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Armenia

Demographic Change

Implications for Social Policy and Poverty

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Acronyms and Abbreviations

BEEPS	Business Environment and Enterprise Performance Survey
EBRD	European Bank for Reconstruction and Development
ECD	Early Childhood Development
GDP	Gross Domestic Product
ILCS	Integrated Living Conditions Survey
LSMS	Living Standards Measurement Survey
MCB	Minimum Consumption Basket
MTEP	Medium-Term Expenditure Program
PAYG	Pay-as-you-go
PISA	Programme for International Student Assessment
PROST	Pension Reform Option Simulation Toolkit
OECD	Organization for Economic Co-operation and Development
OOP	Out-of-pocket
SSSS	State Social Security Service
UNICEF	United Nations Children's Fund

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Note #5

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Executive Summary

1. ***This note provides an overview of demographic changes and their policy implications in Armenia, with particular reference to the poor.*** Armenia is currently experiencing a significant aging of the population and decrease in the size of the population—these changes have far-reaching implications. The fertility rate in Armenia has fallen dramatically—from about 4.5 children per woman in the 1950s to 1.74 children per woman at present—which is well under the fertility rate required for population replacement. Armenia's population—which stood at 3.5 million people in 1990—is expected to decrease to 3 million by 2050. This trend, combined with increasing life expectancy, underlies the growing rise in the percentage of elderly persons and the decline in the working-age population. This note provides an overview of the key demographic changes unfolding in Armenia, highlights their linkages with social spending, and draws policy implications for labor force participation, productivity, and ultimately for Armenia's development and poverty reduction trajectory.

2. ***The looming demographic changes in Armenia imply a tradeoff between growth, poverty reduction, and fiscal sustainability policies in the medium-term.*** The rising share of elderly persons in the population will lead to increased fiscal obligations for pensions and other programs that are utilized primarily by older Armenians. This spending is necessary to prevent the impoverishment of the elderly population, who may not have any other sources of income. However, if the demographic transition is not well-managed, the rise in spending on the elderly could drain fiscal and administrative resources away from other generations, and thus damage the growth prospects for Armenia's economy. The only sustainable strategy for durable poverty reduction lies in economic growth—therefore, finding the right balance between enhancing the productivity of the young and supporting the living standards of the elderly becomes an essential objective for Armenia's long-term prosperity. The note provides a number of policy options that may help relax the constraint that will be imposed by demographic forces over the next several decades.

3. ***The working-age population of Armenia is starting to decrease, and the prospect of an even faster future decline poses a serious challenge to sustaining and enhancing labor supply in the future.*** One way of tackling this challenge is to enact policies that increase the share of the working-age population that is engaged in—or actively searching for—employment. The labor force participation rate in Armenia is 75% for men and 60% for women. These rates compare favorably with other countries in the region. The note presents simulations of the evolution of the total labor force in Armenia. These simulations suggest that the total labor force is likely to increase from about 1.60 million to 1.66 million between 2008 and 2012, and then decrease to 1.62 million by 2020. The latter decrease could be all but avoided if the government could achieve even a small and gradual increase (2% from 2008 to 2020) in the labor force participation rate of all age/gender groups. This could be achieved either by activating individuals who are out of the labor force altogether, or by encouraging movement of individuals from the informal to the formal sector. Another policy that could help promote higher participation rates—and at the same time reduce the fiscal burden on the pension system—would be to increase the retirement ages. The government has already taken one commendable step in this direction: starting in 2006, the government began increasing the female retirement age

gradually so that it will reach the male retirement age of 63 by 2011. This is a sensible policy, given that female life expectancy is seven years higher than male life expectancy (at 77 and 70 years, respectively). The development of affordable child care and dependent care services could help to increase female labor force participation in Armenia. The unemployment rate in Armenia is high—in 2009, it was 18.5% for those aged 15+, and a staggering 41% for those aged 15-24. This suggests that more should be done in terms of job creation and job search assistance.

4. ***In addition to raising the participation rate, measures to improve labor productivity are imperative to mitigate the impact of the demographic changes.*** Improvements in labor productivity can arise from a better educated and more flexible workforce, a more effective use of technology, and better matching between worker skills and jobs. Reforming the education system would play a major role in this effort. Other measures that could increase labor productivity include adult education and life-long learning opportunities to maintain and enhance workers' skills, including training and re-training in new technologies. Current social spending patterns suggest that Armenia might be paying insufficient attention to its youngest citizens, given the increasingly important role they will have to play in supporting the rising ranks of the elderly. The low level of public spending directed to the 0-5 age group stands in contrast to growing international evidence that successful early childhood development programs offer potentially the highest rates of return on human capital investments. The enrollment rate in pre-school services is very low—this is largely due to high out-of-pocket fees and a low quality of facilities and materials in kindergartens.

