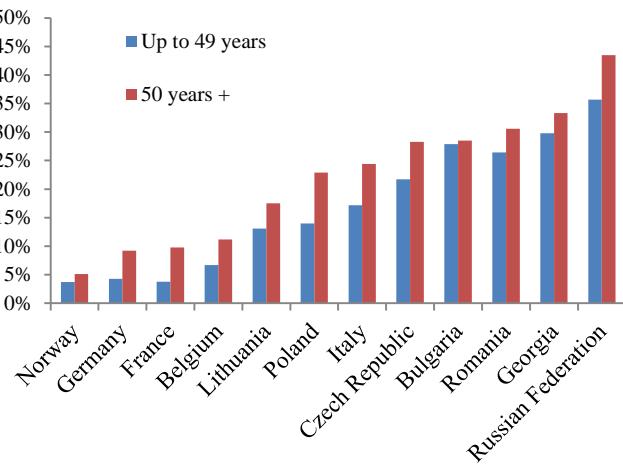
³⁸ Information from the Ministry of Family, Labour, and Social Policy website: <http://www.mhips.gov.pl/wsparcie-dla-rodzin-z-dziecmi/opieka-nad-dzieckiem-w-wieku-do-lat-trzech/resortowy-program-maluch-plus/rok-2017>.

Figure 3.21. Access to and Attitudes on Long-Term Care in Poland and Comparator Countries

a. Percentage of population receiving long-term care, by age group, selected EU and OECD countries, circa 2013



b. Percentage of agreement with statement, “When parents are in need, daughters shall take more responsibility than sons”



Source: OECD 2015b.

Note: OECD = Organisation for Economic Co-operation and Development.

Source: World Bank, based on Generations and Gender Surveys (GGS) data, United Nations Economic Commission for Europe (UNECE).

Note: Years of country GGS data vary from 2004 to 2012.

186. **Childcare has also had a negative impact on labor force participation in the 50+ age group, particularly among women.** After retirement, providing care to family members is the second most-cited reason for inactive women in Poland (Eurostat, data for 2016). Women ages 50 years and older in Poland are less often employed than men, and more often provide regular or occasional care to grandchildren, another person in the household, or both (Survey of Health, Ageing, and Retirement in Europe [SHARE], wave 4 data). Indeed, most women ages 50–59 years who have at least one grandchild up to the age of 16 provide regular care. Among grandmothers ages 60–69 years, more than 60 percent are providing care, and 95 percent are not employed. As in many countries with an aging population and inadequate LTC, hospitals end up providing LTC as well, which is both inefficient and expensive. Although the number of nurses in LTC institutions has almost doubled since 2004 alongside a strong increase among doctors, physiotherapists, psychologists, social/medical workers, and auxiliary personnel, these trends are still moderate.³⁹

187. **Improving the quality and availability of care has the potential to boost labor market participation of women and fertility in Poland.** Strengthening the supply of quality care services—both for children and the elderly—can relax constraints on entering employment for women. In addition, the availability of quality care has been linked to higher fertility rates, which could partly offset the ongoing demographic changes. For example, Nordic countries have directed their family policies to supporting working parents of small children through expansion of childcare facilities and reliance on short but generously paid parental leave, including quotas to encourage

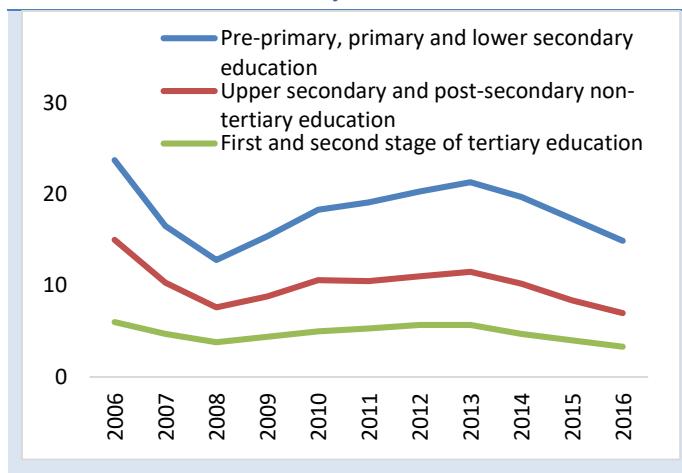
³⁹ Based on the information from Statistical Bulletins of the Ministry of Health, <https://www.csioz.gov.pl/statystyka/biuletyn-statystyczny/>.

fathers to share childcare duties (Thévenon 2011). These countries have seen a resurgence of fertility since the mid-1980s (Ronsen 2004). Similarly, in richer East Asian countries, the emerging practice is to have bundled packages of measures that aim to stimulate female labor force participation, especially after childbirth (World Bank 2015b).

Tailored Approaches to Addressing Unemployment and Labor Market Exclusion

188. **Unemployment is much higher among those with lower education levels.** Unemployment rates for those with low education in Poland rose significantly with the global financial crisis (Figure 3.22). Since 2013, unemployment rates have been decreasing across all education levels, but differences by education level remain stark: individuals with lower-secondary education or below had an unemployment rate of 14.9 percent in 2016, versus just 3.3 percent for those with tertiary education. Individuals with no more than a lower-secondary education degree represented 53.6 percent of total unemployed in 2016 (GUS 2016b).

Figure 3.22. Unemployment among Population Ages 15–64 Years in Poland, by Education Level, 2006–16

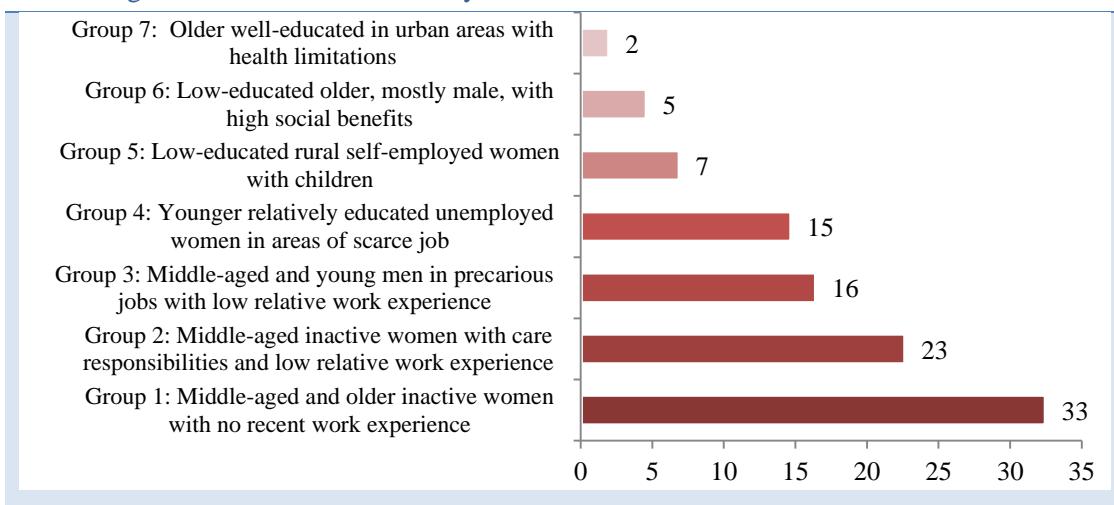


Source: Eurostat Labor Force Survey (LFS) data.

189. **Youth unemployment is moderate by EU standards, but there is scope to increase youth activity.** The crisis has particularly affected youth, with unemployment increasing by 10 percentage points from 2008 (17.3 percent) to 2013 (27.3 percent) for those of ages 15–24 years. Since 2013, however, youth unemployment has decreased to 17.7 percent, for the first time placing Poland below the EU-28 average. Nonetheless, labor force participation rates for both male (39.8 percent) and female (28.9 percent) youth remain below the EU average of 44 percent for males and 38.9 percent for females. Although this disparity stems from a higher share of Polish youth in tertiary schooling, there is scope to increase youth part-time employment that can be combined with education, and to activate those who are excluded: every 10th person ages 15–24 years in Poland is in the NEET category (Eurostat 2016 data).

190. **Cluster analysis to profile the most disadvantaged groups in the labor market in Poland suggests that geography and gender are critical dimensions of labor market exclusion.** The population that is either persistently out of work or with weak labor attachment (in unstable jobs, with involuntary part-time work or zero income) represents 39 percent of the working-age population. About half of these are inactive women with no recent work experience and often with care responsibilities. Middle-aged and young men in precarious jobs and with low work experience (Figure 3.23) constituting another 16 percent of those facing labor market exclusion. Geography also plays a role, with rural women making up 7 percent of the vulnerable. People with disabilities and those with high social benefits are also excluded from the labor market.

Figure 3.23. Latent Class Analysis of Labor Market Exclusion in Poland, 2013



Source: World Bank 2017c based on EU Statistics on Income and Living Conditions (EU-SILC) 2013 dataset.

191. Care responsibilities, health, and geography emerge as the main characteristics of labor market exclusion compared with other countries. In Poland, the population excluded from the labor market includes relatively high shares of individuals with care responsibilities (15 percent) and with health limitations (30 percent). Low education and experience is less of a constraint than in other countries (19 percent). However, more than 50 percent of vulnerable individuals across the seven groups shown in figure 3.23 live in rural areas, which is disproportionately higher than the average workforce. This means that relative to other countries, labor market exclusion in Poland depends on broader intersectoral issues such as activation of the disabled, disincentives to work from benefits and pensions, care services, mobility, and employment creation (or lack thereof) in rural settings.

192. Extended outreach and employment promotion is necessary to reach inactive women and youth who live in remote and rural areas. Making information and counseling available to those who are inactive and far from labor markets is a necessary first step, as these individuals are not fully engaged in the labor market because of multiple and overlapping constraints. This step will ensure that individuals who are “inactive” register with the employment offices and also that those who are actively looking for a job receive support. The extension in outreach and job assistance cannot be achieved through employment offices alone; rather, it will require multiple channels including social welfare offices and mobile units that set up periodically at community centers or alternative locations. Both employment offices and social welfare offices have recognized capacity constraints.⁴⁰ Therefore, they will need to be reinforced with additional staff, increased online services, or both to be able to handle an increased volume of beneficiaries.

⁴⁰ The administrative budget per unemployed person is low by EU standards, leading to difficulty in managing customer flow. Moreover, as many as 31 percent of those registered are not active job seekers. A partial explanation for this is the requirement to register at the labor office to access several benefits—above all, health insurance. Such a workload takes away resources from those who are genuinely motivated to find a job.

193. Formalizing and operationalizing coordination among agencies that provide services to vulnerable populations is critical. Addressing multiple barriers faced by the most vulnerable who are out of work and those with weak labor market attachment will require further investments in administrative systems to ensure data exchange, joint outreach, assessment of individuals' situations, and delivery of a package of integrated services to improve their chances of getting and keeping a job. In addition, strengthening the monitoring and evaluation of active labor market programs (ALMPs) is essential. Redirecting the focus of labor offices from statistics indicating how many clients successfully found employment to measures of the net effectiveness of ALMPs—on a group exposed to an ALMP, compared with a group that was not exposed—can shift the incentives toward focusing on the “hard to serve,” that is, those with whom the public intervention has the highest potential. In particular, the operational programs of the 2014–20 European Structural Funds require evaluations of public interventions using counterfactual methods wherever possible. Similarly, it would be useful to improve the transparency of spending on labor market policies, because funding at different levels of government is available, but the overall picture of funding and how it compares with other benchmark countries is unknown.

Removing Labor Market Barriers to Increase the Returns to Assets

194. Improving education and health and improving labor force participation will be insufficient to ensure shared prosperity if people face labor market barriers that limit the returns to their labor. Using the assets-based framework proposed by Bussolo and López-Calva (2014), as noted earlier, individual income growth depends on human capital endowments, the intensity of use of those assets, and the returns to those endowments. To the extent that workers face labor market restrictions, they will not be able to maximize the returns to their human capital endowments, thus reducing their earnings potential. In the case of Poland, the main labor market restrictions are policies that have led to segmentation. In addition, there are barriers to mobility, including agricultural policies, access to and affordability of housing, and other regulatory restrictions.

Low Returns to Labor from Policies that Have Segmented the Labor Market

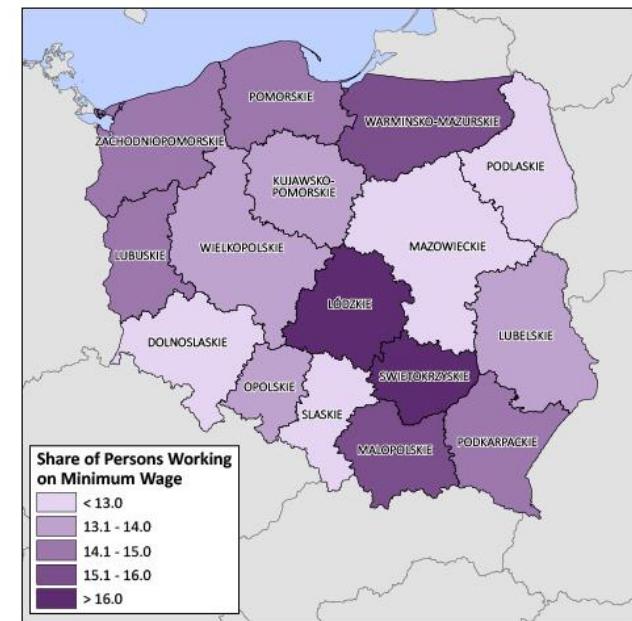
195. Civil law contracts increased labor market flexibility, but they also segmented the labor market, being more prevalent in poorer regions and outside big cities and usually concentrated among young, poorly educated, and low-skilled workers, especially women. High duality in the labor market has a cost for workers and society. First, temporary labor contracts could explain why workers have continued to accept low real wage increases relative to productivity growth. Econometric analysis found clear wage gaps between permanent and temporary employment even for workers with similar profiles (Gatti et al. 2014). Second, temporary contracts are often not a stepping-stone for permanent jobs (Gatti et al. 2014). Third, they do not provide adequate savings for old age, leading to projected increases in public pension deficits in the future (see chapter 4). Finally, there is some international evidence that, in the medium-term, temporary employment is detrimental to workers’ development because firms train them less (Gatti et al. 2014; Palczyńska 2016), as illustrated earlier in Figure 3.12.

196. The recent increase in labor costs of civil law contracts has some potential to reduce their appeal among employers, but the fundamental drivers of labor market duality remain

unaddressed. Reducing labor market duality requires a multipronged strategy that not only increases the cost of using civil law contracts but also reduces the cost and complexity associated with both permanent and temporary labor contracts and strengthens worker protection during transitions. Since 2016, new legislation has been put in place to mandate minimum social insurance and health contributions. In addition, since 2017, a new hourly minimum wage has been put in place for civil law commission contracts (which are the most common).⁴¹ However, the labor code continues to be more costly and complex to apply in firms than the civil law code, and the distinction of the applicability between the two is neither sufficiently clear in the law nor enforced. Permanent labor contracts are perceived by firms to be marred by uncertainty: although the restrictiveness of Poland's employment protection legislation appears to be average in international comparisons, employers claim that the lengthy judicial review for "just cause" dismissal discourages the use of permanent contracts (Gatti et al. 2014). The current labor code codification commission is an important government initiative that aims to simplify the labor code and increase flexibility for firms and workers to bargain collectively for working conditions.

197. **Moreover, continued increases in minimum wages could lower employment and foster informality.** Minimum wages in Poland have been growing faster than median or average wages. Currently, the ratio of minimum to median wages is beyond 50 percent, and the ratio to mean wage, beyond 40 percent. Although minimum-wage coverage for all workers reduces labor market duality, it could also lead to lower employment, more informality, and more frequent use of contracts for results. For instance, between 2007 and 2013, growing minimum wages resulted in negative effects on employment, in particular among temporary, young, and female workers (Kamińska and Lewandowski 2015). The groups most affected by declining job retention due to increases in the minimum wage are young (ages 18–29 years) and poorly educated workers, particularly low-skilled women. The effects have been stronger in poorer regions and outside big cities (Baranowska-Rataj and Magda 2015). In fact, civil code contracts were more often used in regions with a high minimum-to-median wage ratio to get around minimum-wage laws. Thus, a larger impact is to be expected in voivodeships such as Świętokrzyskie or Łódzkie, where 17 percent of employees receive the minimum wage, than in Mazowieckie, where only 10 percent of employees do (Map 3.4).

Map 3.4. Share of Workers Earning Minimum Wage in Poland, by Region, 2015



Source: ©World Bank, based on Central Statistical Office (GUS) data. Permission required for reuse.

⁴¹ The government recently abolished sub-minimum wages for the youth and introduced an hourly minimum wage for people on Civil Law commission contracts and for self-employed workers personally providing services.

198. **At the same time, the minimum wage has limited potential to reduce poverty in Poland.** A minimum-wage increase will benefit some of the poor, but it mostly benefits nonpoor families. This is because most poor adults are out of work. In addition, only half of the working poor are in wage employment. Moreover, low-paid workers are often secondary earners in nonpoor families, further pointing at only limited poverty-reducing effects of an increase in minimum wages.

199. **A better balance between worker protection and labor market flexibility is needed.**

Currently, the government of Poland is working on a new labor code. Although it is not clear what the result will be, a reduction in administrative burdens and implicit costs associated with permanent labor contracts is needed to reduce firms' incentives to prefer temporary contracts. Segmentation of the labor market could be reduced by making all contracts subject to the same tax and social contributions regime, simplifying and better communicating labor regulations, streamlining legal dismissal procedures, limiting the use of temporary contracts, and strengthening social protection. Notably, an individualized type of targeted job and social assistance program could help to include those who may otherwise be left out.

Barriers to Mobility that Have Also Limited Returns to Labor

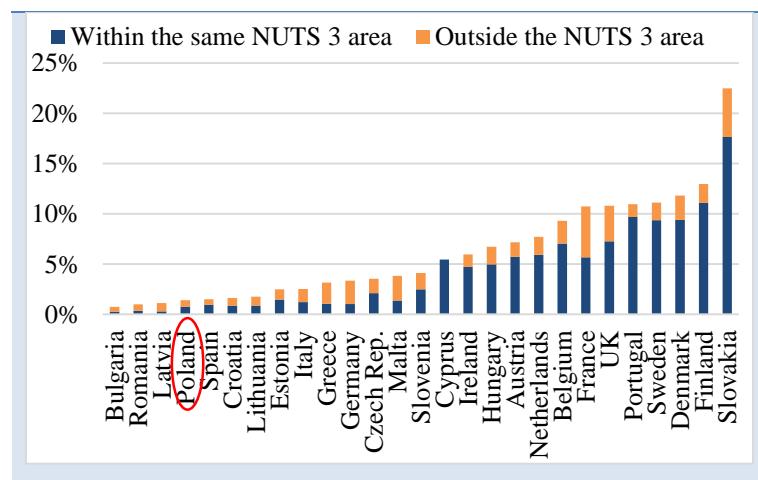
200. **Relatively low returns to labor**

may be the result of low mobility due to agricultural and social policies and lack of access to affordable housing and regional connectivity. Interregional

migration in Poland is very low by international standards and has slightly declined. The Eurostat 2011 Census shows that only 1.4 percent of Poles changed residence since the previous year, ranking Poland as the fourth lowest country on internal migration in the EU (Figure 3.24). Internal migration declined from 11.2 per 1,000 inhabitants to 10 per 1,000 between 2001 and 2015 (GUS 2016b). An important feature of the internal

migration in Poland is that most regions are net outflow areas that supply a small number of destination regions. In 2015 net internal migration was positive for only five voivodeships (Dolnośląskie, Małopolskie, Mazowieckie, Pomorskie, and Wielkopolskie), while the remaining 12 regions were supplying migrants. A recent opinion survey found that 53 percent of respondents would be willing to commute if they could get a (better) job, with 28 percent being willing to move to another town, and 26 percent being willing to move abroad. Among the barriers for migration, 39 percent of respondents mentioned high costs of renting, buying, or building house or flat, while 35 percent cited the proximity of family in their current location (CBOS 2010). Potential barriers to mobility include agricultural and social policies, housing, and other bottlenecks.

Figure 3.24 Share of Persons Who Changed Residence Since the Previous Year, EU Countries, 2011



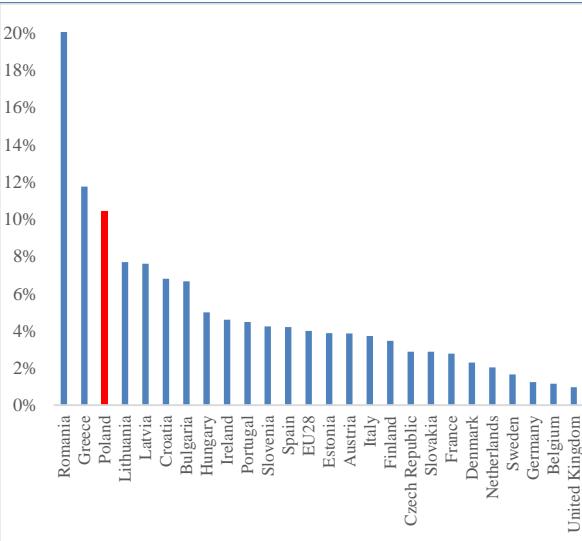
Source: Eurostat 2011 Census.

Note: NUTS 3 refers to the Classification of Territorial Units for Statistics, Level 3.

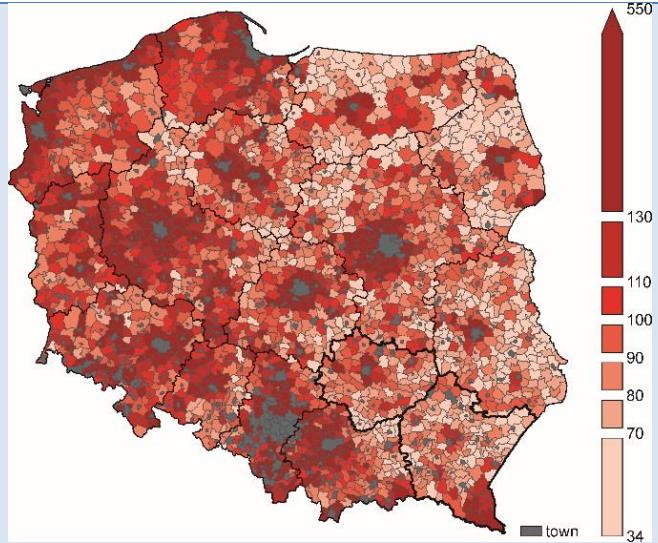
201. Despite the large benefits for farming from EU accession and policies, the agricultural sector continues to face a number of underlying challenges; structural duality is one of the most prominent. Poland continues to have a high share of employment in agriculture (10.4 percent in 2016) compared with other EU countries (Figure 3.25), and while it decreased by 3 percentage points since 2008, there is still large potential for increasing productivity in that sector and reallocating labor to more-productive sectors, leading to higher incomes and broader inclusion (Map 3.5). However, this process is potentially slowed down because of the incentive structure in the social security system available to farmers, which offers access to more generous health insurance and pensions and reinforces low mobility. EU accession has greatly benefited the agricultural and rural sector in Poland, and the country is often seen as one of the most successful new member states in terms of taking advantage of the opportunities of EU membership. However, EU integration has not benefited all farmers equally. The agriculture sector is still characterized by a pronounced duality and high inequality across farmers, with 54 percent of all agricultural holdings being smaller than 5 hectares (Eurostat 2013 data). Small farms operate on 13 percent of the agricultural land and take up 42 percent of the total labor force in agriculture (measured in total agricultural work units) but produce only 17 percent of the total standard output. More importantly, in economic terms, 57 percent of all holdings generate less than €2,000 in standard output per year, and 40 percent consume more than half of their production—which suggests that they fall in the (semi-) subsistence farm category and are faced with low productivity levels. On the other hand, good preparation prior to EU membership turned the development of the food industry in Poland into a “success story”: above all, Poland was able to take advantage more fully of growing export markets, particularly in the EU. What prevents the mobility of low-income farmers toward more lucrative and productive employment?

Figure 3.25. Share of Workers Employed in Agriculture, EU Countries, 2016

Agriculture, EU Countries, 2016



Map 3.5. Number of Agriculture Workers per 100 Hectares of Farmland in Poland, by Municipality, 2013



Source: Eurostat.

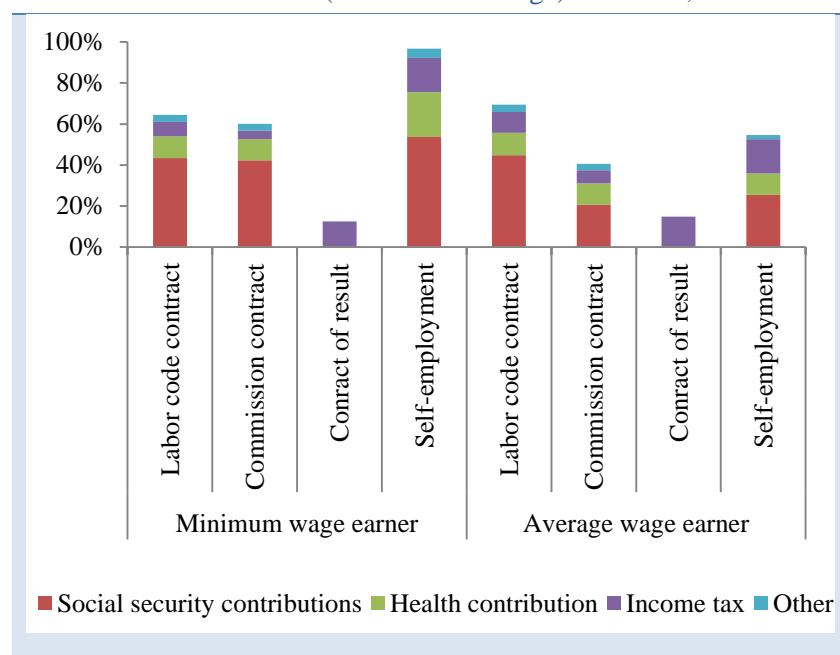
Source: Sivaev 2017, based on Central Statistical Office (GUS) data. ©World Bank. Permission required for reuse.

202. Despite its efforts to address this duality, the EU Common Agricultural Policy (CAP) could pose barriers to mobility. In line with preferences for all EU member states, the CAP provides

three types of support: direct payments to farmers, market support measures, and rural development programs to support the wider rural economy. Direct payments are made annually to help stabilize farm revenues in the face of volatile market prices, unpredictable weather conditions, and variable input costs. To benefit from these payments, farmers must respect rules and practices concerning environmental standards, animal welfare, food safety, and traceability. Payments are not based on how much farmers produce, but on how much land they use and how they use it. These payments are in the range between Zl 1,700 and Zl 4,600 per year, potentially providing incentives to remain in agriculture; however, additional evidence is needed to make any firm conclusion about this.

