



ACTIVE AGING IN POLAND: CURRENT TRENDS AND PROSPECTS FOR LABOR MARKET ACTIVITY AMONG THE 50 PLUS

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Current trends and prospects for labor market activity
among the 50+ year-olds

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Executive summary

Estimations indicate that Poland's working age population is likely to shrink substantially in the coming decades due to the combined impact of aging, outmigration, and low fertility unless significant behavioral and policy changes aimed at promoting healthier, more active and more prosperous aging take place.

In the past two decades, life expectancy has increased in Poland by 6 years. However, once people reach age 50, the number of healthy years is still around 55% of the remaining life expectancy. Moreover, while employment rates for the prime age cohort in Poland are broadly at Western European levels, employment rates for older workers are remarkably lower than in comparator countries. Older workers still exit the labor market relatively early, with an actual retirement age of about 60 years old for both men and women. This behavioral pattern reflects in part the incentives provided by the previous early retirement regime and social security and pension systems, but also the legacy of the pre-transition educational and professional profiles. Economic activity is particularly low for older women, who face participation barriers due to care responsibilities for their elderly and grandchildren, and also employability barriers, since a large share of them only has low skills.

Policies aimed at reaping the benefits of longer life expectancy and at successfully staving off the potentially negative impacts of aging need to focus on a two-pronged approach: 1) in the longer run, promote healthy, active and productive aging through preventive public health policies; education and training policies that equip people with the skills to continue learning over their (longer) life spans; and a dynamic labor market; 2) in the shorter run, on activating the stock of older workers, by increasing incentives for this group to participate in the labor market (both on the supply and demand side), and promoting better age management.

Important steps have already been taken in recent years to remove the incentives to the early exit from the labor market. For instance, early retirement provision has been significantly tightened and retirement age is being gradually increased. Interventions in a few complementary areas are likely to yield important benefits: 1) removing the labor code provision that restricts dismissal of workers within 4 years of statutory retirement age; 2) improving employability of 50+ women slacking their constraint to labor force participation by developing a solid long-term and child (0-3) care sector; 3) improving awareness and access to good practices of age management for small and medium enterprises, which comprise the vast majority of Polish firms. Moreover, a rigorous monitoring and evaluation of the many locally-based interventions targeted at older workers would improve evidence-based policy making and continue to maintain Poland at the forefront of aging policies.

Acknowledgements

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1 Introduction: aging and the labor market in Poland¹

With its profound economic, social, and cultural implications, population aging has become a key global challenge. Longer life expectancy and lower fertility rates, and the resulting shift towards population structures dominated by progressively older people are reshaping global demographic trends. This transition has profound economic, social and cultural implications, and for many countries worldwide, including in Europe, will be a defining feature of the economic landscape over the next few decades. While increased life expectancy is a leading indicator of progress and development, population aging can also pose challenges for future economic growth, further improvements in living standards and the sustainability of public finances (see also Johansson, et.al. 2012). These trends will bear relevant consequences for the structure of the economy, the relative prices of assets, and the distribution of welfare and prosperity, and will demand changes in the prevailing economic and social models across countries.² At the same time, and provided that the necessary behavioral and policy changes are in place, higher life expectancy rates can represent an important opportunity.

The demographic transition is particularly challenging for Poland, which has one of the most rapidly aging populations in the European Union (EU). Life expectancy at birth has increased by about 6 years for both men and women since the early 1990s. Meanwhile, fertility rates have generally remained below the simple replacement rate since the early 1990s, trending downward (with a short-lived upturn in the 2004-09 boom years) and reaching 1.30 in 2012. As a result, in Poland the share of children will continue to decrease while the share of the elderly will grow (**Error! Reference source not found.**).³ These patterns, combined with substantial outmigration, amount to one of the fastest demographic transitions worldwide, with the old-age dependency ratio (population aged 65 and more as a percentage of the population aged 20-64) expected to increase from 20.9 percent in 2010 to 58 percent in 2050 and 70.7 percent in 2060 (European Commission, 2012). The Adult Disability Dependency Ratio⁴, which accounts for health conditions of the elderly, will also grow from 35% in 2010-2014 to almost 50% in 2055-2060 (Figure 2).⁵ At the same time, the share of working age population (15-64) (71.3 percent of the total population in 2010) is projected to drop to 53.4 percent. Such significant changes in relative population age group sizes may be transitionally linked to the exceptional size of the generation born around the 1980s. Yet, changes in the structure of the population are inevitable in the next few decades and the magnitude and pace of these changes are likely to have large impacts on the Polish economy and society.

¹ See World Bank, 2014. *Poland – Country Economic Memorandum (CEM): Saving for Growth and Prosperous Aging* and World Bank, *To Live Long and Prosper. The Prospects of Healthy, Active, and Prosperous Aging in ECA*.

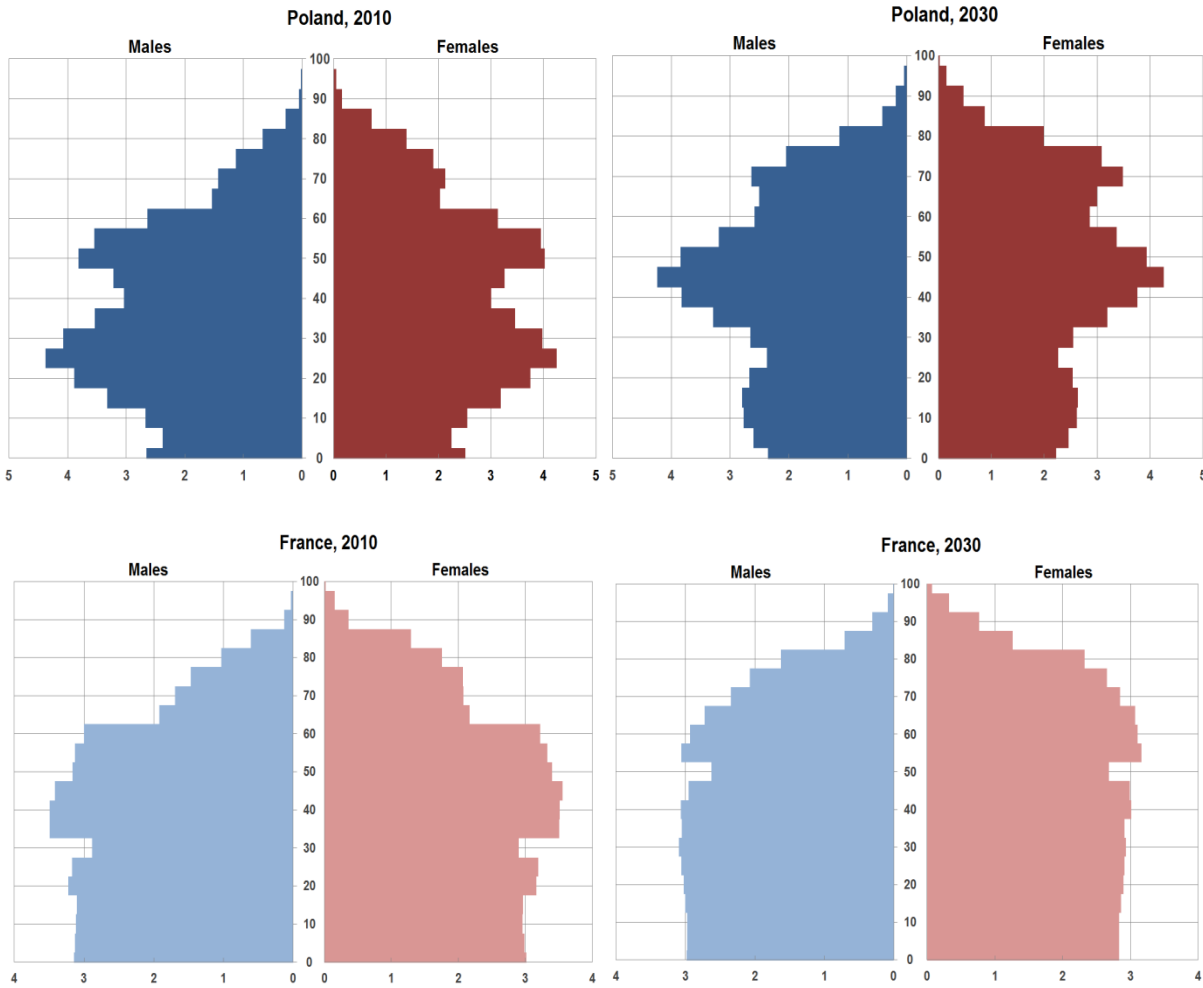
² For an extensive overview of the demographic transition in Eastern Europe and the Former Soviet Union see Chawla, et. al. (2007).

³ In contrast in countries such as France, higher simple replacement (2), kept the relative young/old population shares relatively stable.

⁴ The ADDR is defined as the number of 20 years old+ adults with disabilities, divided by the number of 20 years+ adults without disabilities (Sanderson and Scherbov, 2010).

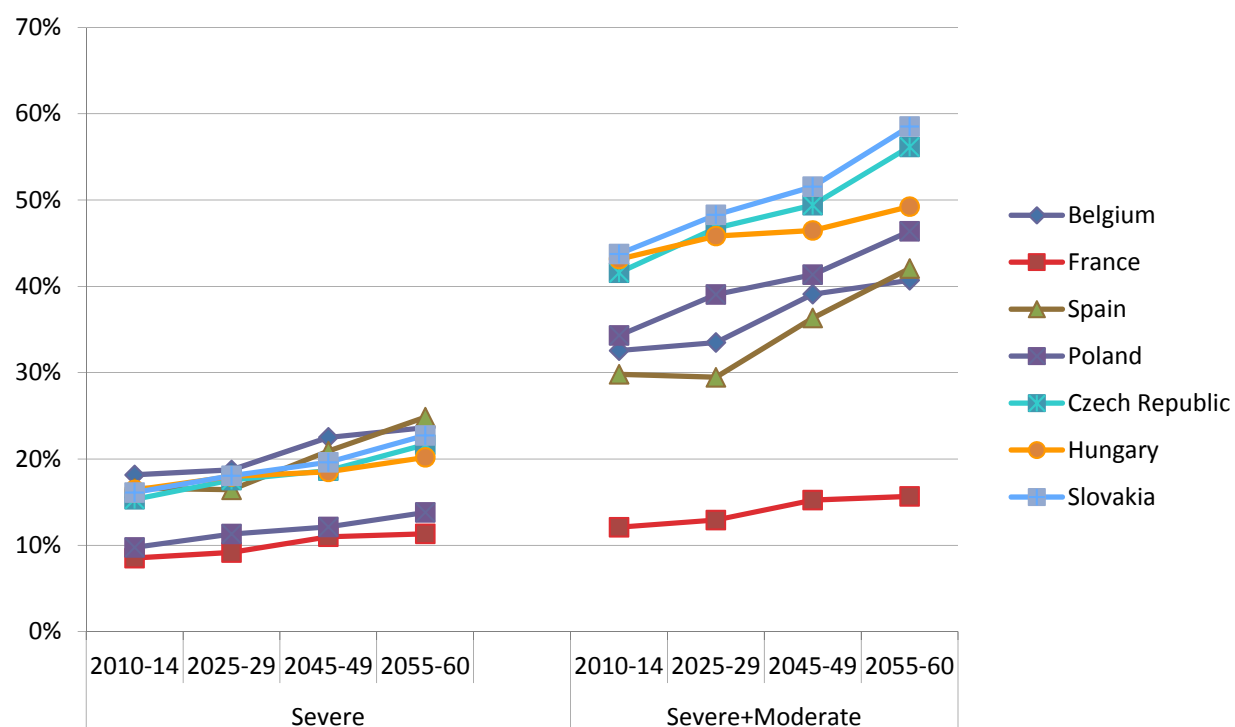
⁵ When not only the severely disabled, but also moderately disabled are included.

Figure 1: Shares of males and females at different ages in total population in Poland and France (2010 and projection for 2030)



Source: World Bank Staff

Figure 2: Adult Disability Dependency Ratio (ADDR) for selected countries (current and projections)



Source: World Bank Staff

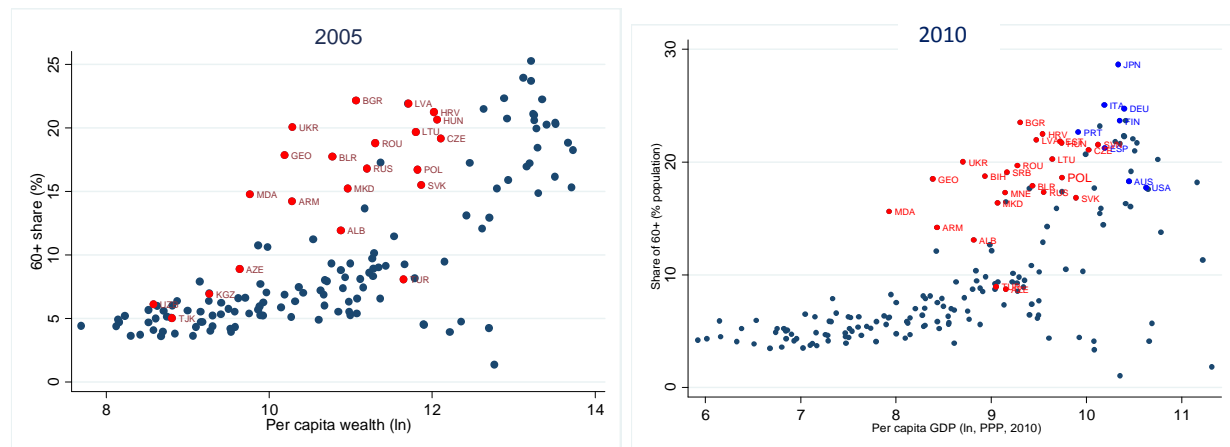
Not dissimilarly from other Eastern and Central European countries, Poland is getting old before it is becoming rich. While Poland transitioned successfully to a market economy, it still substantially lags behind richer countries, such as Austria or Italy, in terms of income and potentially capacity to manage such a complex challenge as population aging. Due to the socialist legacy, cohorts older than 40 in 1990s and now approaching retirement mostly failed to accumulate significant savings, apart from their real estate.⁶ Older workers also matured skills and working competencies in an economic system with different priorities and incentives.⁷ All in all, the age structure in Poland is almost that of mature high-income countries, yet with significantly less income and wealth (see Figure 3).

⁶ With strictly controlled earnings and access to credit, any available savings financed the consumption of durables and the purchase of property. Additional savings accumulated in bank deposits or pillowcases were devalued by hyperinflation of the early years of transition, which also saw real wages drop and unemployment increase. (Chawla, et. al., 2007).

⁷ This paper will discuss in a later section the extent to which outcomes that are observed for 50+ workers are attributable to cohort-specific effects.

Figure 3: ECA – Getting Old before Getting Rich

Share of population aged 65 and older versus per capita wealth (ln, 2005, left figure) and per capita GDP (ln, PPP, 2010, right figure)



Notes: Latest available data (2005) on comprehensive wealth, adjusted net saving, and non-renewable resource rents indicators taken from the World Bank's Wealth of Nations dataset as published in "The Changing Wealth of Nations" (2011). All other data is from the World Bank's World Development Indicators' database.

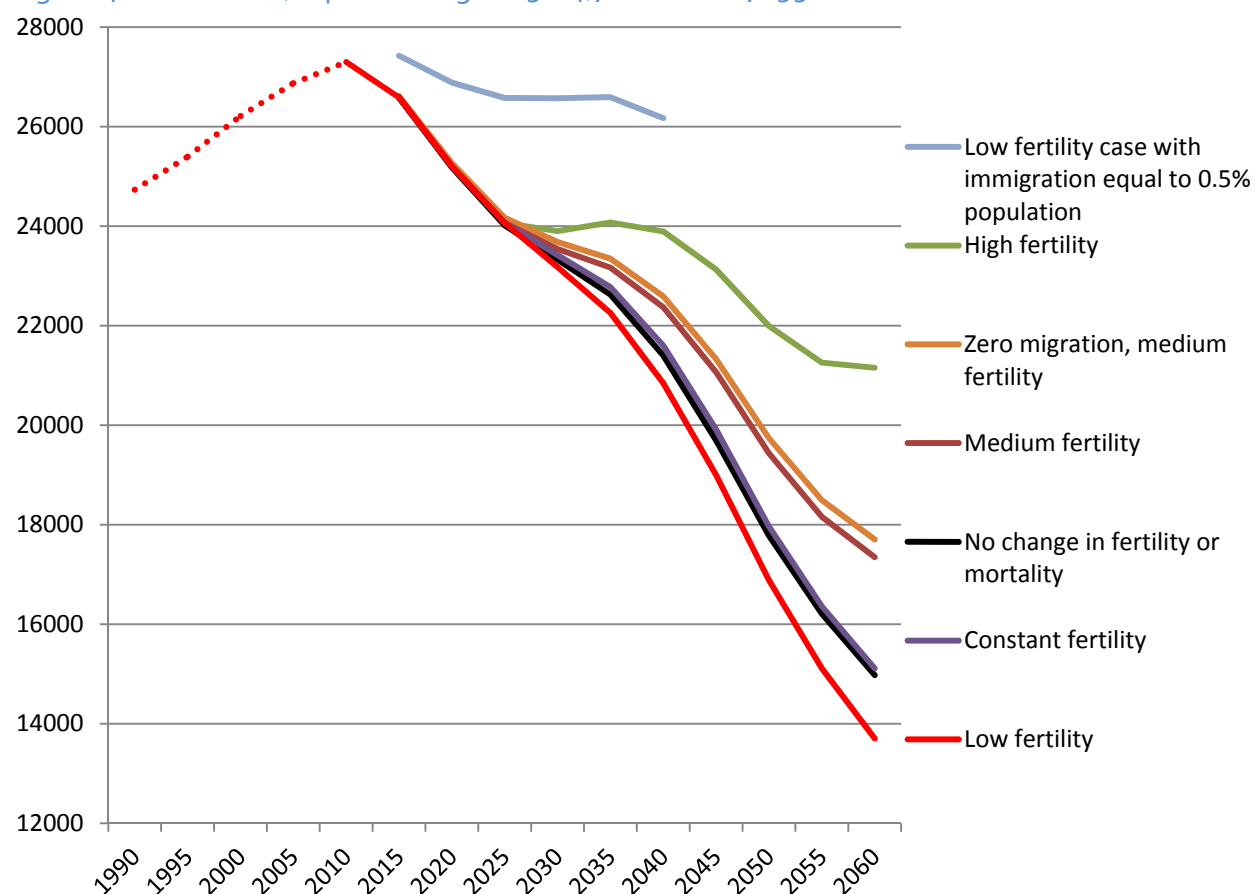
Source: World Bank, forthcoming (ii).

This note, which aims to discuss policy options to increase the activity of the population aged 50+ years old in Poland, is structured as follows. Section 2 presents a conceptual framework to think about the challenges and opportunities presented by aging. Section 3 presents the profile of the 50+ years old population in Poland, discussing the labor market activity of the present cohort of older workers, educational profile and occupations, main determinants for exiting the labor force, and key barriers to access employment. Section 4 reviews the main existing policy interventions for the group of 50+ year-olds and discusses policy options that may be suitable and relevant for Poland, both for the current cohort of older workers and in the broader context of population aging,

2 Conceptual framework: healthy, active, and prosperous aging

The primary implication of aging is a shrinking working-age population.⁸ This in turn has implications for economic growth, which depends on the supply and productivity of labor. Figure 4 depicts alternative scenarios for the workforce in Poland depending on different assumptions about fertility and immigration for Poland. Increased fertility (in the longer run) and immigration (in the shorter run) can slow down the population decline. Policies that increase productivity, skills and participation in the labor market will ensure that this process contributes to growth and well-being.

Figure 4: Workforce (Population aged 15-64), thousands, 1990-2060



Note: Two scenarios were added to those produced by the UN: Low fertility with high immigration (immigration equivalent to 0.5 percent of the population per year), and zero migration.

Source: World Bank staff calculations based on United Nations Population Division (2013), regional aging report (forthcoming).