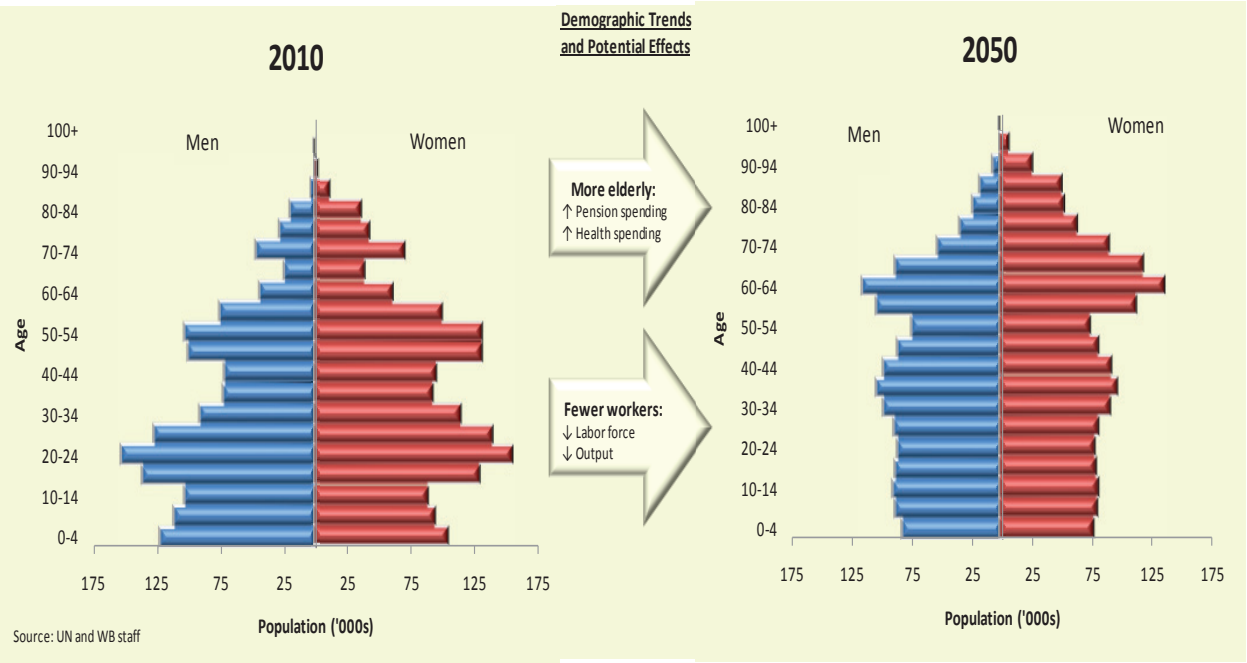
5. ***The aging of Armenia's population is already putting a strain on the country's pension and health systems.*** Pensions are an indispensable source of income for many households, and a significant buffer against old-age poverty. An analysis based on 2009 data shows that the overall poverty rate would increase by 11.8 percentage points (35%-45.9%) in the absence of pension transfers. At the same time, the fiscal burden on the pension system in Armenia is very serious: in 2008, the pension system dependency rate (the ratio of pensioners to contributors) was 106%, which is very high by comparison to other countries in the ECA region. Moreover, the age profile of contributors in Armenia is skewed towards older workers, which foreshadows a rising tide of new retirees over the next 15 years. The new pension reform program was adopted in December 2010, for implementation in 2013. It remains to be seen how the reform will affect both the sustainability and the income support objectives of Armenia's pension system. The impact of an aging population on health costs in Armenia does not appear to threaten the sustainability of the system. Age-specific drivers, such as insurance and technology, are more likely to be the cause of spending increases—but these factors can be managed through careful policy design. Moreover, government spending in Armenia is among the lowest in the region—health spending should probably be increased in the near-term.

I. Introduction

1. ***Armenia is currently experiencing significant demographic changes, which have far-reaching policy implications.*** Shifts in a country's demographic profile happen only gradually—they do not often figure prominently in day-to-day policy deliberations. However, an awareness of these trends and their ramifications is essential to inform decision-making on a wide range of economic and social issues. This policy note: (i) provides an overview of key demographic changes unfolding in Armenia; (ii) explores their implications for working-age and elderly populations; and (iii) highlights linkages with social spending and the poor.

2. ***The major drivers of Armenia's demographic shift are population decline and an aging population.*** The country has already undergone a dramatic decline in its fertility rate, which fell from about 4.5 children per woman in the 1950s to the present level of 1.74 children per woman. This is well under the fertility rate required for population replacement. This trend, combined with increasing life expectancy, underlies the evolution in the age structure of Armenia's population, which is depicted in Figure 1. The two main demographic changes evident from these trends are a rise in the percentage of elderly persons, and an eventual shrinkage of the working-age population.

Figure 1: Demographic trends and key policy issues in Armenia



3. ***The population shifts depicted in Figure 1 raise important issues regarding Armenia's growth prospects and poverty reduction policies.*** With fewer people of working age expected to support a growing percentage of elderly persons, policymakers should consider a number of

policy questions. These include: (i) how to balance poverty-reduction policies aimed at different stages of the life cycle; (ii) how to ensure that future productivity gains compensate for the slowdown and eventual shrinkage of the working-age population; and (iii) how to maintain the fiscal sustainability of pension and health programs as the share of older people continues to rise.

4. ***An aging population is a reality that cannot be avoided in Armenia—however, significant policy space exists for mitigating its potential negative impact on Armenia's development trajectory.*** Policy levers are available to promote labor market participation and productivity to counter rising dependency ratios; education systems—including early childhood education—can be strengthened to support these efforts; and measures can be taken to ensure that pension and health spending is sustainable. Moreover, targeting these proactive policies to the most vulnerable segments of the population is likely to deliver the greatest impact on both the current and future well-being of the nation. These issues are summarized in Table 1.

Table 1: Looking at Demographic Changes in Armenia through a Poverty Lens

Demographic trend	Key policy challenges	Linkages with social policies
Shrinking working-age population	Promoting labor force participation	• Child and dependent care (e.g., long-term care) options • Linking the unemployed with jobs • Raising retirement ages
	Raising labor force productivity	• Early childhood education • Lifelong learning • Active labor market programs
Rising elderly population	Containing pension cost pressures	• Choosing benefit levels, retirement age • Adequate replacement rates, social pensions
	Containing health system cost pressures	• Enabling access to care by lowering out-of-pocket payments • Service delivery reforms

5. ***The note is structured as follows:*** Section II summarizes the key demographic trends underway in Armenia; Section III presents a profile of poverty and social spending by age; Section IV analyzes the four policy issues as listed in column 2 of Table 1. In each of these three sections, the poverty reduction angle is emphasized. The final section provides a summary of the key messages.

II. Demographic Trends

6. ***As is the case in many of the countries in the Europe and Central Asia region, Armenia's population is falling.*** Armenia's population stood at 3.5 million in 1990—it is expected to decrease by half a million by 2050, which represents a fall of 14% (see Figure 2). This decline is similar to that expected in Armenia's neighbor Georgia (15%), and somewhat smaller than that expected in another neighbor, Russia (22%) (see Figure 3).