203. In addition, parallel pension and health insurance systems for farmers could also deter mobility. The general Social Insurance Institution (ZUS) covers the vast majority of nonfarm workers. In parallel, there is an Agricultural Social Insurance Fund (KRUS) for farmers and special schemes of specific occupational groups.⁴² The 1999 pension reform introduced a nonfinancial defined contribution (NDC) system in lieu of a defined benefit scheme, but the system remains a pay-as-you-go system. Benefits are based on the value of an accumulated hypothetical account balance divided by a life expectancy factor that is adjusted each year to reflect changing mortality.⁴³ Because of increasing life expectancy at retirement and other factors, replacement ratios (the benefit received at retirement as a percentage of preretirement salary) are expected to continue to decline, and the percentage of pensioners who will receive the minimum pension, especially for women, is expected to increase. The system's contribution rates differ depending on the employment type (Figure 3.26).⁴⁴ KRUS is also contributory and is mandatory for

Figure 3.26. Differences in Social Security Contributions among Nonfarm Workers (Share of Net Wage) in Poland, 2017



Source: World Bank, based on Social Insurance Institution (ZUS) and Ministry of Finance information.

Note: Figure reflects personal income tax rates, social security contribution rates, and health insurance rates that must be paid under different contract arrangements.

⁴² Special eligibility conditions and provisions apply for teachers; generous benefit formulas for miners; and a separate system for military workers, judges, and prosecutors.

⁴³ Note that for low-income workers, a minimum pension applies.

⁴⁴ The burden of social insurance contributions is on average highest for labor code contract wage-employees, who pay contributions proportionate to their earnings (up to an upper threshold of contributions from 250 percent of

farmers with one or more hectares of land. Most KRUS contributors pay a contribution equal to 30 percent of the minimum ZUS pension each quarter (10 percent per month) because their land holdings are under 50 hectares, family members do not work in agriculture, and they have no nonagricultural income. In return, they receive a pension at age 65 (males) or age 60 (females) equal to 115–125 percent of the ZUS minimum pension per month for life. The plan also pays disability and survivor benefits. Contributions made by farmers generally cover about 10 percent of the total cost of the plan, with the remainder paid from the government budget, so the program is heavily subsidized by the government. Unlike ZUS, the KRUS contributions and benefits for farmers are not based on actual income because measuring income for farmers would be administratively complex. Farmers with land holdings of less than 1 hectare may voluntarily join and pay the same 10 percent contribution to get the same highly subsidized pension benefit.⁴⁵ Despite a recent reduction in the number of farmers insured under KRUS in 2016, the differences in the benefit amounts and types of schemes could pose disincentive effects.⁴⁶

204. **Similarly, although all workers have a right to exactly the same health services, there are significant differences in the cost associated with getting health insurance.** Farmers pay only Zl 1 (€0.25) per hectare of land for every insured person. Given that the average farm size is of around 10 hectares, this translates to a symbolic payment of Zl 10 (€2.5) per month. Moreover, the contribution is paid by the state for owners of farms below 6 hectares. In contrast, health insurance contributions are 9 percent of wage-income for other workers.⁴⁷ Although a large part of health insurance contributions can be deducted from personal income taxes, the contributions of nonfarm workers are much higher.⁴⁸ Given the preferential conditions for farmers and farm household members to receive health and social security insurance, there are restrictions regarding overlaps of insurance titles that do not allow households to combine farm and nonfarm employment. Taken together, these parallel systems may provide disincentives to obtain legal employment outside of agriculture, increasing the size of the gray economy and potentially slowing the transitions to more-productive nonfarm employment.

average wage); followed by the self-employed, who pay lump-sum contribution as if they were earning 60 percent of average wage; and then civil code commission contract wage-workers, who pay contributions from the minimum wage.

⁴⁵ Farmers and farmers' household members pay a small lump-sum contribution (Zl 129 [€32]) in 2017.

⁴⁶ See the chart, "Number of Persons Insured by KRUS, 1991–2014" on the KRUS website: http://www.krus.gov.pl/fileadmin/moje_dokumenty/obrazki/KRUS_w_liczbach/liczba_ubezpieczonych_w_latach_1991_2014.png.

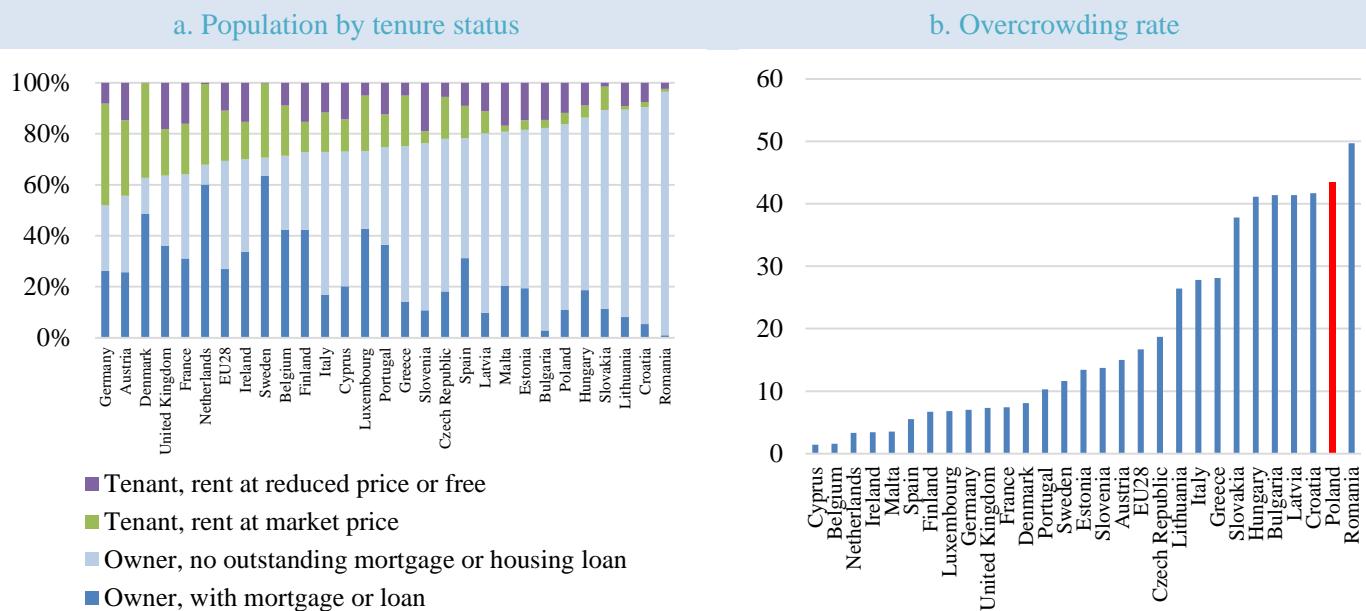
⁴⁷ Imbalances also exist among nonfarm workers, particularly between wage and self-employed workers (the latter pay health insurance as 9 percent from 75 percent of the average wage).

⁴⁸ In 2016 the cost of social security contributions and health insurance contributions for an average-size farm owner (farm household member) was equivalent to around 20 percent (10 percent) of the contributions paid for a minimum (average) wage earner. This is not balanced by, for example, higher farm taxes as compared with nonfarm income taxes, because the farm tax for the average farm (in monthly terms) is similar to income tax paid by a minimum wage earner. It is also worth noting that farm tax is paid only by the land owner, while several household members might be insured through KRUS.

205. Eliminating barriers to mobility between the farm and nonfarm sectors could go a long way toward improving labor incomes in rural areas and fostering structural transformation. KRUS and CAP were designed with other social and environmental policy goals; however, as in much of policy making, there could be unintended effects. Although more research is needed, there is some indication that the combination of agricultural and social protection policies could reduce incentives for farmers to move to formal nonfarm employment, thus reducing their lifetime earnings potential. To the extent that these incentives also preclude improvements in productivity and national growth, further analysis may be warranted.

206. Another important barrier to mobility is access to affordable housing. The Polish housing market mostly focuses on owner occupancy, as the vast majority of Poles live in houses or flats that they own, with the rental sector by private landlords developed mostly in Poland's largest cities and resort towns (Figure 3.27, panel a). At the same time, the overcrowding rate in Poland is the second worst in the EU (Figure 3.27, panel b). The share of households living in overcrowded dwellings and the share of housing of poor quality remain large relative to other European countries, indicating a lack of affordable housing alternatives. At the same time, housing has a regional dimension and is related to aging, with greater availability of housing in areas where aging is most visible (Map 3.6). This could have the consequence that the value of these houses will be low, and older people could have difficulties selling their assets in case they want to supplement their income.

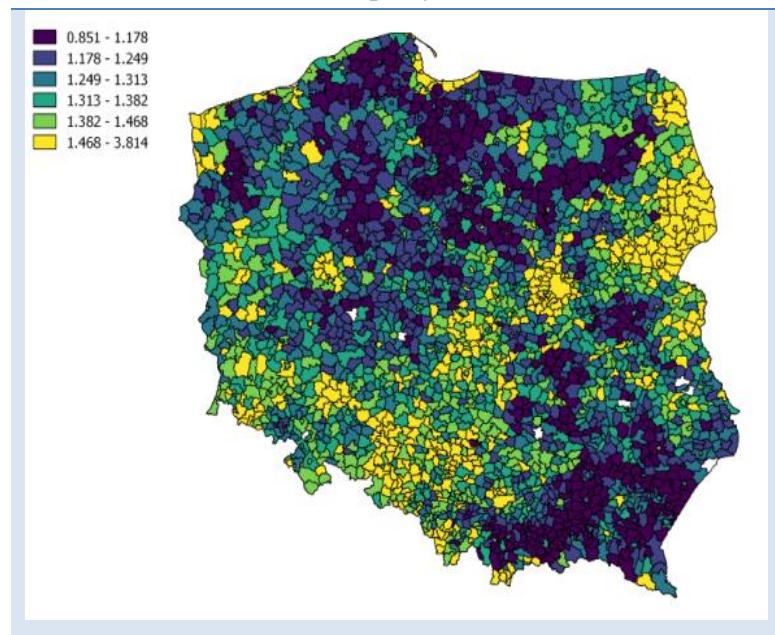
Figure 3.27 Housing-Related Constraints on Mobility, EU-28 Countries, 2015



Source: Eurostat.

207. Although Poland has made considerable progress in reducing the housing deficit and improving housing quality, housing affordability and limited diversity of the housing stock remain important policy challenges. The National Housing Program, adopted in 2016, was an important step in this direction as it contains a systematic review of former housing policies as well as objectives, priorities, and implementation instruments of current housing policy. This program aims to increase accessible housing; ensure stable budget financing in the long term through the creation of a national housing fund; improve the quality of housing; and undertake regulatory amendments concerning the housing rental market, investment and construction process, and the supply of public land. It remains to be seen whether the proposed review of regulatory policies will lead to increased availability of affordable housing and lower restrictions on the supply of rental housing in Poland (Glocker and Plouin 2016).

Map 3.6. Housing Resources in Poland: Rooms Per Capita, by Municipality, 2015



Source: ©Centre for Economic Analysis (CenEA), Szczecin. Reproduced, with permission, from CenEA; further permission required for reuse.

Note: Map uses data from the Local Data Bank of the Central Statistical Office (GUS).

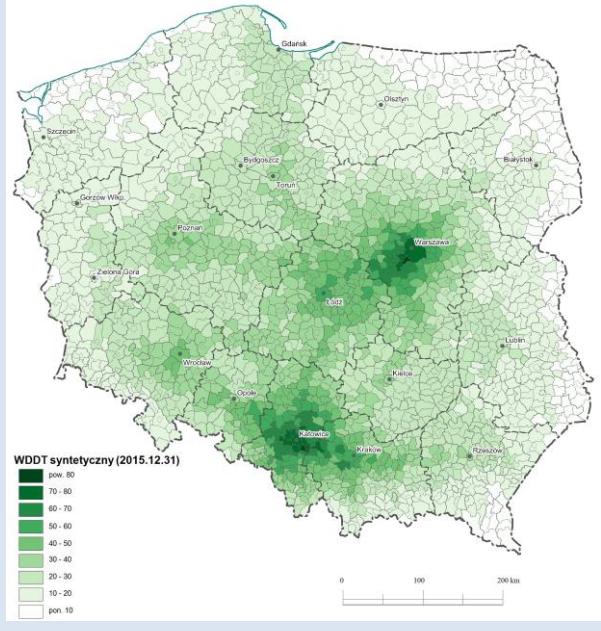
208. Barriers to transferring land also pose limits to mobility. Although Poland has a nondiscriminatory legal system that protects and facilitates acquisition and disposition of all property rights, including land, buildings, and mortgages, investors complain that the judicial system is slow in adjudicating property rights cases (U.S. Department of Commerce 2016). Moreover, widespread nationalization of property during and after World War II has complicated the ability to establish clear title to land, especially in major municipalities, because there is no general statute of limitations regarding the filing or litigation of private property restitution claims. In addition, two new land use laws, in force as of April 2016, restrict the free purchase of land by investors. The agricultural land law suspends the sale of Agricultural Property Agency (APA) (state-owned) farmland for five years unless it is being allocated for industrial parks, business centers, special economic zones, residential premises, or small agricultural properties. The APA manages real properties of the Agricultural Property Stock of the State Treasury, first of all, by leasing or selling real properties to enlarge or create family farms. State-owned farmland will be available only under long-term lease to farmers who want to enlarge their farms, to a maximum of 300 hectares (new and old land combined size). The agricultural land law also imposes restrictions on sale of privately owned farmland and gives the APA preemptive right to purchase in case of land sales by a private owner. The APA is obliged to offer market rate compensation under the law. Agricultural firms currently on the Polish market express concern that the 300 hectares limitation gives large,

established farms a competitive advantage over smaller farms that wish to expand. The Law on Forest land similarly prevents Polish and foreign investors from purchasing privately held forests and gives the state-owned forestry agency the preemptive right to buy privately held forests (U.S. Department of Commerce 2016).

- 209. Improvements in connectivity between towns and regional centers in Eastern and North-Western regions could substantially enhance mobility and access to labor markets.** Major road and rail investment projects have substantially improved connectivity of the regions in recent years. From Krakow, it takes two hours to drive from Rzeszow, four hours to get to Warsaw or Wroclaw, 7 hours to Berlin, and around 10 to Hanover and Hamburg. With the top standard highway and railway systems already significantly developed, further investments are likely to deliver only marginal travel-time savings at a very high cost and will be unlikely to significantly improve the competitive potential of businesses in lagging regions. More importantly, there is limited connectivity between towns to regional centers particularly in Eastern and North-Western part of Poland (Map 3.7). The average access time to the regional centers located in these regions is noticeably greater than the country average, with the difference reaching as high as 190 minutes by public transport (60 by private car) (ESPON 2013). The availability, level of

integration, convenience, and cost of access to public transit (buses, trams, and railway) in metropolitan functional areas and between rural locations and regional and subregional socioeconomic centers is still limited in many regions. Recent studies show that public transport in urban and metropolitan areas is losing passengers and is noncompetitive in regional transport both in central and peripheral rural zones (ESPON 2013). This severely affects accessibility to work places and basic services. Even the Warsaw region, the largest metropolitan area in Poland, still has deficiencies in public transport, particularly in relation to integration of urban transport (buses and trams) to suburban and regional railway connections. Accessibility within its metropolitan area remains within 60 minutes' travel access time to the city center, and its level is practically unchanged since 2004 despite significant transport investment projects implemented after accession of Poland into the EU (Komornicki et al. 2015). Although noticeable investments have been made in public passenger transport (railway rolling stock, buses, trams, and urban road infrastructure), urban transport in most cities is still dominated by private cars. Policy reforms and further improvements in operations, tariff structure, intermodal integration, modernization of ticketing systems, and investments in public transport in metropolitan and peripheral areas—along with revitalization of

Map 3.7. Accessibility by Road in Poland, by Municipality, 2015



Source: Komornicki et al. 2015. ©Institute of Geography and Spatial Organization, Polish Academy of Sciences (IGSO PAS). Reproduced, with permission, from IGSO PAS; further permission required for reuse.

road infrastructure connecting towns and regional centers—are therefore needed to make it a more attractive alternative to private cars.

210. Given the likely decrease in EU funding beyond 2020, safety, maintenance, and improvements of road and rail infrastructure will largely depend on increasing transport revenues and the effectiveness of the specialized state administrations and state-controlled companies. Significant investments will continue as a result of the EU 2014–2020 Structural Funds, with an increased focus on rail and urban transport. For this funding to be effective, multistakeholder coordination and institutional capacity at the government and local levels are needed to improve road and railway safety and efficiently manage the infrastructure project cycle. To ensure the sustainability and further development of transport system beyond 2020, policy changes and improvements in the legal and funding framework are necessary. Structural reforms are needed to secure additional revenues for maintenance and further modernization aimed at improving networks' capacity and safety. Several mechanisms based on “users and polluters pay” principles can be considered for ensuring the sustainability of funding for transport, including fuel charges, road tolling, track access charges, and passenger tariffs for railways. Additional resources should be also used to rebalance the infrastructure funding system so that more funds are secured for the regional and local road networks to improve intra-country connectivity, access to public services, and local access to trade links. Additionally, improvements in transport planning and organization of transport services should accompany better corporate governance and efficiency of government and government-owned companies, including rail and urban transport companies. Constraints on the competitiveness of public transport include the following:

- Institutional aspects that result in urban and metropolitan transport planning that is constrained by administrative borders rather than covering functional metropolitan areas
- Lack of interoperability of automatic fare collection, which impedes fare integration across modes, thus reducing the attractiveness of public transport to users
- A fare discount policy that is too generous and not well targeted to the poor and other vulnerable groups
- The absence of national legislation to encourage multimodal urban transport across functional urban areas

Improving Nonlabor Income and Redistribution

211. Tax and benefit policies need to complement labor incomes to enhance shared prosperity.

The assets framework followed so far has focused on the opportunities that individuals have to build and use their skills and talents through the job market to be able to participate in growth and prosperity in Poland through increases in labor incomes. Fiscal and social policies that could complement labor incomes through redistributive and social assistance policies are considered below.

212. The overall redistributive power of fiscal policy in Poland has been low compared with that of other EU countries. Most direct taxes are progressive and equalizing with the exception of agricultural taxes and farmer contributions, which depend on land size rather than on income generation. However, direct taxes and contributions are also poverty-increasing since most contributions do not have a minimum threshold, thus posing a burden on poor households.

Moreover, indirect taxes are regressive and contribute to poverty and inequality (Goraus and Inchauste 2016). Direct transfers are progressive and equalizing, particularly family benefit and social assistance programs, which are pro-poor. Contributory benefit programs make up a large share of the incomes of the poor, but they are not pro-poor, because most of the benefits go to individuals at the top of the distribution who have contributed more. In fact, until 2016, noncontributory family benefits and social assistance were low compared with other high-income countries, which led to a low level of redistribution and a negative net cash position after taxes and transfers for many low-income households. Spending on health and education is progressive and equalizing. Therefore, until 2015, the Polish fiscal system had the capacity to redistribute but weak capacity to reduce poverty given its resources disposal, particularly for families with children.

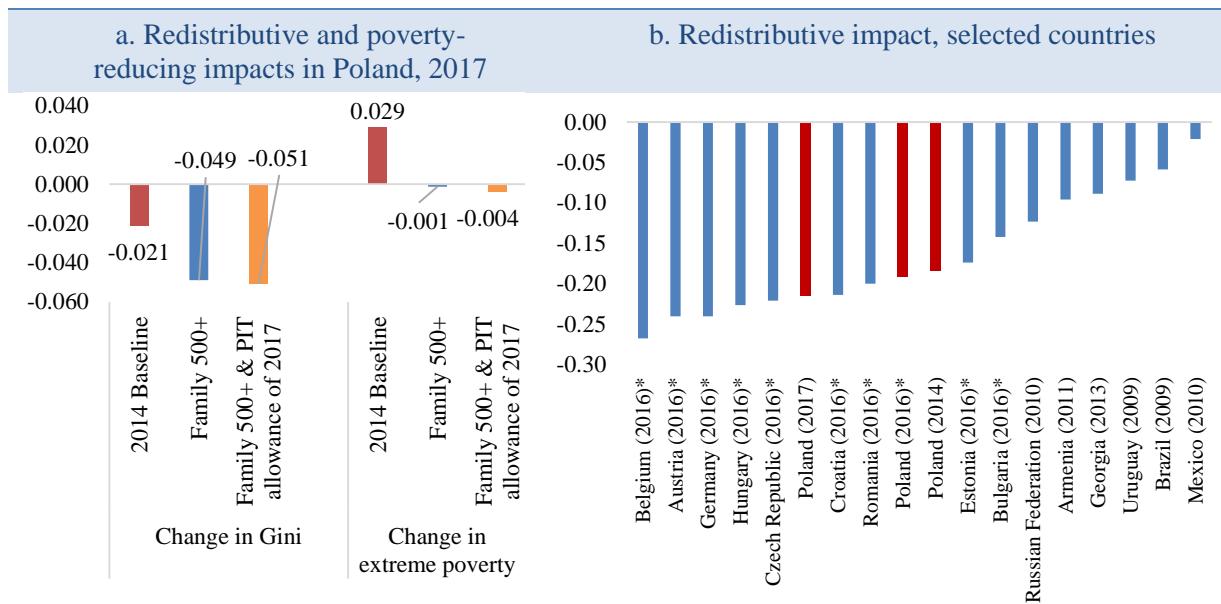
213. With the introduction of the Family 500+ program and recent improvements to the progressivity of the personal income tax, the redistributive and poverty-reducing impact of tax and benefit policies has improved. Historically, the social assistance system was highly targeted, not very generous, and because of the complexity of the systems' setup and aims, had coverage gaps. The Family 500+ program, introduced in April 2016, revolutionized the social assistance and family support system by reducing coverage gaps and increasing social expenditure. The new benefit is expected to cost 1.3 percent of GDP compared with all other noncontributory transfers, which cumulatively amounted to 0.7 percent of GDP in 2013. It will significantly reduce poverty, particularly child poverty, as well as inequality (Goraus and Inchauste 2016).⁴⁹ In addition to the new family benefit program, the government also enhanced the progressivity of the personal income tax by increasing the tax allowance for very low-income earners while reducing the allowance for higher-income earners. The total cost of this move amounted to about 0.1 percent of GDP, but the resulting balance of tax and benefits is expected to have both redistributive and poverty-reducing effects (Figure 3.28, panel a). The impact of direct taxes and transfers on disposable income is comparable to other countries in the region such as Croatia and the Czech Republic, but still lower than the impacts observed in Belgium, Austria, and Germany (Figure 3.28, panel b).

214. However, the social assistance system in Poland remains complex. Generally, social assistance benefits can be separated into having aims for poverty and risk reduction, human capital (including fertility), or disability/old age and its combinations. Poland has transitioned from a country with one of the lowest support to families to a country with family support exceeding 3 percent of GDP—a characteristic of just a few EU countries with much larger welfare states. The Family 500+ program considerably increased the coverage of the poorest, with 80 percent of the poorest quintile now receiving at least one social assistance benefit compared with only 58 percent in 2012. However, the 500+ program has contributed to reducing the efficiency of the overall social assistance system. Although it covers 74 percent of those in the poorest quintile, as much as 26 percent of the relatively well-off families (those living in the top 60 percent of the income distribution) also benefit from the program. Altogether, while social assistance in the past was very well targeted to the poor, albeit inadequately, today more than a third of households in the top two income quintiles are estimated to receive noncontributory transfers. Moreover, the 500+ program was introduced as an overlapping benefit (by law, not affecting eligibility to any other) in an already complex social assistance and family support system characterized by a multiplicity of different stakeholders, benefits, and aims.

⁴⁹ According to the information of the Ministry of Family, Labour and Social Policy, poverty decreased by 48 percent and extreme poverty by 98 percent as of March 2017: <https://www.mpips.gov.pl/aktualnosci-wszystkie/rodzina-500-plus/art,8744,rok-na-plus.html>.

The design of each of the benefits includes a multiplicity of thresholds for eligibility, resulting in multiple overlapping benefits that require different administrations.

Figure 3.28. Redistributive Impact of Tax and Transfers in Poland and Selected Countries



Source: Goraus and Inchauste 2016.

Note: Microsimulations based on 2015 Household Budget Survey. “Extreme poverty” refers to the subsistence minimum estimated by the Institute of Labor and Social Studies, Warsaw.

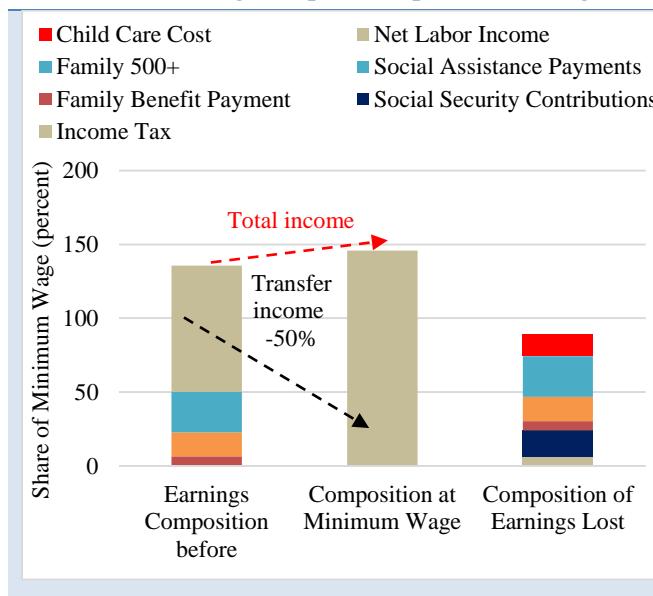
Sources: Armenia: Younger and Khachatryan 2017; Brazil: Higgins and Pereira 2014; Georgia: Cancho and Bondarenko 2017; Mexico: Scott 2014; Russian Federation: López-Calva et al. 2017; Uruguay: Bucheli et al. 2014. EU countries (*): EUROMOD 2016 statistics on Distribution and Decomposition of Disposable Income (see <https://www.euromod.ac.uk/using-euromod/statistics>, using Version G4.0). Poland (2014) is based on Goraus and Inchauste 2016; Poland (2017) is based on microsimulations using Household Budget Survey (HBS) 2015.

215. Moreover, the 500+ program could create disincentives to enter the workforce for families in Poland. Recent simulations show that this program could reduce labor supply among families with children by about 240,000 individuals, principally mothers in small towns and villages (Myck 2016). Although the effect exists for every family type examined, it is especially pronounced for second earners in families with one child and single mothers with one child. For instance, a married couple with one child where one spouse earns the minimum wage will find that if the other spouse works, the household will no longer receive any social benefit while their total household income would increase by only about 25 percent. If one were to account for childcare costs,⁵⁰ the increase in household income would only be about 10 percent (Figure 3.29) before taking into account transport costs. Similarly, if a single mother was to work for minimum wage and send her child to a care facility, her income would increase by less than 16 percent once childcare is taken into account. In fact, 10 percent of people living in families with children are “trapped” in the sense that they earn Zl

⁵⁰ Numbers taken from OECD calculations on the average cost of for one child in a public nursery. Because many have to resort to private child care, the real price in Poland for childcare is a lot higher.