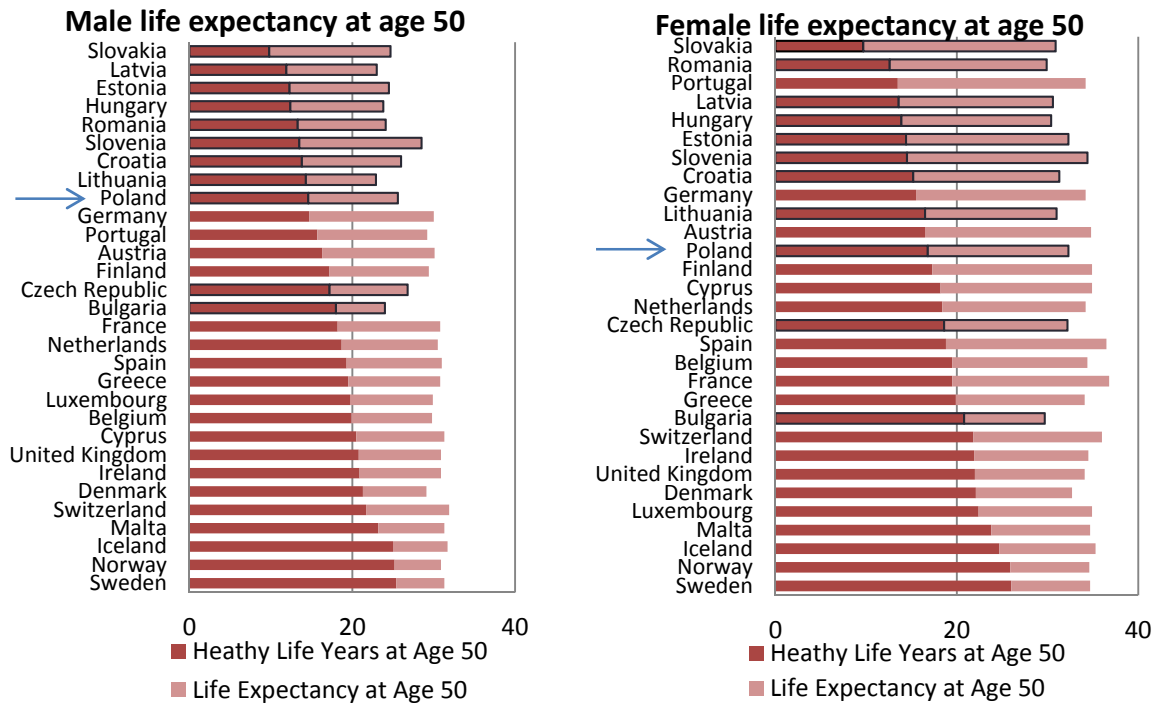
Promoting healthy, active, and prosperous aging will be core to successful aging policies.

⁸ On population aging and its macroeconomic implications see also Tamarisa, Faruquee (2006) and Faruquee (2002).

1. *Healthy aging.* The Polish population - like that of many countries in Central and Eastern Europe - is currently *less healthy* as it grows older than that of Western European countries. Life expectancy at 50 is significantly higher than the number of healthy life years left at the same age, and the gap is much wider than in wealthier EU countries, with excess morbidity driven by cardiovascular and other non-communicable diseases (see Figure 5). This means that an older population will spend more time in sickness, disability and dependency on others for daily activities, which in turn undermines active participation in the labor market, social life and, more generally, well-being in old age. The main policy concerns are to improve primary care and the efficiency of hospitals, to put in place a comprehensive long-term care sector, and to promote behavioral changes related to risky behaviors and circulatory diseases (cutting smoking and alcohol consumption, increasing exercise and balancing nutrition).
2. *Active aging.* Given the projected labor force decline, Poland needs to take full advantage of its human capital stock by prolonging the working lives of its workers. Employment rates among older workers remain low with the additional challenge of maintaining and even increasing older workers' productivity. Removing barriers to employment for the elderly, promoting activation in old age and preventing early exit from the labor market will be central objectives.
3. *Prosperous aging.* A central challenge will be to reap the benefits of mature human capital for productivity growth, ensure an appropriate standard of living for the old, preventing them from falling into poverty, without inhibiting growth prospects and the competitiveness of the economy. The main issue will be to share the fiscal burden of aging (increasing expenditure on healthcare, long-term care and pensions and decreasing tax revenues due to a declining workforce and private savings) across generations in an equitable way (see World Bank, forthcoming).

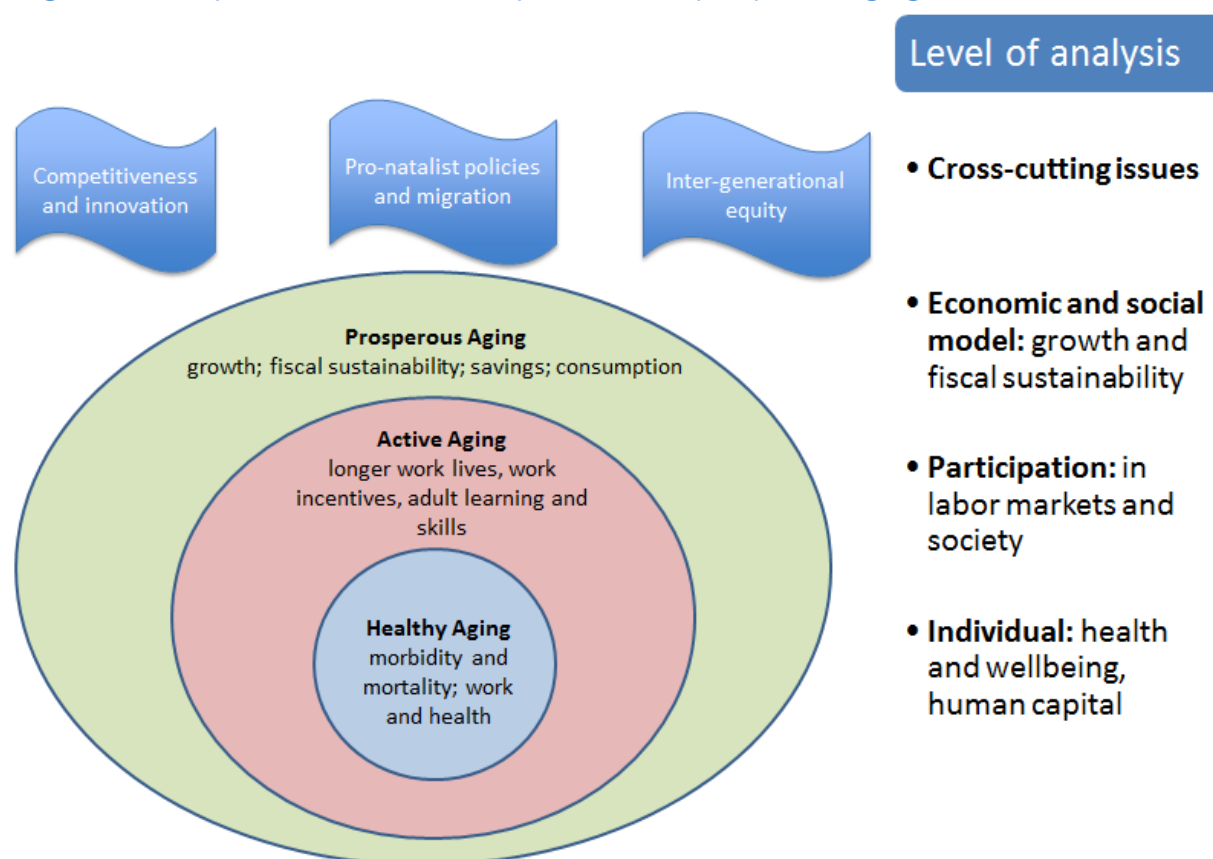
Figure 5: Emerging Europe is not as healthy as the rest of the European Union

(Healthy life years left at age 50, by gender)



Source: Eurostat.

Diagram 1: Policy framework for healthy, active, and prosperous aging

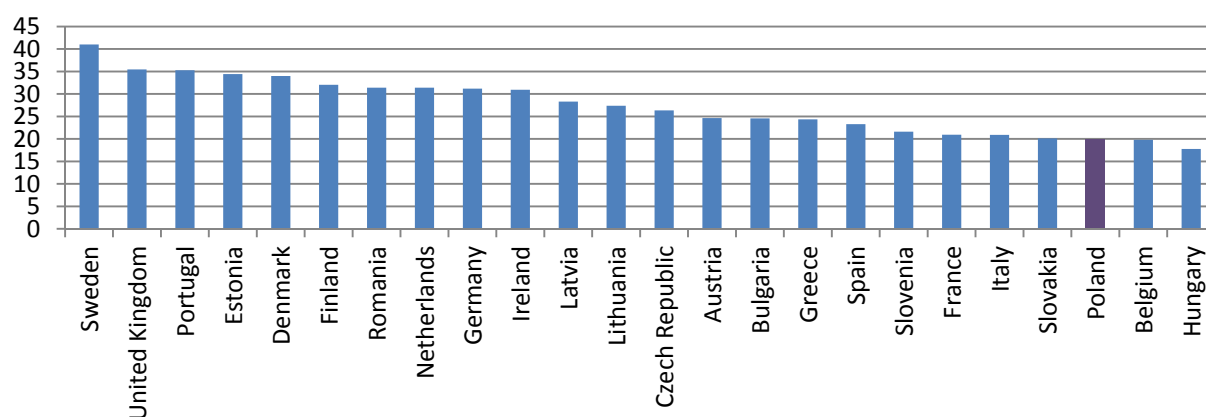


Source: World Bank, forthcoming.

There is substantial overall scope for improvement in Poland in the area of active aging. Longer lives in Poland have not translated into longer activity in the labor market although high activity rates are essential to stave off potentially negative consequences of aging in the aggregate. Poland is the third last country in the active aging index⁹ ranking (Figure 6), which indicates that in Poland there is potential for improvement in four important domains for activity of older people covered by the index: a) employment, b) participation in society, c) independent, healthy and secure living, d) capacity, and enabling environment for active aging.

⁹ Please see details of this European Commission and United Nations Economic Commission for Europe index here <http://www1.unece.org/stat/platform/display/AAI>.

Figure 6: Active Aging Index



Source: European Commission and United Nations Economic Commission for Europe index here <http://www1.unece.org/stat/platform/display/AAI>

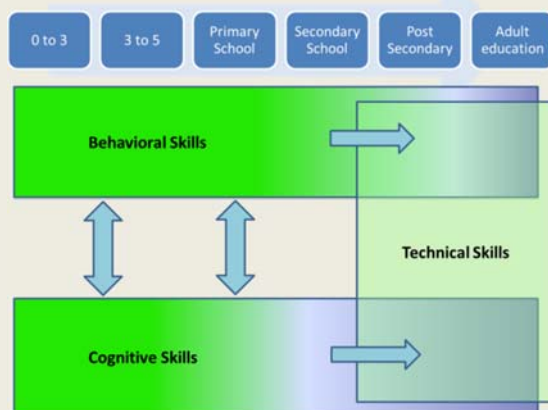
Against this background and the summary of challenges ahead presented in previous sections, this note focuses specifically on labor market issues and on policy options to increase the labor force participation and productivity of older workers in Poland. For any given size of the working age cohort, the negative impacts of a shrinking labor force may be to some extent compensated by two groups of policies¹⁰ aimed at: (i) increasing labor force participation rates and taking full advantage of the existing human capital stock by prolonging working lives (currently labor force participation in Poland remains relatively low, particularly among older workers); (ii) maintaining and improving labor's contribution to growth by productivity increases (the key driver of economic growth in the long run), and (iii) changing the characteristics of the labor force to keep workers active and open to new opportunities during an extended work life. Importantly, this analysis takes a dynamic perspective to reflect the fact that aging (as any demographic change) is a continuous process, implying significant behavioral changes and affecting personal and social choices.

¹⁰In addition to allowing for inward migration.

Box 1: The process of skills formation

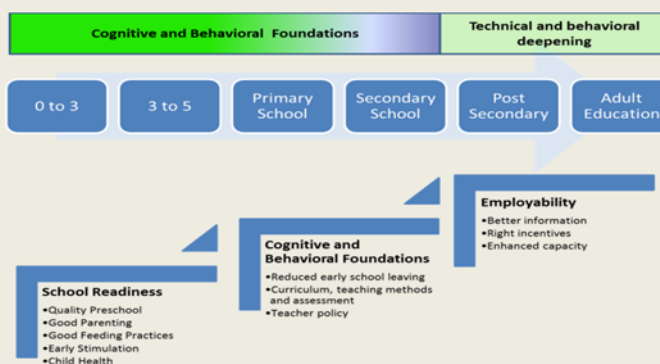
The most sensitive periods for building a skill vary across *cognitive*, *behavioral* and *technical* skills (these periods are indicated in bright green in Figure 7, while periods during which the skills are less sensitive to investment are indicated in light green and periods where sensitivity is most limited are indicated in blue). Cognitive and behavioral skills are beginning to be formed in the early years of a child's life and continue to evolve throughout adult life. Skill formation benefits from previous investments and is cumulative. Social and behavioral skills are valuable early in a child's life since they support, and benefit from, cognitive skills development. Lastly, technical and job specific skills – often acquired last, through technical and vocational education and training (TVET), higher education and on-the-job learning – will benefit from the stronger cognitive and behavioral skills acquired earlier in the education system.

Figure 7. The process of lifelong skill formation – a simplified model



Active aging requires sound cognitive and behavioral foundation skills and systems to promote continued technical skills updating and behavioral skills deepening throughout longer working lives. Skills development to promote active aging therefore requires a holistic strategy along the life cycle. Building strong cognitive and behavioral foundations during formal schooling (measured for example by PISA) are as important as developing nimble and demand-responsive systems to build technical skills in post-secondary and adult education (to support life-long learning), for example along three simple steps.

Figure 8: Three steps in skills development along the life cycle



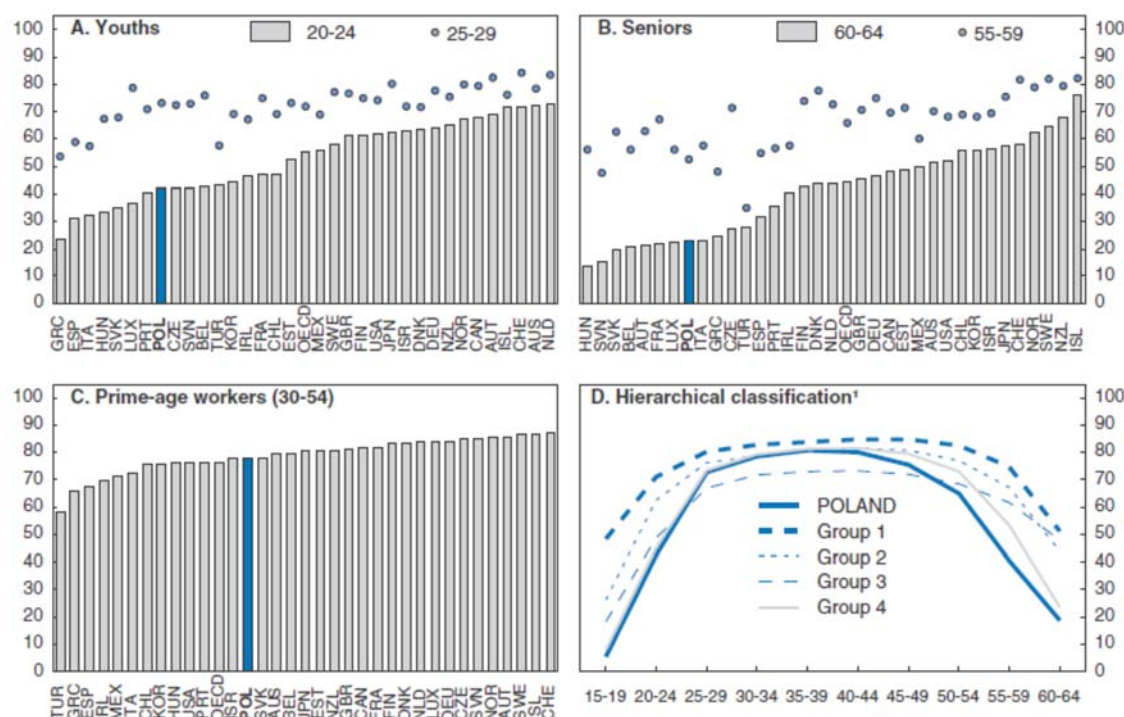
Source: World Bank (2013). "Skilling Up Vietnam: Preparing the workforce for a modern market economy".

3 Labor market participation of older workers in Poland

3.1 How active are the 50+ in the labor market today?

At 59.7 percent in 2012, the employment rate in Poland is one of the lowest among OECD countries. While the age structure of a country's employment rates is typically hump-shaped, with higher employment rates for prime-age people, Poland has a particularly marked hump, translating into a high dispersion of employment rates across age groups (Figure 9), especially for workers aged 55-64 years old (between 35% and 50% in 2012, depending on the region). Moreover, employment among older workers is especially low for the less educated and in low productivity areas.

Figure 9: Employment rates are especially low at both ends of the age spectrum, 2012



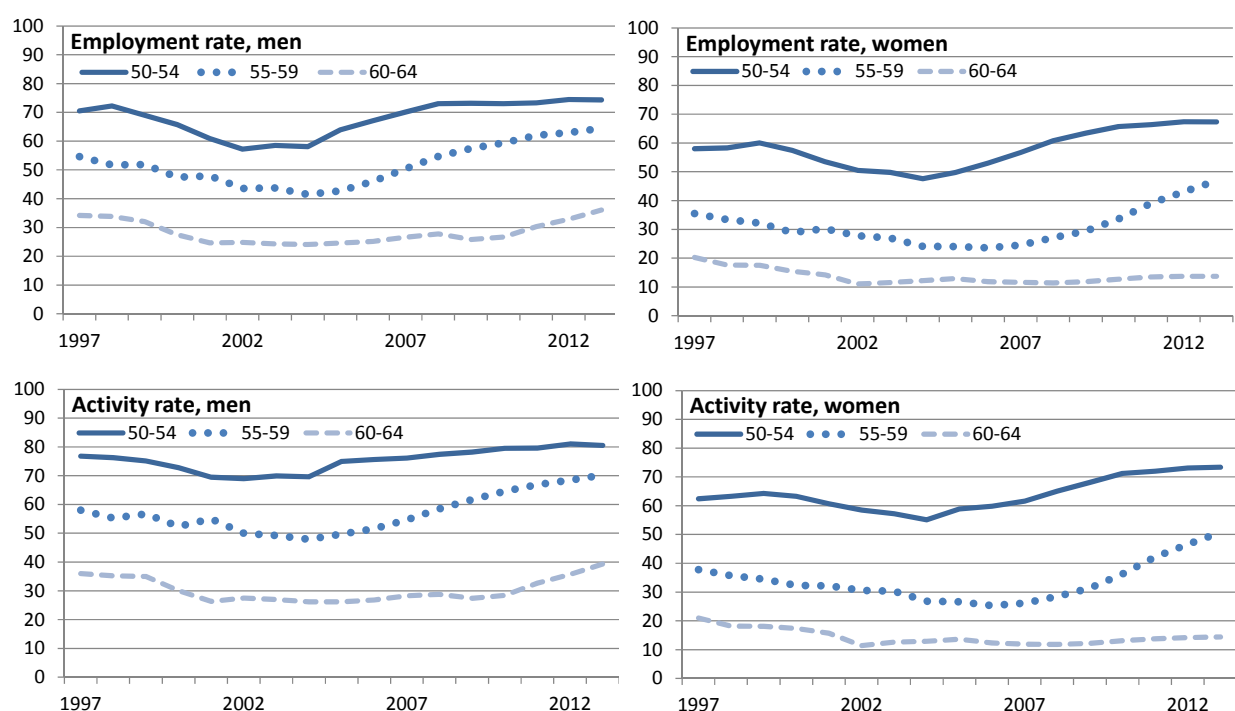
Notes: A ranked classification was used to identify groups of OECD countries by the structure of employment rates by cohort; 2005-11 average. Group 1: AUS, CAN, GBR, DNK, NLD, ISL, NZL, NOR, CHE; Group 2: AUT, FIN, DEU, JPN, SWE, IRL, USA, MEX; Group 3: CHL, ISR, KOR; Group 4: BEL, LUX, POL, SVN, GRC, ESP, HUN, ITA, SVK, CZE, FRA, EST and PRT.