Figure 2: Total Population of Armenia, 1990-2050

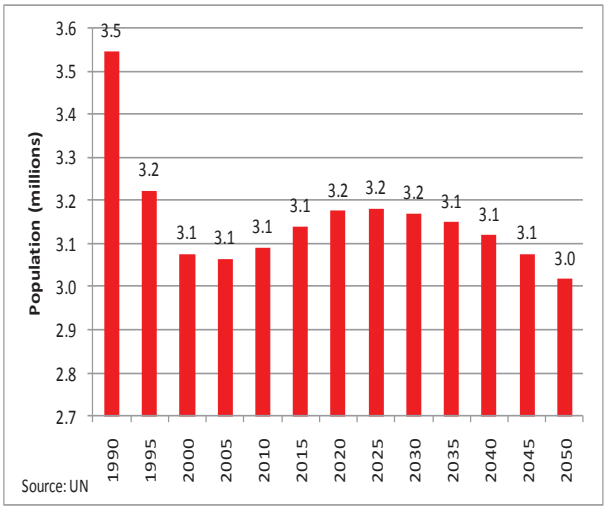
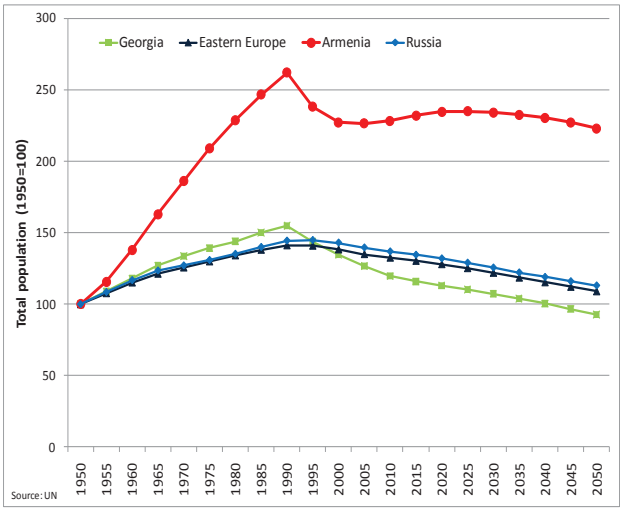


Figure 3: Population size in Armenia and the Region, 1950-2050

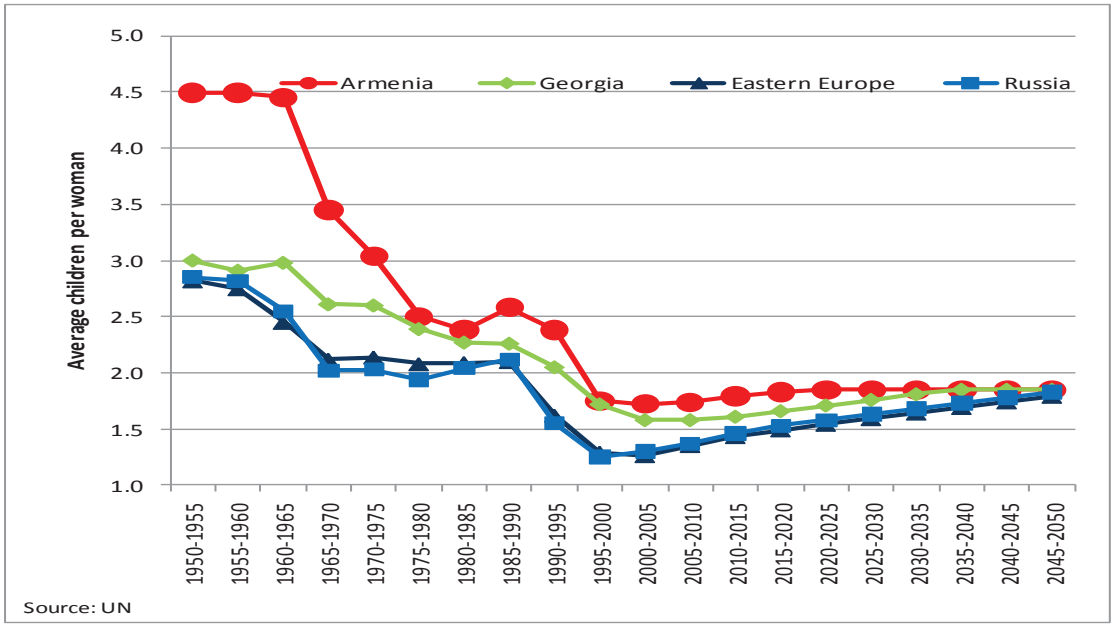


Note: "Eastern Europe" includes Belarus, Bulgaria, Czech Republic, Hungary, Moldova, Poland, Romania, Russia, Slovakia and Ukraine.

7. ***Armenia's population dynamics are in large measure a result of its fertility rate, which has converged with that of other countries in the region since the second half of the last century.*** Figure 4 shows that in 1950, Armenia's fertility rate—at 4.5 children per woman—was much higher than the fertility rate in Georgia or other Eastern European countries. The fertility rate in Armenia has experienced a dramatic decline since 1960. It is currently slightly higher than the regional average. It is expected to stabilize at about 2 children per woman in the next few decades. In addition, Armenia has high population emigration tendency, which contributes not only to reduction in the size of the population, but also to changes in its age structure. More recently, Armenia has experienced a growing trend of skewed sex ratios (the number of male births per female birth); this currently stands at 1.11, as compared to 1.06 in Eastern Europe and 1.05 in the west. The long-term implications of this apparent gender imbalance are unclear. [1]

[1] See Meslé et al. (2007), who attribute this to sex-selective abortions which are prevalent among third births. A skewed sex ratio has been proposed as a cause of China's high savings rate (Wei and Zhang 2009).