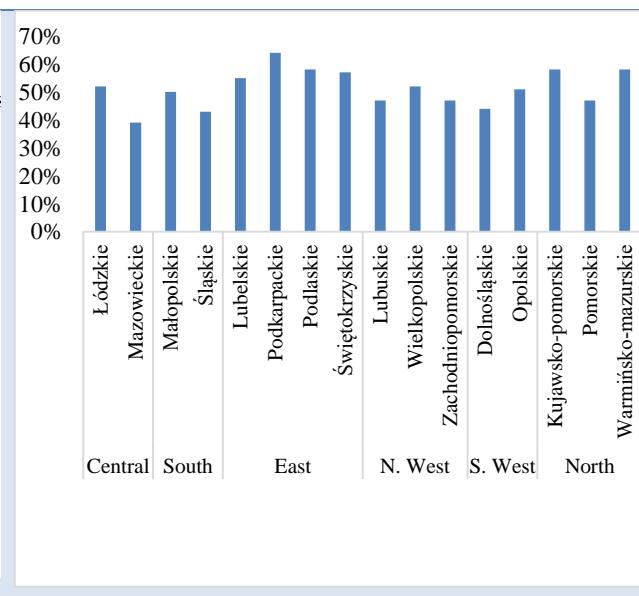
1–500 above the threshold to receive the Family 500+ benefit for the first child and are thus better off *decreasing* their market income. The prevalence of households receiving the 500+ benefit for the first child varies across regions, from 64 percent in Podkarpackie to 39 percent in Mazowieckie (Figure 3.30).

Figure 3.29. Incentives in Poland's Tax-Benefit System for a Married Couple: Principal Earning Minimum Wage, Impact of Spouse Working



Source: World Bank estimates using Organisation for Economic Co-operation and Development's (OECD) de jure Tax Benefit Model.

Figure 3.30. Share of Families with Children in Poland Receiving Family 500+ for First Child, simulation for 2016 on 2015 data

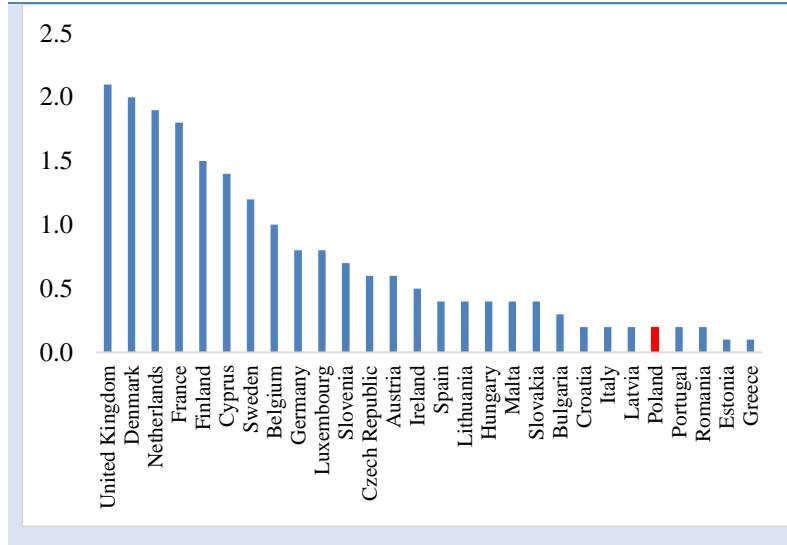


Source: World Bank estimates based on Household Budget Survey (HBS) 2015.

216. There are several ways this system could be reformed to remove disincentives to enter the labor force. The main challenge is to reform the system of support for families with children to improve its effectiveness, address the related work incentives, reduce fragmentation, and unify key definitions (such as who is a child) while at the same time ensuring consistency with respect to households with special characteristics such as lone parenthood, disability, and so on. There may be some scope to improve efficiency of the 500+ program, without losing coverage of the poor and the middle class, through a combination of measures such as placing a cap on the eligibility for the 500+. Similarly, consolidation of processes and benefits for the 500+ and family benefits would reduce administrative costs on the state and on families alike. Smaller reforms to the Family 500+ program could include the introduction of a taper instead of an instant withdrawal for the first child, as was recently done with the family benefit. Alternative options include the introduction an income disregard for the first child, which makes work pay at every level of earning above zero, or the conversion of the child tax credit into a childcare tax credit.

217. The main social exclusion challenges are now related to providing support to the elderly, to single and socially excluded adults, and improving the housing situation of the poor. Beyond family benefits, spending on housing and last-resort social assistance remains very low by international standards (Figure 3.31). While the 500+ program is expected to contribute to reducing child poverty and nearly eliminating extreme child poverty, social exclusion among other categories of households without children remains an outstanding gap.

Figure 3.31. Expenditure on Housing and Social Exclusion Categories, as a Percentage of GDP. EU-28 Countries, 2014



Source: Eurostat, European system of integrated social protection statistics (ESSPROS) 2014 data.

Priorities for Inclusion

218. Shared prosperity will continue to be a challenge in the face of demographic changes and technological improvements. To ensure shared prosperity going forward, Poland will need to improve individual assets, ensure equality of opportunity in education and health, and ensure utilization of those assets, particularly through increased labor force participation. To improve the returns to those assets, barriers to mobility will need to be removed, while fiscal and social policies will need to continue to complement labor incomes through policies that address the needs of the most vulnerable and, at the same time, providing incentives for activation and productivity improvements. This agenda will require consistent policies, enhanced coordination and cooperation between the public and private sectors, and a more effective state.

219. Reducing the existing skills divide and improving the quality and relevance of education provision and adult learning possibilities will be needed to ensure shared prosperity. Reducing differences in school performance across socioeconomic backgrounds, regions, and gender would improve equality of opportunity. Moreover, given increased demand for skills driven by technological change, there is a need for the educational systems to adapt, fostering the skills required to perform nonroutine tasks and socioemotional and higher-order cognitive skills. Given demographic changes, the high concentration of older workers in routine jobs, and the overall growing importance of continuous skill acquisition among individuals in an innovating economy, shared prosperity will also depend on greater efforts to make lifelong and on-the-job training more accessible and relevant.

220. Similarly, Poland needs to do more to boost health outcomes to prepare for the aging of its population. Poland already faces higher mortality and morbidity rates than its peers, low affordability due to expensive drugs, and access to care that still depends on individual circumstances. Long waiting times result from poor coordination, fragmentation, and low and inefficient spending. Given the expected increase in healthcare costs due to population aging, policies and investments are needed for promoting improved health outcomes while also containing costs.

221. Beyond improving human capital, policies across the range of government involvement must promote labor force participation through coordinated and consistent policies.

Improvements in education and health will be insufficient to ensure shared prosperity if people do not participate in the labor market. In the case of Poland, the most critical constraint on intensive use of its assets is the fact that a large share of its labor force does not participate in the labor market. Easing this constraint will require ensuring that people are not unwillingly excluded from the labor market, but more importantly it will require that cross-sectoral policies are well coordinated to provide strong incentives to work, particularly for women, including through concerted efforts to increase the availability of childcare and long-term care and to reduce labor disincentive effects. Moreover, extended outreach and employment promotion is necessary to reach inactive women and youth who live in remote and rural areas. Formalizing and operationalizing coordination among agencies that provide services to vulnerable populations is critical to ensure delivery of a package of integrated services to improve their chances of getting and keeping a job.

222. Improving the returns to labor will require lifting barriers that segment the labor market.

A reduction in administrative burdens and implicit costs associated with permanent labor contracts will be needed to reduce firms' incentives to prefer temporary contracts. Moreover, labor market segmentation could be reduced by making all contracts subject to the same tax and social contributions regime, simplifying and better communicating labor regulations, streamlining legal dismissal procedures, limiting the use of temporary contracts, and strengthening social protection. Notably, an individualized type of targeted job and social assistance program could help to include those who may otherwise be left out.

223. Eliminating barriers to mobility could also go a long way toward improving the returns to labor, particularly in rural areas. Potential barriers to mobility include the lack of access to affordable housing (and the associated rate of overcrowding) as well as agricultural and social policies that provide incentives for farmers to remain in the agricultural sector. In addition, judicial and regulatory barriers could prevent mobility by restricting land use and potentially limiting the sale of farm property. Similarly, improvements in regional road and rail infrastructure management could also substantially enhance mobility and access to labor markets. In particular, structural reforms are needed to rebalance existing EU funding toward regional and local networks and improve the capacity, safety, and sustainability of the current system by securing additional revenues for road and rail maintenance beyond 2020.

224. Tax and benefit policies have become more equalizing and poverty-reducing, but more can be done to reduce labor market disincentives and improve the social assistance system. With

the introduction of the Family 500+ program and recent improvements to the progressivity of the personal income tax, the redistributive and poverty-reducing impact of tax and benefit policies has improved. However, the social assistance system in Poland remains complex, and there are important questions about the labor incentives of existing programs. The main challenge is to reform the system of support for families with children to improve its effectiveness, address work incentives, and reduce fragmentation, while at the same time ensuring consistency with respect to households with special characteristics. Placing a cap on the eligibility for Family 500+ could improve its efficiency without losing coverage of the poor and the middle class, while streamlining benefits could reduce administrative costs on the state and on families alike. Beyond family benefits, the main social exclusion challenge is related to improving the housing situation of the poor and improving last-resort social assistance to single and socially excluded adults.

225. This agenda will require consistent policies, enhanced coordination and cooperation between public and private sectors, and overall a more effective and accountable state. This is true both to ensure equality of opportunity in the formation of skills and to access quality health care services, but it is also true to ensure consistent policies to foster labor force participation and to reduce barriers to mobility and greater entry into the labor market. Redistributive tax and benefit policies will also require coordination across government and cooperation from the private sector.

Box 3.1 Knowledge Gaps Concerning Labor Market Inclusion

Critical knowledge gaps identified in this chapter include

- The impact of the Common Agricultural Policy on mobility out of agriculture;
- Systematic review of housing policy instruments;
- Impact evaluations of labor market interventions;
- Review of public spending on labor market policies; and
- Systematic review of public spending on health care and intergovernmental relations for health services delivery.

Chapter 4: Requisites: Fiscal Sustainability, Better Natural Resource Management, and Governance and Trust in Institutions

The requisites for sustainable development include fiscal, social, and environmental sustainability, and governance for growth and equity. Given the demographic trends, long-term fiscal and social sustainability will depend on reaching a consensus around the future of the pension system. Poland's environmental sustainability challenges are dominated by the need to move to a low-emissions economy, which overlaps with other objectives such as cleaner air, better water management, and adapting to climate change. More generally, policies to promote growth, inclusion, and sustainability will be effective only if they can sustain a consensus, generate common expectations among actors, and foster compliance.

Introduction

226. **Beyond growth and inclusion, the requisites for sustainable development include fiscal, social, and environmental sustainability, and governance for growth and equity.** The diagnostic has described two pathways toward shared prosperity so far: (a) increasing productivity through an innovation-led growth model, and (b) enhancing inclusion by improving the skills and health of the population (ensuring that they can engage productively) and by guaranteeing access to labor markets (which maximizes each person's potential by eliminating barriers to mobility). These pathways are complex and mutually reinforcing. Removing constraints on productivity growth will contribute to a more competitive economy. At the same time, if individuals enjoy equal opportunities, higher productivity will mean new and more productive jobs that generate higher incomes for all, ultimately increasing shared prosperity. However, these pathways cannot be achieved in the absence of prerequisites that guarantee the sustainability of policies.
227. **Long-term fiscal and social sustainability are interlinked in the context of demographic changes through the social protection system.** Although the public debt remains sustainable in the short and medium term (see Appendix A), in the long run Poland faces a trade-off between ensuring fiscal sustainability with the current level of pension benefits and confronting the fact that the resulting pension benefits may be too low to be socially sustainable. Even if workers were to increase their individual savings by 4–7 percent of gross earnings per year, the resulting pension benefits would force many to rely on the subsidized minimum pension. This would not only be a fiscal burden but also would likely be too low for many of the elderly, and particularly for women, who will have retired with insufficient savings.
228. **Ensuring environmental sustainability would also help to sustain growth and foster inclusion.** Poland's environmental sustainability challenges are dominated by the need to move to a low-emissions economy, a goal that overlaps with other environmental objectives such as cleaner air, better water management, and adapting to a changing climate. Transitioning gradually away from coal in power generation and in household consumption would not only help reduce greenhouse gas (GHG) emissions and diversify energy sources but could also substantially improve air quality and reduce elevated health risks, especially among low-income households that burn coal for heating. Similarly, modernizing transport and making it more efficient will contribute to multiple

goals. Finally, improved water management would help to mitigate the effects of climate change, which are expected to be more severe in rural areas and in agriculture.

229. **More generally, a key requisite to confront the growth, inclusion, and sustainability challenges presented throughout this diagnostic is governance.** In particular, policies in all of the areas discussed so far will be effective in promoting growth and enhancing equity only if they are able to sustain consensus over time, generate common expectations among actors, and foster compliance. Using the *World Development Report 2017* framework (World Bank 2017b), this diagnostic has highlighted (a) the need to ensure commitment to laws and their implementation; (b) the need for a new coordination effort beyond the EU integration process to encourage investments in new technologies that will allow the country to move up global value chains; and (c) the need to improve trust through improved accountability and service delivery in health, education, transport, and other basic services to ensure cooperation and compliance. This chapter aims to synthesize these cross-cutting themes.

Fiscal Sustainability in the Medium and Long Term

230. **Public debt remains sustainable in the short and medium term.** As shown in Appendix A, public debt remains sustainable and is expected to remain below the standard risk thresholds in the medium term. The public debt profile is resilient to interest rate, foreign currency, and fiscal risks in the short to medium term. Recent increases in government spending through the introduction of the Family 500+ program led to some sustainability concerns, but some of this will be mitigated through indirect effects through a variety of sectors and markets. For instance, a fiscal computable general equilibrium (CGE) model finds that a ZI 1 billion increase in government transfers to households would increase the deficit by only ZI 830 million, since the stimulus is expected to translate into higher indirect tax revenues.

231. **Nevertheless, there is a trade-off between ensuring fiscal sustainability with the current level of benefits and the desire to continue to invest.** Financing expenditures to strengthen transport infrastructure, provide quality health and education services, expand the safety net, and offer adequate salaries to attract and retain competent staff in public administration will be difficult. Tax rates can rise to some extent as income levels increase, but excessive taxes can discourage innovation and risk taking, behavior that is essential for rapid gains in productivity. Increased borrowing may be appropriate at times, but it is not a sustainable solution to a permanent increase in expenditures. Increase of revenues for infrastructure, introduction of modern asset management techniques based on the infrastructure life cycle, and increased administrative efficiency—coupled with greater involvement of the private sector in the provision of public goods, particularly infrastructure and services—can make an important contribution to stretching the fiscal envelope, provided governance is strengthened in the public sector.

232. **In the long term, fiscal and social sustainability will largely be determined by the pensions system, recently aggravated by the rollback in the statutory retirement age.** Current demographic changes pose fiscal and social sustainability challenges to the pension system. The old-age pension system dependency ratio is projected to increase,⁵¹ while the replacement rate is

⁵¹ The old-age pension system dependency ratio is the number of old-age pensioners to the number of contributors.

expected to decline.⁵² Both processes will be exacerbated by the recent rollback in the statutory retirement age, with the replacement rate declining particularly strongly for women. In the absence of voluntary savings, the resulting pensions will be very low, the number of people expected to rely on the subsidized minimum pension will increase, and a growing number of people will be at risk of poverty in their old age.

233. **As a solution to a shrinking population, there is a need to expand the workforce through widened participation, improved mobility, and better regulation, complemented by smart immigration policies.** Immigration can further serve to fill short-term labor shortages and hence support growth and, indirectly, fiscal balances, as discussed in Chapter 2. Immigrants can serve a focused but vital role. Poland's aging population will not only put pressure on fiscal balances but also on government service delivery as demand for elderly care and health care soars. Foreign workers can help fill many of these gaps. To some extent, this would also contain wage pressures and help manage a rising public sector wage bill. Rising pressure on wages in the service sector is expected to be driven by so-called Balassa-Samuelson effects. In a converging economy, productivity improvements are driven by tradable sectors (manufacturing), while prices of services grow faster than prices of goods. This phenomenon is expected to translate into higher prices of public services in the long run.
234. **The rising pressure on age-related public spending in Poland will focus particularly on health, long-term care, and future pension adequacy.** According to a recent analysis by the European Commission, age-related spending in the next decades is expected to remain broadly stable (20 percent of gross domestic product [GDP] in 2040 and 22 percent in 2060), mostly because pension spending is expected to go down despite rapid aging and to offset increases in health care and long-term care spending (Table 4.1). This is largely because the stability of the pension spending is embedded in the nature of the actuarially balanced notional defined contribution (NDC) pension system. However, the projected trends cannot be regarded as socially sustainable, because of a dramatic decline in future replacement rates, particularly for women. The next section details these effects based on a Pension Reform Options Simulation Toolkit (PROST) model for Poland.
235. **Abstracting from pension growth, there is still a risk that future public spending would be higher than indicated by long-term estimates.** For example, in a long-term scenario in which total factor productivity (TFP) is lower than currently envisaged, pension spending in 2060 would be around 0.4 percent of GDP higher than in the reference case (EC 2015). In an EU-28 cost convergence scenario, health and long-term care spending in 2060 would be 1.7 percent and 1.2 percent of GDP higher, respectively, than in the baseline case. These pressures will need to be matched either by increases in revenue, through tax policy changes or improved tax administration, or by expenditure cuts elsewhere. However, from the perspective of shared prosperity, future pensions are the main concern.

⁵² The replacement rate is the average pension benefit divided by the average wage of contributors.

Table 4.1. Projected Age-Related Public Expenditure in Poland, AWG Reference Scenario, 2013–60
Percentage of GDP

Expenditures or assumptions	2013	2020	2030	2040	2050	2060
<i>Expenditures</i>						
Age-related expenditure	20.7	20.1	20.4	20.1	21.0	22.1
Pension expenditure	11.3	10.6	10.4	10	10.4	10.7
Old-age and early pensions	9.8	9.5	9.3	8.6	9	9.5
Other pensions (disability, survivors)	1.5	1.1	1.1	1.4	1.4	1.2
Health care expenditure	4.2	4.4	4.8	5.1	5.2	5.5
Long-term care expenditure	0.8	0.9	1.1	1.3	1.5	1.7
Education expenditure	4.4	4.1	4.1	3.8	3.9	4.3
Pension contributions	6.8	7.3	7.5	7.7	7.7	7.7
<i>Assumptions</i>						
Labor productivity growth	2.8	3.1	2.3	1.9	1.8	1.5
Real GDP growth	3.2	2.6	1.9	1.3	0.6	0.7
Participation rate, males (ages 20–64)	80.2	82.4	82.8	81.5	81.8	82.2
Participation rate, females (ages 20–64)	65.2	66.7	68.3	68.4	69.3	69.8
Total participation rate (ages 20–64)	72.7	74.5	75.6	75	75.6	76.1
Unemployment rate (ages 20–64)	10.3	8.5	8.4	7.3	7.3	7.3
Population ages 65+ over total population	14.5	18.4	22.7	25.1	29.9	33

Source: EC 2015.

Note: AWG = Ageing Working Group (of the European Commission).

Fiscal and Social Sustainability Challenges from Rollback in Statutory Retirement Age

236. **Demographic changes were already expected to lead to low replacement rates before the recent changes in the retirement age.** The 1999 pension reform introduced an NDC system in lieu of a defined benefit scheme, but the system remains a pay-as-you-go (PAYG) system.⁵³ The NDC benefit formula was designed to automatically reduce pension benefits in response to increases in life expectancy and reductions in covered wages. Rising life expectancy will increase the number of

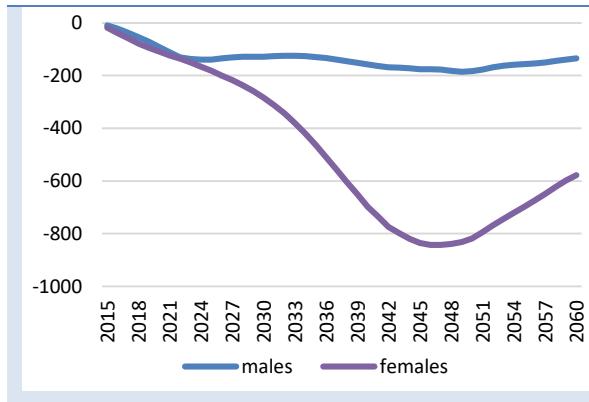
⁵³ Benefits under the NDC formula are based on the value of an accumulated hypothetical account balance, divided by a life expectancy factor at retirement age. The “interest rate” earned on the NDC account is tied in part to the increase in the total wage fund of all members of the general pension program, and in part to a five-year average of GDP growth rates. As Poland’s population continues to age, the “investment earnings” on the account will decrease from year to year. Compounding the problem, the life expectancy factors used to convert the hypothetical account balance into an annuity will continue to increase, and this will further decrease monthly annuity benefits.

years that people will depend on a pension relative to the years they have contributed to the system, so that if the retirement age is constant, the value of pensions would decline on average, and one would expect an increase in the number of pensioners on low incomes. Rising life expectancy was already expected to result in an increasing number of pensioners with very low incomes, with many pensioners' private savings inadequate to avoid an impoverished retirement.

237. The government's decision to roll back the recent rise in the retirement age would increase fiscal pressures, limit labor resources, and increase poverty among future pensioners. Based on World Bank PROST model simulations over the 2015–60 period, the rollback in retirement ages that will take effect in October 2017 will have a negative impact on the size of labor markets, the size and adequacy of expected pension benefits, and the size of required government transfers to the pension system relative to the current system. In all cases, the impact on women is more severe than the impact on men because male retirement ages were scheduled to increase from 65 to 67 (a two-year increase), while female retirement ages were expected to increase from 60 to 67 (a seven-year increase).

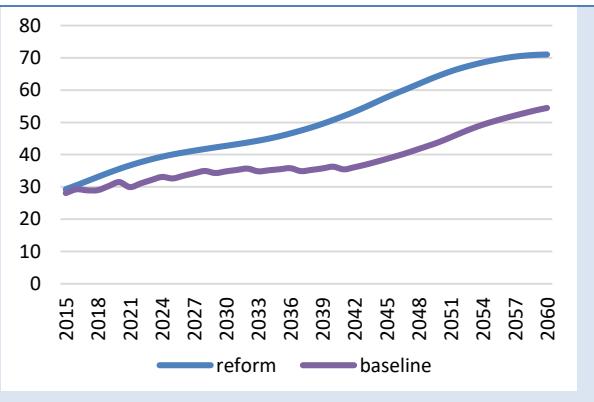
238. First, earlier retirement ages will result in lower labor force participation, particularly among women. The expected decline in labor force participation relative to the pension program prior to the rollback is expected to be more severe for women than for men (Figure 4.1). Under the reform scenario, the labor supply of women is 15 percent lower than the baseline in 2045, which equals more than 800,000 employees. Figure 4.2 shows the impact of the rollback on the pension system dependency ratio. This is the ratio of the number of old-age pensioners to the number of contributors. A higher number indicates that each contributor must support a greater number of pensioners. To ensure that the system remains in balance, a reduction in benefits, an increase in worker contributions, or an increase in state budget transfers will be required.

Figure 4.1. Changes in Labor Supply
(Deviation from 2015 Baseline) Due to
Statutory Retirement Rollback in Poland, by
Gender, 2015–60



Source: Pension Reform Options Simulation Toolkit (PROST) model simulations.

Figure 4.2. Old-Age Pension System
Dependency Ratio in Poland, Baseline and
Reform Scenarios, 2015–60



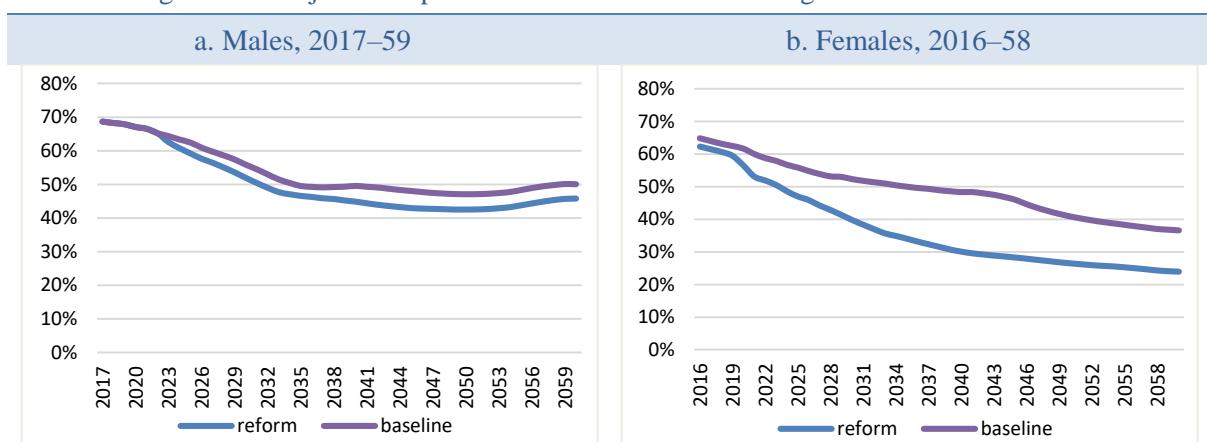
Source: Pension Reform Options Simulation Toolkit (PROST) model simulations.

239. Second, earlier retirement ages will reduce pensions and increase fiscal spending in the future. The NDC benefit formula is designed to automatically reduce pension benefits in response to changes in the growth rate of covered wages and increases in life expectancy, even if retirement ages

remain the same. This tendency will be even further exacerbated by the rollback in the effective retirement age, because this will lead to shorter working careers, lower account balances, and higher life expectancy at retirement and, therefore, lower pensions. In addition, the fiscal impact of individuals having access to the subsidized minimum pension will be even greater following the rollback, as NDC replacement ratios will be lower and more participants will qualify for the minimum benefit. The precise impact of the minimum pension will depend on how the government sets the minimum pension in the future, as the method of indexing is not specified in the law.