Source: OECD (2014).

Employment and participation rates of older workers have both grown strongly since the mid-2000s, yet from very low levels (see 10). While the participation rate had fallen steadily between the beginning of the transition period and 2007, it has increased since. Beyond the favorable impact of relatively strong growth, the recent improvement in participation has been sustained by diminished accessibility of early retirement and disability pensions, cohort effects driven by the size of the cohort born in the 1980s and a decrease in the labor tax wedge towards the OECD average level (see discussion later). For the 50-54 and 55-59 age groups, employment rates increased by 13-19 percentage points between 2004

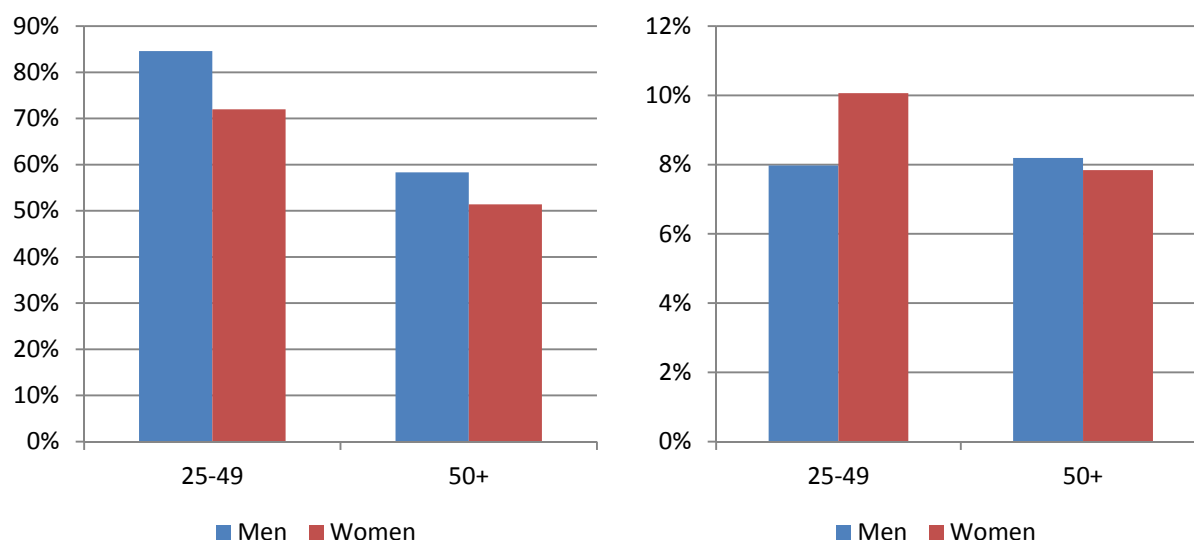
and 2012 for both men and women. For 60-64 year-olds, the improvement is only half as large for men, while it is virtually nil for women, who still face attractive public pension provisions (OECD, 2014) (see Figure 10). Currently women in Poland can retire at the age of 60, while for men the statutory retirement age is 65. The 2012 reform increases the retirement age to 67 for both men and women: in 2020 for men, and only in 2040 for women. Not only employment is lower for 50+ than for prime age workers and for women than men for all ages, but older women appear to participate less than both men and younger women in the labor market (see Figure 11). A variety of factors can account for this pattern, including financial incentives to leave the labor force early, the skills profile, and participation constraints due to care responsibilities.

Figure 10. Employment and participation rates for older workers have increased from low levels



Source: World Bank Staff preparation based on Eurostat LFS data.

Figure 11: Employment (left) and unemployment (right) rates by age and sex categories in 2012



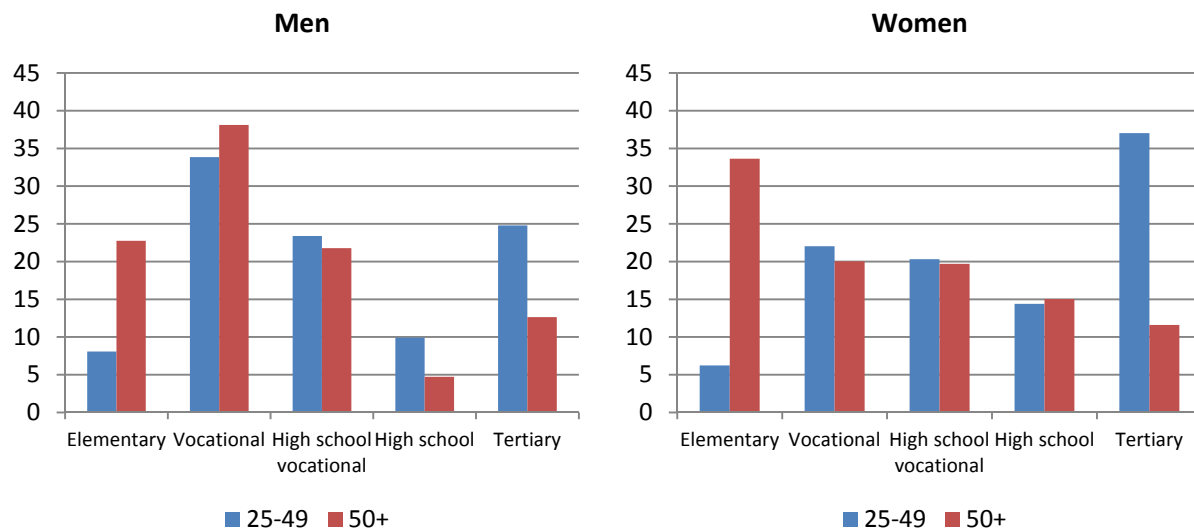
*Employment rates for 50+ are calculated over 50-60 population of women, and 50-65 of men, due to differences in retirement age regulations

Source: World Bank Staff calculations based on LFS data

3.2 What is the education profile of older workers?

The difference in the education profile of young and older generations is especially pronounced among women. Figure 12 depicts education levels among men/women aged 25-49 and 50+ years old. Among men, education profiles are similar across these age categories. Instead, for women differences are stark: the share of women with only elementary education is almost six times higher for older than younger women, and younger women account for two thirds of women with tertiary education.

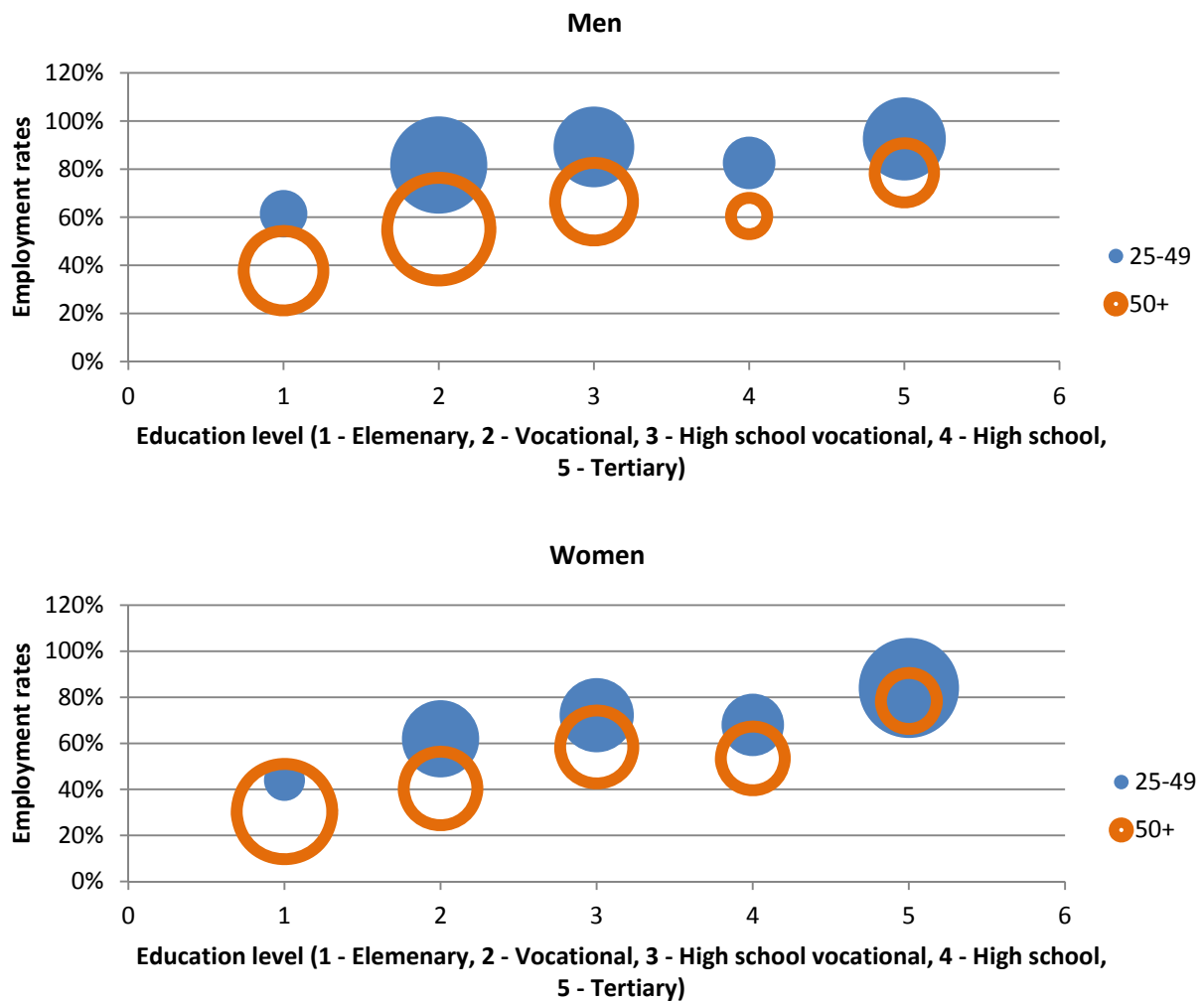
Figure 12: Shares of men and women by age and education in 2012



Source: World Bank Staff calculations based on LFS data

Low employment is particularly concentrated among older workers with low education, especially women. Employment rates are lower for older men regardless of their educational attainment. Older educated women are as likely to be employed as younger educated women, but the difference in employment between older and younger women with low skills is marked. Combined with the fact that low-education women represent a large share of the 50+ years old female cohort and that older women also search for work much less than older men, policies targeted at older and less educated women appear to be a policy priority with potentially relevant impacts (Figure 13).

Figure 13: Employment rates of men and women by age and education (2012)

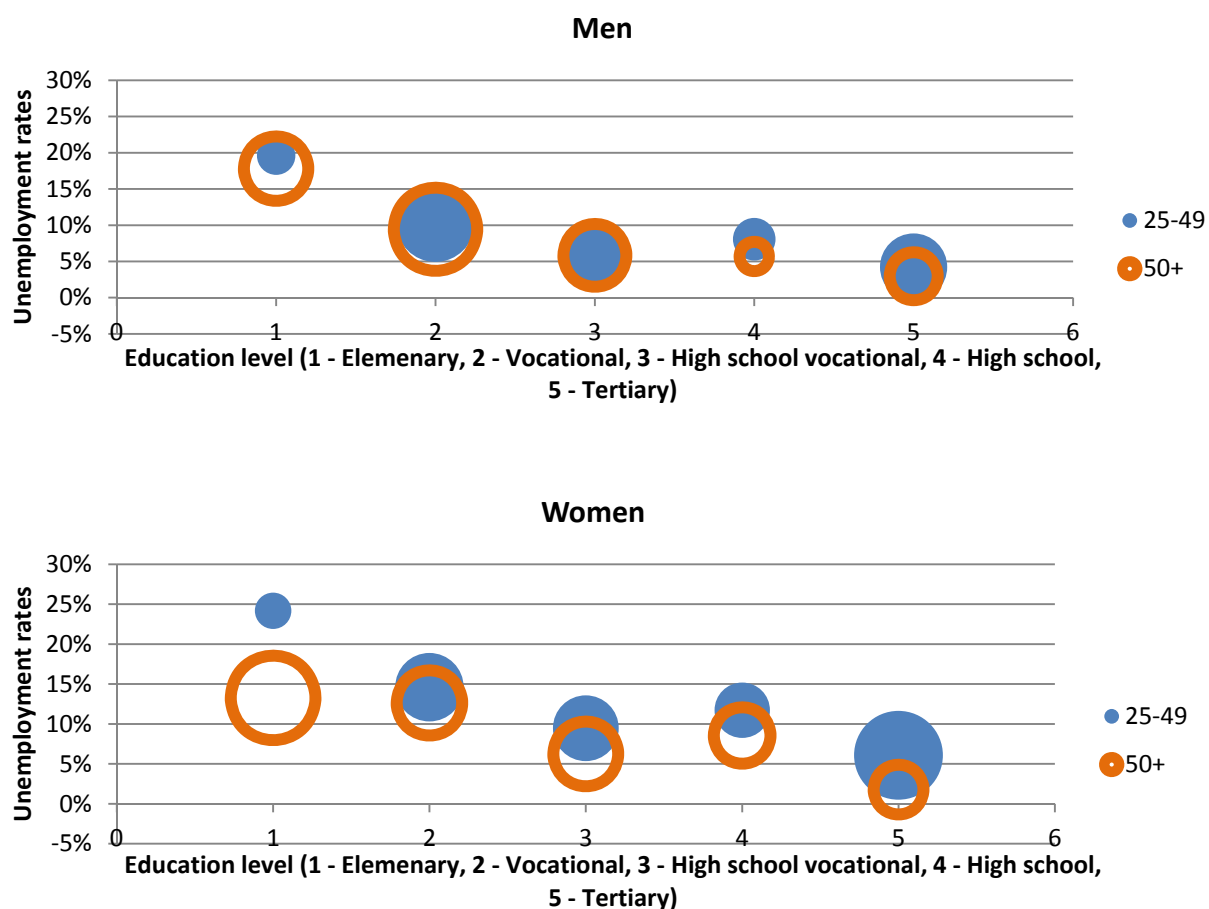


*Size of the bubble represents the share of each educational group among men/women

*Employment rates for 50+ are calculated over 50-60 population of women, and 50-65 of men, due to differences in retirement age regulations

Source: World Bank Staff calculations based on LFS data

Figure 14: Unemployment rates of men and women by age and education in 2012



Bubble sizes represent the share of each educational group among men/women.

*Employment rates for 50+ are calculated over 50-60 population of women, and 50-65 of men, due to differences in retirement age regulations

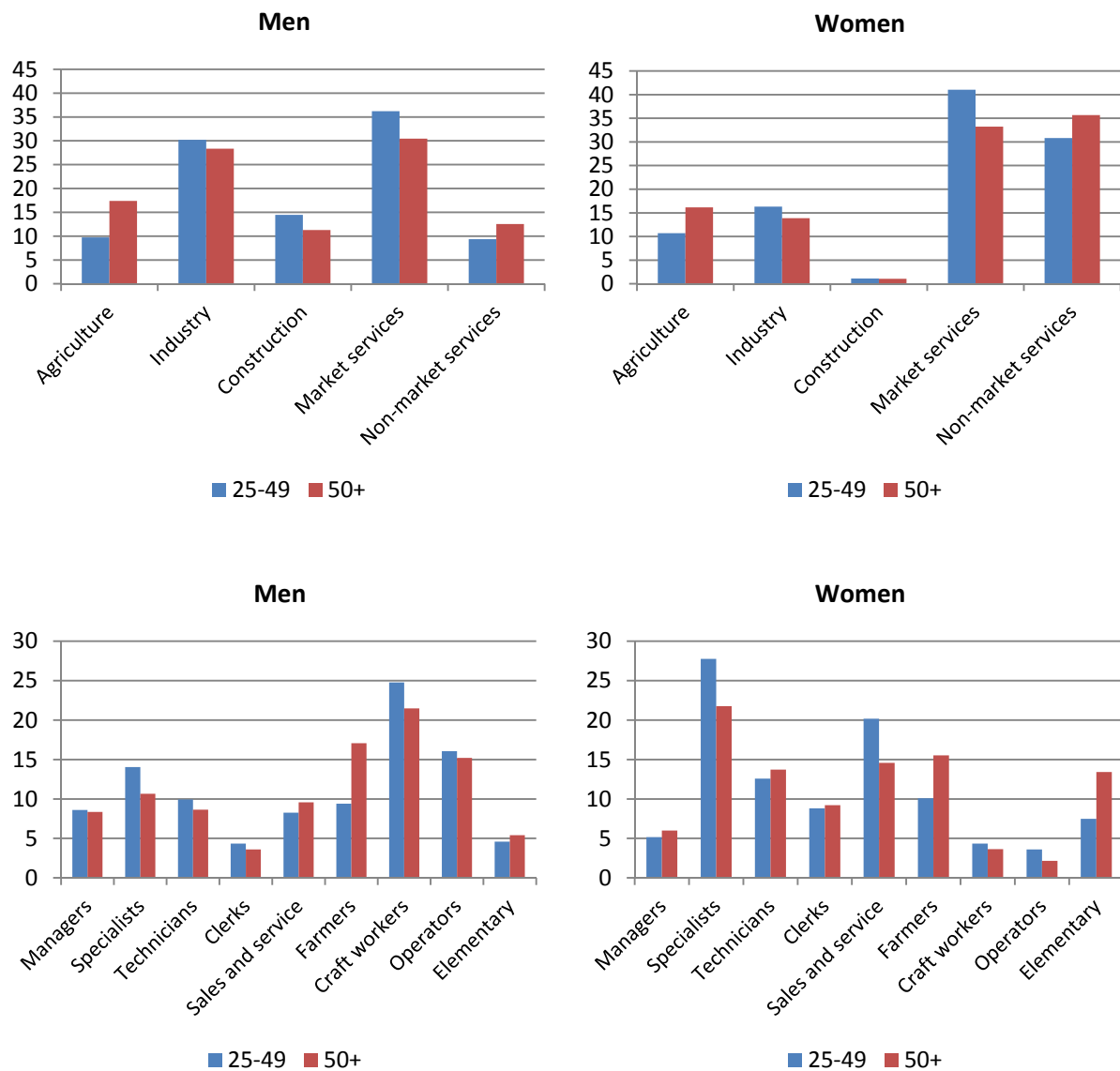
Source: World Bank Staff calculations based on LFS data

3.3 Where are older workers employed?

50+ years old workers are more likely to be employed in agriculture and in the public sectors than younger workers. These patterns reflect to some extent cohort effects. Older workers tend to concentrate in professions at the opposite ends of the skills spectrum – low skilled or agricultural professions on the one hand, and managerial professions on the other (see Figure 15). Comparing the sectoral distribution of older (born 1953-58) and younger cohorts (born 1974-78) at different points in time suggests that the older cohort tended to be most often engaged in agriculture, even when they were younger (Figure 16). At the same time, the share of people employed in services is much lower for the old cohort, in particular in the case of market related services. These differences can be in part explained by the economic transition that the Polish economy underwent between 1998 and 2013.