Figure 4: Total Fertility in Armenia and the Region, 1950-2050



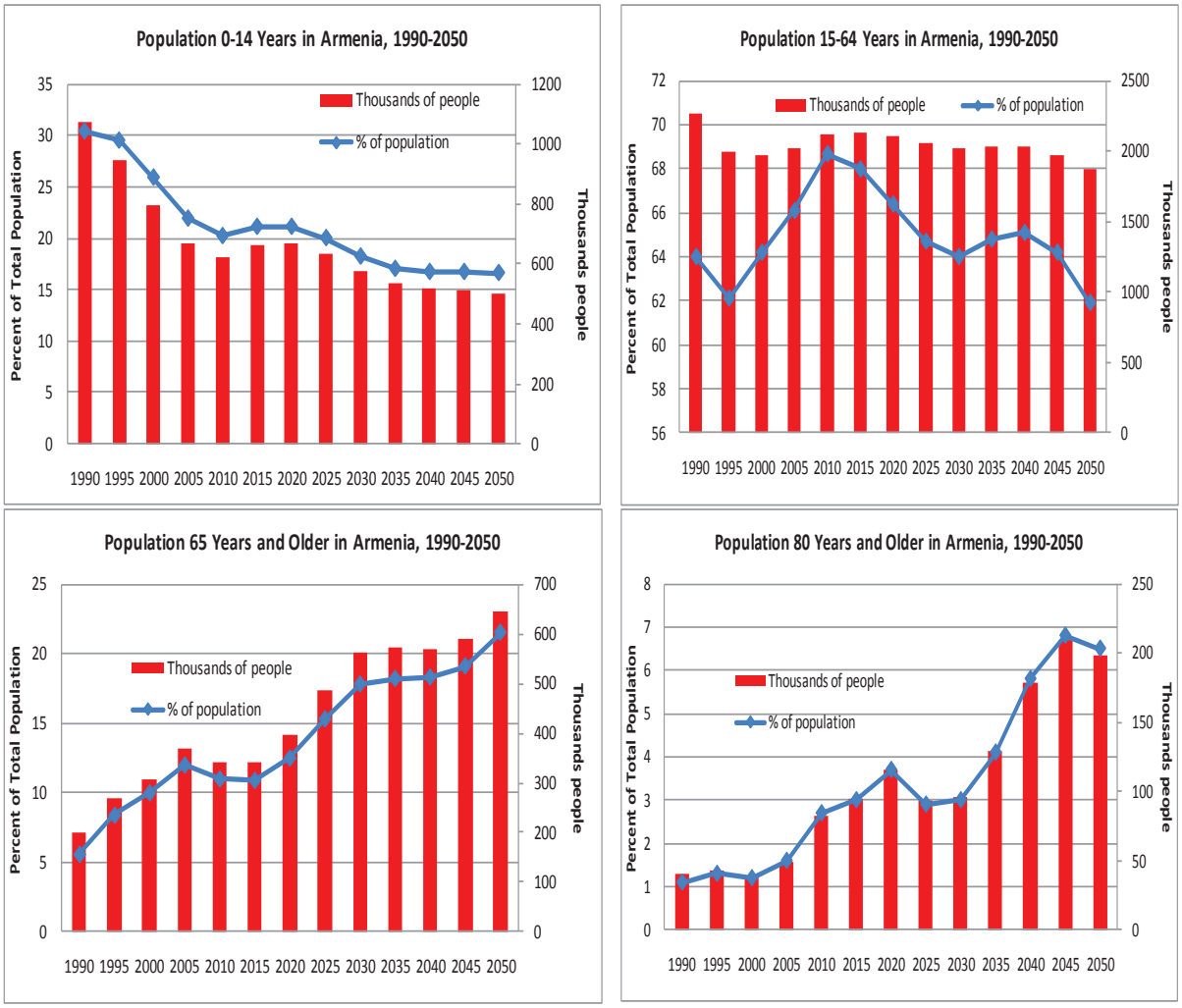
Note: "Eastern Europe" includes Belarus, Bulgaria, Czech Republic, Hungary, Moldova, Poland, Romania, Russia, Slovakia and Ukraine.

8. ***Moderate increases in longevity have also contributed to Armenia's population dynamics.*** Life expectancy in Armenia has increased from 70.8 to 73.7 (or by 4%) since the 1970s— with slightly higher gains for women than for men. This pace is similar to that of Armenia's neighbors, but much lower than that in most countries in East Asia or Latin America.[2] The future trend in life expectancy in Armenia is quite uncertain—it will depend on investments by government and households both inside and outside of the health sector.

9. ***Low fertility rates and gradual increases in longevity are the main factors underlying Armenia's most important demographic trends: population decline and an aging population.*** The median age in Armenia has risen by about 10 years in the last 60 years: from 22.4 in 1950, to 32 in 2010. The pace of aging is projected to accelerate, with the median age reaching 43 by 2050. Figure 5 shows the predicted evolution of four age groups between 1990 and 2050, with respect to both population count and share of the population. During this span, the population share of the 0-14 age group is expected to fall from 30% to 17%. The population share of the 15-64 age group is expected to fall from 69% to 62%, which represents a decrease of about 400 thousand persons. By contrast, the population shares of the 65+ and particularly the 80+ age groups will rise significantly.

[2] Rajaratnam et al. (2010), "Worldwide mortality in men and women aged 15-59 years from 1970 to 2010: A systematic analysis," *Lancet 375*: 1704-1720.

Figure 5: Evolution of population age groups in Armenia, 1990-2050

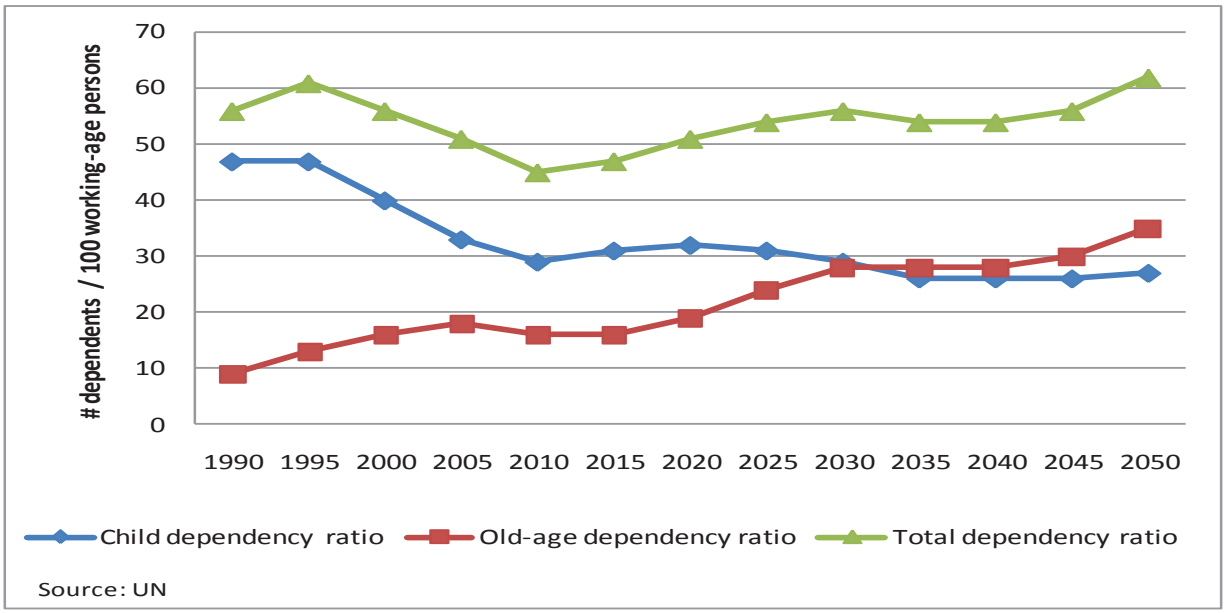


Source: UN

10. ***The trends of shrinking younger age groups and expanding older age groups will result in higher dependency ratios, which have significant policy implications.*** After some years of a declining dependency ratio[3], Armenia is currently at a turning point—with the total dependency ratio expected to increase from 45 dependents per 100 persons of working age in 2010 to 62 dependents per 100 persons of working age by 2050. The observed fall in the total dependency ratio reflected the dynamics of falling fertility. The projected rise will be entirely due to the rising old-age dependency ratio, because the child dependency ratio is forecasted to continue its decline (see Figure 6).