240. The reform has a much larger impact on the projected replacement rates of women. Figure 4.3 shows the impact of the rollback on replacement ratios. In the baseline scenario, in 2040, the projected replacement rate is equal to 48 percent, while under the reform this projected replacement ratio falls to an estimated 30 percent. At some point, the NDC formula benefit may become lower than the poverty level or the minimum consumption basket, and the majority of participants may receive the minimum benefit rather than the benefit under the NDC formula. If this happens, the plan becomes close to a flat benefit plan, and the justification for basing contributions on wages may become difficult to support.

Figure 4.3. Projected Replacement Rates for New Old-Age Pensioners in Poland



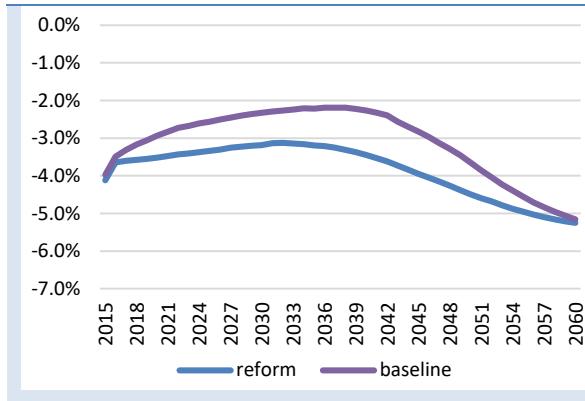
Source: Pension Reform Options Simulation Toolkit (PROST) model simulations.

241. Third, the rollback of the retirement age is expected to increase the fiscal deficit. Before the change, Social Insurance Institution (ZUS) revenues were expected to remain about constant as a percentage of GDP until 2060. The negative effect of the shrinking labor force was expected to be mitigated by the planned increase in the statutory retirement age. However, following the rollback, this is no longer true, with ZUS's revenue declining by about 0.6 percent of GDP (10 percent of total revenues) on average compared with the baseline between 2040 and 2060. This reduction in revenue will be not matched by a corresponding reduction in ZUS expenditures. In fact, expenditures will increase slightly in the middle years of the projection period, and will be slightly lower in the last few years of the projection period. Consequently, the pension system deficit, and the amount that must be transferred from the state budget, will also increase (Figure 4.4). The impact of the reform

on the pension system balance equals 0.6 percent of GDP in 2020, rising to more than 1 percent of GDP in 2035, then falling and almost vanishing by 2060.⁵⁴

- 242. Although the change in retirement ages has a limited impact on ZUS's expenditures and liabilities, it will affect expected cash flows as lower benefits will begin to be paid earlier and will be paid for a longer period of time following the rollback.** In addition, when retirement ages are rolled back, several cohorts of pensioners will likely retire immediately after the change, creating a significant impact on short-term cash flows and deficits, particularly in late 2017 and 2018.

Figure 4.4. Projected Pension System Balance in Poland, as a Share of GDP, 2015–60



Source: Pension Reform Options Simulation Toolkit (PROST) model simulations.

Incentives to Claim Disability Pensions Due to a Projected Lower Old-Age Pension

- 243. A robust pension system should encourage workers to remain in the labor force until reaching the system's standard retirement age, and should encourage those who are disabled to receive rehabilitation or remain in the workforce in some capacity.** Some pension systems provide disability benefits only to those who are judged to be totally and permanently disabled. But most of the time, disability pensions are based on the same or a similar formula to the one used to calculate old-age pensions. Typically, the disability pension is designed to be less than what the worker would have received if he or she had continued to work until the standard retirement age. To guard the fiscal sustainability and benefit adequacy of national pension systems, countries often raise retirement ages. As this occurs, workers may look to qualify for disability pensions as an alternate way of retiring earlier than the standard retirement age.
- 244. In Poland, the benefit formula for disability and survivor pensions is totally different from the old-age pension formula.** This occurred in the context of the 1999 redesign of the pension system. Before 1999, old-age, disability, and survivor pensions and survivor benefits were based on the same formula. Disability benefits were based on the old-age formula, including projected service to the standard retirement age. However, two factors made disability benefits lower than old-age benefits: First, accrued plus projected years of service was limited to a maximum of 25 years. Second, the projected years were based on an accrual rate of 0.7 percent rather than the 1.3 percent applied to years when contributions were made. This combination helped keep a proper relationship between disability and old-age pensions.
- 245. In 1999, when Poland moved to a multipillar pension system, the formula for disability and survivor benefits was not changed.** Until now, this has not created a problem. At the start of the NDC system, benefits earned under the pre-1999 formula were converted to an initial account balance in the system on favorable terms. Consequently, the old-age benefits just after the change

⁵⁴ This simulation accounts for the increase in the number of pensioners receiving the minimum pension.

were as good as or better than they were under the old system. Also, in the first few years of the NDC system, Poland had a rapidly growing economy, and population aging was not yet as severe as it is today. Consequently, old-age benefits remained higher than disability benefits and are still higher today.

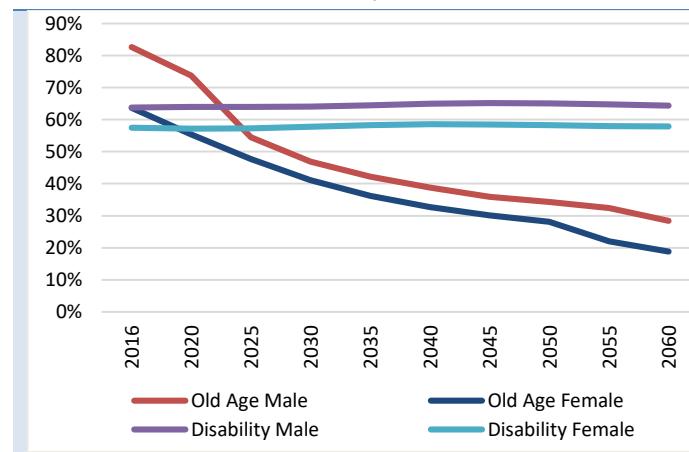
246. Within the next few years, a problem will emerge because this relationship between disability and old-age pensions will change.

Currently the average disability pension is 75 percent of the old-age pension. To see how old-age and disability benefits will change following the 2017 retirement age rollback, the World Bank's PROST model for Poland is used to project impacts through 2060. To simplify the discussion, all results are expressed as a replacement ratio, calculated by dividing the average benefit expected to be paid to new old-age and disability pensioners each year by the estimated average wage of all contributors to Poland's general pension system. The estimated replacement

ratios for new old-age and disability pensions for men and women between now and 2060 are shown in Figure 4.5. At present, both male and female old-age benefits exceed disability benefits. However, old-age replacement ratios decline steadily for each new generation of old-age retirees. For men, new old-age benefits are lower than disability benefits beginning in 2022, and for women, the crossover occurs in 2019. Consequently, there is urgency for Poland to address this issue now. The change in this relationship will create moral hazard and could reverse Poland's hard-won gains in reducing overall pension expenses.

247. Against this backdrop, there are incentives for each successive generation of workers to seek disability pensions rather than old-age pensions to maximize their lifetime pension income. Without pension program changes, soon it will be far more profitable to seek disability pensions than old-age retirement benefits. Because the relationship between old-age and disability pensions is close and still favors old-age pensions, now is the appropriate time to start calculating disability benefits using the NDC formula rather than the pre-1999 benefit formula. If the government waits longer to make this change, it will result in a sharp drop in the replacement ratios for new disability pensioners—which will make it very hard to implement—while if the change is made in the near future, there will be much less objection.

Figure 4.5. Projected Old-Age vs. Disability Pension Benefits in Poland, by Gender, 2016–60



Source: World Bank calculation using the Pension Reform Options Simulation Toolkit (PROST) model and Social Insurance Institution (ZUS) input data.

Mobilizing Voluntary Private Pension Savings: Necessary but Insufficient

248. The 1999 pension reform in Poland strengthened the link between funds paid into the system throughout an individual's career and that individual's pension benefits, but as life expectancy has increased, this has meant lower replacement rates, particularly for women.

Under the previous PAYG pension system, this link was not strong, and the benefit amount was calculated using a complicated formula based on work tenure and previous salaries. Under the new system, the capital accrued throughout the career (both real [accrued on the pension funds accounts] and virtual [accumulated on ZUS NDC accounts]) and the expected value of payments were directly linked. The benefit amount is calculated by dividing the total balance on the accounts by the life expectancy in months at retirement age (average for population as a whole). Consequently, increases in life expectancy at retirement (Figure 4.6) lead to inescapable decreases in replacement rates, which will cause strains in the pension system and may lead to social conflict. Even with the higher retirement ages of 67 years, the reduction in replacement rates would have been substantial—from the current 65 percent to about 50 percent in 2040 and 37–50 percent in 2060. Reversal of the 2014 reform led to even greater expected fall in replacement rates, to about 31 percent for females and 49 percent for males already by 2040 (Figure 4.7). The gender gap in the expected replacement rates is expected to widen significantly.

Figure 4.6. Projected Life Expectancy at Retirement in Poland, by Gender, 2017–59

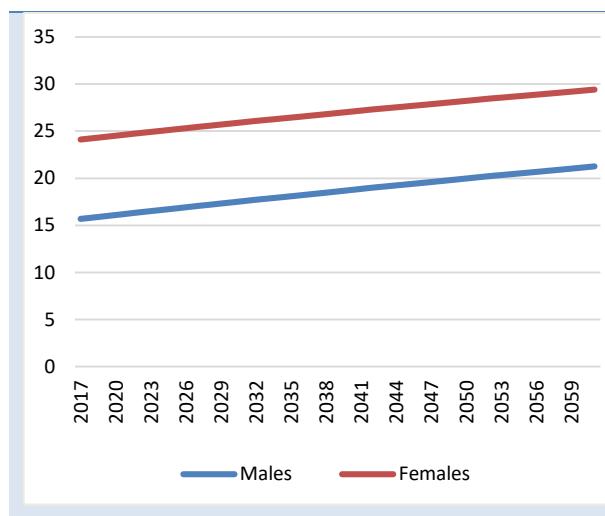
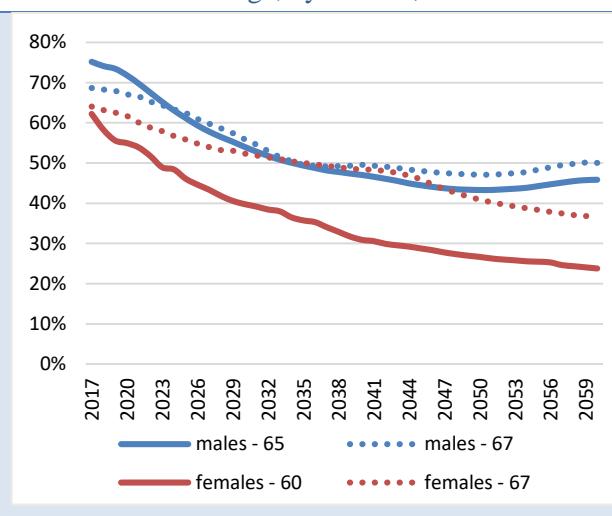


Figure 4.7. Projected Replacement Rates in Poland under Different Assumptions on Target Retirement Age, by Gender, 2017–59



Source: Pension Reform Options Simulation Toolkit (PROST) assumptions, based on reference scenario of the Ageing Working Group (of the European Commission).

Source: Pension Reform Options Simulation Toolkit (PROST) assumptions, based on reference scenario of the Ageing Working Group (of the European Commission).

249. **Given the expected decline in replacement rates, the government is proposing alternative solutions.** In the first mechanism—proposed by the Ministry of Economic Development (2016) in its “Strategy for Responsible Development”—assets accrued in the Open Pension Funds would be transferred to Individual Pension Accounts. Another proposed change is the introduction of an Employee Pension Capital Plan to support voluntary savings. Although no concrete solutions were described in the strategy document, in the proposal that followed, employees were supposed to transfer 2 percent of their wages (with the possibility to increase the contribution by another 2 percentage points), of which 1.5 percent would be paid by employers (with an option to increase by

another 1 percentage point). The state was to pay an additional 0.5 percent—so that total additional contributions would equal 4–7 percent of wages.⁵⁵

250. The impact of alternative contribution rates to the private pillar on future replacement rates for men and women were analyzed. Because the additional part of the pension system is private defined contribution, it will have no direct impact on the state budget. Indirectly, this would be of course beneficial for fiscal sustainability because higher payments from the multipillar pensions would translate into lower public payments as state-guaranteed minimum pensions or from social assistance. The following four scenarios were analyzed:

- *Baseline*: no additional private savings
- *Additional private savings of 4 percent*: the minimum proposed in the “Strategy for Responsible Development”
- *Additional private savings of 7 percent*: the maximum proposed in the Strategy
- *Additional private savings of 11 percent*: the level required to make the replacement rate for men comparable with today’s levels

Figure 4.8. Projected Replacement Rates for Men in Poland, Various Scenarios, 2017–59

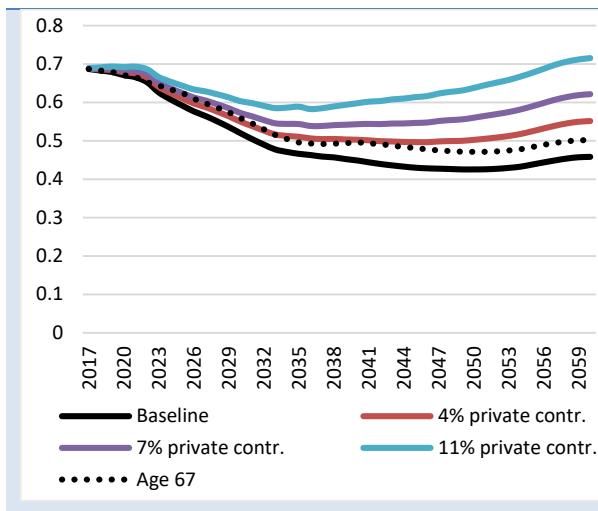
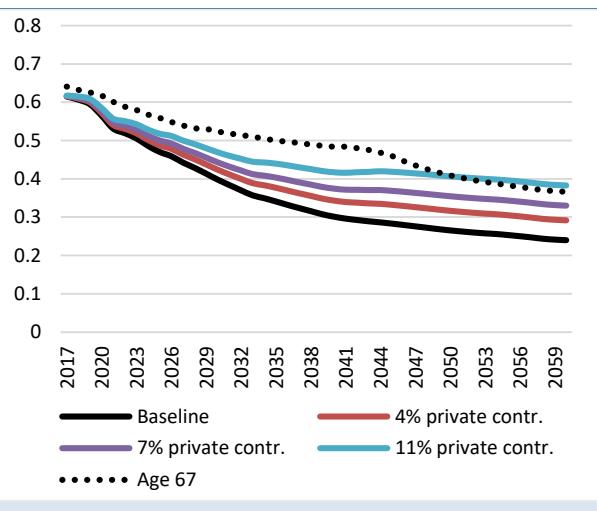


Figure 4.9. Projected Replacement Rates for Females in Poland, Various Scenarios, 2017–59



Source: Pension Reform Options Simulation Toolkit (PROST) model simulations.

Source: Pension Reform Options Simulation Toolkit (PROST) model simulations.

251. For men, additional savings in private defined contribution funds can to some extent make up for falling replacement rates. Figure 4.8 and Figure 4.9 present the expected replacement rates under the different scenarios, with an additional line for a scenario with a retirement age of 67 years. Even in the most conservative scenario, additional savings increase the baseline replacement ratios in 2050 by almost 8 percentage points; with 11 percent in additional savings, the ratios increase by 21 percentage points. This elevates the replacement ratio to 64 percent, which is quite close to what it would have been prior to the retirement age rollback. Moreover, even the lowest amount of

⁵⁵ Another incentive (under consideration) for older workers to postpone the exit from the labor market was to make one-time lump-sum payments of Zl 5,000 for those who decided to stay for at least two additional years of activity.

assumed additional private savings outweighs the negative impact of the retirement age rollback by about 2025. Therefore, for males, additional private savings as proposed in the “Strategy for Responsible Development” can be an effective measure to counteract the negative effects of the retirement age rollback.

252. For women, the situation is dramatically worse. The gap between the retirement age before the rollback and now is too wide to be filled by additional private savings. In all scenarios, the replacement rate in 2060 is still well below the replacement rate today. After the rollback in the statutory retirement age, to assure a 60 percent replacement rate at retirement at the age of 60 in 2050, females would need to contribute about 17–18 percentage points more to the pension system than they do now.

253. Summing up, the medium-term fall in replacement rates is unavoidable, and private pension savings have to be mobilized now to avoid sustainability problems in the future.

Retirees who will retire 10–15 years from now do not have enough time to accumulate enough funds in their private pension accounts to sustain the current generous replacement rates. In the long term for males, it is possible to make up for declining replacement ratios with additional contributions to private pension funds. It would require saving additionally about 7 percent of wages throughout the worker’s whole career. If that goal is to be achieved sooner—say, by about 2050—the contribution rate has to be much higher (an additional 11 percent). Moreover, to compensate for the negative impact of the cut in the statutory retirement age, even the smallest change analyzed (that is, an additional 4 percent) would be sufficient because the difference in retirement ages before and after the rollback for males is only two years. The situation for females is much worse: 11 percent in additional savings would be needed just to compensate for the retirement age rollback by 2060, but 17–18 percent in additional savings would be needed to assure a 60 percent replacement rate. Given that this may be too much to tolerate, retirement ages for women will have to increase to assure adequate replacement rates in the future.

Environmental Sustainability

254. Poland’s environmental sustainability challenges are dominated by the need to move to a low-emissions economy, a goal that overlaps with other environmental objectives such as cleaner air, better water management, and adapting to a changing climate through improved resilience. The existing coal-based energy mix, fast-rising transport emissions, and insufficient energy efficiency are the main challenges for lowering GHG emissions in line with European Union (EU) obligations. As global and EU climate action becomes more pronounced, the transition to a low-emissions economy poses the risks of (a) stranded public assets if carbon prices move (or regulations tighten) faster than infrastructure can be retrofitted or replaced, (b) power shortages if generation is insufficient for demand, and (c) diminished energy affordability for the bottom income deciles. To mitigate these risks, energy infrastructure modernization and investments in thermal retrofit, development of cleaner energy supplies, and balancing energy security with climate actions need to be undertaken. The necessary restructuring of the coal sector should be managed to ensure a smooth transition while mitigating the social impact. Moreover, Poland retains potential for significant energy efficiency gains, especially in residential buildings. Rising transport emissions need to be moderated, via more rail and electrification of road vehicles. In addition, air quality is not yet at European norms, and moving to lower emissions will also help to reduce air pollution, in

particular by encouraging energy efficiency and switching from coal to natural gas for heating. Adapting to a changing climate requires dealing with substantial uncertainty, but the dual challenges for Poland are likely to be increased severity of weather and reduced water availability, imposing the greatest harm on the agriculture sector. Water is already scarce in Poland, and a changing climate will undermine water availability in some regions, further emphasizing the need for improved sector management. The agriculture sector—dependent on water availability and weather conditions—will need to address risks to farmers, especially small landholders, by implementing a comprehensive risk management framework as well as investment in irrigation. Changes in agricultural water management practices also will be needed for better water retention, water drainage, water storage in soil, techniques limiting water evaporation from soil, appropriate fertilization, and protection against weeds.

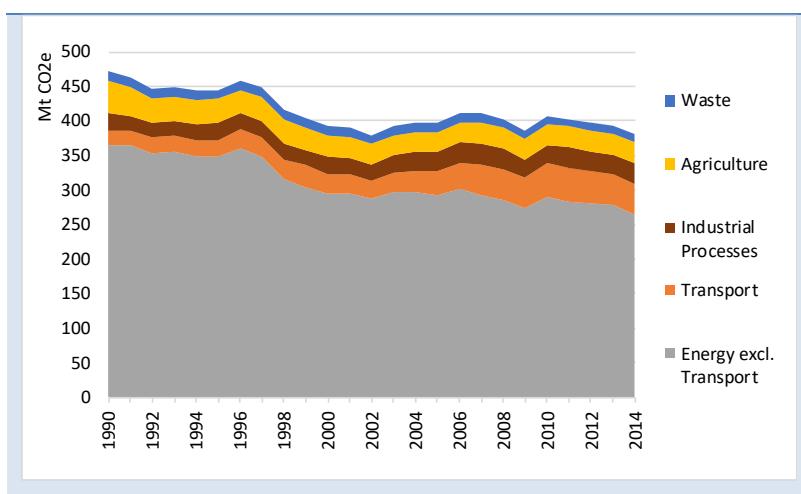
Comprehensive Long-Term Strategy Needed to Achieve a Low-Emissions Economy

255. Poland faces challenging EU energy and climate policy requirements through 2030.

In October 2014, the European Council approved the EU framework on climate and energy for 2030, setting a binding target to reduce GHG emissions to 40 percent below 1990 levels by 2030 (EC 2014). The 2030 target of a 40 percent reduction in GHG emissions relative to 1990 is split into targets for the EU Emissions Trading Scheme (ETS), energy-intensive economic sectors, which must participate in carbon trading, and “non-ETS” sectors, with a different target for each

member state, still to be finalized.⁵⁶ Renewable energy is expected to constitute at least 27 percent of EU final energy consumption in 2030 (but with no mandatory targets for individual member states). Similarly, the energy efficiency target to reduce energy demand by 27 percent (vis-à-vis projected business-as-usual demand in 2030) is indicative only. Additional rules and regulations on energy and climate are being added, for example, through proposals in the November 2016 “Winter Package,” aiming to accelerate the transition to clean energy and low emissions across the EU by completing the internal market for electricity.

Figure 4.10. Sources of GHG Emissions in Poland, by Sector, 1990–2014



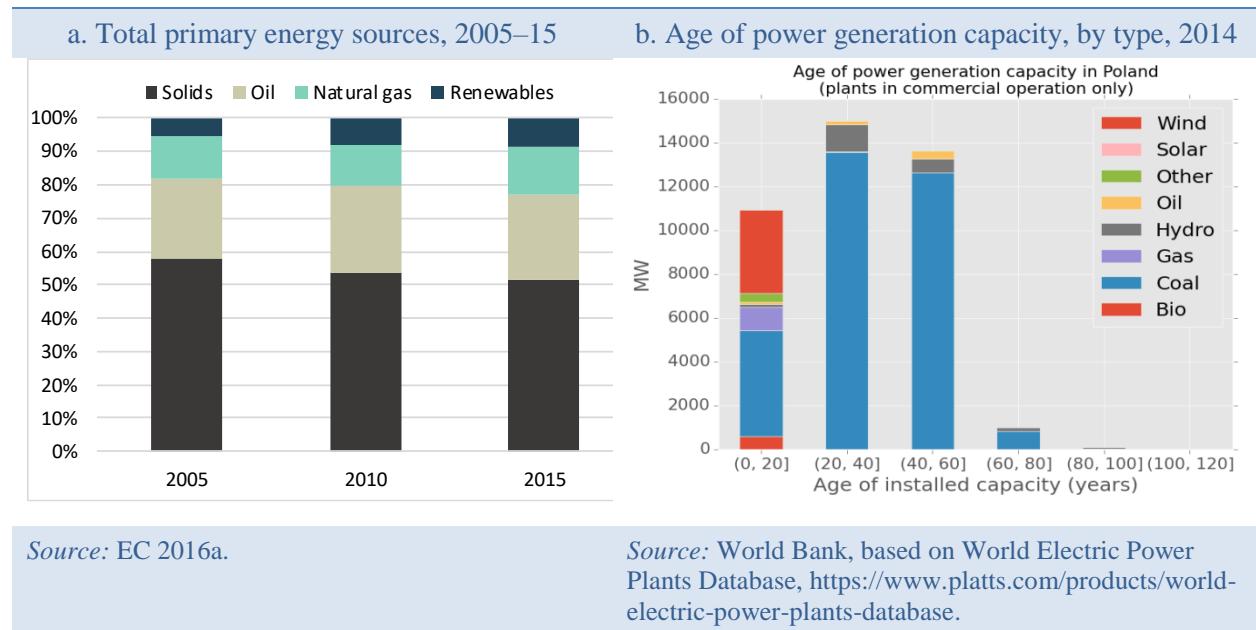
Source: World Bank, based on European Environment Agency data.

Note: GHG = greenhouse gas. Mt CO₂e = megatons of carbon dioxide equivalent. Energy is by far the biggest emitter (70 percent), followed by transport (12 percent), industrial processes (8 percent), agriculture (8 percent), and waste (2 percent).

⁵⁶ The EU Emissions Trading Scheme (ETS) is a carbon market covering large energy suppliers and industrial emitters (equivalent to energy-intensive economic sectors). Non-ETS entities include small energy or industrial emitters; the transport, agriculture, and services sectors; and residential and commercial buildings.

256. Despite progress in reducing GHG emissions and improving the emissions intensity of production, Poland's main efforts in the transition to a low-emissions economy lie in addressing the energy sector's reliance on coal. Poland's emissions are predominantly from the energy sector (Figure 4.10), and energy is dominated by coal, which accounts for half of primary energy supply. Coal-fired power plants dominate power generation, and a large part of this capacity is more than 40 years old, yielding a power infrastructure that is among the oldest in the EU (Figure 4.11). Despite substantial declines in recent decades in the primary energy intensity of GDP—largely because of structural changes and energy sector reforms—Poland remains among the five most energy-intensive EU economies because of (a) its relatively high shares of industry in value added, and (b) inefficiencies in energy supply infrastructure and end-use consumption, particularly in heavy industry and space heating. Moreover, Poland's historical reliance on domestic coal for power generation and space heating has been seen as central to national energy security, a critical issue given Poland's geopolitical location. Nevertheless, in light of the Paris Agreement on global climate action and the EU's ambitious 2030 targets, the coal-based energy mix and an aging power infrastructure need to transition toward lower-carbon energy options with diversified fuel sources and higher efficiency. Overcoming these challenges will require deliberate actions to diversify away from coal, modernize energy supply infrastructure, scale up investment in end-use energy efficiency (in particular in the residential sector), strengthen the safety net for the poor to reduce energy poverty, and shift from a national approach to energy security to an EU-wide approach focused on a well-functioning, fully integrated internal energy market.

Figure 4.11. Total Primary Energy and Age of Power Plants in Poland



257. Challenges in the coal sector are significant. Poland needs to consider some of the risks facing the energy sector as it moves to reduce GHG emissions. If carbon prices (in the ETS system) rise or regulations tighten faster than infrastructure can be retrofitted or replaced, then public assets (such as publicly owned utilities) may become stranded. If power generation is not expanded to meet growing demand, within the emissions constraints of EU rules, then power shortages may materialize, and electricity prices may rise sharply, undermining energy affordability for the bottom income deciles.