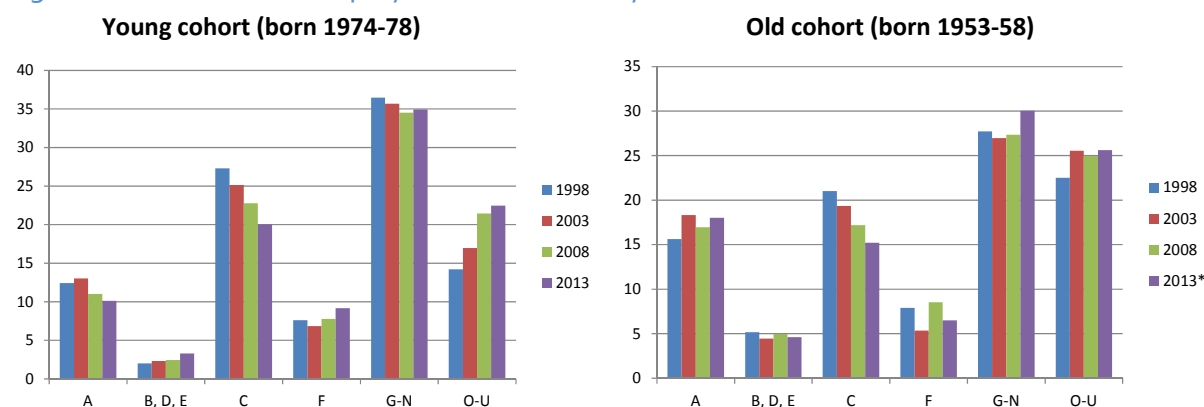
Comparing the differences in the occupational distribution between older and younger cohorts returns a similar picture. Tracking two cohorts – young (born in 1974-78) and old (born in 1944-48) – in a panel data over a five year period (2003 to 2008) shows that the younger cohort was less likely to be in agricultural occupations in both periods. Although the short span of the panel limits the potential for analysis, the results indicate the prevalence of cohort effects. If the event that younger workers are more likely to work in services and crafts is simply an age effect, then one could expect both cohorts to be moving away from services as they age. However, and as Figure 17 shows, there is no significant change in the occupational pattern of either cohort between 2003 and 2008. The right-hand graph of Figure 17 suggests that in this case there is a cohort effect running counter to the age effect when we consider high-skilled occupations. While among both younger and older cohorts there is a progression up the career ladder as people age, the younger cohort has a higher share of professionals in both years, indicating a cohort effect consistent with the educational patterns discussed earlier.

Figure 15: Share of workers in different age groups in different sectors (above) and occupational categories (lower panel)



Source: World Bank Staff calculations based on LFS data.

Figure 16: Structure of employment in Poland by sectors (NACE 2)



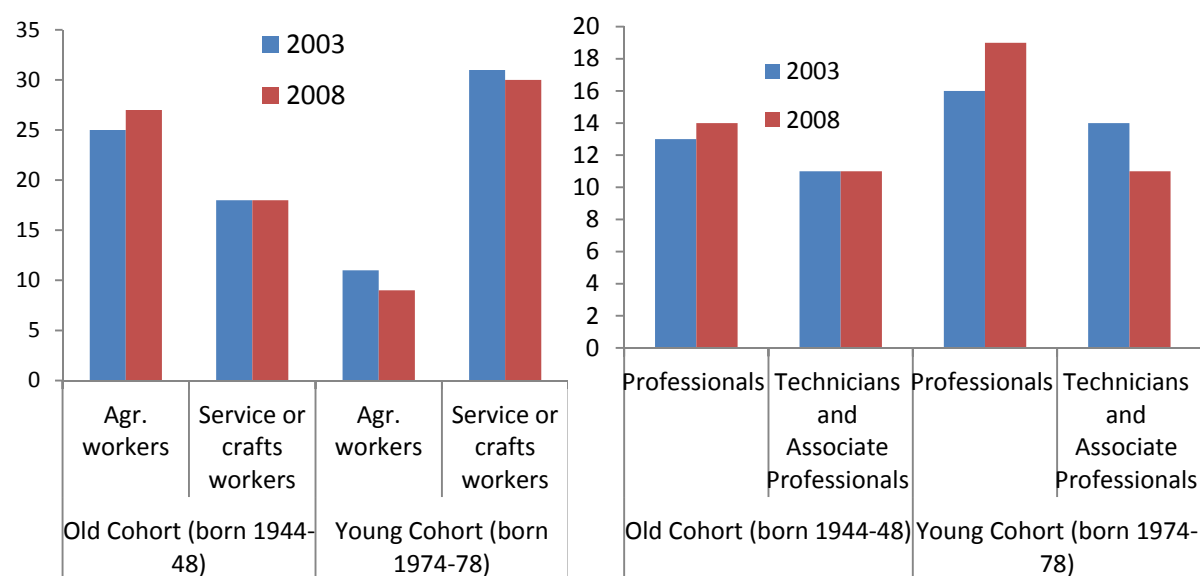
*A – agriculture, B, D, E – mining and quarrying, electricity, gas, steam, water supply, sewerage, waste management and remediation activities, C – manufacturing, G-N – market services, O-U – non-market services.

** Due to data constraints data for 2013 for the cohort born 1953-58 shows employment structure of the cohort aged 55-80 (i.e. born 1933-58).

Own calculations based on Polish LFS data.

Source: GRAPE.

Figure 17: Share of agriculture, service and crafts workers (left) and professionals and associate professionals (right) by birth cohort in Poland



Source: Eurostat Harmonized Labor Force Survey Data, 2010.

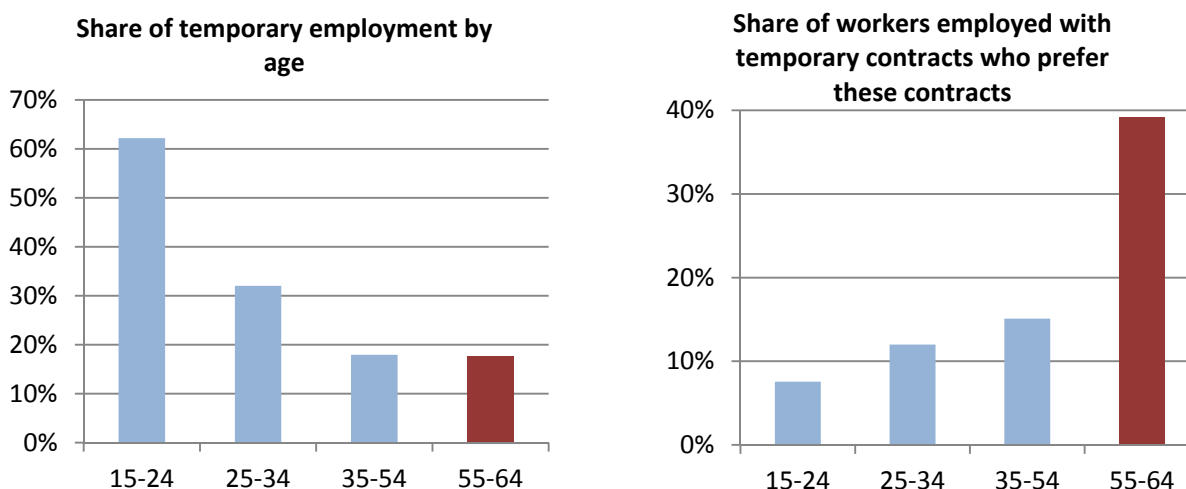
Box 2: Age or cohort effects?

In addition to the incentives provided by the social security system design, early exit from the labor market may reflect the cohort effect related to the pre-transition economic, educational and social setting. The current occupational profile of older people is, in part, a snapshot of occupational patterns in the past, which in the case of Poland were the product of a different economic and social reality. The low labor force participation of older workers reflects to a large extent their specific educational and professional background, gained in the pre-transition period and sometimes only loosely relevant for today's labor market.

The sectoral distribution of employment, occupational profiles, and skill content of occupations might shed on light on the extent to which cohort effect are present in Polish labor markets. For example, comparing the share of professionals across the young and the old cohort (at a point in time and across time) shows both age-related pattern - workers progress in the career ladder as they age - and a cohort effect, which runs counter to the age effect since younger cohorts are better education and are more likely to start their career or progress more rapidly as professionals. As for skills, neurological research suggests that aging is expected to lead to a comparative advantage in occupations intensive in interpersonal skills, and a disadvantage in occupations that are manually intensive (the relative impact of aging on routine and non-routine tasks is less clear-cut). A declining share of occupations intensive in manual skills as economies become richer, and for those intensive in non-routine analytical and interpersonal skills to rise, would be indicative of a cohort effect.¹

Temporary employment, which has increased significantly in the past decade, has proven to be an effective way to increase employment for older workers. Temporary employment – fixed term labor contracts and civil law contracts – has reached 25% of wage employment in Poland. A subset of these contracts, those regulated by civil law, allow flexible employment arrangements, with limited or no social security contributions, fixed term, and do not abide by minimum wage regulation. While they are used overwhelmingly for young workers, about 20% of wage employment among older workers is regulated by these contracts. A relatively high share of older workers strictly prefers these contracts to open ended employment (see Figure 18 and World Banks, 2014). Older workers are most likely to favor the flexibility of these contracts and the possibility of combining multiple contracts, while they are relatively unaffected by some of their drawbacks, particularly the fact that they only allow a minimal accumulation of pension rights.

Figure 18: Temporary employment in Poland



Source: World Bank (2014).

Box 3: The experience of mini-jobs in Germany

Marginal employment was introduced to inject flexibility into the otherwise rigid German labor market. Its roots date back to the 1960s, but particularly relevant for its expansion is the 2003 series of labor market reforms known as the “Hartz reforms.” The so-called “mini-jobs” are characterized by relatively low workload, absence of employee taxation and reduced benefits. This should increase both labor demand and labor supply, in particular for jobs with relatively low productivity – at the possible cost of substituting regular employment with this type of jobs.

In Germany, those who are primarily marginally employed work on average slightly less than 10 hours per week and earn on average about €8.50 per hour. Their age structure is similar to that of regularly employed individuals, and the vast majority has at least a vocational degree. As marginal employment does typically not involve any further vocational training and few possibilities for promotion, and skills and qualifications often do not match with job requirements, human capital is not used in the most productive way.

The empirical evidence on the effects of entering marginal employment is rather mixed in Germany and Austria. The evidence that marginal employment may act as a stepping stone to regular employment is weak, although it seems to be more effective for long-term unemployed workers and low-skilled workers.

There is empirical evidence for Germany that substitution effects between marginal employment and regular employment are to some extent present, but their magnitude does not seem to be very large.

Proposals to mitigate some of the possible drawbacks and unintended side effects of marginal employment include the restricted access to these types of jobs to specific vulnerable subgroups such as the long-term unemployed, the extension of the wage subsidy towards jobs with higher wages, and the integration of marginal employment into the government’s set of active labor market policy.

Source: Rinne (2014)

3.4 What drives exit from the labor force at old age?

3.4.1 *The role of financial incentives*

Key drivers of early exit from the labor market are pension eligibility, disability, health conditions, and care responsibilities. According to a 2006 survey, Poles exit the labor market early because: (i) they are eligible to receive pension benefits due to their age, (ii) the financial terms of exiting the labor market are beneficial, (iii) are at risk of losing their job or have other job-related problems, (iv) have health conditions or care responsibilities. SHARE research results additionally show that Poles are keen on exiting the labor market as early as possible (*Solidarity across Generations* program, 2013). These findings were further confirmed by a research study of the Ministry of Labor and Social Policy (MPiPS, 2008), which identified a similar list of motivators for labor market exit: pension eligibility and beneficial financial terms related to high replacement rates, health conditions, care responsibilities, inefficient qualifications and difficult labor market conditions (including competitive environment and reluctance of employers to hire older workers). A qualitative study on older worker labor force participation and employment conducted in March 2012 provided interesting insights on these issues (see subsection 3.4.2).

Regression results identify pension eligibility as the key driver of low labor supply among the older population in Poland (see Table 1). Regression results based on SHARE data (sample restricted to population 50+ years old) show that being eligible for a pension (either old age or other, e.g. disability pension) is by far the largest driver of exit from the labor force. Moreover, female labor force participation among the 50+ is negatively associated with the presence of an older household member (between 60 and 80 years old), suggesting that care duties place a significant burden on women in Poland and limit their ability to join the labor market. This finding is aligned with the fact that Poland stands out among European countries for providing more than 80 percent of all long-term care informally, by other household members (see Golinowska and Sowa, 2013), with long-term care institutions still underdeveloped (see also OECD, 2014). Finally, finding employment after losing a job is particularly challenging, which may be a reflection of the employment protection legislation prohibiting employers to lay off a worker less than four years before retirement age.

Table 1: Determinants of employment among elderly: regression-based evidence for Poland (2011)

	If Working	
	Men	Women
Old age and early retirement pension eligible	-0.505***	-0.329***
Other pension eligible	-0.557***	-0.379***
Education: low	Reference	Reference
Education: medium	0.063**	0.024
Education: high	0.127***	0.110***
Number of HH members between 60 and 80	-0.029	-0.060***

*Robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

**Other explanatory variables include age, age squared, number of household member in different age categories, number of ADL and IADL disabilities, log housing wealth per capita+1, and dummies for enrollment in pension interacting with age>60 and age <=60

**Other pension includes disability, unemployment, survivor and war pensions

Source: World Bank Staff based on SHARE 2011 data

A further key reason of labor market inactivity in the 50-64 group is disability, which could be operating as a substitute for early retirement. In Poland, the vast majority of the disabled (82.8 percent in 2011), including those in prime-age, are not active in the labor market. Persons aged 50-59 years old are the largest group receiving disability benefits (48.5 percent in 2011). Around 14 percent of people aged 50-59 were receiving such a benefit. The great majority (69.9 percent) of newly granted disability benefits is granted to people aged 45-59, i.e. around retirement age, suggesting that it could be treated as a substitute for early retirement benefit, allowing for an early exit from the labor market. The incentive for using disability as an early retirement option may further increase due to the fact that the current disability benefit formula is similar to the one used in the pre-reform defined benefit pension system. At present, the disability benefit exceeds 40 percent of average gross wage while the projected replacement rate in the reformed pension system will gradually decrease from the current 50 percent to 35-40 percent. Therefore, it is likely that the demand for disability benefits grows, especially in view of the increasing statutory retirement age (*Solidarity across Generations* program, 2013; OECD, 2014).

The tightening of early retirement conditions in 2009 has been accompanied by increasing labor supply among older workers. Starting in 2009, generous early retirement schemes available for some occupations (those employed in special difficult conditions) were replaced by bridge pensions. The Law on Bridging Pensions reduced the number of people eligible for early retirement from 1.7 million to 300 thousand while safeguarding the base level of pensions of those affected by the change. However, the ruling of the Constitutional Court increased temporarily (2008-11) the accessibility of early retirement schemes. As a result, since 2009 the number of newly granted pensions has returned to the late 90s levels (see Figure 19) while the number of benefit recipients below statutory retirement age has started to trend down (see Figure 20). As a contemporaneous increase in the employment rates of people aged 55-64 is also observed, many attribute it to the changes to early retirement provisions. However,

ongoing work by Tyrowicz et al. (2014) that uses regression discontinuity techniques finds only a limited short-term causal impact of the tightening of eligibility reform on labor market participation.

Figure 19: Number of newly granted pension and disability benefits

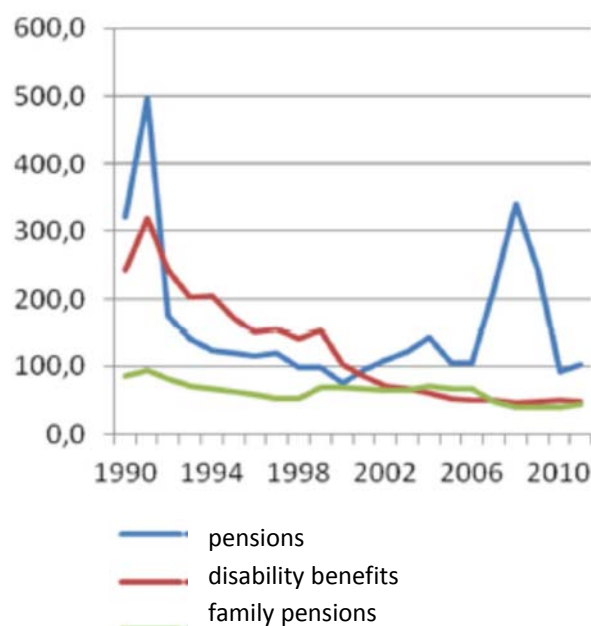
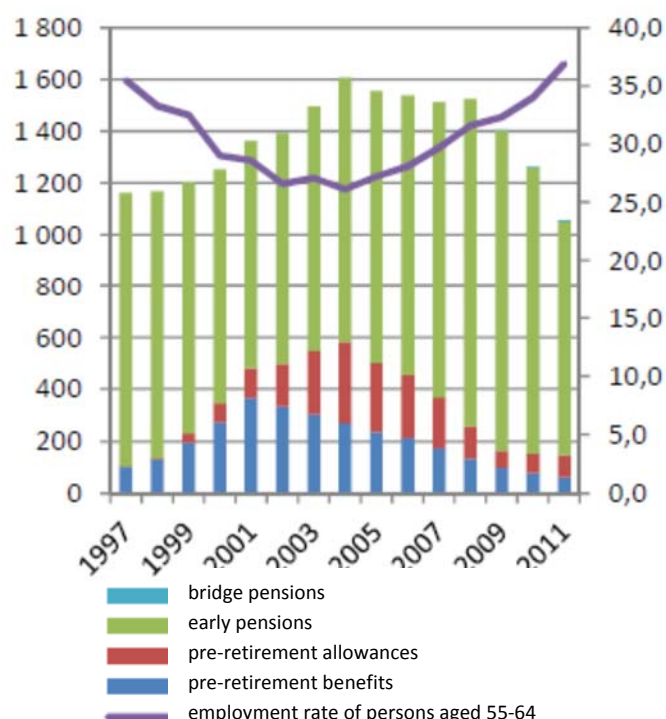


Figure 20. Number of benefit recipients below the statutory retirement age



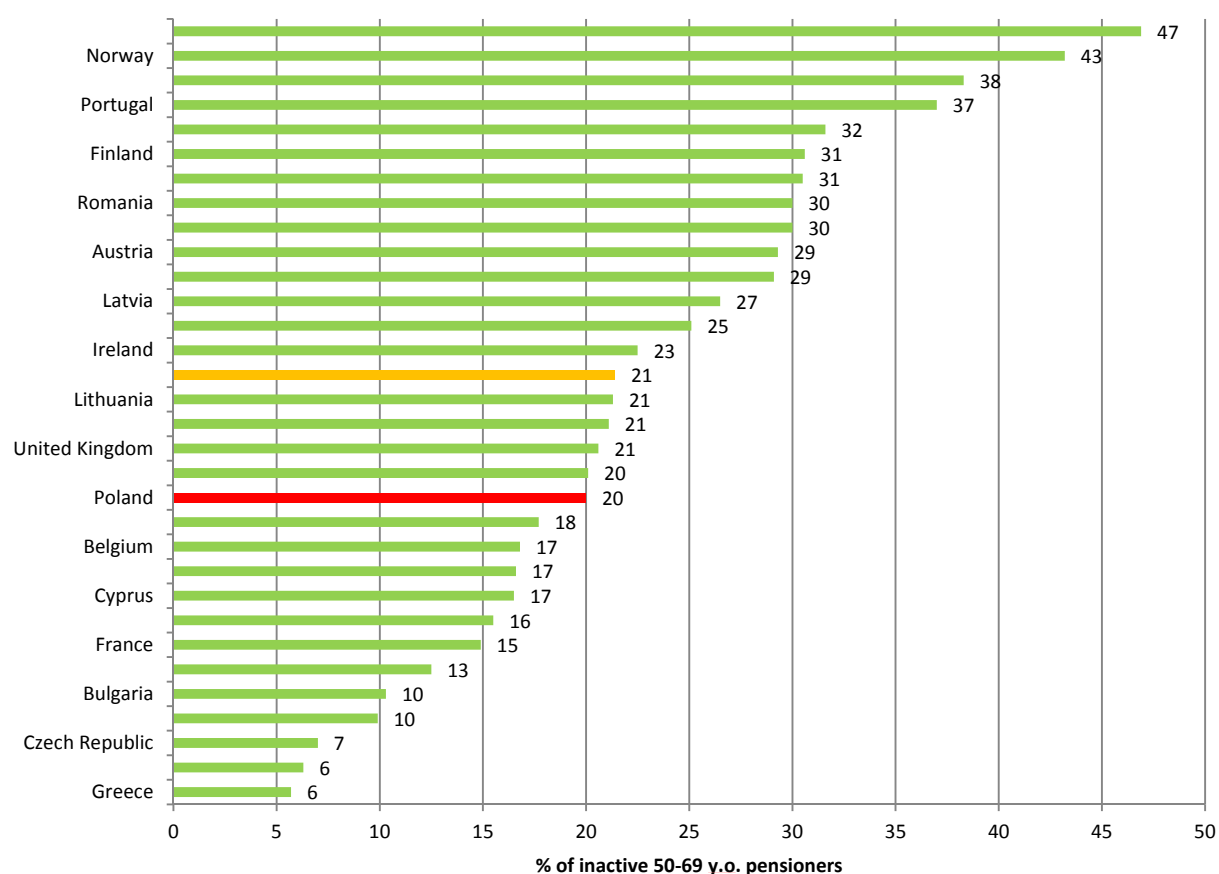
Source: *Solidarity across Generations* program, 2013.