[3] The total dependency ratio is the ratio of the sum of the population aged 0-14 and that aged 65+ to the population aged 15-64. The child dependency ratio is the ratio of the population aged 0-14 to the population aged 15-64. The old-age dependency ratio is the ratio of the population aged 65 years or over to the population aged 15-64. All ratios are presented as number of dependents per 100 persons of working age (15-64).

Figure 6: Projected Dependency Ratios in Armenia, 1990-2050



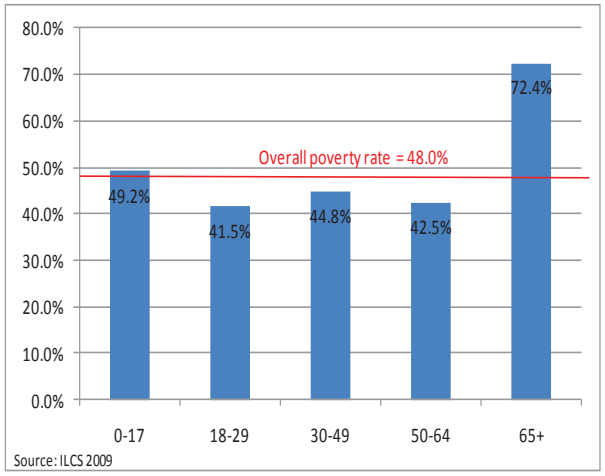
III. Age Profile of Poverty and Social Spending

11. ***The reality of an aging population can be used as a departure point for assessing poverty reduction policies through a demographic lens.*** Key questions include how and at what point in the life cycle can interventions be designed to have the greatest effect? This section discusses the profile of poverty by age group (before and after transfers), and the profile of social spending by age group. It posits the impending dilemma of finding the right balance between promoting productivity-enhancing investments in the young and the poverty-reducing support of the elderly.

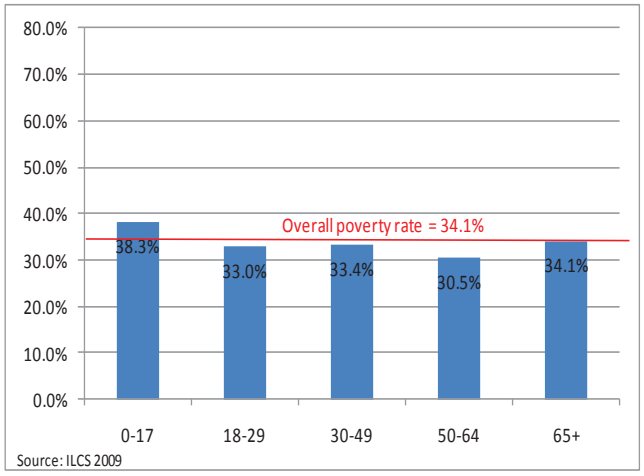
12. ***The age profile of poverty in Armenia depends on whether one focuses on pre-transfer or post-transfer figures.*** Figure 7 shows the results of both approaches. In 2009, overall pre-transfer poverty was about 50%; however, almost three-quarters of all elderly persons would have been categorized as poor without any transfers. If transfers are added to the equation, then overall poverty falls to 34%. Transfers include: pensions, unemployment benefits, and social assistance programs, such as the Family Benefit Program and child allowance. The poverty impact of transfers is most vivid for the elderly: old-age poverty falls from 72.4% to 34.1%. This suggests that pensions play an important poverty-reducing role in the country.

Figure 7: Poverty by Age Groups in Armenia (before and after transfers)

Pre-Transfer

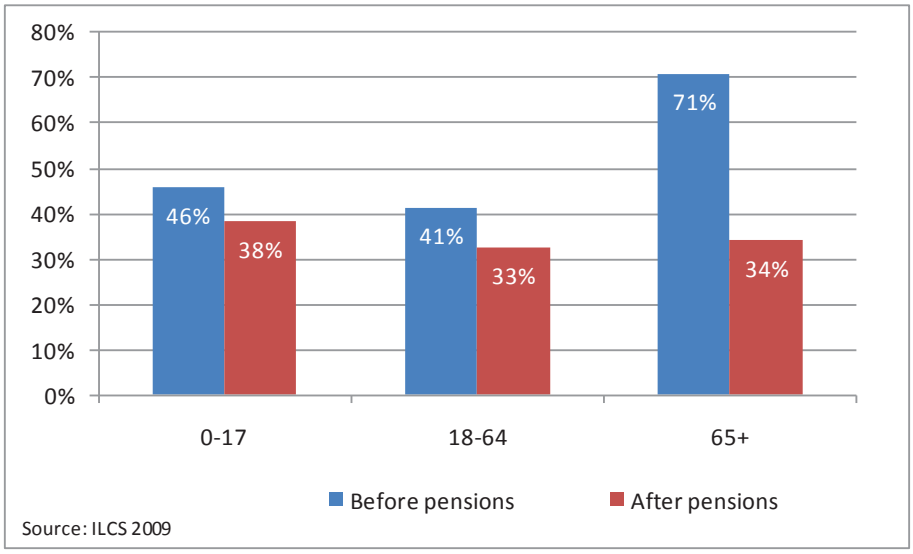


Post-Transfer



13. ***Pensions are an important source of income and a significant buffer against poverty—and not only for the elderly.*** Pensioners account for about 15% of all Armenians. Due to a high level of multi-generational living, about 53% of all households in the country include at least one pensioner. In 2009, pensions represented about one-quarter of the total household expenditures in households with a pensioner. Figure 8 shows that, whereas the poverty rate of the elderly rises the most in the absence of pensions, the poverty rate of children also increases substantially (8 percentage points).