To mitigate these risks, the existing evidence points to specific activities such as energy infrastructure modernization and investments in thermal retrofit, development of cleaner energy supplies, and reshaping of energy security. The necessary restructuring of the coal sector should be managed to ensure a smooth transition and mitigate social impact. One of the main constraints is political willingness and policy readiness to address the issues associated with mining of costly, low-quality coal. Even though hard coal production and employment have been declining for many years, Poland remains the second largest producer of coal in the EU, with production of about 70 million tons per year and employment of nearly 83,000 workers. Polish underground mines are extracting coal of decreasing quality from deeper and deeper levels, putting upward pressure on production costs. Closure of loss-making coal mines will require (a) support to address the additional transportation costs needed for younger workers being transferred to lower-cost mines at other locations; (b) severance packages for miners approaching retirement age, as has been done in the past; and (c) retraining for workers ready to leave the mining industry and seek employment in other sectors. Moving away from coal will not weaken national energy security if done with careful planning and steady execution.

258. The transition to lower emissions from the energy sector is demanding for Poland. First, Poland's geography, climate, and agricultural structure are not conducive to renewable energy, with the exception of wind power, for which local conditions are moderate. With few mountains and limited water resources, Poland is not suited for further development of large-scale hydropower. Biogas and biomass are still expensive technologies because Polish agriculture has few large farms (over 100 hectares) and because biomass combustion after 2020 will be allowed under EU rules only in high-efficiency installations, which are not yet available in Poland. As in other EU countries, subsidies for solar and wind installations are being reduced, but in addition, onshore wind in Poland faces recent new restrictive regulations. Second, nuclear technology could help in transformation of an energy mix dominated by coal. However, this technology would be completely new for Poland, making it more expensive and requiring public support for bringing nuclear power to Poland. Third, higher prices of carbon dioxide (CO₂) allowances starting in 2020, mainly because of the market stability reserve scheme, could contribute to higher energy prices for customers, which consequently may undercut the competitiveness of Polish industry and make energy less affordable for the poor. Together, these limitations pose challenges for Poland that must be addressed in the country's National Plan for Energy and Climate 2020–30, scheduled to be finalized in 2017.

259. A further challenge for the electricity sector in Poland is the still limited capacity of cross-border connections. Poland is one of the least interconnected EU countries, with cross-border connections representing less than 7 percent of installed generation capacity, while the EU target for 2020 is 10 percent.⁵⁷ Poland is not benefiting from the integrated Northwestern European pricing zone and the flexibility in the system that interconnections and market coupling bring. In fact, Poland is facing unplanned electricity loop flows (from Germany and Austria, due partly to intermittent renewable power overproduction and market coupling between countries. Austria, Germany, and 11 other European countries have coupled their power prices in the Northwestern Europe region, enabling a more efficient use of electricity flows through a common pricing mechanism. A proactive assessment of regional integration with power systems of neighboring EU

⁵⁷ The European Council of October 2014 called for all EU member states to achieve interconnection of at least 10 percent of their installed electricity production capacity by 2020, meaning that each member state should have in place electricity cables that allow at least 10 percent of the electricity it produces to be transported across its borders. The target for 2030 is 15 percent.

countries could help identify solutions to the increasing stress on the Polish grid caused by loop flows while bring in lower-cost, cleaner electricity (IEA 2017).

260. **Scaling up energy efficiency investment requires government interventions to unlock financially viable energy savings in industries and commercial businesses and provide incentives for economically sensible improvements in residential buildings.** Poland's White Certificate program has been aimed at leveraging commercial financing in industries and businesses, and the government has taken important steps to simplify the system and reduce large transaction costs that prevent building owners and operators from undertaking otherwise profitable investments. Most of the buildings constructed before active enforcement of energy-efficient building codes remain a major source of energy waste owing to lack of thermal insulation, with a large share of houses being poorly insulated.
261. **As in power generation, space heating is predominantly coal-based, contributing heavily to air pollution and requiring policy incentives for a shift toward cleaner fuels.** Poland's district heating sector was among its earliest reform success stories with rapid adoption of consumption-based billing and cost-recovery tariffs in the 1990s. These policy actions led to a proliferation of efficient, customer-oriented, and profitable district heating companies, which many local authorities were able to successfully sell to the private sector. Today, although combined heat and power plants produce about 65 percent of the heat supply, small district heating systems relying on heat-only, coal-fired boilers and individual stoves using solid fuels are still popular in smaller cities and even in some agglomerations, such as Krakow and Silesia. Overall, district heating is 76 percent fueled by coal. Fuel switching of small district heating systems (to natural gas, biogas, or geothermal), cogeneration, and consolidation of small boilers and stoves (into larger systems) would help reduce GHG emissions and alleviate air pollution. The country has achieved significant success in scaling up thermal retrofit in multifamily buildings through efficient power and heat pricing and grant incentives provided by the thermal modernization program and a system of environmental funds, but challenges in the single-family segment remain. About half of the Polish population live in single-family houses, most of which lack thermal insulation and are heated by individual boilers consuming unabated coal and other types of solid fuels including coal waste, household waste, and firewood. This use of solid fuel has been identified as a major contributor to local air pollution, a critical issue in several regions in Poland. Following the success stories of some West European cities (for example, London), some Polish agglomerations are considering a ban on solid fuels in individual stoves and small boilers without pollution control equipment. A pivot toward supporting heating system upgrades, fuel switching, and thermal retrofit in single-family homes would help address both air pollution and energy affordability issues.
262. **Energy affordability needs to be supported with targeted actions to contain the impact on poorer households of actions to cut emissions.** About 17 percent of the Polish population is considered energy-poor (defined as households spending more than 10 percent of income on energy), mainly occupants of detached houses, inhabitants of rural areas, households living on nonearned income, single parents, and married couples with at least two children. Regional variation of fuel poverty in Poland is significant, with a concentration in the eastern part of the country (Lis, Miazga, and Sałach 2016). Targeted support to these households within existing social safety net arrangements can ensure energy affordability without undermining incentives to use energy efficiently. Energy saving or energy service companies could also help with mobilization of private capital, especially if accompanied by information and educational campaigns aimed at changing behaviors.

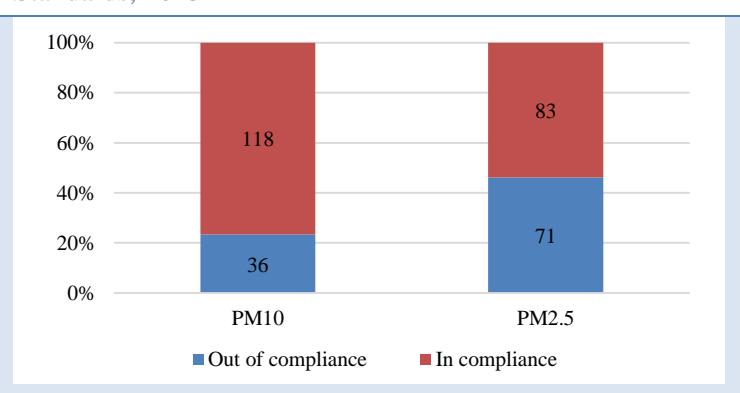
263. Transport emissions in Poland remain a source of concern, as emissions and energy consumption from transport have risen sharply in recent years. Poland has one of the oldest passenger car fleets in Europe, heightening the need to make a decisive shift from road to rail for within-city and intercity connections. Such a shift would also make good use of available EU resources for low-carbon development. The switch from road to rail and a switch to cleaner fuels in conjunction with improvements in transport could together help to improve sustainability via reductions in carbon emissions and air pollutants such as nitrogen oxides (NO_x) and $\text{PM}_{2.5}$, while also strengthening the social integrity of communities currently suffering from poor transport connections.

264. Going forward, Poland needs to develop and implement a comprehensive long-term strategy to transition to a low-emissions economy, starting with Poland's National Plan for Energy and Climate, due in 2017–18. A long-term strategy is needed, focusing on energy supply, energy efficiency, and the transport sector. In the energy sector, Poland needs to construct a strategy that is consistent with overarching environmental sustainability goals, that balances the mix of domestic resources and diverse imports, and that firmly supports end-use energy efficiency improvement. A deeper integration with EU electricity and gas markets would bring competitive pressure to improve efficiency of national energy companies and mitigate potential risks to consumers. Market-based energy efficiency measures as well as deployment of renewable energy installations need to be facilitated from the regulatory side in terms of spatial planning, building standards, construction permits, and taxation. Recently initiated renewable auctions need to facilitate a level playing field between different renewable technologies and project sizes. Parallel programs to protect disadvantaged social groups from rising energy prices need to be in place.

Transitioning Toward a Low-Emissions Economy for Better Air Quality

265. Despite improvements, Poland has some of the worst air quality in the EU, particularly for winter smog-related pollution. Poland has made progress in reducing emissions of local air pollutants, and transport-related pollution (for example, NO_x and ozone [O_3]) is below the levels observed in Western Europe. However, the country remains out of compliance with EU standards on concentration of pollutants related to heating in winter, such as particulate matter (PM) or cancer-causing benzo-alpha-pyrene (BAP) (Map 4.1).⁵⁸ Although $\text{PM}_{2.5}$ concentrations have continued to fall in recent years,

Figure 4.12. Air Quality across Cities in Poland: Percentage and Number of Cities Out of Compliance with National Standards, 2013



Source: World Health Organization (WHO) Urban Ambient Air Pollution Database, 2016.

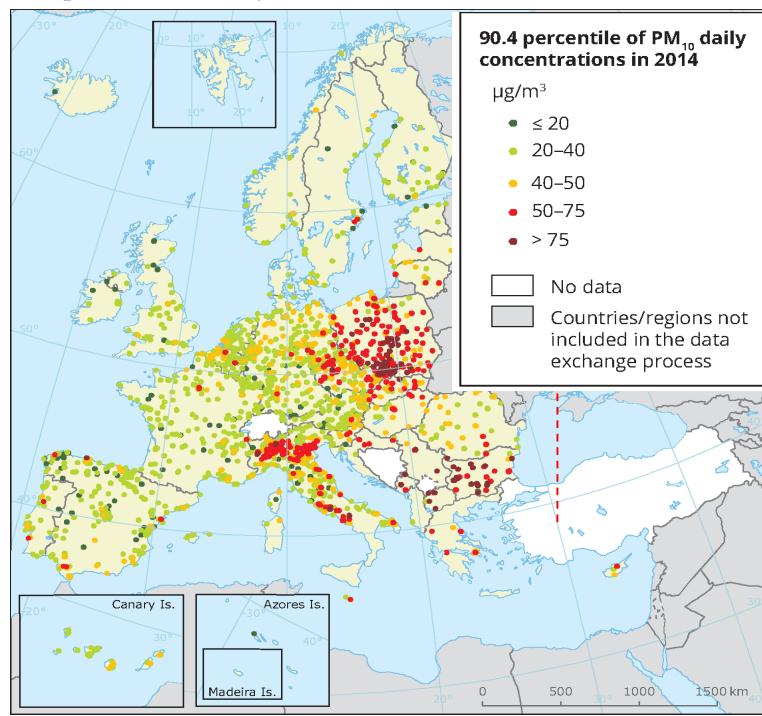
Note: Out of 154 monitored cities. As of 2010, $40 \mu\text{g}/\text{m}^3$ is the EU limit value for PM₁₀, and $25 \mu\text{g}/\text{m}^3$ is the target value for PM_{2.5}.

⁵⁸ Particulate matter (PM) is a collective name for suspended fine solid or liquid particles added to the atmosphere by processes at the earth's surface. PM includes dust, smoke, soot, pollen, and soil particles. PM_{2.5} refers to particles with a diameter of 2.5 microns or less, and PM₁₀ to those smaller than 10 microns in diameter.

several parts of the country have consistently exceeded the EU limit (Figure 4.12).⁵⁹ Most agglomerations have seen improvements, with an average 5 percent drop in pollution between 2012 and 2015. Out of 154 cities that were monitored, almost one-quarter were above the PM₁₀ limit, and almost half were out of compliance with the PM_{2.5} target.

266. Households in poorer urban areas are exposed to worse air pollution, while the associated premature deaths for the country as a whole remain high. The highest measurements of PM_{2.5} air pollution in Poland are recorded in urban areas and southern provinces, particularly in the Upper Silesian Industrial Region, where high levels of industrial plants and car use release most of the pollutants (Map 4.2). Poorer urban areas (population greater than 5,000 and population density higher than 300 people per square kilometer) suffer from relatively higher levels of pollution, a correlation that also holds for other air pollutants (such as sulfur dioxide, black carbon, or mercury). Part of the reason is that air pollution in these cities is particularly aggravated by the use of low-quality heaters in low-income households. For the country as a whole, it is important to note that despite the decline in PM pollution, Poland has the highest mortality rate due to ambient PM pollution and household air pollution (from solid fuels) among new EU member states (Figure 4.13).⁶⁰

Map 4.1. PM₁₀ Daily Concentrations above EU Limits, 2014



Source: EEA 2016. ©European Environment Agency (EEA). Reproduced, with permission, from EEA; further permission required for reuse.

Note: Red and dark-red dots indicate air quality monitoring stations where PM₁₀ exceeded the EU daily limit value of 50 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) for more than 35 days during 2014. PM₁₀ is particulate matter less than or equal to 10 microns in diameter.

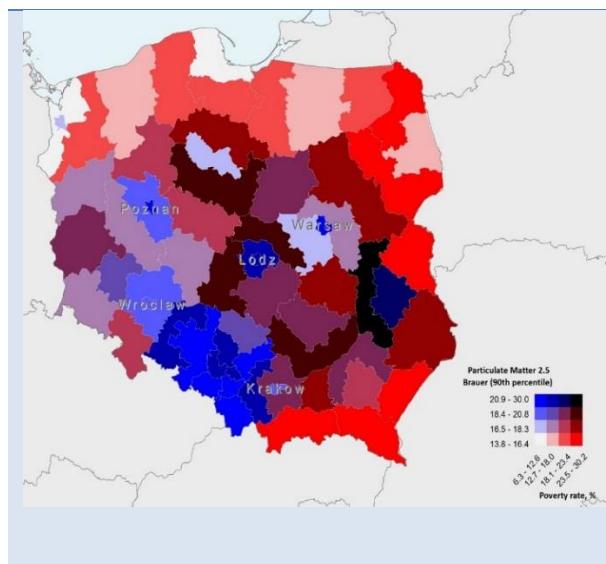
⁵⁹ A target value for PM_{2.5} of 25 µg/m³ (micrograms per cubic meter) averaged over the year has been in place in the EU since 2010. Poland currently maintains a limit value of 25, with an obligation to comply with a newer EU Directive and phase down to 20 by 2020, based on a rolling three-year average concentration. See “Air Quality Standards” on the EC website: <http://ec.europa.eu/environment/air/quality/standards.htm>.

⁶⁰ The health effects of inhalable PM are well documented, and PM_{2.5} is more harmful than PM₁₀. The harm comes from short- and long-term exposure and includes respiratory and cardiovascular morbidity (such as aggravation of asthma, respiratory symptoms, and an increase in hospital admissions) and mortality from cardiovascular and respiratory diseases and from lung cancer (WHO 2013).

267. The health impacts of Poland's air pollution translate into substantial economic costs.

Premature deaths (or additional mortality) and additional disability due to air pollution can be aggregated into years of life lost (YLLs) or disability-adjusted life years (DALYs, that is, years lost due to ill health, disability, or early death). Poland loses the equivalent of over a half million life-years annually from exposure to ambient PM pollution and another half million from household air pollution. More than 95 percent of total YLLs come from lives cut short (premature death) rather than the burden of disability. These YLLs are typically valued by the lifetime earnings of an individual (using the value of a statistical life adjusted for GDP per capita). The calculated cost to Poland of indoor and outdoor air pollution exceeds US\$100 million, using this technique and data for 2010. This cost rose between 2005 and 2010 (by about 10 percent) despite the fall in premature mortality because rising per capita GDP made each lost year more valuable.⁶¹ Alternatively, the cost of air pollution in YLLs was the equivalent of 13 percent of GDP in 2010, a significant economic cost to the country.

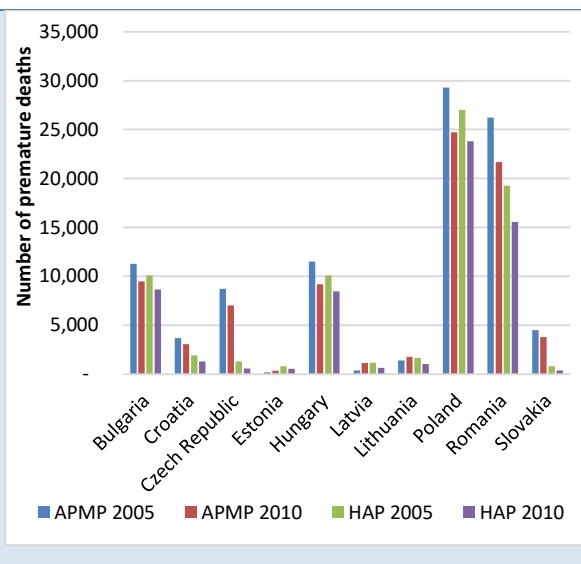
Map 4.2. Coincidence Map of Air Pollution and Poverty Rates in Poland, by Province, Circa 2011–13



Source: World Bank, based on 2011 PovcalNet data and Brauer et al. 2015. ©World Bank. Permission required for reuse.

Note: Monetary poverty data at the subprovincial level, based on a 2011 census survey, was combined with PM_{2.5} data derived from satellite, simulation, and monitor-based sources for 2013.

Figure 4.13. Premature Deaths from Air Pollution, Selected EU Countries, 2005 and 2010



Source: OECD 2015c; WHO 2013.

Note: APMP = ambient particulate matter pollution. HAP = household air pollution.

⁶¹ For 2005, the Organisation for Economic Co-operation and Development (OECD) base value of a statistical life—US\$3 million in lifetime earnings—was adjusted for differences in per capita GDP at purchasing power parity (PPP), with an income elasticity of 0.8, resulting in a Poland-specific value of a statistical life of US\$1.6 million. For 2010, the value was adjusted for post-2005 income growth and inflation, resulting in a Poland-specific value of US\$2.1 million.

268. Apart from lost life-years, air pollution brings additional significant financial and economic consequences. Air pollution generates harm not only in terms of the societal cost of mortality and morbidity, but also to household, hospital, and public budgets and therefore to decision making within and outside of the health sector. These impacts also carry implications for social equity both within and between countries. Moreover, the deleterious impact of air pollution is not confined to human health. Many other impacts are worthy of consideration—those on the built environment, on animal and plant health (with further consequential impacts on the productivity of agricultural and forestry resources), and on larger ecological systems.

269. Poland's lagging air quality is driven by coal dependence, inadequate energy efficiency, and transport that is too road-based. The country's air pollution can be explained most simply by the country's heavy dependence on coal. Space heating, fueled mostly by coal, generates pollution especially in smaller, poorer cities with inefficient district heating and in poorly insulated single-family homes of poorer households. Small-scale combustion of coal and biomass as well as concentrated local pollution (particularly during the heating season) are the main factors in these compliance issues. A separate but important source of poor air quality is the transport sector, in which an aging passenger vehicle fleet aggravates pollution and a shift from road to rail is needed. It is important to keep in mind that air quality is intertwined with other policy objectives: addressing air pollution can generate significant co-benefits for other objectives, while air quality may simultaneously benefit from interventions that pursue other priorities, especially GHG emissions reduction. For example, heating system upgrades and thermal retrofit in single-family homes and switching from coal to gas for heating will reduce carbon emissions, alleviate air pollution, and bolster energy affordability. Moving away from coal, electrifying transport, and improving energy efficiency are broad sector policies that aim as a primary goal to reduce GHG emissions but bring a co-benefit of cleaner air.

Climate Change Adaptation Needed to Reduce Risks despite Modest Projected Harm

270. Poland is not among the countries or regions expected to be worst-affected by a changing climate, and only modest harm is projected for Poland. An analysis by the Ministry of Environment based on climate forecasts concludes that by 2030, climate change will have a mostly negative impact on the economy and society (MoE 2013a).⁶² Higher average air temperature will exert some positive effects, including extension of the growing season in agriculture, a reduction in the winter heating season, and extension of the tourist season. However, expected negative effects dominate. The climate in Poland may not change much on average, but variability will rise, resulting in longer rainless periods, punctuated by torrential rains (Map 4.3 and Map 4.4). The groundwater level will decrease, which will harm biodiversity and ecosystems, particularly reservoirs and wetlands. In winter, the duration and depth of snow cover will be reduced and evaporation will increase, together reducing overall water resources. Further, climate change is likely to increase the frequency of extreme weather events and disasters, which will have a significant impact on vulnerable areas and the national economy. Torrential rains involving a risk of floods, flooding, and

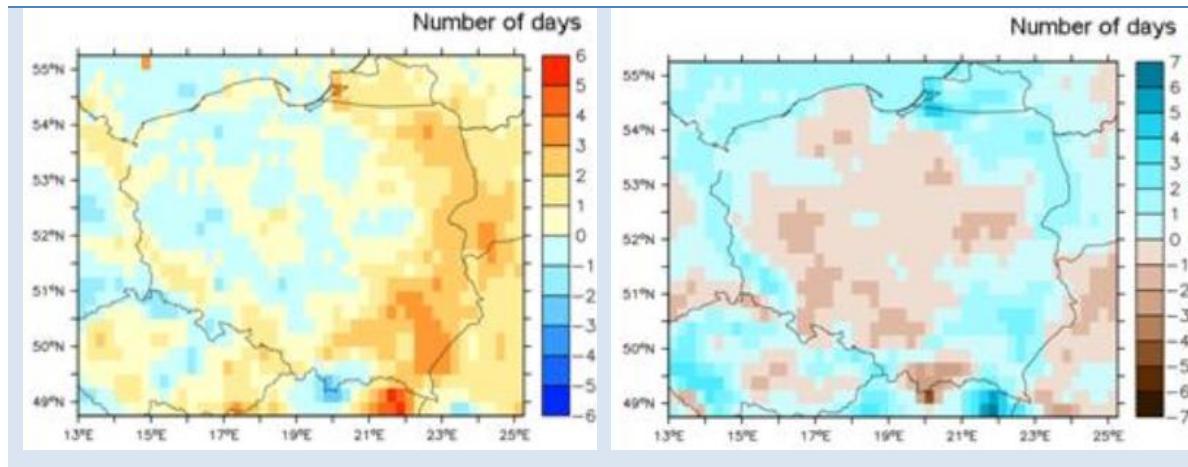
⁶² Climate change scenarios for Poland were prepared using regional simulations from the EU's ENSEMBLES project and observation data from the E-OBS gridded dataset. The ENSEMBLES project, which ended in 2009, was run by the United Kingdom's Met Office (national weather service) and used global climate models applying a moderate Intergovernmental Panel on Climate Change (IPCC) scenario, A1B. E-OBS is a daily gridded observational dataset for precipitation, temperature, and sea level pressure in Europe since 1950.

landslides—mainly in mountain and upland areas but also on slopes of river valleys and cliffs along the seashore—will be of main importance. Strong winds, hurricanes, and tornadoes will be more frequent, which is likely to impose damages on the construction sector and energy and transport infrastructure. Last, warmer temperatures in summer will lead to more eutrophication in inland and coastal waters; increased threat to life and health as a result of thermal stress and increased air pollution; greater demand for electricity in summer; and reduced cooling potential of water for power plants, undermining production capacity (MoE 2013a).⁶³

271. Adaptation measures are most critical in the water and agriculture sectors, but transport, construction, and coastal areas also will require further resilience, while forestry has few adaptation options. Projected changes in climate will reduce available resources in the water sector, which is already in need of reform to manage limited resources, augmenting the needed policy response. Less available water will, in turn, place stress on agriculture, which also requires ongoing reforms, in particular to improve risk management and agricultural water management practices. Transport is vulnerable to strong winds, heavy rain and storms, flooding and landslides, snow and ice, extreme temperatures, and lack of visibility. Road transport—both roads and vehicles—is particularly vulnerable to many of these climate phenomena because of its diffused spatial location. Rail and air transport will be less vulnerable but still affected. Sea transport will need to address sea level rise and coastal surges at ports. In response, transport infrastructure design standards that take account of climate change need to be developed, and retrofitting of existing infrastructure must be assessed. The construction sector will need to revise technical standards as the climate shifts, changing the design of foundations, load-bearing elements, and drainage systems. Coastal zones will need to address the likely increase in number and intensity of storms in the Baltic Sea. Coastal erosion is expected to increase, and low-lying areas may suffer from salinization of groundwater. To adapt coastal zones, monitoring of the flood protection system should be strengthened, degradation of shorelines should be prevented, and coastal zone monitoring should be developed. Last, the forestry sector is expected to face significant impacts on stand composition and types of trees. Mountain ecosystems will likely be the most vulnerable to a changing climate, with losses projected at up to 60 percent of species. Fire risk will rise, and a changing climate will be conducive to disease and pests, including invasive species, while weakened trees will be more vulnerable to wind damage. Further improvements in sustainable forest management may provide some amelioration (MoE 2013a).

⁶³Projected changes in climate were disaggregated to three regions representing various climatic conditions (the southwestern region [Wrocław], central region [Łódź], and northeastern region [Suwałki]) and for three decades: 2001–10, 2011–20, and 2021–30.

Map 4.3. Projected Change in Duration of Dry Periods in Poland, 2030



Source: MoE 2013a.

Note: Dry periods have daily precipitation less than 1 millimeter, while wet periods have more than 10 millimeters daily. Difference is for projected 2001–30 compared with 1971–2000.

Improved Management of Scarce Water Needed to Face a Changing Climate

272. Water management requires improvement to be able to address a multiplicity of challenges.

Low water endowment per capita combined with vulnerability to water-related events (floods and droughts) call for increased emphasis on integrated management of water resources in the context of the EU Water Framework Directive (WFD), as well as efforts to improve the efficiency of municipal water and sanitation utilities (to address poor operations and maintenance [O&M] and a high level of leaks). The need for additional energy supply calls for increased emphasis on integrated management of water resources in the context of the EU WFD as well as efforts to improve the efficiency of municipal water and sanitation utilities.