Although the average effective retirement age increased from 57.1 years in 2007 to 59.8 in 2011 it still remains low, below the statutory retirement age. This is due to the low statutory female retirement age (as gradual increases started only in 2013), the slow phase-in of the 2008 reform tackling early retirement and the existence of special regimes. In 2011 almost 80% of old-age pensions were managed by ZUS, 17% by KRUS and the remainder by the Ministries of Internal Affairs, Defense and Justice. Out of the people beginning to receive an old-age pension from ZUS in 2011, the average effective retirement age was 60.1 years for men (against a legal age of 65) and 59.5 for women (against a legal retirement age of 60), due to the fact that about 12% of men who retired were miners with an effective retirement age of 47.9 years. In addition, those who had worked for 20-25 years before 1999 in specific work conditions remain entitled to early retirement. That scheme will vanish gradually, but a hefty 60% or so of new male retirees in ZUS, excluding miners, fall under it. As a result, in 2011, only around one quarter of new male retirees were at least 65, the statutory retirement age (OECD, 2014).

Information about the health and employment status provides further indirect evidence that incentives play an important role in determining participation among older workers in Poland. Figure 21 indicates that health is a key reason for non-participation in employment for only 20% of the inactive

older Polish workers. This is in stark contrast, for example, with data from Iceland – the country with the highest participation among older workers in Europe. Poland stands out as the most successful former communist country in the implementation of reforms, with the highest cumulative economic growth between 1989-2009. During the expansion period, public expenditure on old age and survivor cash benefits more than doubled from 5.1 percent of GDP in 1990 to 11.8 percent in 2009 (3 percent higher than in the Czech Republic). Early in the transition period, the Government tolerated and even encouraged early retirement, which often took place through the disability program. Recent attempts to reduce the footprint of these programs are starting to bear fruit, but progress is slow.

Figure 21: Own health / disability as the main reason for quitting work (2012)

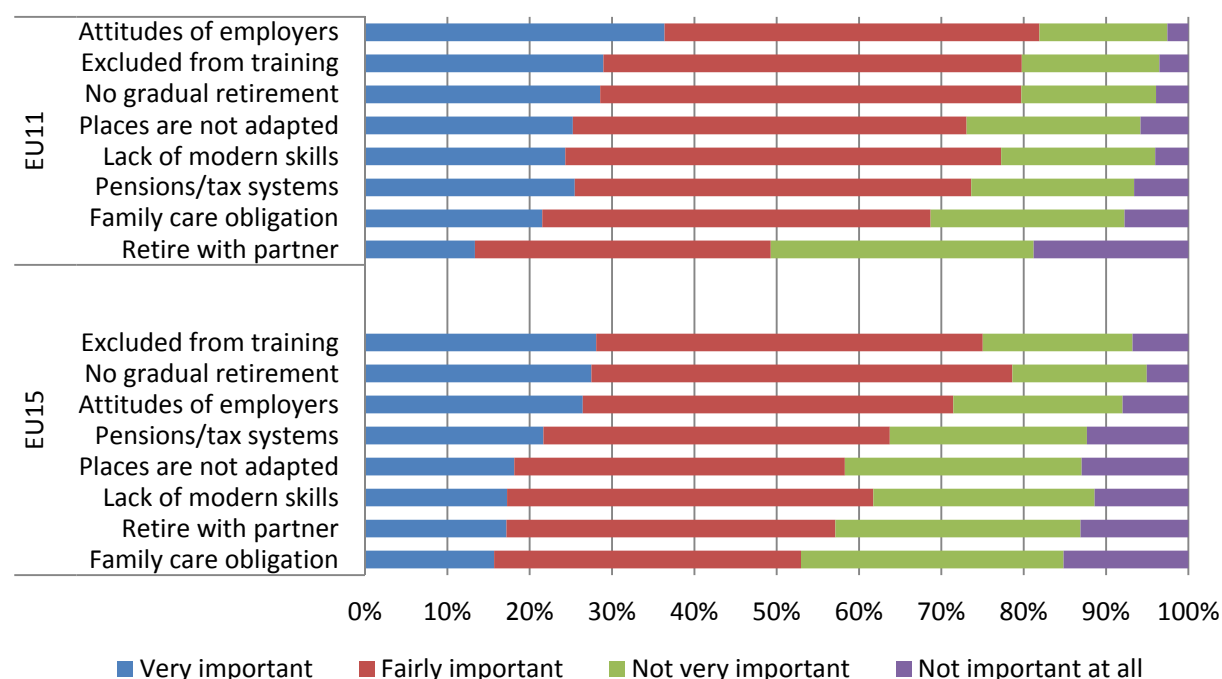


3.4.2 Low demand for older workers

Employers’ negative attitudes towards older workers are perceived as a barrier to the employment prospects of this age group. While according to the Eurobarometer a variety of barriers - insufficient access to training, and lack of gradual retirement schemes – limit employment options for older workers, employers’ negative attitudes play the major role in discouraging older workers from labor

market activities both in EU11 and EU15 countries (see Figure 22). Qualitative evidence from Poland confirms that employers perceive older workers as more costly and less flexible and willing to adapt.

Figure 22: Barriers to employment after 55 (% reporting each reason as very, fairly, not very, not at all important)



Source: Eurobarometer (2011)

Age management is still largely absent in Polish firms, especially among the small and medium companies. According to the Ministry of Labor and Social Policy report “Equal opportunities in the labor market for people aged 50+”, knowledge about age management among Polish firms – especially the smaller ones - is limited (Kryńska *et al.*, 2013). Newly collected data confirms widespread age discrimination, as employers declare that in the choice between two candidates with similar qualifications and skills, they will opt for a younger person. Moreover, one in five employers is reluctant to involve older workers in training, and the representatives of training institutions point out the difficulties in the learning process encountered by older workers. This indicates that scope to better tailor training to older workers exists, as well as to increase awareness on how to better manage age among entrepreneurs in Poland. The literature shows that flexible time and work organization, health promotion at work, ergonomic changes, and shifts to less physically or mentally demanding positions for older workers can lead to increased productivity in the workplace for older workers. However, currently

less than 10% of Polish employers apply solutions aimed at facilitating the employment of older workers (Kryńska *et al.*, 2013, Bugajska and Hildt-Ciupińska, 2012).¹¹

Box 4: Older Worker Labor Force Participation and Employment – Poland. Qualitative Research

Qualitative research on Older Worker Labor Force Participation and Employment was prepared as a contribution to a conference on Pensions in Europe and Central Asia, organized jointly by the World Bank and European Commission in early May 2012. The research was also intended to feed into a broader Pensions Flagship Report prepared by the World Bank for the Europe and Central Asia region in 2012-2013.

The qualitative research relied on primary research with workers, pensioners, employers and managers in Poland, including focus group discussions and mini-case studies with workers, pensioners and employers, and a number of in-depth interviews with managers, HR officers and employment center officers.

Drivers of separation from the labor force due to retirement and constraints to continued employment after reaching legal retirement age

The reasons for resignation from professional activity are diverse, but health problems of the employees and a relatively low wage and, as a consequence the belief that the pension capital accrued will suffice to secure the adequate living standard (the belief that retirement will not cause a drastic decrease in revenues) are of major importance. It should be highlighted that the experienced pressure from the environment to vacate the job for the younger and the difficult atmosphere at work (the younger employees work according to a different rhythm, have different, more market oriented customs to which the elder employees have difficulties to get used to) and in extreme cases also animosity from younger employees or management staff are also of large significance.

Constraints to re-entering the labor force after retirement

Lack of offers for older persons and related to it animosity of the employers to the older employees is the fundamental constraint in return to the labor market after retirement. According to the employees, if a job is offered to an older person, then it is offered on worse conditions – with a lower wage or scope of responsibilities not suitably commensurate to the professional experience (below qualifications). Additionally, employees stress that they do not know how to search for an adequate job and that the process seems highly complicated (new procedures– assessment center, etc.).

Constraints to hiring older workers

Labor costs are the basic constraint in hiring the elder people. For public employers the higher cost is linked to the higher remuneration of the older persons (supplements for employment duration, etc.).

¹¹ See also the handbook of good practices of age management for entrepreneurs “Evaluation of activities undertaken in Polish enterprises in relation to maintaining older workers (50+) in employment” Central Institute for Labour Protection – National Research Institute (Hildt-Ciupińska, 2013).

According to the representatives of private businesses, higher costs result from lower effectiveness of the older people – they perform simple operations slower than the younger employees and additionally they are on medical leaves longer. Additionally, representatives of private employers rate negatively the attitudes of the older employees to work – they are less willing to subject themselves to the superiors and adjust to the changes taking place in the organization (including also learning new things).

Perspectives on the employment of older workers

Generally, the participants in the survey pointed out many differences between the older and the younger employees. The experience of the older persons, which may transform into excessive routine and “freshness” of the young people that may result in higher creativity were the most important differences.

Perspectives on life in retirement

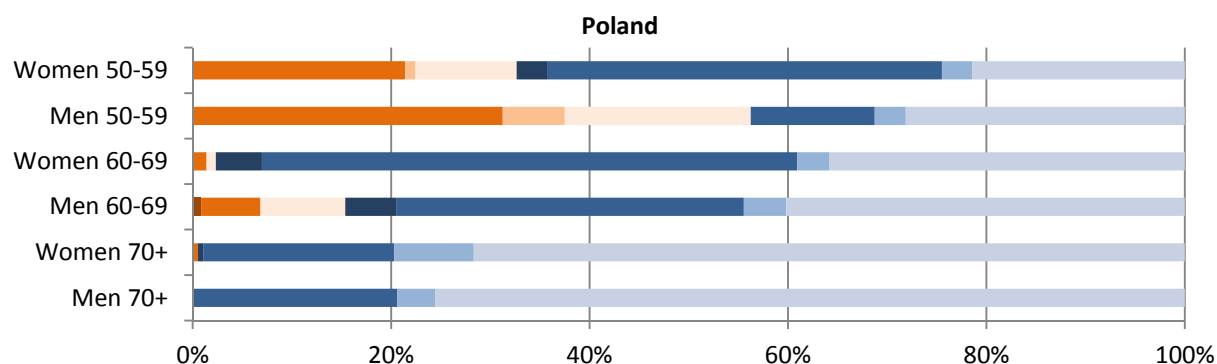
The employees and the retired people highlighted first of all their concerns related to the life on retirement linked to the expected or experienced decrease of the living standard. The majority of employees declare that their revenues will decrease significantly.

Source: Older Worker Labor Force Participation and Employment – Poland. Qualitative Research. World Bank/MillwardBrown SMG KRC.

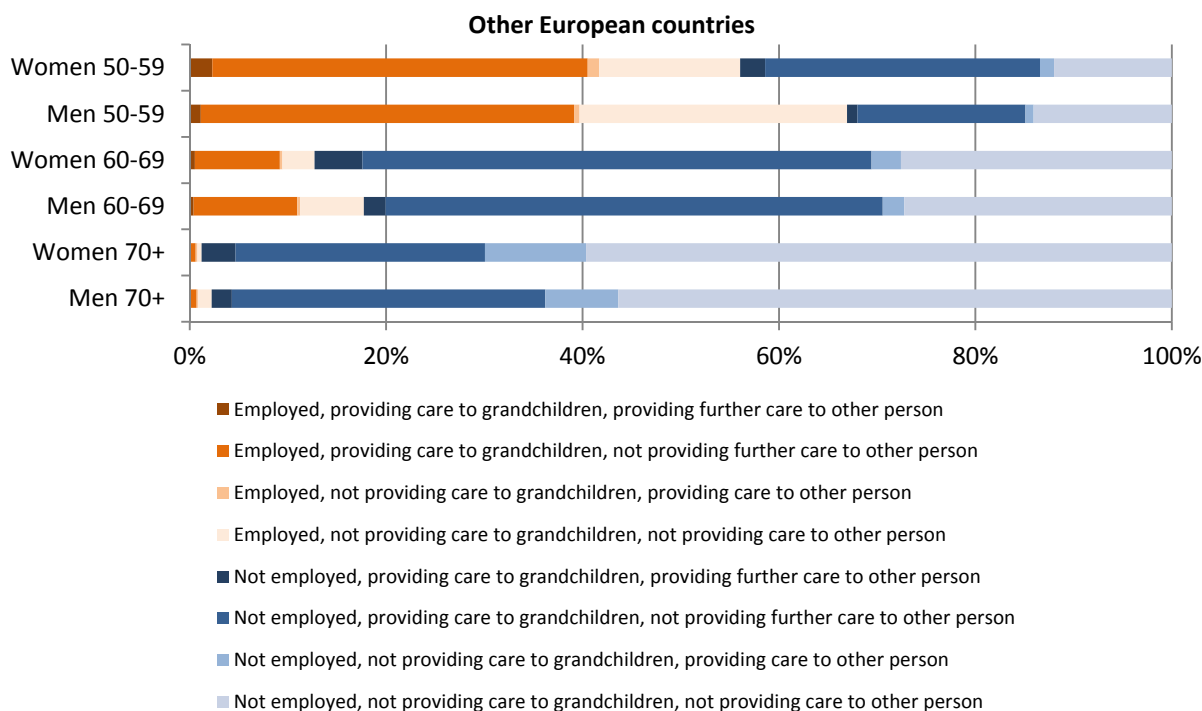
3.4.3 Constraints to participation

Care of older parents and grandchildren might affect significantly the labor market participation of older women. Care arrangements prevailing in Poland rely primarily on the family. In the absence of quality and affordable child care and elderly care services, prime age and older household members (mostly women) are expected to provide care for children, as well as for the disabled and older people. According to Kryńska *et al.* (2013) every fourth person in the group consisting of 45+ women and 50+ men in Poland is engaged in caring activities, on average for over six hours a day. Compared with other European countries, older people, especially 50-59 year old women, are substantially engaged in care activities (Figure ##). These arrangements, while often following traditional social norms and bringing fulfillment and satisfaction to grandparents, undermine the incentives of older workers to participate actively in the labor market.¹²

Figure 23: Multiple tasks of grandparents by age and gender (in %)



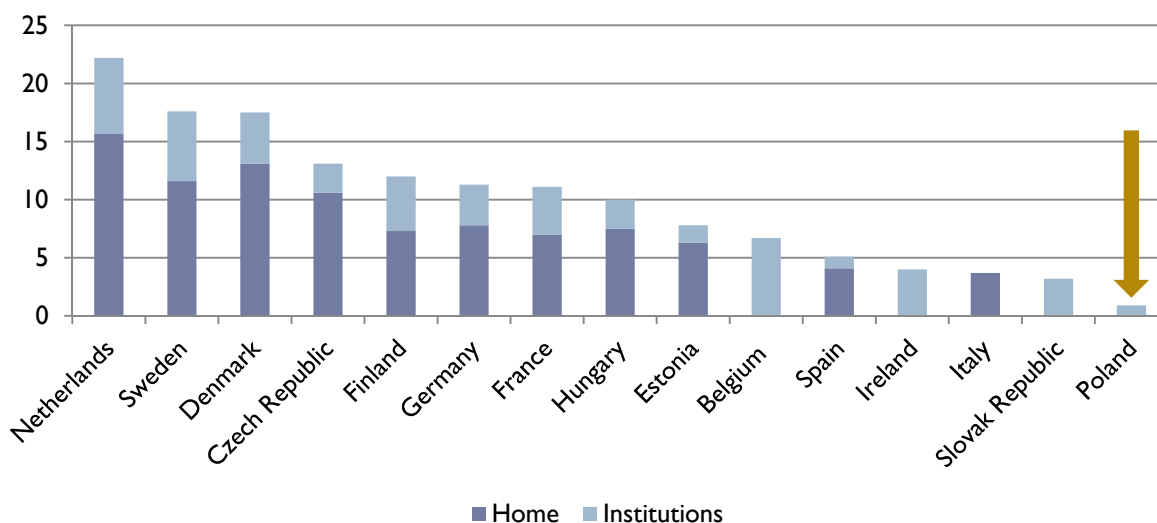
¹² On one other hand the possibility to provide informal care by people around the retirement age will be increasingly limited by shifts in demographic structure of households, marriage and family patterns, spatial mobility and agriculture restructuring. Gradually increased retirement age will add to this list. On the other hand, as noted above, demand for elderly care will be on the rise – thus combining family and work responsibilities may be increasingly difficult (Kotowska and Woycicka, 2008), which should support developing other forms of care and care market.



Source: World Bank Staff calculations on SHARE wave 4 (PL – graph above, and AT, BE, CH, CZ, DE, DK, EE, ES, FR, HU, IT, NL, PT, SE, SI – graph below) data on grandparents aged 50+ with at least one grandchild under the age of 16 years.

In Poland, the care sector, both for children and the elderly, is relatively underdeveloped. In OECD on average 12% of persons aged over 65 years receive some long-term care – it is as much as above 20% in Netherlands compared to only 1% in Poland. Importantly, in Poland care is provided mostly in the form of long-term care in institutions (like nursing homes, supportive living facilities, sub-acute care facilities, and assisted living facilities) while in most countries it is rather home-based. Home and community-based care is increasingly seen as cost effective alternative, which may involve home healthcare services as care management, nursing care, adult day care, with structured healthcare and rehabilitation services aided by informal caregivers. At the same time, only between 1 and 10% of children in the 0-3 and 3-6 age ranges receive care in formal settings, indicating that in addition to elderly care, care of grandchildren is a significant burden to the family and grandmothers.

Figure 24: Population aged 65 years and over receiving long-term care (2009)



Source: OECD Health Data, 2011

Figure 25: Children in informal childcare by age group (% over the population of each age group with at least one hour of formal care a week).