Figure 8: Poverty Impact of Pensions in Armenia, by Age

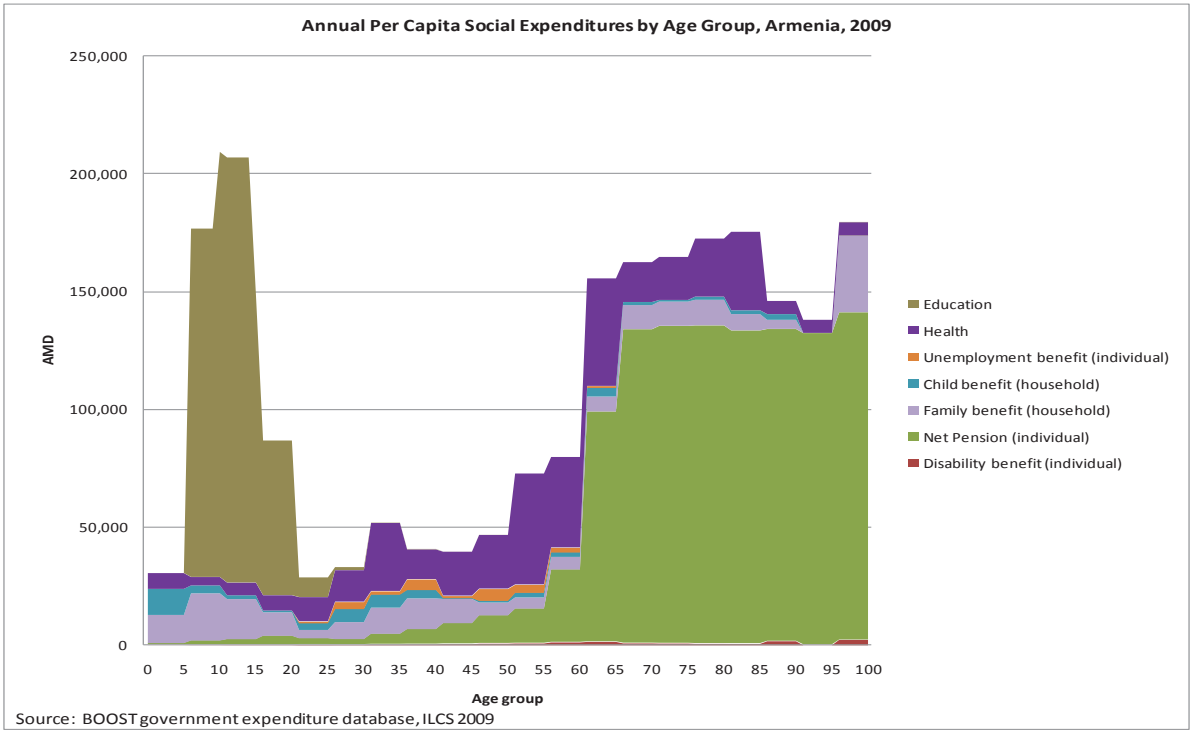


14. ***The looming demographic changes will oblige the Government of Armenia to find the right balance between short-term poverty-reducing measures such as pensions, and longer-term productivity-enhancing investments in young Armenians.*** Figure 9 shows the current balance of social spending, resulting from an exercise to disaggregate social spending according to the age of the recipient. Figure 9 is based on 2009 administrative data from the BOOST government expenditure database (constructed by World Bank staff using Ministry of Finance data), in combination with an analysis of the 2009 Integrated Living Conditions Survey (ILCS). The methodology for this exercise is described in Box 1. Pensions currently dominate other social protection programs; given the demographic changes outlined in the previous section, it can be expected that this graph will become even more skewed to the right in the next few decades.

15. ***Figure 9 shows that the 0-5 age group receives the least amount of social spending.*** This stands in contrast to growing international evidence that successful early childhood development programs offer potentially the highest rates of return on human capital investments. An emerging body of literature has identified the strong linkages between early childhood experiences and later life outcomes, including educational achievement, employment, and health outcomes.[4] Indeed, as a general rule "the earlier the better" appears to hold true with regard to the impact of programs aimed at skills development. Rates of return in the early childhood period are estimated to be significantly higher than those for school-age children, which in turn are better than those for youth or young adults. Only economic growth can provide Armenia with sufficient resources to support the rising numbers of elderly persons in a sustainable manner. Therefore, it is vital to ensure that young Armenians receive the requisite investments to make them as productive as possible. The next section will explore a range of policy issues that arise in this context, focusing on how to target policies for the greatest positive impact on the living standards of all Armenians.

[4] See, for example, Almond and Currie (2010), "Human Capital Development before Age 5". NBER.

Figure 9: Age distribution of social spending in Armenia



Source: BOOST government expenditure database, ILCS 2009

Box 1: Methodology for Constructing Age Profile of Social Spending

Social Protection

The study team used the 2009 program-level government budget data for the level of annual spending (for pensions, net of aggregate contributions to the program). The team considered two scenarios: (i) income from individual-based social programs (i.e. pensions as well as benefits for disability, public service, and unemployment) is retained by the benefit recipient—as shown in Figure 9; and (ii) income from individual-based social programs is distributed equally among family members. The team used the nationally-representative household survey (ILCS 2009) to obtain the age distribution of benefit recipients for each program included in the survey. It also calculated the shares of each five-year age group within the total population of Armenia.

Under the first scenario, the income from individual-based transfers is allocated to the individual recipient's age group, and annual per capita spending is obtained by dividing the total spending for each program by the age group size.

Under the second scenario, the income from individual-based transfers is redistributed equally within the household; this implies that if two pensioners live in a five person household, each household member is assigned 40% of the average pension benefit. In order to account for the significant proportion of inter-generational households in Armenia, this scenario reassigns some pension spending to younger age groups; the bulk of social protection spending under this scenario remains allocated to the elderly.

Education

To construct the age profile of education spending, the study team used the 2009 budget data for each education level, and the age group sizes were obtained from ILCS 2009. For each education level, the team obtained corresponding normative age ranges (i.e. the expected age of elementary school children is 6-9) and/or check them against survey responses to questions about education in the preceding year (thus, we would expect children aged 7-10 in 2009 to have attended elementary school in 2008). For higher or vocational education, the team only used survey responses on education.