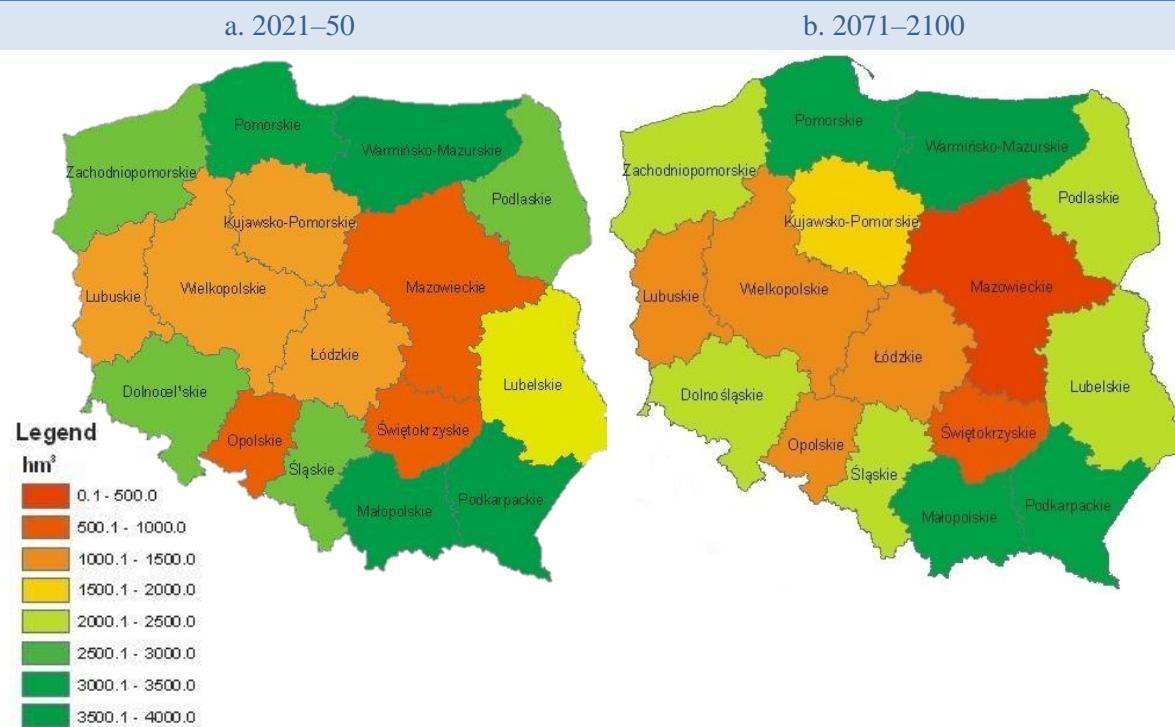
273. Poland ranks among the most water-stressed countries in the EU. The country's renewable freshwater per capita stands at only about 1,800 cubic meters per year (while in most EU countries this figure stands at or above 5,000 cubic meters). The country depends heavily on surface water, which is characterized by major spatial and seasonal variability, yet the total capacity of reservoirs does not exceed 6 percent of total annual water drainage. As a consequence, Poland has significant vulnerability to flood and droughts. Therefore, careful management with respect to early-warning preparedness for water-related disasters (such as floods and droughts) and rapid disaster response are essential to minimize fatalities and economic damage as well as being important to both poverty reduction and shared prosperity. For example, the flood episodes of 1997, 2006, and 2010 highlighted the vulnerability of the large manufacturing, commercial, and tourist centers of Poland that provide jobs and contribute most to the national economy. Many of these centers are located along transport corridors and, effectively, are in former floodplains and in Poland's most productive agricultural area, with high value added from orchards and horticulture. The floods forced the shutdown of these industrial centers and much of the related transport corridors for several weeks to months, first to allow the water to drain away and then to repair production equipment and other assets. The risk of such events adds uncertainty to industrial and agricultural output and harms the investment climate. Moreover, subregions that are most affected by floods typically have higher than

average poverty rates and at-risk populations above 20 percent (for example, the subregions of Nysa Kłodzka in the Upper Odra, several counties along the Lower Odra, and most of the central and eastern parts of the Upper Vistula basin).

274. A changing climate will place further pressures on the water sector. Poland has relatively few water resources, and the efficiency of their use is low. Some regions already have periodic problems with water supply. The risk of various types of floods is expected to rise in all parts of the country. The damage from flooding will be augmented by the existence of buildings in the flood zones of rivers and the insufficient retention capacity of natural and artificial reservoirs. The increasingly probable flash floods caused by heavy precipitation are likely to cause flooding of these built-up areas. Further, Poland's total water resources are sensitive to annual snow cover. Forecasts predict that its duration by the middle of the 21st century may be 28 days shorter than it is now. The decrease in the water content in snow cover will reduce the probability of snowmelt floods. However, the more important impact is likely to be shortages of water, which will affect mainly agriculture, where water needs, according to the forecasts, will increase by 25–30 percent. Water shortages will be worse in some voivodeships, in particular Mazowieckie (Map 4.5).

275. The overall governance framework for water management stands in need of reform. Water plays an important role in economic growth in Poland, touching on key productive sectors including energy, transport, drinking water, agriculture, health, and environment (water quality and ecosystem services). As a result, its efficient provision and sustainable management are critical to protecting vulnerable populations and ensuring shared prosperity. The current division of responsibility across various ministries is accompanied by fragmentation of funding sources. Water supply system (WSS) service providers at municipal government levels suffer from extreme fragmentation, with about 1,800 WSS utilities nationwide. This fragmentation can pose a challenge to proper integrated management and planning. In the absence of a national WSS regulator, tariffs have largely been driven by the political process at the municipal levels. Ensuring that tariffs are in line with affordability, equity, and efficiency principles has also been a major challenge. In addition, actions are needed within the legislative and institutional framework to be fully compliant with EU norms (including cost recovery policies and commitments made in the EU accession treaty for meeting the *acquis communautaire*). A new Water Law is currently in process that attempts to streamline the water management administrative structure and update a number of regulatory features—for example, on the preparation of the river basin management plans—while other discussions related to water reforms are still ongoing, such as over the need to establish a national regulator for WSS services. Significant work, in terms of both reform and institutional strengthening, remains to be done to ensure that the EU WFD as well as other water regulations are properly implemented.

Map 4.5. Risk of Water Shortages in Poland: Water Balance Projections, by Voivodeship



Source: MoE 2013b. ©Ministry of the Environment (MoE). Reproduced, with permission, from MoE; further permission required for reuse.

Note: Water balances are the difference between projected water resources (annual average runoff) and projected water needs (moderate economic development variant).

276. High fragmentation of WSS providers leads to inefficient O&M and wide tariff disparities.

Since the liberalization and decentralization reforms that took place in the late 1990s, provision of WSS services in Poland has been the responsibility of municipalities. Considerable investments have been carried out over the past 15 years to rehabilitate deteriorated infrastructure and foster compliance with the EU environmental acquis (especially in wastewater treatment), with financial support from the national budget as well as EU grants. Even so, a significant portion of rural dwellers still rely on private wells, and the gap is even wider for access to sewage collection systems—raising the issue of equity of access to WSS services. The current extreme fragmentation of WSS provision has led to widespread problems of inefficient O&M (with a high rate of water losses), poor capacity to implement large investments (such as for new wastewater treatment plants), and wide disparities in tariff level for the population (which are set by local municipal councils). With more investments expected in the near future to improve access and promote full compliance with EU directives, ensuring that WSS utilities are operated efficiently and that tariff increases can be maintained within acceptable affordability thresholds is becoming increasingly important to maintain progress on poverty reduction and shared prosperity.

277. Continued investment in flood management and reforms to management and an improved institutional framework are needed.

First, continued investment is needed in flood management infrastructure (both hardware and especially software approaches) to build the needed resilience to

current water-related risks and future ones emanating from climate change. Second, reforms to the overall governance framework for water management are essential, along with changes to the legal and economic instruments available to meet the objectives of achieving a robust level of water security. Last, reforms of the WSS institutional framework are needed to

- Promote consolidation of WSS service providers to reduce O&M costs, improve operational capacity, reduce tariff disparities, and ensure compliance with EU water regulations in a more cost-efficient manner;
- Promote national benchmarking of WSS providers to identify best performers and disseminate best practices;
- Improve the tariff adjustment process to foster performance incentives and reduce political capture at the municipal level (one option to consider being the establishment of a national regulator); and
- Optimize the implementation of future investments for expanding access in rural areas, and ensure that tariff increases are kept within thresholds of affordability for the poor.

Contributions of Climate Adaptation to Safer, Cleaner, Less-Risky Agriculture

278. **Poland's agriculture sector has modernized and intensified since accession to the EU and implementation of the EU's Common Agricultural Policy.** In particular, farmers have turned to intensive use of commercial fertilizer to improve yields. This use has soared, pushing Poland to among the most intensive fertilizer use within the OECD. Between 2002 and 2012, use of nitrogenous and phosphorous fertilizer increased relatively fast, albeit from a very low base. Combined with the decrease in the area of agricultural land, this trend brought Poland to be among the top 10 OECD countries with the highest intensity of commercial fertilizer use (OECD 2015d).

279. **The risk of a changing climate will likely have a significant economic impact on agriculture and livestock, centering on future water availability.** The agriculture sector in Poland is likely to be most affected by more frequent and more severe droughts in the future (an incidence three times higher in the next three decades than in the past three decades), with the worst effects in Wielkopolskie voivodeship, Kujawy, and Central Poland. Other projected impacts on agriculture are changes in cropping seasons and incidence of more severe weather events. Livestock may face shortages of feed in holdings and a rise in prices while the increase in very hot days will increase the risk of heat stress, reducing productivity. Small farmers are particularly vulnerable. Poland is currently lacking a comprehensive risk and water management framework in agriculture, to help farmers build resilience and address risks. Insurance subsidy is the main tool used, but insurance coverage is low (10–12 percent of agricultural producers and 25 percent of croplands) despite its mandatory nature for farmers receiving direct payments under the EU's Common Agricultural Policy (because penalties are not strictly enforced). These low insurance coverages might increase in the future following the law amendments in 2016–17. Such compensation can complement public response in case of catastrophic risks or disasters occurring in agriculture. Beyond an improved safety net for farmers, the challenge of climate change may require investments to modernize and rehabilitate existing irrigation systems and promote water-efficient agriculture and high-efficiency irrigation systems. Such investments will also contribute to rural development and poverty alleviation. Though the economy is gradually moving away from agriculture, the sector remains important for employment and will remain so for some years, ensuring that adaptation to a changing climate will continue to be important for the rural poor in the foreseeable future.

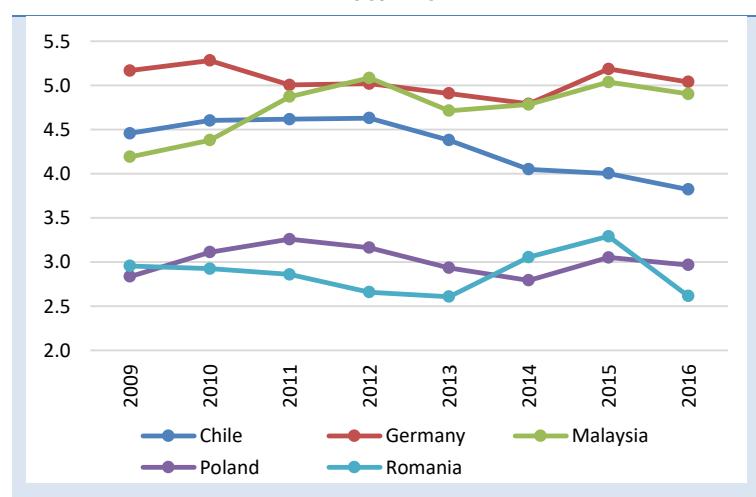
Governance for Growth and Equity

280. **A key requisite to confront the growth, inclusion, and sustainability challenges presented throughout this diagnostic is governance.** In particular, policies in all of the areas discussed so far will be effective in promoting growth and enhancing equity only if they are able to sustain consensus over time, generate common expectations among actors, and foster compliance. One of the three main goals set in the recently adopted “Responsible Development Strategy” is an “Efficient state and economic institutions supporting growth and social and economic inclusion” (Ministry of Economic Development 2016). To sustain growth over time, policies need to create an environment where individuals and firms feel secure to invest their assets in productive activities and have the incentives to use them efficiently. Also, policies should help coordinate investments decisions to prevent underdevelopment, by clearly pointing to a common objective. To improve on social and economic inclusion, policies should foster citizens’ willingness to cooperate and contribute to public goods (such as through taxation), which is essential to being able to provide high-quality services, such as health, education, or connectivity, and to ensure access to economic opportunities. Moreover, for individuals to realize the returns of such investment, they need access to economic opportunities in adulthood, especially access to opportunities that allow them to use the human capital that they acquired.

Commitment to Laws and Their Implementation to Secure a Safe Environment for Investors

281. **A more efficient judiciary system is of utmost importance to secure a safe environment for investors and sustain growth.** In addition to dispute resolution, Polish civil and commercial courts operate the immovable assets registry (Land and Mortgage Registry) and the business registry (National Court Register), respectively. According to the 2016 Bertelsmann Transformation Index (Bertelsmann Stiftung 2016), the judiciary system in Poland is independent and effective, but it is affected by issues such as delays in adjudicating cases, lengthy pretrial detention periods, slow corruption investigations, and difficulties for private businesses to challenge government actions or regulations through the legal system (Figure 4.14). These problems hinder growth because they weaken the commitment function of institutions: securing a safe environment for investors by sustaining agreements, whose implementation over time requires litigation resolution that is efficient and timely.

Figure 4.14. Efficiency of Legal Framework in Challenging Regulations, Poland and Selected Comparator Countries, 2009–16



Source: World Bank estimates using World Economic Forum data.

Note: The rating scale ranges from 1 (worst) to 7 (best).

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282. **Inefficiencies in the judiciary system are more salient at the local level, and the courts' performance varies widely in different cities, despite having the same national legal framework.** Lower courts are widely considered to work inefficiently. In particular, the subnational *Doing Business in Poland* report points out the wide regional variation in the efficiency of local courts for starting a new business, registering properties, and resolving disputes (World Bank 2015a). Starting a new business takes on average one month, but it can take as long as 42 days in Szczecin, or just 8 days in Poznań (as opposed to an EU average of 11.6 days). Compared with the EU average of 4.45 percent of property value, Poland is inexpensive when it comes to registering property, but the time it takes to do so varies widely. For example, registering property in Białystok takes only 18 days and costs 0.35 percent of property value. On the other hand, it can take as long as 51 days in Wrocław.
283. **Tackling corruption is another priority to improve the efficiency of the market.** As an economy advances, corruption becomes costlier because it restricts the functioning of the market (World Bank 2017b). According to estimates from Freedom House's 2016 Nations in Transit (NIT) report, corruption and nepotism remain important issues in Polish public life (Freedom House 2016). A September 2016 NIT poll revealed that 67 percent of Poles believe corruption is a serious problem, although 83 percent had not heard about any incidents in their local environments in 2015. According to respondents, the most corrupt occupations are doctors (65 percent), referees (59 percent), ministers of parliament (56 percent), and self-government council members and local government officials at various levels (55 percent). Least likely to be corrupt in the public eye are teachers (31 percent) and bank clerks (35 percent). According to the Gallup World Poll, perception of corruption in government in Poland has decreased from 78 percent to 61 percent between 2014 and 2016, but it has been consistently higher than the averages for EU (60 percent) and OECD countries (62 percent) since 2006. Similarly, the perception of corruption within business has decreased from 77 percent to 65 percent between 2014 and 2016, but it has been consistently higher than the averages for EU (61 percent) and OECD countries (60 percent). Regional differences are important also in this respect: 29.2 percent of firms in the South-Western region think they are expected to give gifts to secure government contract, as opposed to 0 percent in the Eastern region. Also, 25.9 percent of firms in the Central region believe they are expected to give gifts to public officials "to get things done," as opposed to just 6.7 percent in South-Western region.

New Coordination Effort Needed to Encourage Investments

284. **The process of EU accession provided a clear coordination device that helped the country's fast development during the past decade.** EU membership increases the attractiveness of countries, because it signals their political and economic maturity and—given the predictability and of EU law and regulations—their adequacy to EU standards. In fact, EU accession supported foreign direct investment (FDI) inflows and meant a sizable inflow of EU Structural Funds, linked to predictable development strategies under the *acquis communautaire*.
285. **Today, a new coordination effort is needed to encourage investments in advanced technologies that will enable the country to move up in global value chains and to comply with international targets.** As the *World Development Report* 2017 underlines (World Bank 2017b), the creation of new institutions needed to transition to higher income levels may be stymied by vested interests, who gained during the previous stages of development enough power to block changes that

may threaten their position. For entrepreneurs to be interested in transition toward the model of creating competitive advantages based on the improved products, services, and processes (Republic of Poland 2016, 24), institutions need to generate common expectations among all actors.

Nevertheless, corresponding with a unitary vision and growth strategy at the *national level* (well epitomized by the Responsible Development Strategy or in the National Reform Program) must be (a) a limited coordination effort at lower levels of the administration and between ministries, and (b) the prevalence of a culture of *departmentalism* (Bertelsmann Stiftung 2016, 23). For instance, the level of engagement of local and regional authorities in national policy dialogue remains limited. This disconnect risks generating confusion and bewildering firms and investors in general.

286. **The broad adoption of renewable energy sources will require coordinated efforts, but it could enhance the innovation potential of Polish firms and steer growth toward a more sustainable model.** “Green growth” is about making growth processes resource-efficient, cleaner, and more resilient, and its advantages have been documented in terms of preventing environmental degradation, correcting market failures, and improving individual well-being. Nevertheless, as stressed by the *World Development Report 2017*, switching to greener growth strategies could impose short-term costs on some groups in society (World Bank 2017b). Such groups may have an oversize influence in the policy decision process and might be able to block reforms and undermine commitment. This is because the costs of a potential reform are concentrated, while the benefits from cleaner technologies are intangible and disperse. As discussed in this chapter, Poland relies on coal as a primary source of energy, which delivers guarantees low energy prices and independence from importing natural gas or oil from other countries. Changing to a green growth path would therefore require commitment from the government and the creation of a broad consensus among citizens.

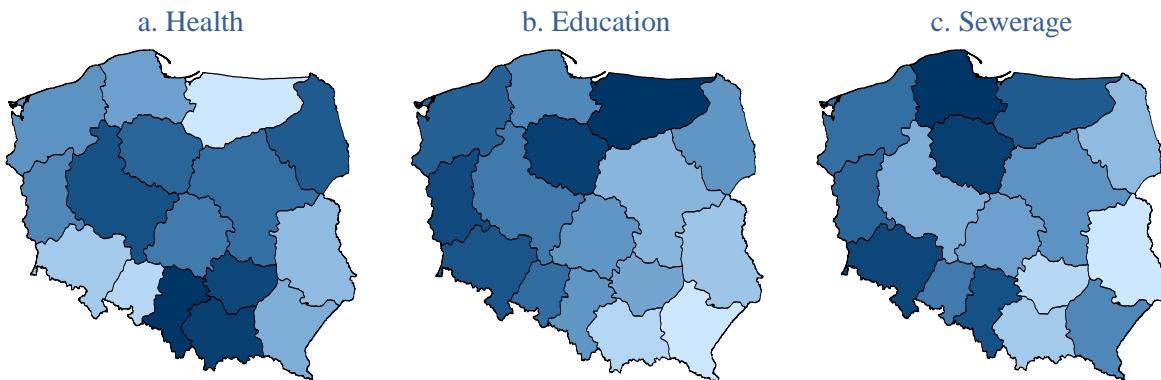
Improving Trust to Ensure Cooperation and Compliance

287. **To the extent that actors affected by policies are excluded from their design or that specific groups benefit disproportionately, trust in institutions will be weakened, possibly leading to a breakdown of cooperation and regional differences.** Poland has some way to go in terms of building trust and enhancing the performance of its public services. Delivering public services of good quality is the prerequisite to ensure compliance. Low quality of services, on the other hand, prompts the upper middle class to demand private services, which in turn weakens their willingness to fiscally cooperate and contribute to the provision of public goods. A recurring finding in various chapters of this Systematic Country Diagnostic, is that the responsiveness of the state is not homogeneous across regions in the country (see Box 4.1).

Box 4.1. Discontinuities of the State

Map B4.1.1 shows the different levels of state *presence*, as measured in terms of the quality of public services provided in each region. In particular, we focus here on health, education, and sewerage (as a proxy for service delivery). Quality of health services is approximated by the incidence of death caused by ischemic heart diseases. Notice that it is renown that after a heart attack, the fastest the medical attention the better the probability of survival (see, for example, Perkins et al. 2015). Quality of the education system is approximated by the incidence of early leavers from education and training. Quality of service delivery is approximated by the share of population connected to wastewater collection and treatment systems.

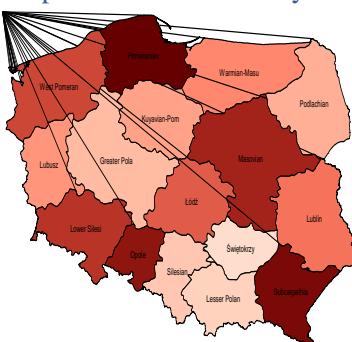
Map B4.1.1 State Presence in Poland, Selected Intervention Domains, 2015



Source: World Bank elaboration on Eurostat data. ©World Bank. Permission required for reuse.

Note: Darker shades designate higher state presence. Health data for 2015 is projected from 2010 using the average percentage changes of the indicator, by region, from 2000 to 2010.

Map B4.1.2 State Density



Source: World Bank elaboration
on Eurostat data; ©World Bank.
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Note: Darker shades correspond to higher density.

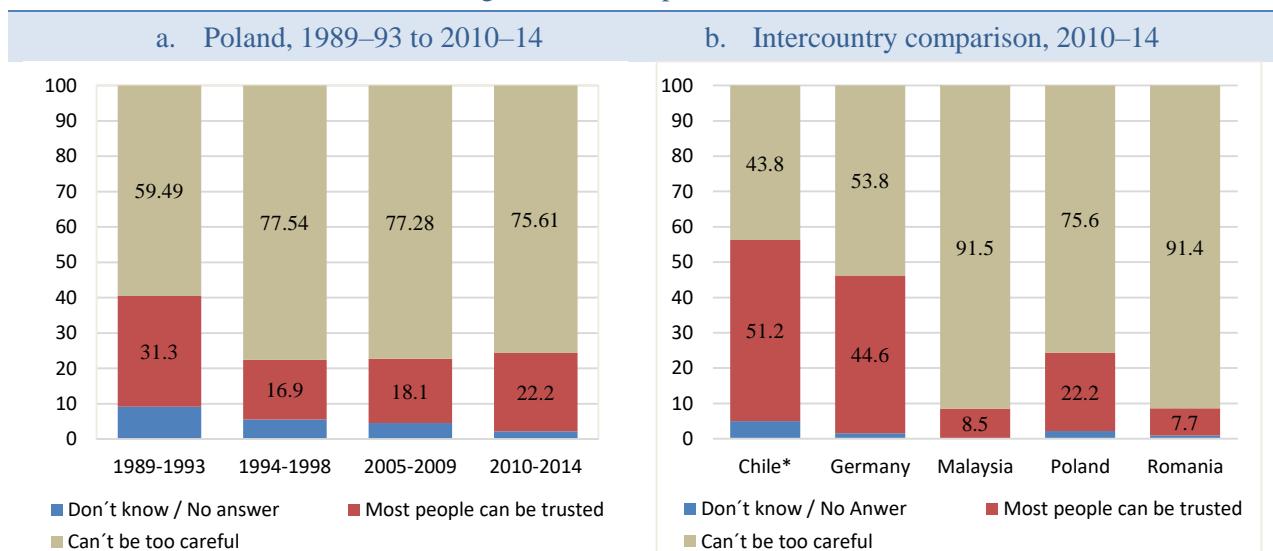
It is possible to then aggregate the different dimensions of state presence in a composite measure of the *density* of the state—that is, the average presence across dimensions, represented in Map B4.1.2, where darker shades correspond to higher density. Poland is very heterogeneous in terms of state presence, although it is not necessarily true that the same regions are the worst performers under each dimension considered.

Moreover, the level of *state discontinuity*—a measure of the inequality of state density across regions—worsened over the past decade (2005–15). Because individuals are often more concerned about their relative position with respect to others than about their overall well-being, the discontinuity in the ability of the state to respond equally effectively to the needs of its citizens across the nation risks fueling discontent and undermining the perception of legitimacy of the government.

Source: World Bank, based on Ceriani and López-Calva 2016.

288. Building trust is key to increasing the efficiency of the state and the economic institutions supporting growth and equity. Trust is related to positive outcomes in terms of economic growth as well as government performance (World Bank 2017b). It may refer to trust among individuals (interpersonal trust) or trust in organizations, rules, and the mechanisms to enforce them (institutional trust). Different sources of data show that Poland is characterized by a low level of both interpersonal and institutional trust. According to the latest available data from the World Values Survey, only one in four individuals in Poland believe that most people can be trusted, as opposed to more than 50 percent of individuals in Chile or 45 percent of respondents in Germany (Figure 4.15).⁶⁴ The country experienced a sharp decline in interpersonal trust during the mid-1990s but has improved more recently, with the share of respondents saying that most people can be trusted increasing by 4 percentage points since the second half of the 2000s. As for institutional trust, Poland had a remarkable lack of trust in the national parliament by comparison with both the EU-28 countries and the other benchmark countries chosen for this analysis (Figure 4.16). Notice, however, that this low level of trust in the national parliament or government accompanies higher confidence in the EU than that of other EU-28 countries.

Figure 4.15. Interpersonal Trust

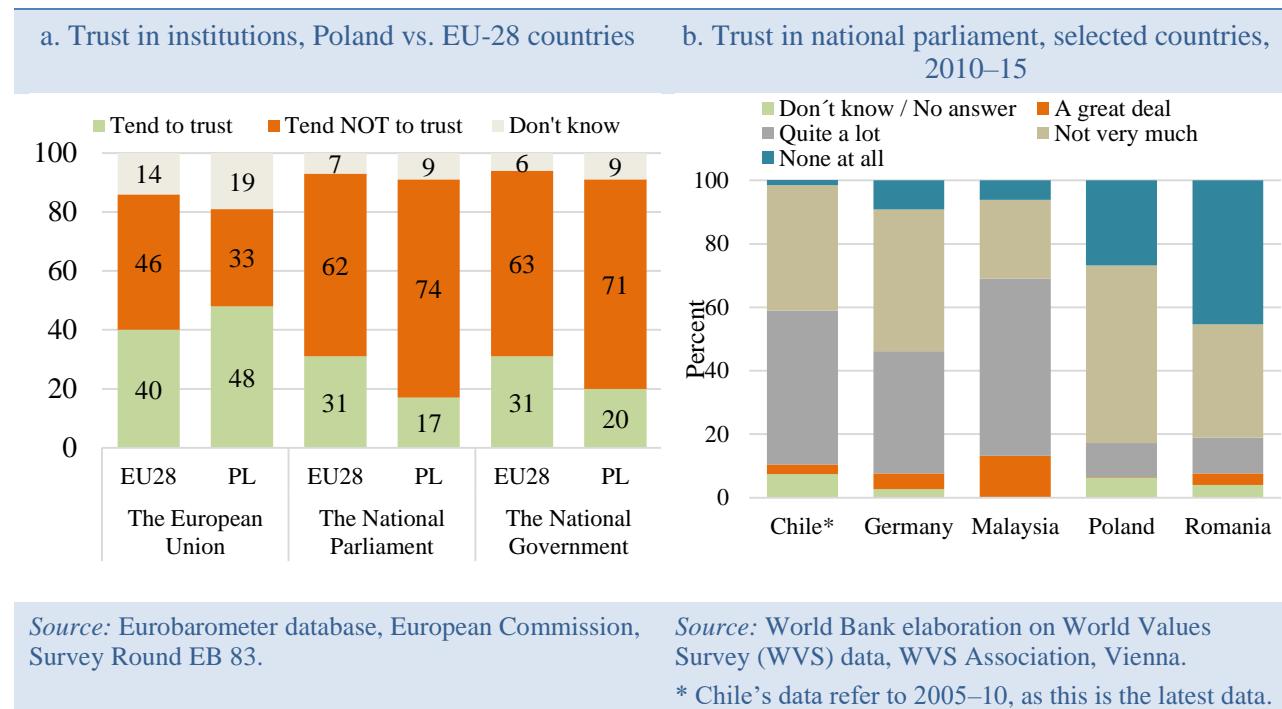


Source: World Bank elaboration of World Values Survey (WVS) data, WVS Association, Vienna.