Source: EU-SILC 2012

3.4.4 Employability constraints and the skills content of jobs

Increasing labor market participation and labor productivity requires interventions to develop appropriate skills along the life cycle, as different dimensions of skills are consolidated at different points over time. Diverse types of skills evolve differently with age, leading to varying occupational patterns. This can be highly relevant in the context of aging. The medical literature suggests that “fluid”

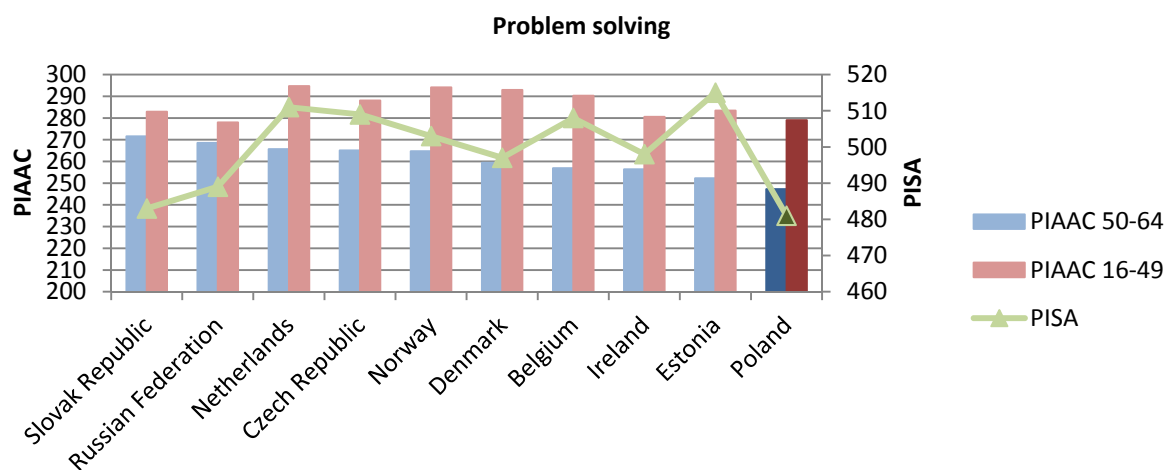
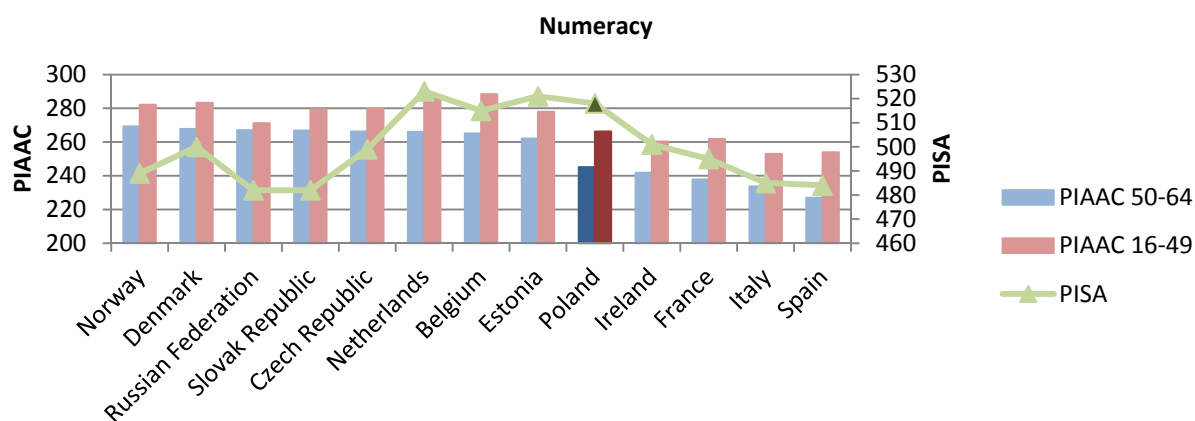
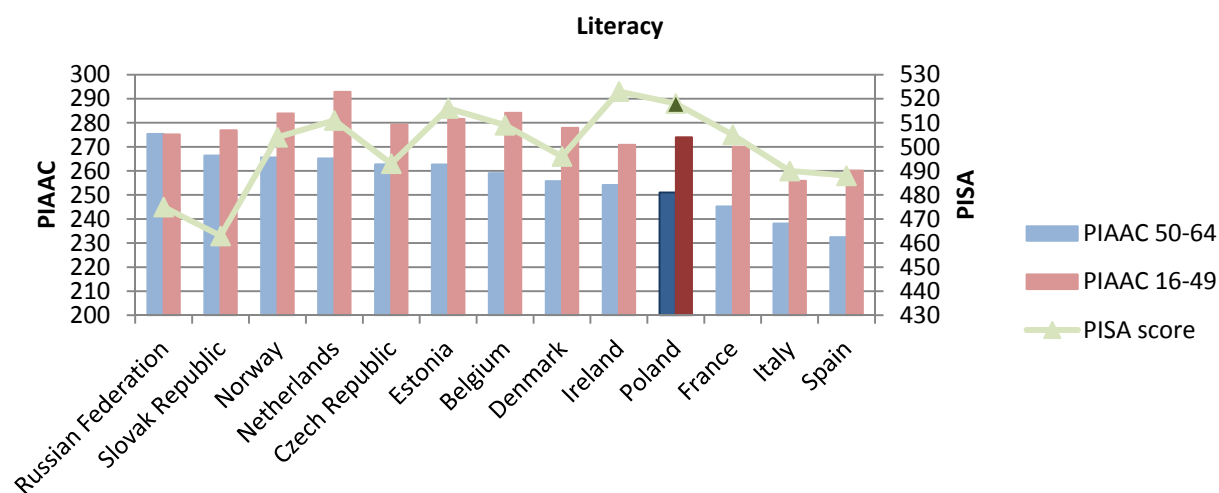
cognitive skills (those that involve abstract thinking, learning and problem solving) decline with age. However, certain other skills – such as interpersonal and job-specific skills – could improve with age. As their skill set evolves, individuals could be sorting themselves into jobs better suited to their capacities, leading to a difference in occupational patterns by age.

However, differences in occupational profiles by age can also reflect cohort effects – specific for a generation and related to a particular economic, educational and social setting.¹³ Since younger workers are more mobile in the labor market, the occupational patterns of young cohorts are more reflective of contemporaneous labor demand. As a cohort of workers ages, its occupational pattern becomes more and more fixed. Thus, the occupational profile of older people is, in part, a snapshot of occupational patterns in the past. At any given point in time, older workers are also likely to possess an older “vintage” of technical skills than younger workers. This could lead to overestimate the negative effect of age. However, and on the other hand, workers who become particularly unproductive with age may be more likely to leave their jobs early, leading to an underestimation of the negative effect of aging.

The results of the OECD PIAAC program indicate a significant gap between the skills of the younger generation and of older workers, pointing also at some cohort effects. Complementing PISA the new Program for the International Assessment of Adult Competencies (PIAAC) tests literacy, numeracy and proficiency in “problem-solving in technology-rich environments” (essentially computer skills) among 16-65 year-olds. While Estonia, Czech Republic and Slovak Republic rank above the average in both numeracy and literacy and outperform many old EU Member States, Poland ranks well below average. All four participating Central European and Baltic countries scored poorly on proficiency in problem-solving in technology-rich environments. Younger adults perform better than older adults across all countries, with a large differential between the literacy scores of young compared to older workers in Poland. This shows that increased attainment is associated with higher skills, but also calls for better and more adult training and lifelong learning to ensure that skills remain in use and up to date. Computer skills are much more widespread among the youth, but even among younger adults ECA countries performed poorly in that area (see Bodewig, 2014 and Figure 26).

¹³ The ECA Regional Flagship on Aging (the chapter on Aging and Competitiveness) presents evidence on declining labor market mobility with age. This evidence suggests that for a given cohort, the occupational pattern will not change much over time (past a certain age).

Figure 26: PISA and PIAAC scores for different age groups in Poland and selected OECD countries.



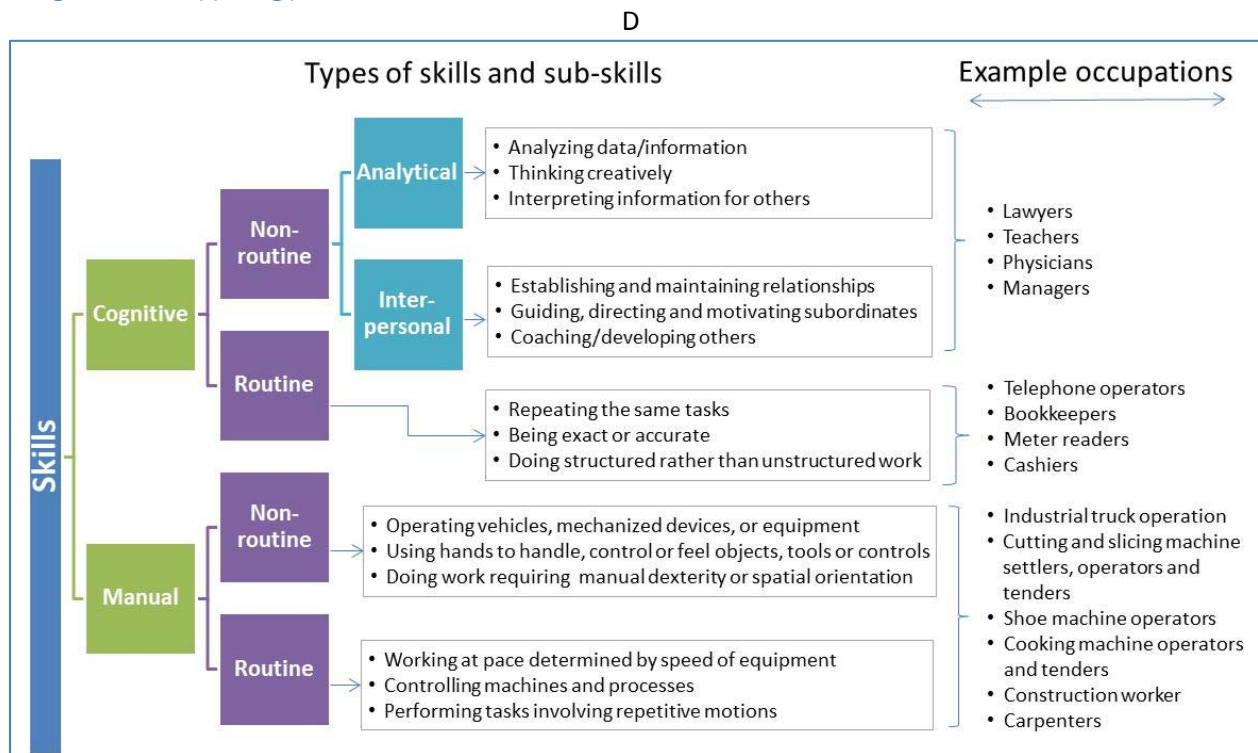
There can be both age and cohort effects behind differences in the skill content of occupations across age groups. The methodology initially developed by Autor et al. (2003) allows capturing the skill content of each occupation: each occupation is assigned a skill intensity value for five types of skills: routine manual, non-routine manual, routine cognitive, non-routine cognitive analytical and non-routine cognitive interpersonal skills. Diagram 2 describes these skill types and the type of occupations that are intensive in them.¹⁴ The declining share of occupations intensive in manual skills and the increasing share of those intensive in non-routine analytical and interpersonal skills is indicative of a cohort effect (Aedo et al., 2013). Also the content of routine cognitive skills appears to be on the decline (see Figure 27). This pattern is observed in more developed countries, partly due to new technologies that allow automation of routine tasks. But another reason for this is that routine cognitive tasks are being outsourced to developing countries¹⁵, which is why some developing countries are seeing a rising importance of routine cognitive skills. At the same time, there is also evidence of age effects, in particular for workers without tertiary education (Figure 28).¹⁶ Among workers with tertiary education occupations intensive in non-routine analytical and interpersonal skills dominate, followed by routine analytical skills. The slight age pattern, with the content of non-routine cognitive skills increasing into the 40s, suggests that middle-aged and older workers with tertiary education have some advantage in occupations intensive in non-routine cognitive tasks, especially interpersonal tasks.

¹⁴Note that the skill content reflects the equilibrium of supply and demand. Variations in the skill content of work across two groups (such as across two countries) reflect differences in both demand and supply of skills.

¹⁵Autor et al., 2003; Goos et al., 2008.

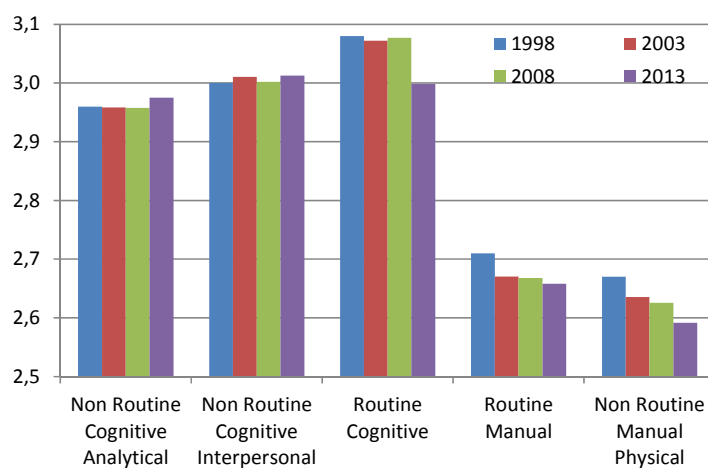
¹⁶ The content of a given skill in the employment of an age group is calculated as the weighted sum of that skill's intensity across all occupations, the weights being the share of the occupation in the employment of that age group.

Diagram 2: A typology of Skills



Source: Aedo et al., 2011.

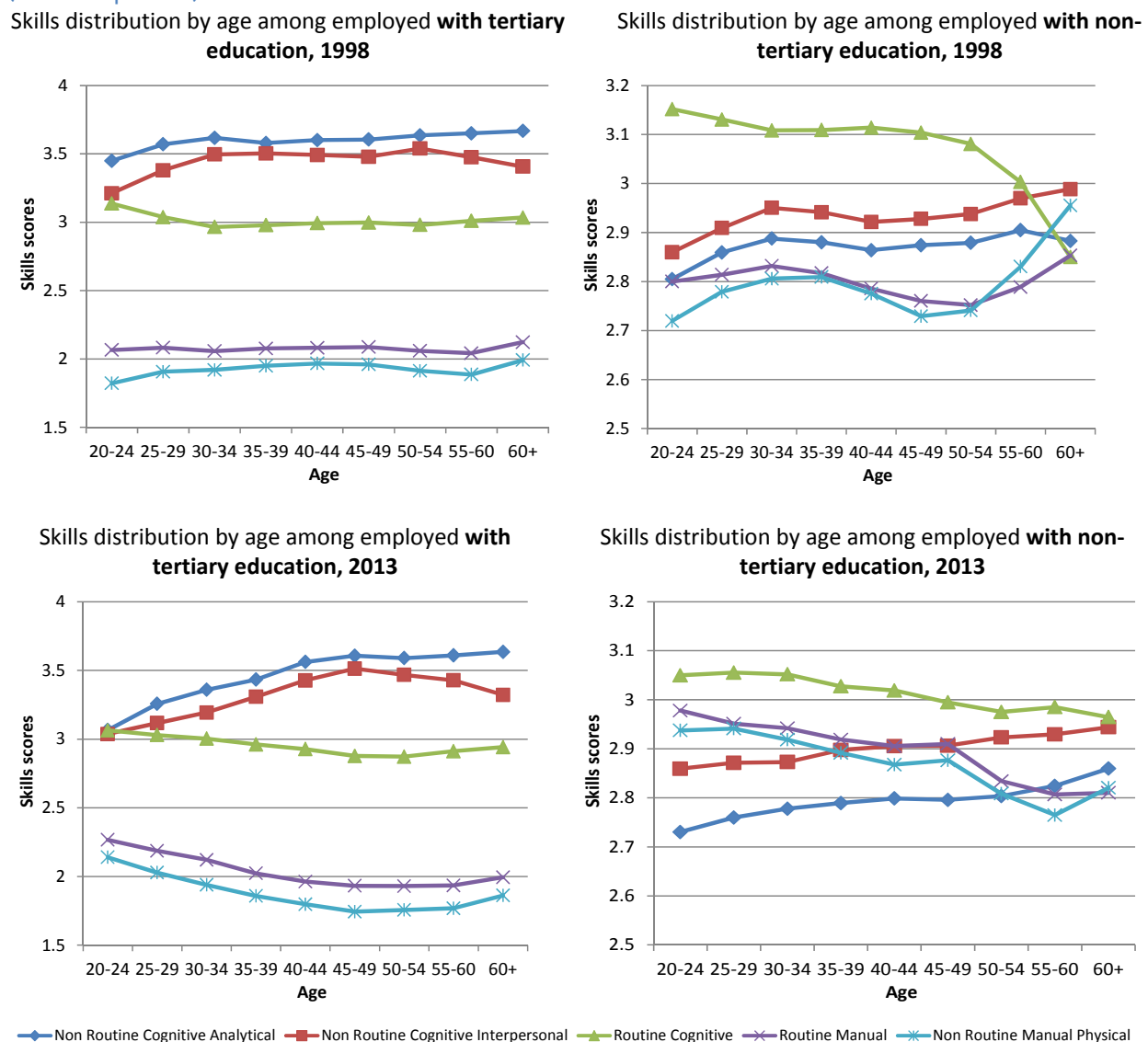
Figure 27: Changing Skill Content of Employment in Poland.



Based on estimates in Aedo et al, 2011.

Source: GRAPE.

Figure 28: The skill content of employment in Poland, by age - 1998 (top panels) and 2013 (bottom panels)



Calculations based on Polish LFS data and skills mapping from Aedo et al. (2013).

Source: GRAPE.

Between 1998 and 2013, the skill content of jobs changed mostly for young workers (with and without higher education). The more compressed distribution of skill content for young tertiary graduates in 2013 might reflect the increase in tertiary enrollment among the 20-24 and the combination of work and study. At the same time, the increase in the content of manual skills and decrease of non-routine cognitive skills can also be worrying to the extent that it reflects that non-routine cognitive skills that are built through higher education do not match the labor market needs (leading those with higher education to perform manual tasks and suggesting social and economic inefficiency). Overall, younger

cohorts are less likely to work in occupations intensive in non-routine cognitive skills in 2013 when compared to 1998. Surprisingly, non-routine cognitive skills are not becoming more important in the occupations performed by young people in Poland. In the presence of cohort effects, drawing inferences from the current labor market situation of the old about the impact of aging could be misleading and looking at the labor market patterns of today's young cohort could be a better guide to the future older workers' behavior.

4 Addressing the aging and labor market challenge in Poland

4.1 A review of past and current Government interventions

Poland has undertaken a number of initiatives to activate the 50+ years old group and lengthen working lives. Specifically, the *Solidarity across Generations* program implemented a number of actions between 2008 and 2013: (i) the labor costs related to employment of 50+ year-old workers were reduced (reduced social security contributions to Labor Fund, and to Guaranteed Employee Benefits Fund; reduced costs of sickness payment made by employers); (ii) bridge pensions were introduced and early retirement conditions (previously available for some occupations) were significantly tightened; (iii) starting in 2013, statutory retirement age has been gradually increased (to reach 67 for both men and women in 2020 and 2040 respectively). Furthermore, the financial terms of acquiring pension benefits have changed – women retiring starting from 2009 and men starting from 2014 will have their benefits calculated according to the new pension system formula. This assumes a gradual actuarial adjustment of benefits to the defined-contribution system – thus the replacement rate will be gradually reduced. In addition, the revised benefit calculation method implies that longer labor market activity would translate into a relatively higher increase in pension benefit (about 7-10 percent a year).

Box 5: Policies to activate 50+ in Poland

The conceptual framework for active ageing policies, which have been created and are currently implemented in Poland, is based on the package of three strategic documents: (i) the *Solidarity across Generations* programme; (ii) the *Government Programme for Senior Citizens Social Activity 2014–2020* (ASOS, continuing the *Government Programme for Senior Citizens Social Activity 2013–2014*); and (iii) *Long-term Conceptual Assumptions of the Seniority Policy for 2014-2020* (prepared by Advisory Council for Seniority Policy and Council 50+ for the Ministry of Labor and Social Affairs).

The *Solidarity across Generations* program was adopted by the Council of Ministers in 2008 as a package of measures (both on demand and supply side) aimed at increasing employment of 50+ population to reach 50 percent (for 55-64) until 2020. The revised Programme was adopted in late 2013 to reflect new conditions and challenges related to the situation of the 50+ in the labor market in Poland. The Programme lists priorities and actions under the following targets/themes:

1. Adjust competencies and improve qualifications of people aged 45+ to better respond to labor market needs
2. Support the work culture and workplace more friendly to people aged 50+
3. Increase effectiveness and efficiency of actions promoting employment and labor market activity
4. Support the idea of active and healthy aging
5. Support the cooperation aimed at increasing employment of people aged 50+
6. Limit the use of social transfers by people at pre-retirement age

The Government Programme for Senior Citizens Social Activity 2014–2020 (as well as its earlier edition for 2013–2014) has been designed to support social activity of people aged 60+ in order to increase the quality and standard of living.

The program lists four priorities:

1. Improve education opportunities for the elderly
2. Create conditions for integration between and across generations using the existing social infrastructure
3. Develop various forms of social activity, including voluntary services, participation in decision-taking and social life (including having influence on public policy)
4. Improve access and quality of social services, support self-help and self-organization.

The implementation of the program clearly responded to an important need as it was met by a large number of applications. At the same time, significant capacity and infrastructure gaps have limited its implementation. Furthermore, several experts highlight that assistance should be more focused at the local level. Financial support has permitted the implementation of over 400 projects. Among them are several socially innovative ideas that aim to enhance the activity of the elderly in social life and in the labor market.

Long-term Conceptual Assumptions of the Seniority Policy for 2014–2020 were adopted in early 2014 to provide broad framework for actions to ensure longer activity, relating to both labor market and social life, as well as healthy, safe and independent life of elderly.¹⁷ The areas covered by the document include the health and independence; labor market activity of 50+; education, social and cultural activities of elderly; silver economy; and intergenerational relations.

The debate on active ageing policies in Poland has started relatively late and the effective implementation of the concept of healthy, active and socially inclusive aging requires further efforts.