Health

To construct the age profile of health spending, the study team used the 2009 ILCS to calculate annual per capita out-of-pocket (OOP) spending (excluding visits to private facilities and pharmacy payments) for each age group. Because OOP payments constitute about two-thirds of total health spending, the team assumed that the age profile of OOP was the same as the age profile of beneficiaries of government health spending. The OOP age profile was applied to the total government health budget for 2009.

Note: The methodology for this analysis was based on a similar exercise conducted in World Bank (2010), *Turkey: Expanding Opportunities for the Next Generation: A Report on Life Chances*.

IV. Policy Issues

4.1. Increasing labor force participation, reducing unemployment, and raising labor productivity

16. ***The shrinking working-age population poses an obvious challenge to sustaining and enhancing labor force output and growth in Armenia.*** The Government of Armenia should consider policy options aimed at creating higher labor force participation rates, including stronger attachment to the formal labor market (especially among the poor) and possibly return migration. It should also consider measures to boost worker productivity—through improved education quality and opportunities for life-long learning.

17. ***Overall, the labor force participation rate in Armenia compares quite favorably with other countries in the region.*** Among persons in the 15-64 age group, it is currently about 75% for men and 60% for women—about 67% overall (see Table 2). These rates are higher than the rates in Europe, and comparable to its neighbors, Georgia and Russia. Figure 10 shows labor force participation by age group—with the familiar inverted U-shape: the youngest and oldest age groups are least likely to be in the labor market. The ILO projects fairly stable labor force participation rates over the next ten years.

Table 2: Labor Force Participation Rates in Armenia and the Region

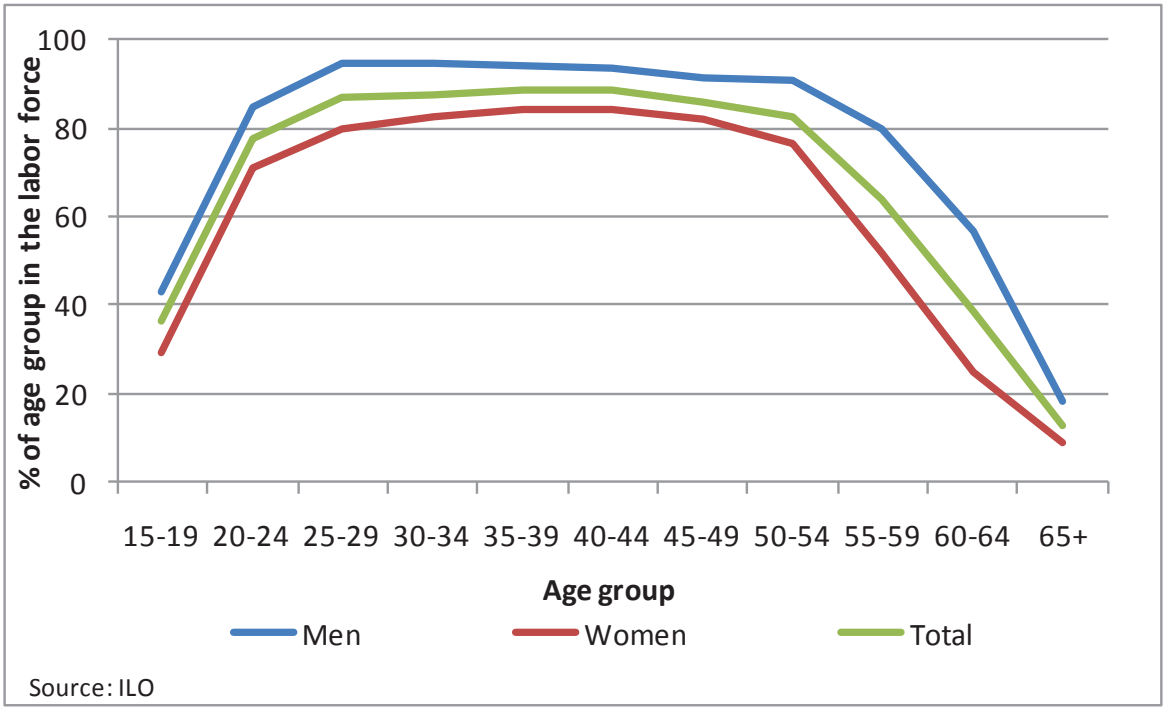
Armenia: Labor force participation rates, 1990-2020			
	Men	Women	Total
1990	77.9	60.9	69.0
1995	72.0	56.4	63.6
2000	72.4	57.2	64.1
2005	73.3	58.6	65.2
2010	**74.9**	**59.8**	**66.6**
2015	75.5	59.9	66.9
2020	73.3	57.5	64.6

Source: ILO

ECA: Labor force participation rates, 2009			
	Men	Women	Total
Armenia	**74.6**	**59.6**	**66.3**
EU-27	66.4	51.8	58.9
EU-10	64.4	50.1	56.9
Russia	73.6	62.9	67.8
Georgia	73.8	55.1	63.7