* Chile's data refer to 2005–10, as this is the latest data.

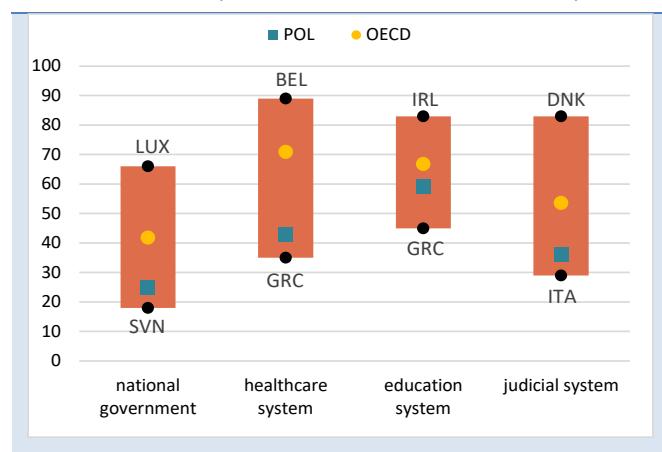
⁶⁴ The World Values Survey (www.worldvaluessurvey.org) is a global network of social scientists studying changing values and their impact on social and political life, led by an international team of scholars, with the WVS Association and WVA Secretariat headquartered in Vienna, Austria. For more about the specific 2016 data, see the WVS Wave 6 (2010–14) database: <http://www.worldvaluessurvey.org/WVSDocumentationWV6.jsp>.

Figure 4.16. Institutional Trust



289. Institutional trust can be built by improved accountability and repeatedly delivering on commitments, such as providing quality public services. Indeed, the low institutional trust in national institutions in Poland coincides with a general low level of satisfaction in the core public services. (Figure 4.17) for instance, shows that Poland is always below the OECD average with respect to overall satisfaction with the health care system, education system, and judiciary. In particular, the levels of satisfaction with the health care system and the judiciary are very close to the lowest among OECD countries. On the other hand, the larger trust in the EU mentioned above could be linked to a higher perception of legitimacy of European institutions, derived from the understanding that the way that decisions, policies, or laws are designed and implemented at EU level is fair and impartial (process legitimacy). Another source of the perception of legitimacy entrusted in European institutions may be connected to the large amount of European Funds invested in the country (outcome legitimacy).

Figure 4.17. Satisfaction and Confidence in Core Public Services, Poland and OECD Countries, 2014



Source: OECD 2015b.

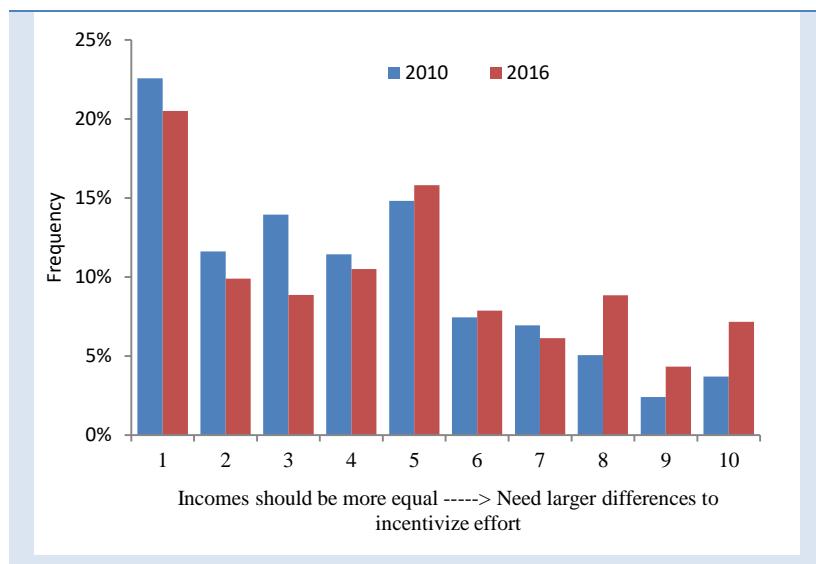
Note: OECD = Organisation for Economic Co-operation and Development.

understanding that the way that decisions, policies, or laws are designed and implemented at EU level is fair and impartial (process legitimacy). Another source of the perception of legitimacy entrusted in European institutions may be connected to the large amount of European Funds invested in the country (outcome legitimacy).

290. If not addressed, low levels of trust may lead to a breakdown of cooperation and compliance, in turn hindering the state's capacity to provide quality services, starting a vicious circle. Although most individuals in Poland favor some redistribution, the incidence of those against any sort of redistribution doubled between 2010 and 2016 (Figure 4.18). As previously discussed in Chapter 3, a relevant part of redistribution is attributable to transfers in kind, particularly spending in health and education, which is progressive and equalizing.

But to continue delivering health and education services, as well as all other public functions, the government needs to create an environment of trust to prevent citizens from opting out from public services and exiting—reducing their tax compliance and switching to private service providers.

Figure 4.18 Preferences for Redistribution in Poland, 2010 and 2016



Source: World Bank estimates using the Life in Transition Survey, 2010 and 2016.

Citizen Engagement Needed for Legitimacy

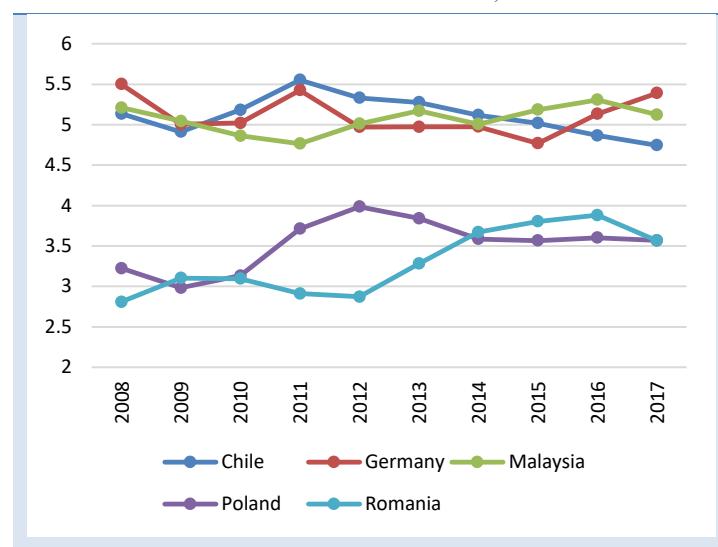
291. Civil participation, in its different forms, has a critical role in driving the process of societal transformation and institutional change. What policies are chosen is as important as the policy process that is followed, to ensure the buy-in of different actors and avoid lack of compliance. Traditions of civil society are strong in Poland. The emergence of a true civil society had much to do with the events surrounding the founding and consolidation of the Solidarity trade union during 1980–81. The democratic transition provided impetus for the development and mushrooming of civil society organizations: the number of organizations has grown exponentially over 25 years in Poland. However, the level of civic participation is not high: only 32 percent of Poles are actively involved, whereas, according to the Eurobarometer survey of all EU member states, almost half of all respondents (45 percent) reported membership in civil society organizations in 2013. In addition, civil engagement through voting is low. In the most recent parliamentary elections (October 2015), only 50.9 percent of the 30,629,150 registered voters cast their ballots. In previous elections (2011 and 2007), voter turnout was, respectively, 48 percent and 53 percent. According to the OECD, Poland ranks 34th out of 38 countries on voter turnout—better than 37th-place Chile (with a turnout of 49.3 percent) but worse than countries like France, Germany, or Italy (where turnout is above 70 percent).

292. Making information available through transparency initiatives is an important first step toward increasing accountability, which can help to create a new political consensus on the need for continued reforms. According to data from the World Economic Forum, Poland scores poorly with respect to transparency of government policy making (Figure 4.19). Also according to data from the Open Budget Survey 2015 (of the International Budget Partnership [IBP]), the government of Poland provides the public with limited opportunities to engage in the budget process. In particular, there is no document being produced to present key public finance information to a general audience (that is, a “Citizens Budget” as defined by the IBP).⁶⁵ Citizens Budgets foster greater understanding of how public money is being managed. Increasing

civic knowledge about the management of public money is a key factor to improve accountability of governments, but transparency is not enough. As the *World Development Report 2017* points out, for information to be an effective means to monitor and oversight public sector performance, its availability is just the first step. Information also needs to be accessible and actionable to promote accountability (World Bank 2017b).

293. International actors are also important influences on the efficient functioning of the domestic decision process. The EU plays a major role in shaping regional and urban development. The EU and regulations attached to distribution of EU funds

Figure 4.19 Transparency of Government Policy Making, Poland and Selected Countries, 2008–17

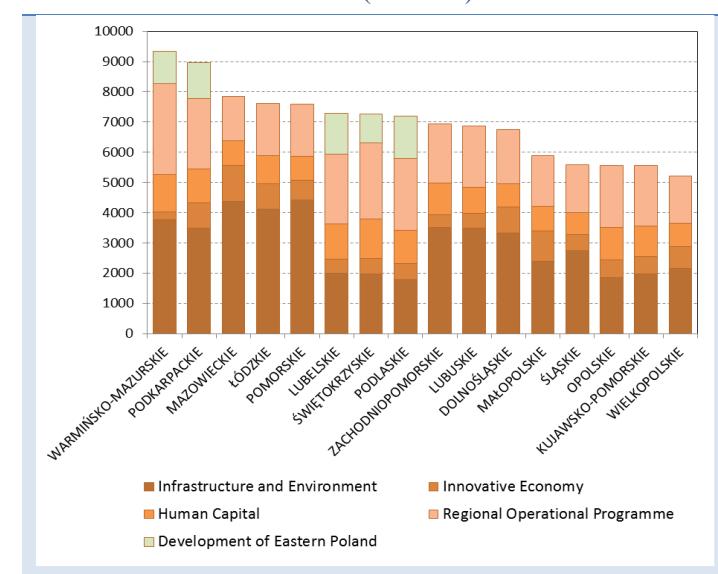


Source: World Bank estimates, using World Economic Forum Global Competitiveness Report data.

Note: The rating scale ranges from 1 (worst) to 7 (best).

understanding of how public money is being managed.

Figure 4.20 Distribution of EU Funds Per Capita in Poland, by Region and Function, 2007–13 Funding Period (in euros)



Source: Sivaev 2017.

⁶⁵ For more information about Citizens Budgets, see the IBP website: <http://www.internationalbudget.org/opening-budgets/citizens-budgets/>.

have a strong effect on the development priorities of regional governments. Most large-scale projects are funded by the EU, and local and regional governments predominantly consider investments that fit within the EU framework. Overall, European funds reach the lagging regions in the country (Figure 4.20)—although, as mentioned in Chapter 2, companies seem to have a substantial influence on allocation from the regional to the municipal level. Adjusting priorities and requirements to comply with EU funding disbursement has a major effect on investments and regional development policies. A good example is the Cohesion Fund policy investments that prioritize lagging regions. For instance, in Podkarpackie and Świętokrzyskie, most of the EU investments went into transport infrastructure and innovation and entrepreneurship support, which were priority areas defined by the EU (Sivaev 2017). However there has been only a limited amount of EU investment in skills and education, which appear to be instead an important focus in the lagging regions.

Priorities for Sustainability

294. **The requisites for sustainable development include fiscal, social, and environmental sustainability as well as governance for growth and equity.** This Diagnostic has described two pathways toward shared prosperity so far: transitioning to an innovation-led growth model and ensuring access to income-generating opportunities. Ensuring fiscal, social, and environmental sustainability is a prerequisite to shared prosperity and sustainable development. Achieving these objectives depends on effective policies that sustain a consensus over time, generate common expectations among actors, and foster compliance.
295. **Long-term fiscal and social sustainability will depend on the consensus that can be reached around the social protection system going forward.** In particular, the recent decision to roll back the retirement age will have negative impacts on labor force participation, pension adequacy, and budget expenditures. As a consequence of low replacement rates, projected pensions are projected to be low enough that people will have an incentive to claim disability pensions, with impacts on labor force participation and creation of additional fiscal pressures. Moreover, the proposed increases in voluntary savings will be insufficient to mitigate these impacts. For men, additional savings of about 7 percent of wages throughout the worker's whole career would be needed to achieve replacement rates similar to those expected before the change in the retirement age. The situation for women is much worse: 11 percent additional savings would be needed just to compensate for the retirement age rollback by 2060, but 17–18 percent in savings would be needed to ensure a 60 percent replacement rate. Given this may be too much to tolerate, retirement ages for women will have to increase to ensure adequate replacement rates in the future.
296. **Poland's main environmental sustainability challenge is the need to transition to a low-emissions economy—a goal intertwined with other environmental objectives such as cleaner air, better water management, and adaptation to a changing climate through improved resilience.** The existing coal-based energy mix, fast-rising transport emissions, and insufficient energy efficiency are the main challenges to lowering GHG emissions in line with EU obligations. In addition, air quality is not yet at European norms, and moving to lower emissions will also assist with reducing air pollution. Adapting to a changing climate will require dealing with substantial uncertainty, but the dual challenges for Poland are likely to be increased severity of weather and reduced water availability, imposing the greatest harm on the agriculture sector and requiring reforms and investments in both water and agriculture.

297. Policies are effective in promoting growth and enhancing equity if they sustain consensus over time, generate common expectations among actors, and foster compliance. A more efficient judiciary system is of utmost importance to secure a safe environment for investors and sustain growth. Although the process of EU integration provided a clear coordination device, a new coordination effort is needed to encourage investments in new technologies that will enable the country to move up global value chains and to comply with international targets. Exclusion from policy design or disproportionate benefits for specific groups will weaken trust in institutions. If not addressed, low levels of trust may lead to a breakdown of cooperation and compliance, in turn hindering the capacity of the state to provide quality service and starting a vicious circle. Making information available through transparency initiatives is an important first step toward increasing accountability, which can help to create a new political consensus on the need for continued reforms and foster civic engagement.

Chapter 5: Policy Priorities and Actions

Introduction

298. **Poland is in many respects a development success story, making tremendous progress toward EU income levels.** Poland's growth was fast and stable—driven by productivity increases; accompanied by the establishment and strengthening of pro-competitive institutions and market-oriented upgrading of human capital; and underpinned by reasonably good macroeconomic management. In addition, Poland's economic growth pattern has been inclusive, leading to a substantial reduction in poverty and stronger-than-average income growth for the bottom 40 percent of the distribution. Equality of opportunity, competitive markets, and solid institutions have combined to produce Poland's success. Moreover, Poland significantly improved its environmental performance, and economic growth has been decoupled from greenhouse gas (GHG) emissions, energy and water use, and some health-damaging pollutants.
299. **However, Poland now faces new challenges.** The most important structural change has to do with the very rapid and deep demographic change, which will pose labor market and fiscal challenges while straining the health care and pension systems and overall fiscal and social sustainability. Second, recent global developments suggest low potential for productivity improvements as well as a slowdown in innovation and adoption in converging markets such as Poland. Third, technological improvements are likely to change the nature of labor markets, affecting relative returns to skills and capital and thus potentially leading to a polarization of incomes. If, in addition to this structural trend, there is a downturn in economic dynamics, horizontal inequalities would become more salient given the lingering disparities in access to opportunities and labor market and social exclusion among vulnerable groups. Finally, agglomeration and income growth put pressure on natural resource management and overall environmental sustainability.
300. **These challenges will affect each of the pillars of shared prosperity: growth, inclusion, and sustainability. Confronting them—while at the same time making progress on shared prosperity—will require a more strategic, effective, and accountable state.** The intrinsic idea of the “shared prosperity” goal is to raise the well-being of the poorer segments of every society in every period, which requires a dynamic process of economic growth that is inclusive of the poor and promotes sustainability. The pathways discussed include (a) increasing productivity through an innovation-led growth model and an enabling environment; (b) investing in people, ensuring that they can engage productively, and guaranteeing their mobility; and (c) ensuring the fiscal, environmental, and social sustainability of policies. This chapter aims to summarize the key priorities and lay out some of the crucial areas for policy action.

Identifying Priority Areas

301. **The set of priorities through which Poland can be expected to have the biggest impact in accelerating progress toward the twin goals have been chosen using the following criteria:**

- *Impact on goals over the medium term:* This will assess the potential impact on the twin goals of reducing poverty and increasing the welfare of the bottom 40 percent.
- *Time horizon of impacts:* This will assess the possible time frame for realizing the expected impact, identifying low-hanging fruits, and striking a balance between short- and long-term impacts.
- *Complementarities:* This would look at the degree to which an identified opportunity in one area will have possible positive impacts on other constraints.
- *Evidence base:* More weight will be given to areas where the evidence base is stronger.

302. **A three-step process was used to determine policy priorities and actions.** First, the country team proposed a long list of constraints on progress toward inclusive growth and poverty reduction. Second, the Systematic Country Diagnostic (SCD) core team identified the top three policy priorities for each pathway by applying filters to the list of constraints to take into account impact on the twin goals, timing and sequencing, complementarities between actions, and the strength of the evidence base.

303. **The SCD team also built on an extensive internal and external consultation process.** The objective from the conceptual stage of the SCD onward was to get advice from experts in Poland and the World Bank as a whole on areas of emphasis and, as the work progressed, on the emerging storyline and main messages. These discussions identified a number of knowledge gaps (Box 5.1).

Box 5.1 Knowledge Gaps to Be Addressed in the Future

- Economy-wide impact of reducing labor market duality
- Mechanisms to smooth shifts in public investment and EU funds absorption
- Diagnostic of labor shortages where migrants could play an important role
- Regional transfer formulas, including whether it would make sense to condition regional EU funds on performance and on ways to further interconnect administrative regions
- The impact of the Common Agricultural Policy on mobility out of agriculture
- Systematic review of housing policy instruments
- Impact evaluations of labor market interventions
- Review of public spending on labor market policies
- Systematic review of public spending on health care and intergovernmental relations for health services delivery

Priority Areas and Links to Shared Prosperity

304. **To ensure shared prosperity, Poland will need a renewed social consensus and a more strategic, effective, and accountable state.** As summarized in Figure 5.1, to transition toward an innovation-led growth model, Poland will need a commitment to competition and improvement in product market regulations, more-strategic public investment, and sound macro policies and effective fiscal management. To meet the demographic challenge and catch up in the race between technical progress and skills while enhancing inclusion, Poland will need to improve equitable access to high-quality health and education services, promote activation, and reduce barriers to mobility. To ensure fiscal and social sustainability, it will need to ensure that pensions are adequate,

while environmental sustainability will require commitment to transitioning to a low-emissions economy and improved water management. Progress in each of these areas will require consistency and commitment to sound policies, coordination between public and private actors, and improved trust in government to ensure private sector cooperation. This will only be possible if Poland can achieve a renewed social consensus and a more strategic, effective, and accountable state.

Figure 5.1. Pathways to Shared Prosperity



305. **Based on the analysis in this report, Table 5.1 sets out nine priority areas and articulates how advances in these areas are expected to affect progress toward shared prosperity and poverty reduction in a sustainable way over the next five years.** During this period, the implementation of policy priorities is expected to set the course for progress, although not all objectives will necessarily be accomplished within the five-year time frame. The full impact of many of these interventions might be achieved in the longer term. However, in many cases, important measures need to be put in place urgently to set Poland on the path toward progress in addressing the challenges ahead and taking advantage of the current window of opportunity before EU funding begins to decline.

306. **There are important interlinkages between these areas.** Action in some of the priority areas will have important complementarities elsewhere. For instance, improved workforce skills will help to increase labor force participation and thus generate a more competitive product market, while at the same time improving the income-generating potential of the population, thus enhancing inclusion. Similarly, increasing labor force participation will help to ensure the sustainability of the pension system and address potential labor shortages that could curtail growth. Removing barriers in markets and trade, such as through improvements in the functions of the judiciary, would improve productivity and have an important effect on inclusion. Each of the priority areas is summarized below.

Table 5.1. Policy Priority Areas and Impacts on the Twin Goals

Priority	Expected impact	Time horizon	Trade-offs and complementarities	Evidence base
Enhance competition and remove barriers to entrepreneurship and private sector investment through an enabling regulatory environment; improved efficiency of the judiciary; and policy predictability, consistency, and transparency	Supports growth, inclusion, and sustainability	Medium term	Growth and sustainability; potential trade-off with higher inequality	Strong
Shift to a more strategic public investment policy, improving the efficiency of European Union (EU) funds and enhancing research and development (R&D) policy	Supports productivity and economic growth as well as fiscal sustainability, but may increase the polarization of earnings and employment	Medium term	Growth and sustainability; potential trade-off with higher inequality	Some knowledge gaps remain
Ensure sound macro policies and countercyclical monetary and fiscal policy and make public finance more transparent, effective, and efficient	Supports medium-term growth and long-term sustainability; fiscal consolidation could have negative short-term impacts on some groups	Medium term	Growth and sustainability; potential short-term impact on some groups	Strong
Improve skills of the workforce, ensuring equal opportunities and improved quality and relevance of education provision and adult learning possibilities across income deciles and regions	Provides those with disadvantaged backgrounds the tools to be more productive and earn higher wages; can have a strong productivity impact	Long term	Growth, equity, and sustainability; no foreseen trade-offs	Strong
Improve access and quality of health care services through better organization and coordination and more efficient use of human and financial resources	Ensures that vulnerable groups (including the elderly) are cared for; improves productivity of labor force	Medium term	Growth, equity, and sustainability; no foreseen trade-offs	Strong
Increase labor force participation through improved quality and availability of child and elderly care services	Supports long-term economic growth and inclusion; facilitates the sustainability of the pension system and therefore fiscal sustainability	Medium term	Growth, equity, and sustainability; no foreseen trade-offs	Strong
Reduce labor market barriers by simplifying labor regulations; improving maintenance, investment, and management of road and rail infrastructure; and ensuring affordable housing	Supports productivity of rural residents, supporting growth and inclusion; could also improve fiscal sustainability	Medium term	Growth, equity, and sustainability; no foreseen trade-offs	Knowledge gaps are substantial
Ensure sustainability of the pensions system through promotion of longer working lives, in particular for women, and promotion of private pension savings	Supports fiscal sustainability, could lead to higher growth due to increased labor, and support inclusion of elderly in prosperity	Medium term	Growth, equity, and sustainability; no foreseen trade-offs	Strong
Manage the transition to low-emissions economy and strengthen water management	Supports environmental sustainability; may have negative short-term impact on growth and inclusion from higher energy prices	Long term	Equity and sustainability; potential short-term trade-offs on growth	Strong

Priorities to Boost Productivity Growth

307. **Enhance competition by reducing state control, opening to trade and investment, and removing barriers to entrepreneurship and private sector investment.** This will require fostering an enabling regulatory environment; improving the efficiency of the judiciary; and ensuring the predictability, consistency, and transparency of policies. Poland's regulatory environment suffers from discrepancies between laws on the books and the performance of laws in practice, limiting the effectiveness of institutions in preventing coordination failures. Late payments, slow administration proceedings, excessive reporting requirements, and frequent changes in regulations also surface in surveys of Polish businesses. Product markets retain some anticompetitive features such as state control and restrictions in retail trade. Improving the predictability of regulations should also help to limit uncertainty, an increasingly important concern for businesses. Moreover, enforcing contracts is difficult given long delays in the courts. A more efficient judiciary system is of utmost importance to secure a safe environment for investors and sustain growth. Bolstering innovation will also require balancing the need for greater labor market flexibility and strategic openness to migration with improved job security. Finally, financing innovation will require diversification of the financial sector through capital markets development and development of venture capital.
308. **Shift to a more strategic public investment policy, improving the efficiency of EU funds and enhancing R&D policy.** This will require investing in growth-enhancing sectors, including universities and research centers, and using a long-term life-cycle approach to managing and financing transport and ICT infrastructure. It will also require using financial instruments (instead of grants) to improve efficiency of EU funds, enabling reinvestment, leveraging private resources, and providing incentives for better performance. Finally, R&D policy should be streamlined, and the focus of investment should be on basic research.
309. **Ensure sound macro policies to reduce uncertainty, including through rule-based fiscal consolidation aimed at increasing domestic savings, a simplified and upgraded tax system, and more efficient public spending.** Sound fiscal, monetary, and exchange rate policies, along with prudent financial supervision are sine qua non conditions to boost investment. Fiscal rules have contributed to stability of the Polish public finance, and their credibility needs to be preserved. In light of expected weaker inflows of foreign investments and the prospects of lower inflows of EU funds after 2020, higher domestic savings will be necessary, and the public sector could play an exemplary role. Moreover, Poland has room to strengthen its budget institutions and fiscal management to assure higher-quality of public finance, on both the public spending and revenue sides.

Priorities to Enhance Inclusion

310. **Improve skills of the workforce—ensuring equal opportunities across income deciles and regions—and enhance the quality and relevance of education and training throughout the life cycle.** Reducing the existing skills divide, and improving the quality and relevance of education provision and adult learning possibilities, will be needed to ensure shared prosperity. This effort will require promoting early childhood education and ensuring equal access throughout the country. Moreover, given increased demand for skills driven by technological change, there is a need for the

educational systems to adapt, fostering the skills required to perform nonroutine tasks and socioemotional and higher-order cognitive skills. Given demographic changes, the high concentration of older workers in routine jobs, and the overall growing importance of continuous skill acquisition of individuals in an innovating economy, shared prosperity will also depend on greater efforts to make lifelong and on-the-job training more accessible and relevant. This will require concerted efforts by education providers, the private sector, and the government. Higher education institutions could play a stronger role in collaborating with the private sector and the government to ensure increased access to demand-responsive training, expanding access to a more diverse student population, and adapting support services to the needs and living conditions of learners. Strong engagement from the private sector is required to ensure that programs are aligned with employers' skill demand. Public sector facilitation of such processes will be required, establishing framework conditions that promote the higher education institutions' engagement in adult education and cooperation among key stakeholders, as well as providing targeted support to higher education institutions. This includes advancing the legislative framework and designing key components of the higher education sector accordingly—namely, quality assurance approaches including accreditation, academic promotion systems, and funding schemes.