The first discussions on the unfavorable labor market situation of the elderly emerged only in the second half of the 1990s, when the debate on the pension system reform started. While only a few ageing policies were developed at the national level during that time, several interesting initiatives were undertaken at the regional level and in the service sector, mostly focused on productive aging and the

¹⁷ Government also supported the Coalition for Healthy Aging that operates at the Medical University of Warsaw (www.starzejsiezdrowo.pl) in the preparation of the interdisciplinary document “Healthy Aging: White Paper” (Samoliński and Raciborski, 2013)

problems associated with the economic activation of people over 50. The implementation of active aging policies in Poland started in 2012, during the European Year of Active Ageing. At present, there is an intense discussion on policies targeting the elderly, which concentrates not only on labor market activation, but also on healthy, active and socially inclusive aging, education and civil engagement. However, and despite recent progress, the effective operationalization of the concept of active and healthy aging still requires additional efforts, especially at the regional level. Furthermore, rigorous evaluation of the activation programs is still missing and the identification and implementation of good practices, which are already being developed in other European countries, is not sufficient (Styczyńska, 2014). On a positive note, the broader public debate on the topic has started with increasing awareness that achieving visible results requires concrete, well designed and coordinated actions¹⁸ (Martinez-Fernandez, C. et al., 2013).

The program *Solidarity across generations*, currently one of the key strategic documents on active aging, was based on the assumption that effective public policy must be comprehensive, addressing all the main issues relating to the activity of older workers. The program focuses mainly on labor market policy (Martinez-Fernandez, C. et al., 2013) and envisages the following objectives:

- Improvement of working conditions, promotion of the employment of older workers, promotion of age management;
- Improvement of the competencies of employees 50+;
- Reduction of labor costs related to employment of employee 50+;
- Activation of persons at risk of unemployment aged 50+;
- Activation of the disabled;
- Increased employment opportunities for women by improving the possibility of combining working and family life.

Several important and concrete actions are foreseen, including:

- Working persons aged 45+ are entitled to financial support for training, exams, postgraduate study, and scholarship loans, provided by local labor offices (financed by the Labor Fund);
- Employees age 50+ are entitled to training leave;
- Reduction of costs for labor of older workers:
 - Social contribution exemption (Labor Fund, Fund for Guaranteed Employee Benefits);
 - Reduction of the number of days of sick leave benefits paid by employers (from 30 to 14);
 - Increase in the scale of Active Labor Market Policy addressed to persons 45+: a reserve of 60 million PLN was earmarked in the Labor Fund. In 2010, 22,629 persons were covered and 9,656 persons were employed; and
 - Persons aged 50+ were supported by the European Social Fund (ESF). However, a final estimation is difficult due to different age brackets being used in official documents.

¹⁸The chance for improved co-ordination and better effectiveness of policy addressed at older persons may be part of the mandate of a new Department of Seigniorial Policy in the Ministry of Labor and Social Policy, created in September 2012.

Since the beginning of the implementation of the Programme, financed by the ESF in 2008 to the end of 2011, a total 187 000 persons aged 55+ were supported, during this time, 55% were unemployed (Ministry of Regional Development).

There is debate on whether the expected results of the program have materialized. The current program focuses mostly on labor markets rather than adopting a broader approach to the engagement of older persons, including health aspects. Instead, effective aging policies require complex, multidimensional actions, including changes in the pension system and activation measures, but also horizontal policy coordination across ministries (Martinez-Fernandez, C. et al., 2013).¹⁹

4.2 A longer term agenda to support longer working lives

With increasing life expectancies, aging will be a continuing reality in the future. To make sure that societies can reap the benefits of longer life expectancies, behavioral and policy changes will need to happen early on to ensure healthy, active and productive longer lives. In Poland, this will translate into changes to the health systems that will progressively shift care from hospitalization to preventive and primary care; and in investments in promoting healthier life standards, with a reduction of tobacco and alcohol consumption and better management of cardio-vascular diseases (including through diet changes). International examples from Finland and the US show that this can be done over a relatively short time span.

The nature of jobs is changing rapidly around the world and in Poland. The rapidly changing landscape of jobs is likely to translate into more frequent labor market transitions. This will require, in turn, a labor force that is equipped with the skills to respond flexibly to the labor market's changing needs. PISA results suggest that Poland is on track to build strong cognitive skills for young cohorts. While PISA numeracy and literacy scores are comforting, boosting problem solving ability - where Poland scores relatively low - is likely to improve the adaptability and ability to innovate, which will contribute to maintain Poland competitiveness. Investing more in building strong cognitive and behavioral skills in the early years (0-6) could lay strong foundations for continued learning and innovation later on. Moreover, the data also show that Poland lags behind in life-long learning (LLL) and that workers face the risk that the accumulated knowledge rapidly becomes obsolete and skills devalue over time. A companion paper on LLL (see...) discusses how LLL could be strengthened in Poland. In parallel, firms report that while young graduates have strong technical skills, they tend to lack soft skills (such as team work, etc.). There is substantial scope for Poland to enrich how teaching is delivered to build these skills early on.

¹⁹One of the reasons is that the reduction in resources for the Active Labor Market Policy (ALMP) in 2011 and 2012 resulted in a significant decrease in the number of activated unemployed (from 800 000 in 2010 to 400 000 in 2011). Another problem is inadequate instruments and measures. Local labor offices, implementing a number of available instruments, often use very standardized methods, not tailored to the specific needs or possibilities of the older unemployed. On the other hand there are many examples of effective projects and initiatives addressed at older persons: women living in rural areas; workers in the mining sector or for example, Volkswagen Poland, the company which implemented a programme of preparation for demographic change. Some of these initiatives are financed by the European Social Fund (Martinez-Fernandez et al., 2013).

Because of cohort effects, some of the current issues linked to low labor market participation of the 50+ could be transitional. Because of the cohort effects related to the pre-transition background and experience, drawing strong inferences from the current behavior of workers might be misleading. Likely, future cohorts of older workers will behave differently – not only because they will have no pre-transition experience, but also because aging will have already had an impact on individuals and society. The pace and scale of demographic changes will imply significant behavioral changes and will affect personal and social choices. To the extent that labor market mobility over the lifecycle can be strengthened (such as by better lifelong learning opportunities), occupational patterns in the future might differ significantly from those observed among the current cohort of older workers.

4.3 Activating the stock of older workers

Significant scope to activate more of the labor force in Poland exists today. A projection exercise aimed at predicting the characteristics of the labor force if the participation rates for older workers reach the levels observed in Iceland, a country with the most active 45+ population, evidences how much the stock of professionally active citizens could be improved if the potential to activate the current 45+ years old reserve were realized (Figure 29). Apart from increasing the working life, also other policies, like convergence of women participation rates to those of men, are necessary to avoid decrease in labor force (Figure 30). Activating the stock of older workers and creating the dynamic incentives for longer working lives has implications for a broad set of policies, ranging from modifying employment protection legislation to tax and benefit policy. They are summarized in Table 2 below.

Figure 29: Potential to increase Labor Force among 45-64 year olds

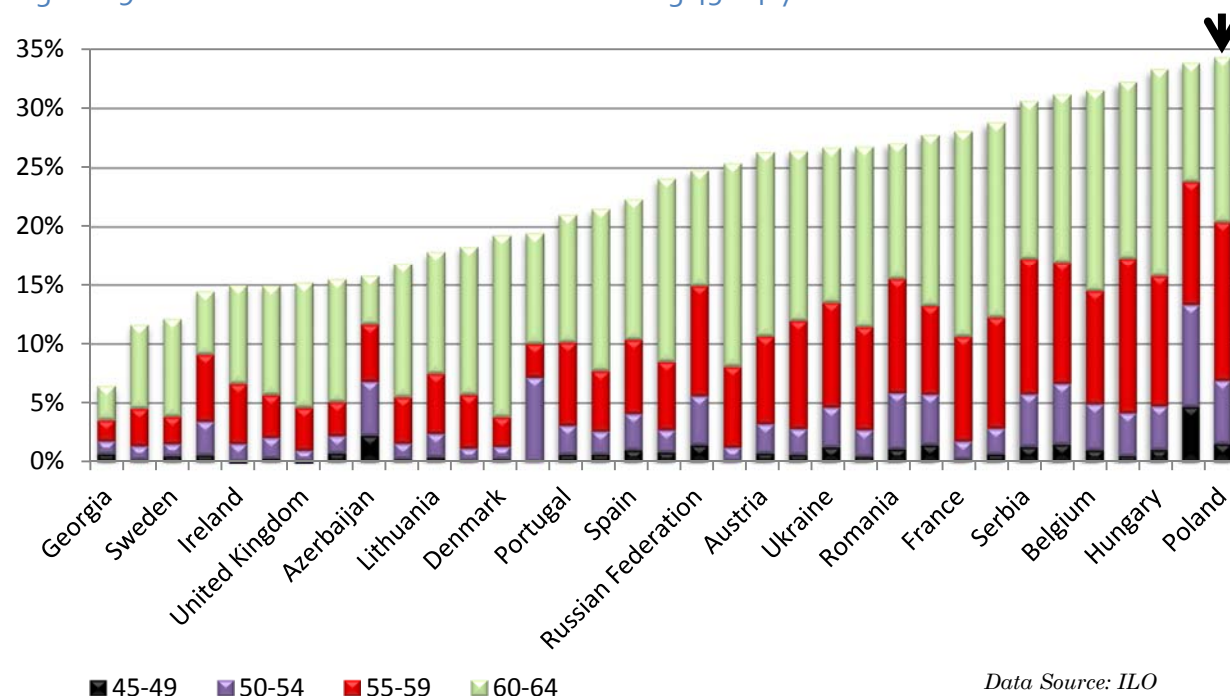
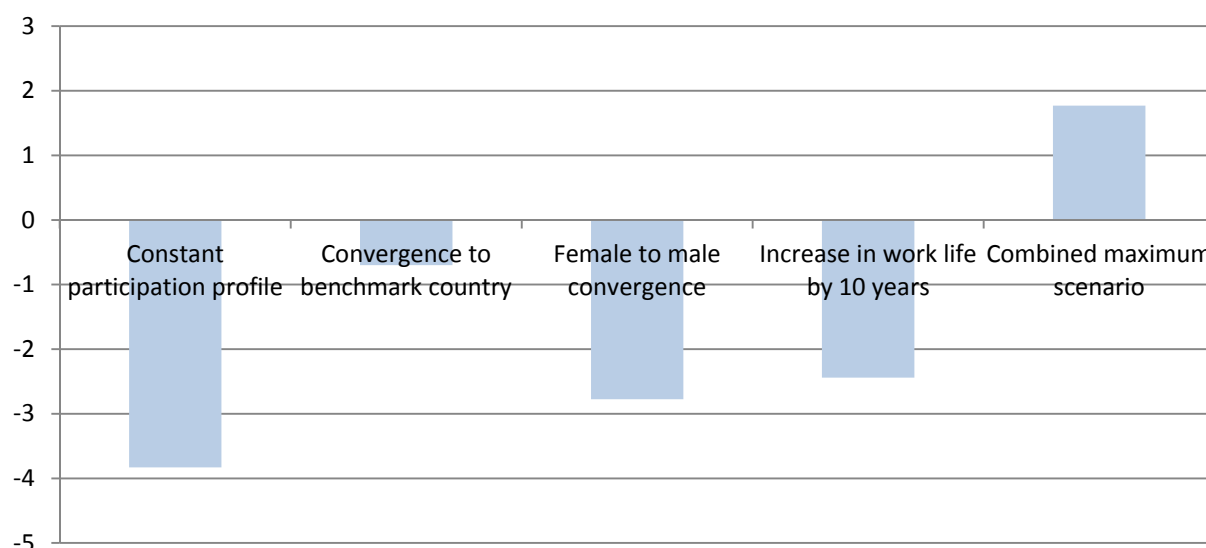


Figure 30: Change in Polish labor force (15+) between 2010 and 2050 by scenario, millions



Source: World Bank staff calculations, based on ILO (2011) and UN (2013).

In Poland, and based on the existing constraints to labor force participation, four key areas of reform could return the highest payoffs and/or appear particularly urgent:

- 1) ***Eliminating the restriction to dismiss workers in the 4 years before statutory retirement.*** The Polish labor code envisages a restriction on dismissal in the 4 years before retirement age, which is intended to protect older workers. However, focus group reports and international evidence indicate that such regulation could limit employer's willingness to hire older workers (see also Box 6). At the same time, the existing evidence shows that unemployment spells tend to be particularly long for older workers. Therefore, a suitable income protection formula needs to be in place when older workers are dismissed. Poland has bridging unemployment insurance for older workers which could protect older workers during transitions.
- 2) ***Activating 50+ workers, especially women.*** There is substantial scope to improve the participation of those 50+ women who currently are not active on the labor market. A number of these face a multiplicity of barriers to participation: employability constraints, since a large share only has lower education; and participation constraints, since many of them are sandwiched between providing care to older parents and to their grandchildren. Changing the way care is delivered now – essentially privately – towards more organized and efficient care mechanisms could provide a source of labor demand for older women, while slacking their home care constraints.

Box 6: EPL and older workers employment

European societies are ageing and its workforce is continuously shrinking. This is the result of three phenomena: persistent low fertility rate, the regular extension of the life expectancy and the transition of the large cohort of the baby-boomers to the age of retirement. There is an urgent need to remove key barriers to employment for older workers, and to allow longer working life for everybody. Longer working lives result in more contribution years and fewer benefit years, thus contributing directly to the adequacy and sustainability of the pension system.

One of the Europe 2020 strategy headline targets for smart, sustainable and inclusive growth includes 75 percent of the 20-64 year-olds to be employed by 2020. To achieve this objective, major reforms are needed to enhance employment of older workers. Reforms on the labor market and in the pension system should encourage both labor demand and supply for older workers. On the supply side, further reductions in benefits for early retirees and in unemployment benefits should increase work incentives for older workers. On the demand side, employment opportunities of older persons can be further enhanced by easing restrictions for the use of atypical forms of employment contracts. The pension system could also be reformed to include larger pension decrements for early retirees and larger benefit increments for later retirement, so as to ensure actuarial neutrality.

In Poland, the Labor Code allows termination of employment (i) on disciplinary grounds or for personal reasons, except discriminatory cases, and (ii) on economic grounds.

Similar to several other ECA countries, the Labor Code in Poland stipulates restricted rights to terminate the employment of an employee who have acquired the right to receive a retirement pension from the Social Security Fund within less than four years (Art. 39 of the Labor Code). This provision shall not apply if the employee becomes eligible for a disability pension because of the total incapacity to work. This restriction might be excessive given that the country has an Early Retirement Benefit (Świadczenie przedemerytalne), and Bridge Pension (Emerytura pomostowa) for older workers being made redundant. This measure is intended to increase job security for older workers. However, the tradeoff is that employers may be reluctant to hire older workers within four years prior to retirement with a higher risk of becoming disabled due to illness, or redundant for economic reasons – if constraints inhibit future dismissal for reasons related to business. As a result, we can expect that the restricted right to terminate employment of these workers will lengthen job tenure and reduce turnover of this group of workers but will have a negative effect on new hiring of employees at risk of disability.

In Poland, the length of notice has been made conditional on the period spent with the same employer. In Poland, and equals: i) 2 weeks if the worker has less than 6 months of service; ii) 1 month if the worker has more than 6 months of service but less than 3 years; iii) 3 months if the worker has more than 3 years of service. This duration of a notice period is above the average for high income countries.

As far as procedural requirements are concerned, when starting the dismissal procedures in Poland, it is not required for the employer to notify or consult a third party before dismissing one redundant employee if employee is not a member of a trade union. Third-party approval if one worker is dismissed is also not needed. In Poland, the threshold for notification of a third party is applied if dismissals affect at least 10 workers for employers with 20 or more but less than 100 workers. There is also a retraining or reassignment obligation before an employer can make a worker redundant. A common group of protected categories of workers is quite limited and includes a pregnant employee, a female employee on maternity leave. These provisions are quite “standard” for high income countries.

In Poland, the severance pay depends on the number of years of service of the employee as follows: i) 1 month remuneration if employed below 2 years; ii) 2 month remuneration if employed between 2 and 8 years, and iii) 3 month remuneration if employed more than 8 years.

This is quite a modest severance pay provision, although slightly above the average for high income countries. On the other hand, it does not apply to small enterprises with less than 20 workers. However, Poland may consider to establish a minimum period of seniority (a vesting period) before a worker is entitled to severance pay for dismissals, say one year.

Source: Kuddo (2014).

- 3) ***Developing a solid long-term and child care sector*** can thus deliver gains on multiple fronts: it would respond to an increasingly pressing need for care of the elderly and of 0-3 children, an age range where the offer of quality care is still emerging in Poland; and, as indicated above, it would provide a source of labor demand for older women, while eliminating the existing participation constraints.²⁰
- 4) **Promoting age management**, especially among small and medium firms, which constitute the fabric of the private sector in Poland. Emerging evidence on age management shows that it has the potential to increase productivity. At the same time, age management is still limited in Poland. This might be due to the fact that small and medium enterprises – those that are least likely to be equipped with the knowledge and infrastructure to implement age management – make up for most of the private sector. Therefore, outreach to SMEs and to those institutions that represent their voice and can function as units of coordination and aggregation (chambers of commerce, etc.) might be key to improve age management on a broad scale.

²⁰ A separate paper which is part of this task takes stock of long-term care and financing in EU11 countries.

Table 2: The summary of main obstacles and disincentives for active aging (labor market participation) together with proposed policy options is presented in the table below. Those relevant for Poland: in the short-term perspective and long-term perspective have been highlighted.

Policy Area	Youth	Prime age	Older workers	Detailed recommendations
Employment protection legislation (EPL)	Availability of internships, apprenticeships, probation periods	Flexible work time arrangements for women with care duties, mini-jobs for low-productivity workers	Avoidance of seniority premiums for older workers, excessive severance payments; legislation against discrimination of older workers	Remove legislation prohibiting employers to lay off a worker less than four years before retirement age (which deters hiring of older workers)
Pension policy	Early saving incentives, financial literacy	Continued incentives for pension contributions; pension planning tools and advice; portability of pension schemes	Incentives for early retirement (from pension, but also disability and unemployment benefits); Availability or bridging pensions or other flexible pension arrangements, gradual retirement	Phase out special old-age pension regimes (for farmers, miners, uniformed services, prosecutors and judges) and eliminate remaining pre-retirement schemes Revise the formula used to calculate disability pensions in line with that used for old-age or minimum pensions (declining projected replacement rates may increase the demand for disability benefits in the years ahead) Promote the employment of the disabled (currently very limited) by: reducing the employer quota of 6%, while raising the penalty for firms failing to reach it; and better training and activation of disabled workers.
Tax and benefit policy		Incentives for part-time work, mini jobs, casual work, self-employment, taking into account tax and benefit design; focus on incentives of second earners and benefit recipients;	Work incentives after retirement; incentives for part-time work, mini jobs, casual work, self-employment	Support temporary employment among older workers, which has proven to be an effective way to increase their employment
Care policy	Availability of flexible care benefits and services for children and elderly; Maternity/paternity benefits and other policies that allow reconciliation of children, care duties, and careers;			Introduce comprehensive, quality and affordable system of long-term care (and improve availability of child care services) to help women to balance work with care duties Improve horizontal policy

				coordination across ministries to reflect the fact that effective public policy (in the complex area of population aging) requires broad multidimensional actions
Activation policies	Support for school-to-work transitions through ALMPs	Activation of vulnerable groups	Incentive programs for hiring/retaining older workers	
Health policy	Health promotion	Health promotion; preventative care; mental health initiatives/social care	Health promotion; preventative care; mental health initiatives/social care	Promote healthy way of life and regular health diagnoses to prepare for longer activity in the labor market and improve the productivity
Life-long learning	School readiness; employability; cognitive and behavioral foundations	Employability (technical, behavioral and cognitive)	Employability (technical, behavioral and cognitive)	Ensure that workers acquire adequate education, training, and skills throughout their lives, from early childhood to old age
Workplace interventions	Human resource strategy for career development; mentor programs	Training and reskilling; family-friendly policies	Training and reskilling; Encourage firms to adapt the workplace to fit older workers' needs (BMW, CVS) – see later example; flexible schedules (e.g. in extended working years or to deal with caregiving obligations; mixed-age teams; mentorship	

References

Aedo C., et al. (2013), *From Occupations to Embedded Skills: A Cross-Country Comparison*. Policy Research Working Paper 6560. Washington, DC:World Bank.

Autor D.H., Levy F., Murnane R.J. (2003), "The Skill Content Of Recent Technological Change: An Empirical Exploration," *The Quarterly Journal of Economics*, MIT Press, vol. 118(4), pages 1279-1333, November.

Börsch-Supan A., M. Brandt , H. Litwin and G. Weber (Eds). (2013). *Active ageing and solidarity between generations in Europe: First results from SHARE after the economic crisis*. Berlin: De Gruyter.

Börsch-Supan, A., Brandt, M., Hunkler, C., Kneip, T., Korbmacher, J., Malter, F., Schaan, B., Stuck, S., Zuber, S. (2013). Data Resource Profile: The Survey of Health, Ageing and Retirement in Europe (SHARE). *International Journal of Epidemiology* DOI: 10.1093/ije/dyt088.

Bugajska, J., Hildt-Ciupińska K. (2012), *Evaluation Of Activities Targeted At Employability Of Older Workers in Polish Enterprises*, *Medycyna Pracy*, 63(4): 453-462

Hildt-Ciupińska K., *Zarządzanie wiekiem - promowanie aktywności zawodowej osób 50+. Przykłady dobrych praktyk.*, CIOP-PIB, Warsaw

Bukowski M., Buchholtz S., Gąska J. and Szczerba P. (2013), *Structural changes and labour supply in the future – the case of Poland; results of the estimation using WISE COSIMO model*, WISE Institute, Background paper prepared for World Bank CEM project in Poland. Mimeo.

Chawla, M., Betcherman, G., and Banerji, A. (2007), *From Red to Gray: The Third Transition of Aging Populations in Eastern Europe and the Former Soviet Union*. Washington, DC: World Bank.

European Commission (2012), *The 2012 Ageing Report: Economic and Budgetary Projections for the EU27 Member States (2010-2060), Joint Report prepared by the European Commission (DG ECFIN) and the Economic Policy Committee (AWG)*, European Economy 2/2012. Brussels: European Commission.

Faruqee H. (2002), *Population Aging and its Macroeconomic Implications – A Framework for Analysis*, IMF Working Paper WP/02/16. Washington DC: International Monetary Fund.

Golinowska, S., Sowa A. (2013), *The Development of Long-Term Care in Post-Socialist Member States of the EU*, CASE Network Studies & Analyses, No. 451/2013.

Jabłonowski. J, Müller. Ch. (2014), *A fiscal outlook for Poland: Update 2014. Background paper prepared for the World Bank's Country Economic Memorandum (CEM) for Poland*, Research Center for Generational Contracts Freiburg University, Discussion Papers No. 54 – June 2014.

Johansson A., et.al., (2012), *Looking to 2060: Long-term global growth Prospects*, OECD Economic Policy Papers, No. 03. Paris: OECD Publishing.

Kotowska, Woycicka, ed. (2008), *Sprawowanie opieki oraz inne uwarunkowania podnoszenia aktywności zawodowej osób w starszym wieku produkcyjnym. Raport z badań*, Department of Economic Analyses and Forecasts, Ministry of Labor and Social Policy, Warsaw.

Kryńska, E., Krzyszkowski, J., Urbaniak, B., Wiktorowicz, J. ed. (2013), *Diagnosis of the current situation of women and men aged 50+ on the labour market in Poland. Final report*, Department of Economic Analyses and Forecasts, Ministry of Labor and Social Policy, and University of Lodz, Lodz.

Malter, F., Börsch-Supan, A.(Eds.) (2013). *SHARE Wave 4: Innovations & Methodology*. Munich: MEA, Max Planck Institute for Social Law and Social Policy.

Martinez-Fernandez, C. et al. (2013), "Demographic Transition and an Ageing Society: Implications for Local Labor Markets in Poland", OECD Local Economic and Employment Development (LEED) Working Papers, 2013/08, Paris: OECD Publishing.

Ministry of Labor and Social Policy (MPiPS), 2008, *Dezaktywizacja osób w wieku okołoemerytalnym. Raport z badań*, Department of Economic Analyses and Forecasts, Ministry of Labor and Social Policy, Warsaw.

OECD (2014), *OECD Economic Surveys: Poland 2014*, Paris: OECD Publishing.

Samoliński B, Raciborski F (red.), *Zdrowe starzenie się: Biała Księga. Koalicja na rzecz Zdrowego Starzenia się*, Warszawa 2013

Styczyńska I., Conceptual framework of the active ageing policies in employment in Poland. CASE Network Studies & Analyses, No. 470/2014.

Tamarisa N.T., Faruquee H. (2006), *Macroeconomic Effects and Policy Challenges of Population Aging*, IMF Working Paper WP/06/95. Washington DC: International Monetary Fund.

Tyrowicz, J., Strzelecki, P. (2013), *Labour market effects of early retirement reform in Poland. A regression discontinuity approach, mimeo*, Faculty of Economic Sciences, University of Warsaw

World Bank/MillwardBrown SMG KRC(2012), *Older Worker Labor Force Participation and Employment – Poland. Qualitative Research*.

World Bank (2013), *Skilling Up Vietnam: Preparing the workforce for a modern market economy*, Vietnam Development Report 2014.

World Bank (2014). "Balancing Flexibility and Worker Protection: Understanding Labor Market Duality in Poland," Policy Note.

World Bank, forthcoming (i), *Poland – Country Economic Memorandum (CEM): Saving for Growth and Prosperous Aging*. Washington, DC: World Bank.

World Bank, forthcoming (ii), *To Live Long and Prosper. The Prospects of Healthy, Active, and Prosperous Aging in ECA*. Washington, DC: World Bank.

Annex 1. Estimating labor supply changes

Improvements in health status, declines in pension replacement rates, and the ongoing shift towards services should support an expansion of the labor supply in Poland by 600 thousands additional workers, i.e. around 4% through 2060 (see tables and figures below and Buchholtz et al. (2014)²¹). The lower expected probabilities of labor market exit of the future generations in Poland are plausible due to a substantial distance between Poland and the EU average (and the EU frontiers) in key structural characteristics (labor force participation, life expectancy, health status etc.), on which Poland is expected to converge over the next decades.²² An improvement in health conditions would drive labor

²¹In contrast to the AWG projection, this forward-looking assessment reflects the economic and demographic processes instead of backward-looking relations and behavioral assumptions which most probably will not hold in the next few decades. The assumption about constant, historical values of entry and exit rates from the labor market by cohort means, for example, that the probability of labor market exit of a 60-year old person who retires 2050 is as low as of a person who retired in early 2000s. In the light of dramatic structural changes in Poland, in particular the introduction of the NDC pension reform of late 1990s and projected fall in pension replacement rates, the probability of labor market exit of a 60-year old in 2050 will be much lower than of a 60-year old in 2010.

²²In addition, Buchholtz et al. (2014) undertook a thorough literature review searching for elasticities between selected structural developments and labor market participation by age group. The relationships established are summarized in Annex 1. Estimating labor supply changes

Improvements in health status, declines in pension replacement rates, and the ongoing shift towards services should support an expansion of the labor supply in Poland by 600 thousands additional workers, i.e. around 4% through 2060 (see tables and figures below and Buchholtz et al. (2014)). The lower expected probabilities of labor market exit of the future generations in Poland are plausible due to a substantial distance between Poland and the EU average (and the EU frontiers) in key structural characteristics (labor force participation, life expectancy, health status etc.), on which Poland is expected to converge over the next decades. An improvement in health conditions would drive labor market supply up, as rising wellbeing strengthens individual's ability to work. Pension regulations, in particular replacement rates, have an impact on the age-related likelihood of labor market withdrawals. Additionally, the service sector offers more opportunities to work in better conditions than industry. The joint introduction of these three structural changes entails a stronger effect than as a sum of separate impacts, as the estimates are computed on top of the other changes and accumulate. Towards the end of the projection period, these interactions between the three changes translate into an additional 100 thousand of workers. Because the changes mostly affect exit rates, the additional workforce will be comprised of older workers, mostly aged 66-70 years old. Participation rates for males aged 71-75 years old reach 15%, three times more than in the baseline. For females in the same age group, it doubles as compared to the baseline. The additional workers are recruited mainly from older men who are less often engaged in activities like grandchildren bearing or parents care than women.

Table 2: Impact of introducing the combined three changes on labor force participation – women (2050)

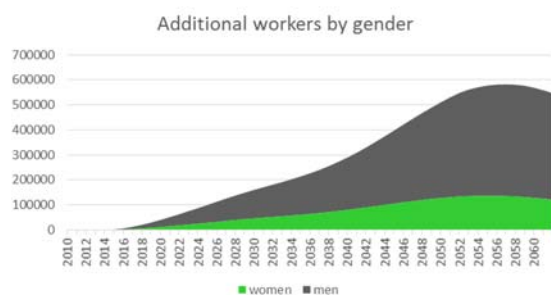
Table 3: Impact of introducing the combined three changes on labor force participation – men (2050)

	Impact of changes	Baseline	Difference
15-20	11.63%	11.63%	0.0%
21-25	58.22%	58.22%	0.0%
26-30	75.40%	75.40%	0.0%
31-35	79.23%	79.23%	0.0%
36-40	82.20%	82.20%	0.0%
41-45	82.14%	82.14%	0.0%
46-50	76.79%	76.77%	0.0%
51-55	67.98%	67.76%	0.2%
56-60	44.36%	43.06%	1.3%
61-65	20.80%	18.15%	2.6%
66-70	15.54%	12.37%	3.2%
71-75	4.86%	2.72%	2.1%

Source: WISE COSIMO model simulations.

	Impact of changes	Baseline	Difference
15-20	16.02%	16.02%	0.0%
21-25	74.53%	74.53%	0.0%
26-30	92.19%	92.19%	0.0%
31-35	93.04%	93.04%	0.0%
36-40	91.60%	91.60%	0.0%
41-45	89.03%	89.03%	0.0%
46-50	82.79%	82.77%	0.0%
51-55	78.08%	77.90%	0.2%
56-60	67.46%	65.60%	1.9%
61-65	52.95%	45.60%	7.4%
66-70	34.14%	20.68%	13.5%
71-75	15.04%	5.33%	9.7%

Figure 1: Additional workers, by gender



Source: WISE COSIMO model simulations.

Figure 2: Additional workers, by age group

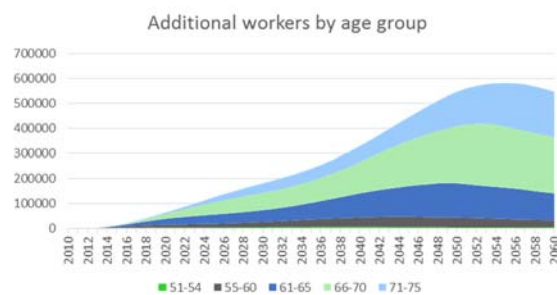
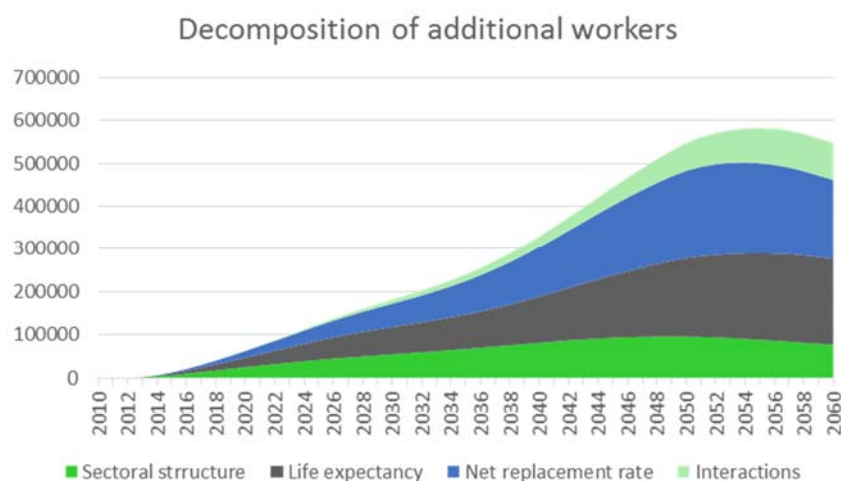


Figure 3: Decomposition of additional workforce by analyzed structural changes



Source: WISE COSIMO model simulations.

market supply up, as rising wellbeing strengthens individual's ability to work. Pension regulations, in particular replacement rates, have an impact on the age-related likelihood of labor market withdrawals. Additionally, the service sector offers more opportunities to work in better conditions than industry. The joint introduction of these three structural changes entails a stronger effect than as a sum of separate impacts, as the estimates are computed on top of the other changes and accumulate. Towards the end of the projection period, these interactions between the three changes translate into an additional 100 thousand of workers. Because the changes mostly affect exit rates, the additional workforce will be comprised of older workers, mostly aged 66-70 years old. Participation rates for males aged 71-75 years old reach 15%, three times more than in the baseline. For females in the same age group, it doubles as compared to the baseline. The additional workers are recruited mainly from older men who are less often engaged in activities like grandchildren bearing or parents care than women.

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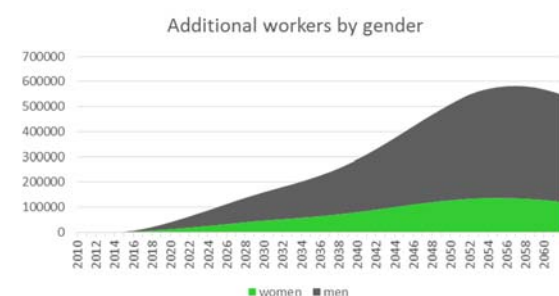
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51-55	67.98%	67.76%	0.2%
56-60	44.36%	43.06%	1.3%
61-65	20.80%	18.15%	2.6%
66-70	15.54%	12.37%	3.2%
71-75	4.86%	2.72%	2.1%

Source: WISE COSIMO model simulations.

Table 3: Impact of introducing the combined three changes on labor force participation – men (2050)

	Impact of changes	Baseline	Difference
15-20	16.02%	16.02%	0.0%
21-25	74.53%	74.53%	0.0%
26-30	92.19%	92.19%	0.0%
31-35	93.04%	93.04%	0.0%
36-40	91.60%	91.60%	0.0%
41-45	89.03%	89.03%	0.0%
46-50	82.79%	82.77%	0.0%
51-55	78.08%	77.90%	0.2%
56-60	67.46%	65.60%	1.9%
61-65	52.95%	45.60%	7.4%
66-70	34.14%	20.68%	13.5%
71-75	15.04%	5.33%	9.7%

Figure 1: Additional workers, by gender



Source: WISE COSIMO model simulations.

Figure 2: Additional workers, by age group

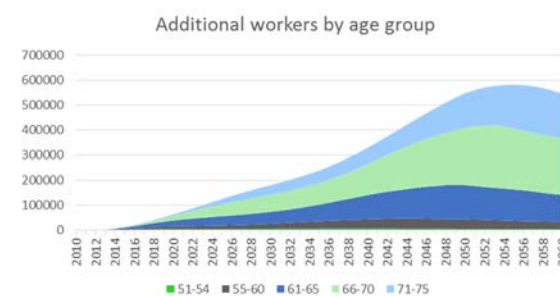
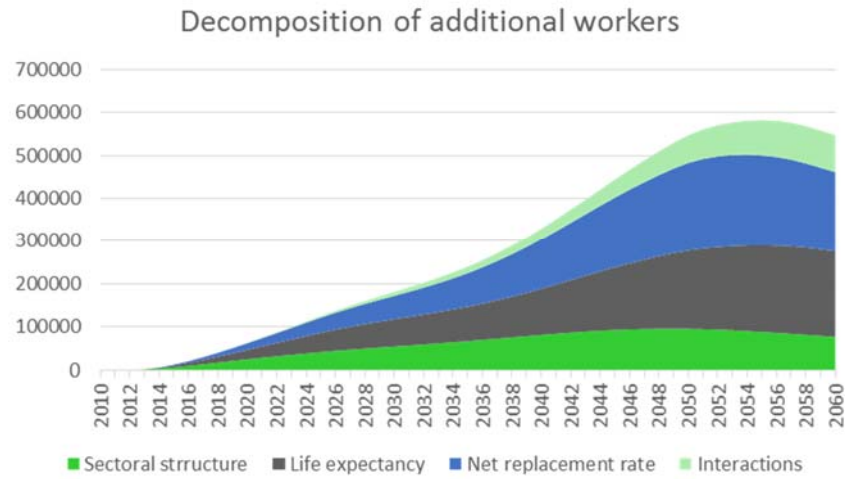


Figure 3: Decomposition of additional workforce by analyzed structural changes



Source: WISE COSIMO model simulations.

Annex 2. Literature review on empirical elasticities of labor force participation by age groups

Various drivers of labor force participation were considered in the literature review, which in general, increase the propensity to work and save. The first structural change reviewed was an increase in life expectancy and improvement of health status. The data reveals a robust correlation between life expectancy and healthy life expectancy that should directly translate into a decrease of exit rates and a rise in labor force participation. Second, technological change –which makes some jobs less burdensome and leads to a decrease in disutility from work - was considered. The last effect is linked to a decrease in future net replacement rates as aging create a pressure to reduce the generosity of the pension system.

Despite the abundance of publications, it is difficult to find out the exact elasticities driving labor supply by age cohort. This is because different methods of estimation, samples and approaches to quantifying the impact of measures on labor supply. For example, the reaction of labor force participation to a higher net replacement rate may be different than a reaction to a lower net replacement rate. On health status, it may be measured by objective or subjective indicators. The link between technological change and sectoral changes in the economy and labor force participation is quite difficult to track. Also, education indicators were examined, but because they are closely associated with policies, their effects are not reported.

Replacement rate

The impact of changes in net replacement rate on labor force participation is the most extensively researched in the literature. However, the range of elasticities' estimates is broad. Even though the literature on the relationship between net replacement rate and participation rate is abundant, there are few papers focused on the probability of exit from the labor market. Based on a cautious assumption with this respect, labor supply expands by 200 thousands employees through 2060 compared the baseline scenario.

The expected reduction of net replacement rates of the pension system in Poland and a switch from the NDB to the NDC system in late 1990s will drive future participation rates. This is confirmed by experience Chile where such a reform was introduced in early 1980s. In Poland, official projections suggest, that due to the pension system reform introduced in 1999, net replacement rates for 60 year olds may drop by 15 percentage points in 2030 and further 20 percentage points by 2050 (Ministry of Labor and Social Policy, 2005). Such a dramatic change must exert pressure on exit rates of elderly workers. Therefore, we may expect significant decline of exit rates for older workers because they will be more reluctant to retire as retirement will be associated with a significant deterioration of quality of life.

Health status

Health status proved to be an important determinant of labor force participation, especially for older workers. This applies both for an increases in life expectancy and healthy life expectancy. The literature

suggests, however, a substantially weaker relationship between life expectancy and labor force participation than with the net replacement rate, and estimates of elasticity of labor force participation or LM exit rates with respect to life expectancy are rare. Based on cautious assumptions, labor supply is to increase by app. 200 thousand through 2060 if the projected increase in life expectancy materializes.

Technological change

Projected structural changes will affect the labor supply of the older workers in the next few decades.

Thanks to technological improvements, some jobs become less tiring and burdensome as most of physical work is mechanized or automatized. The economy shifts towards services, the sector in which accidents are less frequent and work conditions are more favorable. This is confirmed empirically by the data from the Polish Labor Force Survey (LFS) - the employed in services exit the labor force later than the workers in industry. Also, technological change drives employment in occupations requiring higher skills.

The impact of technological on labor market was derived from the LFSdata. The difference of roughly two years was identified between average LM exit age for workers in services and industry sector. Then, it was projected that the average age of exit from the LM in the service sector will be by one year higher than in the baseline, in which 72% of employees are to work in services through 2060. Following these steps, the projected labor supply is to increase by around 100 thousands employees in comparison to the baseline 2050.

Source: Buchholtz et al., 2014.