311. **Improve access and quality of health care services.** Poland needs to do more to boost health outcomes to prepare for the aging of its population. Poland already faces higher mortality and morbidity rates than its peers, low affordability due to expensive drugs, and access to care that still depends on individual circumstances. Long waiting times result from poor coordination, fragmentation, and low and inefficient spending. Given the expected increase in health care costs due to population aging, policies and investments are needed to promote improved health outcomes while containing costs. This will require improving coordination and reducing fragmentation of responsibilities and accountability across levels of government, increasing human and financial resources devoted to health, and improving the efficiency of spending through regional and national strategic planning. It will also require capacity building for physicians, nurses, and medical personnel as well as health system managers. Finally, improved health outcomes will require strengthening prevention and health promotion.
312. **Increase labor force participation through improved quality and availability of child and elderly care services.** This will require ensuring that people are not unwillingly excluded from the labor market, but more importantly it will require that cross-sectoral policies are well coordinated to provide strong incentives to work, particularly for women, such as through concerted efforts to increase the availability of childcare and long-term care. Moreover, it will require that social protection policies are consistent with this objective by reducing labor disincentive effects. Reforming the support system for families with children could improve its effectiveness, address work incentives, and reduce fragmentation, while at the same time ensuring consistency with respect to households with special characteristics. At the same time, ensuring that activation and employment services are more employer-oriented, focused on active job seekers, and accountable for results could go a long way toward reducing labor exclusion. Formalizing and operationalizing coordination among agencies that provide services to vulnerable populations is critical to ensure delivery of a package of integrated services to improve their chances of getting and keeping a job.
313. **Reduce labor market barriers by simplifying labor regulations, improving the management of road and rail infrastructure, and ensuring affordable housing.** To reduce labor market segmentation while at the same time guaranteeing labor market flexibility, a reduction in

administrative burdens and implicit costs associated with permanent labor contracts will be needed. Labor market segmentation could be reduced by making all contracts subject to the same tax and social contributions regime, simplifying and better communicating labor regulations, streamlining legal dismissal procedures, limiting the use of temporary contracts, and strengthening social protection. Notably, an individualized type of targeted job and social assistance program could help to include those who may otherwise be left out. In addition, other potential barriers to mobility include agricultural and social policies that provide incentives for farmers to remain in the agricultural sector. While knowledge gaps remain, to the extent that there are disincentives for farmers to move to more productive and better-paying jobs, these should be removed. In addition, judicial and regulatory barriers could prevent mobility by restricting land use and potentially limiting the sale of farm property. A systematic review of the range of housing policy instruments and barriers to transferring land could be helpful in identifying regulations that are inconsistent with improving internal mobility. Similarly, improvements in the management of regional road and rail infrastructure could substantially enhance mobility and access to labor markets. In particular, structural reforms are needed to rebalance existing EU funding toward regional and local networks and improve the capacity, safety, and sustainability of the current system by securing additional revenues for road and rail maintenance beyond 2020.

Priorities to Ensure Sustainability

- 314. Fiscal and social sustainability of the pensions system will require promotion of private pension savings and longer working lives, particularly for women.** The recent decision to roll back the retirement age will have negative impacts on labor force participation, pension adequacy, and budget expenditures. As a consequence of low replacement rates, pension benefits are projected to be so low that people will have an incentive to claim disability pensions instead of old-age pensions within the next five years, with impacts on labor force participation and the budget. The proposed increase in voluntary savings will be insufficient to mitigate these impacts. For men, additional savings of about 7 percent of wages throughout the worker's career would be needed to achieve replacement rates that are similar to those expected prior to the rollback in the retirement age. The situation for women is much worse: as much as 11 percent in additional savings per year would be needed just to compensate for the retirement age rollback by 2060, but an additional 17–18 percent savings would be needed to ensure a 60 percent replacement rate. Given that this may be too much to tolerate, retirement ages for women will likely need to increase to ensure adequate replacement rates in the future.
- 315. Environmental sustainability requires managing the transition to a low-emissions economy and strengthening water management.** The existing coal-based energy mix, an aging power infrastructure, and potential water scarcity as well as other impacts from a changing climate pose complex risks for environmental sustainability. Risks related to energy include stranded public assets, power shortages, and energy affordability for the bottom income deciles as global and EU climate action becomes more pronounced. Air quality is not yet at European norms, and moving to lower emissions would assist with air quality, in particular switching from coal to natural gas for heating. Meeting these challenges will require developing and implementing a coherent long-term energy sector strategy that is consistent with the overarching environmental sustainability goals, balances the mix of domestic resources and diverse imports, and firmly supports end-use energy efficiency improvement. Adapting to a changing climate requires dealing with substantial uncertainty, but the dual challenges for Poland are likely to be increased severity of weather and

reduced water availability. Managing these risks will require continued investments in flood management and an improved governance and institutional framework as well as investments in modernizing and rehabilitating existing water systems and promotion of high-efficiency systems.

- 316. A renewed social consensus and a new, more strategic, effective, and accountable state will be needed to achieve shared prosperity in Poland.** Although the process of EU integration provided a clear coordination device, a new coordination effort is now needed to encourage investments in new technologies that will allow the country to enhance its productivity, ensure that vulnerable groups are included in the growth process, and foster an inclusive growth process that is sustainable and complies with international targets. Just as important as achieving these goals will be the process that is undertaken to get there. Efforts to ensure inclusion and accountability in the policy design are needed to build trust in institutions. Without this trust, it will be difficult to secure cooperation from private agents that can in turn ensure the capacity of the state to provide quality service delivery and ensure effective policies in the long run.

Appendix A: Public Debt Sustainability Analysis for Poland

Public debt remains sustainable in the medium term. Public debt climbed to 54.4 percent of gross domestic product (GDP) in 2016, from 51 percent in 2015, due to slower growth and foreign exchange (FX) depreciation. However, public debt-to-GDP ratio is expected to remain below the standard risk thresholds in the medium term. In our baseline scenario, we expect public debt to reach 54.1 percent of GDP in 2018 before stabilizing through 2021. The debt dynamics are driven by primary deficit, growth, real interest rate, and FX rate. Primary deficit is expected increase to 1.2 percent of GDP in 2018 and the next years from 0.8 percent to 0.9 percent of GDP in 2016–17 and to contribute to a higher debt throughout the projection period. The FX depreciation is expected to contribute negatively before disappearing in 2018. The slowdown in GDP growth reduced the positive contribution to debt dynamics in 2016. However, the difference between the projected GDP growth and the real interest rate will become favorable starting in 2017, thanks to recovering growth and gradually falling real interest rates.

Public debt profile is resilient to macro-fiscal shocks. Although the baseline scenario is subject to several downside risks, the debt ratio remains below the risk thresholds under various risk scenarios. Public debt profile is resilient to interest rate, foreign currency, and fiscal risks. A negative shock to GDP growth represents the main downside risk on the debt outlook. For example, a drop in GDP growth by 1.9 percentage points in two consecutive years relative to the baseline, combined with a 0.5 percentage point drop in inflation and deterioration in the primary balance by 0.9 percentage point in 2017 and a further 1.9 percentage points in 2018, would derail the trajectory and increase the projected public debt level in 2018 to 59.5 percent of GDP before gradually easing to 59.3 percent of GDP by 2021.

Recent debt sustainability analysis highlights risks associated with the rise in short-term debt and the share of public debt held by nonresidents. After dropping to 8.7 percent in 2013, the share of short-term debt reached 13.3 percent in 2015 and then fell to 10.7 percent in 2016, which reduced the rollover risk. The share of public debt held by nonresidents reached 58.6 percent in 2014 (one-off statistical effect of the cancellation of part of the debt held by the open pension system), and then gradually decreased to 53.4 percent in 2016. The investor base remains diversified. Still, this quite significant participation of foreign investors in the bond market makes it sensitive to changes in the global investor sentiment.

Appendix B: Sources of Labor Productivity Gains in Poland, 2004–14

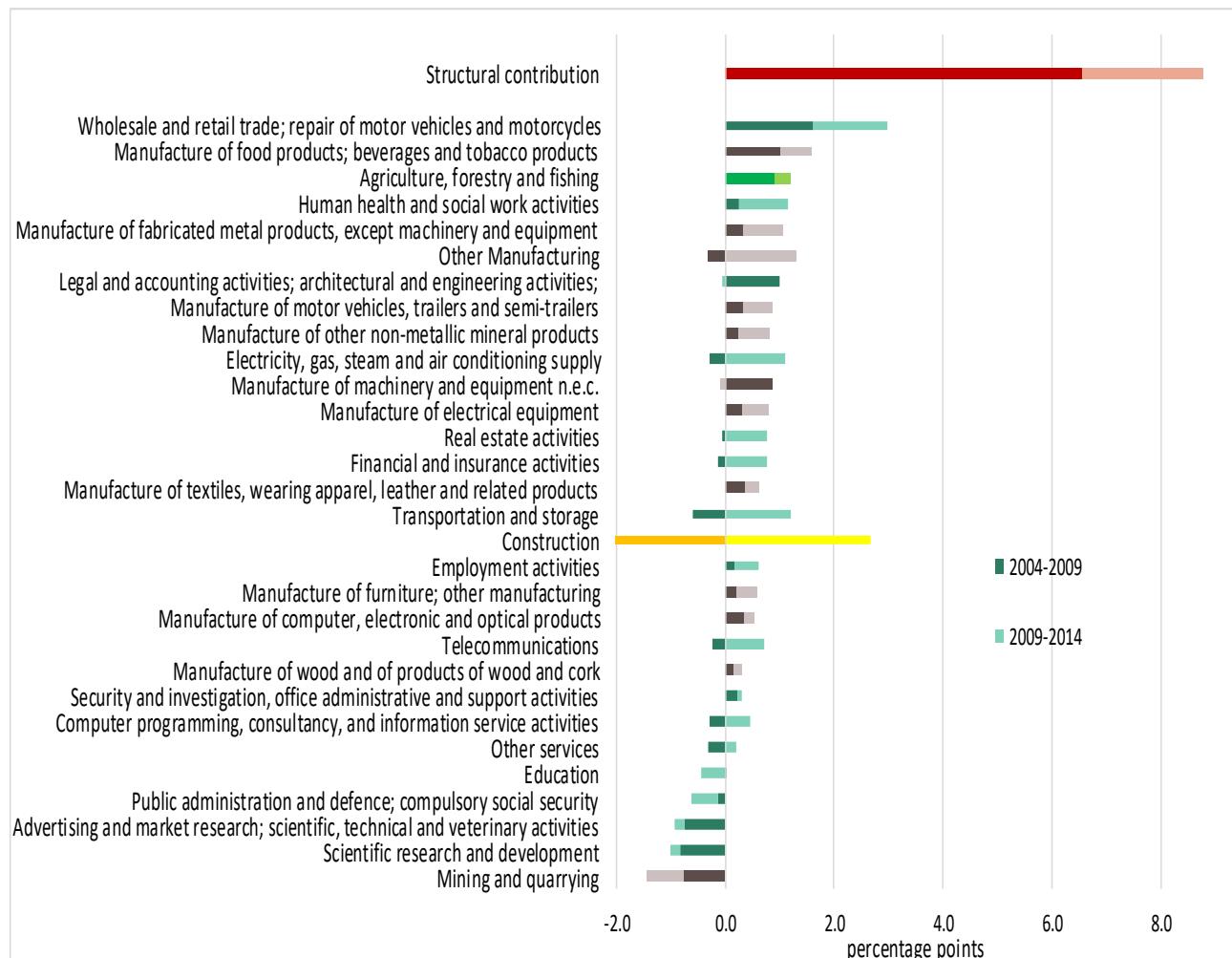
The analysis of labor productivity trends in the past decade suggests that further improvements are more likely to come from within-industry gains than from structural reallocation. Labor productivity of the whole economy increased by 24.3 percent during 2004 to 2014 and can be decomposed into interindustry reallocation of labor and productivity changes within sectors (figure B.1). In the period 2004–09, labor productivity rose by 7 percent and in the following period, 2009–14, by more than double that rate: 16.1 percent. Aggregate labor productivity growth can be decomposed into the effects of (a) interindustry reallocation of labor, and (b) changes in labor productivity in individual industries. The decomposition was performed following the methodology proposed by Harrison, Horridge, and Pearson (2000) using the data for 45 industries, while results have been aggregated for presentation purposes.

Sources of labor productivity growth differed significantly between the two five-year subperiods (2004–09 versus 2009–14), and structural labor reallocation played a major role only during the first years after European Union (EU) accession, with manufacturing being the main driver. As shown in Figure B.1, approximately four-fifths of the growth in 2004–09 was attributed to changes in the structure of employment—that is, net flow of labor from low- to high-productivity industries—while productivity changes within industries largely canceled out. But in 2009–14, the shifts in employment structure contributed only one-seventh to the overall labor productivity increase. Contributions of productivity growth within manufacturing industries (indicated by gray bars) constituted 3.3 percentage points in 2004–09 and 5.1 percentage points in 2009–14. The largest contributions from individual manufacturing industries (1.0–1.5 percent) came from food, beverages, and tobacco, as well as manufacture of metal products. It is worth mentioning that these contributions to aggregate labor productivity depend not only on the rate of productivity growth in a given sector, but also on its share in total employment.

Productivity improvements in selected sectors other than manufacturing—trade, health, construction, and agriculture—played an important role, too. These sectors combined contributed 5.9 percentage points to aggregate productivity growth in 2004–14 (though construction experienced productivity losses during the first five years of this period, followed by a strong rebound in the next five years). These efficiency gains resulted from both a reduction of previous excess employment (for example, a 27 percent decline in agriculture employment) and technical and organizational improvements at the firm level.

Some sectors—mining and some public services—recorded labor productivity losses. Mining contributed negatively (−1.5 percentage points) in 2004–14. Negative contributions were also recorded in some service sectors such as selected professional activities, public administration, and education. Also, the negative contributions of individual industries to aggregate productivity are clearly more pronounced in the first half of the analyzed period.

Figure B.1. Contribution of Structural Reallocation and Productivity Changes within Sectors to Overall Labor Productivity Change in Poland 2004–14



Source: World Bank, based on Eurostat data.

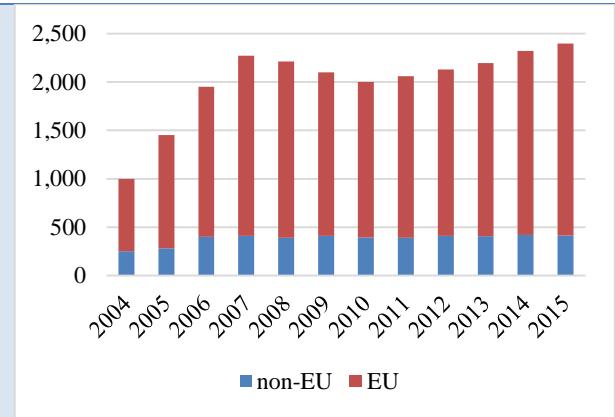
Note: The contribution from structural reallocation to overall labor productivity change is marked by a red bar. The figure shows contributions within sectors (services marked in blue, manufacturing in gray, construction in yellow, and agriculture in green) and between periods (changes in the more recent period 2009–14 are marked by a lighter shadow). Labor productivity is measured as value added in constant prices per person employed (including employees and self-employed), based on data from Eurostat. “Other services” include accommodation and food service; publishing, motion picture, video, and television program production; sound recording, programming, and broadcasting activities; rental and leasing; employment activities; travel agency; arts, entertainment, and recreation; other service activities; activities of households as employers; and activities of households for own use. “Other manufacturing” includes paper, printing, and reproduction of recorded media; coke and refined petroleum products; chemicals; basic pharmaceutical products; rubber and plastic; basic metals; other transport equipment; and repair and installation of machinery and equipment.

Appendix C: Migration Patterns and Existing Arrangements

Following Poland's accession to the European Union (EU), outward migration flows rose steeply. EU membership granted Polish citizens access to employment and residence within the Schengen area, resulting in an outward flow that quickly multiplied in magnitude: between 2004 and 2015, the number of emigrants went up from 1 million to 2.4 million, with the latter being equivalent to about 6.2 percent of the population (Figure C.1).⁶⁶ The scale of outmigration during this period is deemed to be the country's second-largest economic migration wave since the Polish emigration to the United States in the late 19th and early 20th century. It is one of the largest among Organisation for Economic Co-operation and Development (OECD) countries, second only to Romania, where 10–15 percent of its population is estimated to have left the country since EU accession (World Bank 2016). In contrast to popular perceptions, there was no massive outflow of health care workers post-accession; however, certain specialized and highly skilled health professions were much more likely to migrate, such as anesthesiologists, radiologists, and plastic surgeons (World Bank 2016), and the risk of outflows of skilled workers from other sectors remains.

Although desirable, significant return migration is unlikely. As Poland solidifies its status as a high-income country, wage differentials (which are the fundamental drivers of economic migration) will narrow over time. Although this narrowing may also slow down further outmigration, international experience argues that few migrants will permanently return from overseas. There is evidence that suggests that even though emigrants tend to work in jobs for which they are overqualified, their compensation levels are still higher than those they would receive back home (Brandt and Sicari 2016).⁶⁷ In fact, there is little evidence of significant return migration so far (EC 2017a), and a recent survey conducted in the four most popular destination countries showed that a large number of Polish migrants to those countries had intentions to stay permanently (Brandt 2016). With the most popular destination for Polish emigrants—the United Kingdom—planning an exit from the EU, the question of what form of agreement will be reached between the United Kingdom and the EU (or Poland, for that matter) on labor

Figure C.1. Number of Polish Migrants Abroad, by Destination Type, 2004–15



Source: World Bank elaboration, based on GUS 2016c.

Note: Numbers are in thousands.

⁶⁶ It should be noted that because of transitional arrangements, only three EU member states granted immediate access to their labor markets at the time of accession in 2004: Ireland, Sweden, and the United Kingdom. Poles were allowed to work in five additional countries by the end of 2006. Germany allowed free access in May 2011. Poland officially entered the Schengen zone in December 2007. The share of Poles residing abroad is much higher than that of other new high-income countries, whereas the share of foreign-born individuals residing in Poland is among the lowest in international comparisons (World Bank 2016).

⁶⁷ A more careful analysis by Kaczmarszyk (2012) suggests, however, that returns to skills are not necessarily higher and may potentially be even lower for migrants than for their counterparts in their home country. Olszewska (2011) (as cited in Kaczmarszyk [2012]) reaches a similar conclusion.

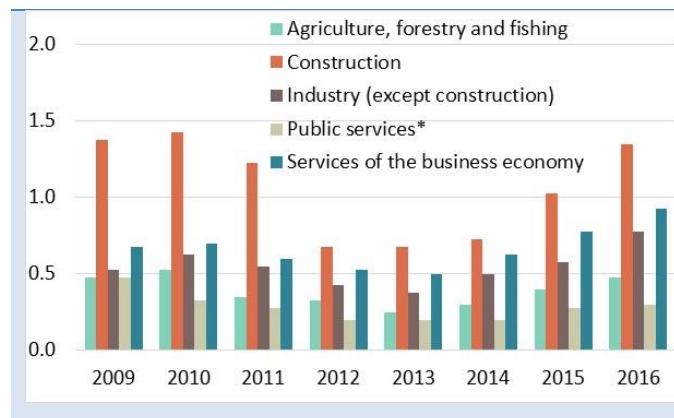
mobility remains open. However, should the new agreement exclude Poles from access to the British labor market, there is a good likelihood that Polish emigrants will choose to move on to other advanced EU countries rather than return to Poland.

In contrast, immigration into Poland has been rising fast, mostly from neighboring Ukraine, including mostly young male workers going into low-productivity services. The vast majority of the more than 1 million non-EU foreign workers entering Poland legally in 2016 came from Ukraine,⁶⁸ rising sharply from around 200,000 in 2013. These workers from Eastern Partnership countries are eligible for short-term employment under Poland's declaration system (Box C.1). About a third of all foreign workers are located in Mazowieckie, followed by Dolnośląskie, Wielkopolskie, and Małopolskie voivodeships. A third of work permit holders are employed in construction and transportation and storage, and 10 percent are employed in professional, scientific, and technical activities. By skill level, 40 percent were skilled workers, and 25 percent were unskilled workers in 2016. By comparison, about half of declaration workers are concentrated in agriculture and construction, which is consistent with the program's aim to relieve shortages in labor-intensive sectors in which Poles are reluctant to work.⁶⁹ Consistent with the sectoral distribution, more than half of declaration workers are employed in unskilled occupations. Workers employed on the basis of the declaration system are more likely to be male (two-thirds of the total) and relatively young: more than 70 percent are younger than 40 years old, and a quarter are younger than 26 years old.

To a great extent, immigrant labor has complemented the domestic workforce, taking positions that were hard to fill with Poles and relieving labor shortages.

Available evidence suggests that immigrants did not negatively affect the labor market outcomes of Polish workers (Brandt 2016). In sectors like construction or services, immigrants relieve rising labor shortages (Figure C.2). The reason most often cited by firms for hiring foreign workers is that they possess specific skills that are difficult to fill with Polish labor, indicating that the migrant workforce is complementary to the domestic workforce (Janicka and Kaczmarczyk 2010).⁷⁰ In the household sector, which is another leading sector of employment for immigrants, there is reportedly little competition with domestic workers because there was previously no demand for such services, and the rising demand for

Figure C.2. Job Vacancy Rate in Poland, by Sector, 2009–16



Source: World Bank, based on Eurostat data.

Note: Unadjusted data, annual average percentages. “Public services” include public administration, defense, education, human health, and social work.

⁶⁸ About 1.26 million out of the 1.31 million workers who sought employment through the declarations system in 2016 were Ukrainian (see Box C.1).

⁶⁹ The demand for labor in the construction sector is closely linked to the high number of infrastructure investment projects cofinanced by EU funding (Duszczyk, Góra, and Kaczmarczyk 2013).

⁷⁰ Other possible responses included, among others, shortage of Polish applicants, or foreigners accept more flexible employment, accept lower wages, or work harder.

such services was brought about by a rise in living standards (Duszczyk, Góra, and Kaczmarczyk 2013). Finally, the overall lack of negative labor market consequences is not surprising given the still low number of immigrants.

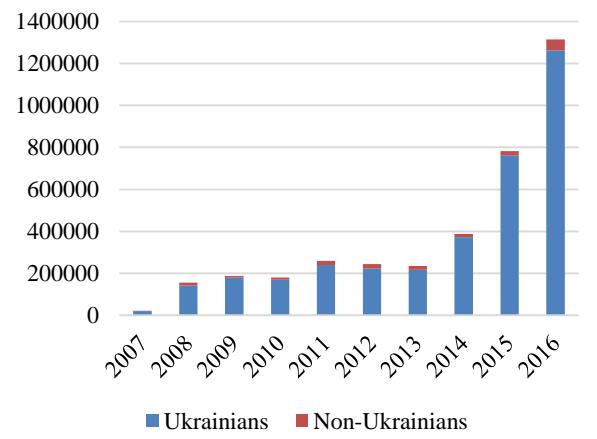
Box C.1 Current Immigration Arrangements and Patterns

Non-EU foreign nationals can seek legal employment in Poland by either obtaining a work permit or through the declaration system. Foreign workers seeking a work permit are subject to a labor market test with two components: (a) the salary offer has to be comparable (up to and no more than 30 percent lower) to the remuneration offered to Poles performing similar functions; and (b) the employment of the foreign worker should not have a negative impact on the local labor market (specifically, the opportunities of job seekers registered at the employment agency). Employers are exempt from the labor market test for a list of jobs and occupations in shortage as determined by voivodeships. In contrast, the declaration system is a simplified procedure that permits employers to declare their intent to hire foreign workers from designated Eastern Partnership countries for short-term employment of less than 6 months (within a period of 12 consecutive months) without applying for a work permit. Eastern Partnership Countries refer to Armenia, Azerbaijan, Belarus, Georgia, Moldova, and Ukraine. The declaration system was created in 2006 and initially limited to the agricultural sector but then quickly expanded in the following year to all sectors for citizens of, Belarus, the Russian Federation, and Ukraine (and additionally for Moldova in 2009 and Georgia in 2010).

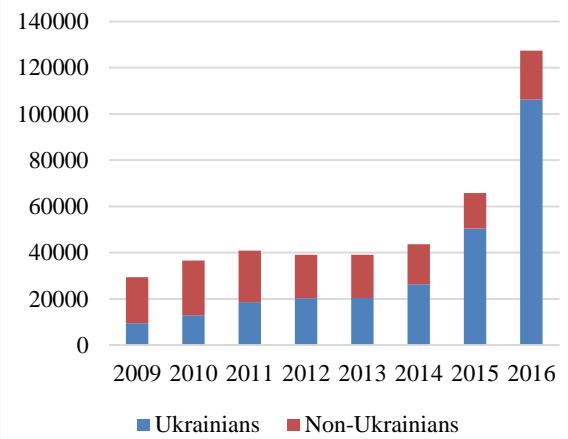
Both types of employment permits have risen in recent years. The number of declarations issued hovered around 200,000 until 2013 but exploded in the past few years, with the number exceeding 1.3 million by 2016. Ukrainians claim almost all declarations: in 2016, their share was 96 percent of all declarations registered (Figure BC.1.1). In comparison, the total number of work permits issued amounted to fewer than 80,000 in 2016, and although on an upward trend, the size of the program is much smaller. The share of Ukrainian work permit holders has risen from 32 percent in 2009 to 84 percent in 2016.

Figure BC.1.1 Recent Immigration Trends in Poland, Ukrainians vs. Non-Ukrainians

a. Foreign worker declarations, 2007–16



b. Immigrant work permits, 2009–16



Source: World Bank calculations from Ministry of Family, Labour and Social Policy data.

Although Poland's immigration system has helped fill shortages for low-skilled labor, recent changes in trends require close monitoring to prevent adverse impacts, especially on low-income Poles. The declaration system appears to have been effective at responding to labor shortages swiftly while at the same time channeling informal activities into legal forms of labor flow (Duszczyk, Góra, and

Kaczmarczyk 2013). However, the recent explosion in the number of declarations issued should be followed closely, especially since there is no cap in the number of declarations that can be issued in a given year.⁷¹ Although the increase occurred across all sectors, it was particularly notable for “administrative and support service activities”: the number of workers multiplied more than 11 times between 2014 and 2016 in that sector alone. Concurrently, almost all of the increase (85 percent) came from low-skilled and unskilled workers, who have the potential to compete with the low-income Polish population.⁷²

⁷¹ Most countries regulate the flow of low-skilled migrants by imposing a ceiling (quantity) or wage floor (price).

⁷² The past two years also coincide with the period when Ukraine’s economy contracted, which may have acted as a push factor that affected migration patterns of Ukrainians.

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