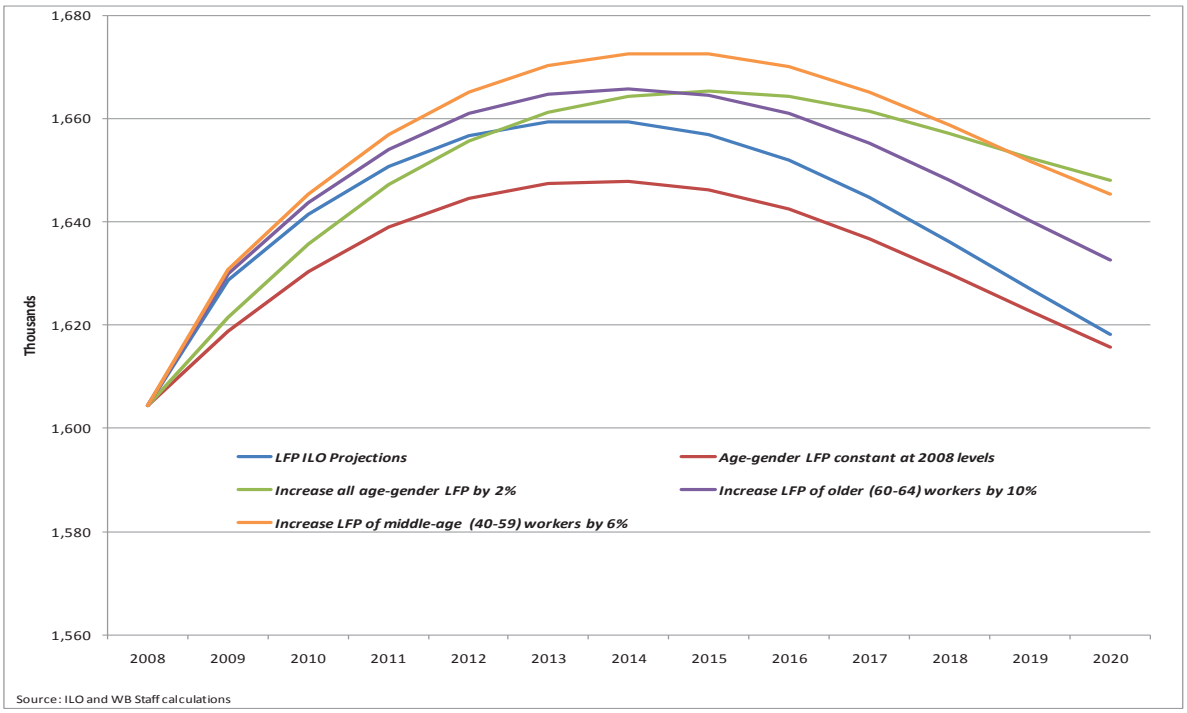
Source: ILO

Figure 10: Age Profile of Labor Force Participation Rates in Armenia, 2008



18. ***Some basic simulations provide an indication of the potential evolution of labor force participation in Armenia under alternative scenarios.*** Figure 11 shows a baseline ILO scenario for labor force participation, under which the number of workers first rises from about 1.60 million to 1.66 million between 2008 and 2012 and then falls back to 1.62 by 2020. The latter decrease could be all but avoided if the government could achieve even a slight gradual increase (2% from 2008 to 2020) in labor force participation of all age-gender groups. This could be achieved either by activating individuals who are out of the labor force altogether, or by encouraging movement of individuals from the informal to the formal sector. One potential policy lever in this regard would be to adjust the level of labor taxation, because higher labor taxes can discourage both inactive and informally-employed individuals from joining the formal sector.

Figure 11: Labor Force Participation Projections under Alternative Scenarios, 2008-2020



19. ***Another policy that can help promote higher participation rates is an increase in the mandated retirement ages.*** The government has already taken one commendable step in this direction: starting in 2006, the government began increasing female retirement age gradually so that it will reach the male retirement age of 63 by 2011. This is a sensible policy, given that female life expectancy is seven years higher than male life expectancy (at 77 and 70 years, respectively). Once retirement ages have been equalized, the government may want to consider gradually raising both retirement ages to the OECD median of 65, in order to encourage labor force participation and decrease the burden on the pension system. Currently, early pensions are provided to people as young as 55—if they have worked at least 15 years under extremely hazardous conditions. If the government is willing to consider raising the ages for early pensions or revising the qualifying occupations, this could also expand the labor force.

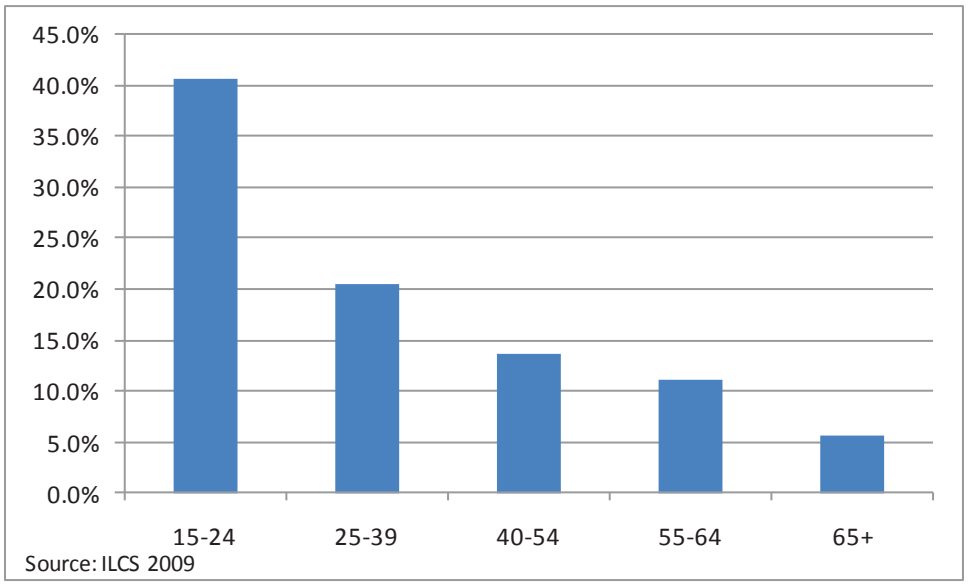
20. ***Improved access and availability of child care services could help to increase female labor force participation.*** Simple regression analysis shows that women with children aged 0-5 are 17% less likely to be economically active than women of similar age, education, and household composition who have no children aged 0-5. Some of this effect may be due to a women's choice to stay at home and raise children, but another part may arise from a lack of child care options. According to the 1996 Law on Local Self-Governance, the responsibility for funding early childhood development (ECD) programs has been transferred to local authorities. The latter have not always been able to satisfy the demand for these services.[5] High out-of-pocket fees and low-quality facilities and materials in kindergartens also contribute to the low

[5] Jan van Ravens (2008), *Scenarios for Early Childhood Development in Armenia: Financial and Legal Analysis of National Preschool Education Programmes, Policies and Strategies in the Republic of Armenia*, UNICEF.

enrollment rate in preschool services (about 20% in 2009, according to the ILCS 2009). The primary objective of early childhood development programs should be investing in the future of Armenia, but in addition, these programs can create the immediate payoff of bringing more Armenian women into the labor force.

21. ***Unemployment—in particular, youth unemployment—wastes the increasingly scarce human capital resources of Armenia.*** As of 2009, the overall unemployment rate (using the ILO definition of unemployment) was 18.5% for those in the labor force aged 15 and over. At the same time, the unemployment rate of 15-24 year olds stood at a striking 40.6% (see Figure 12). This state of affairs points to serious bottlenecks in the labor market, which can be due to skills mismatches or inadequate job creation. Support and funding for active labor market policies that assist the unemployed with training and job searching, could improve utilization of human resources in Armenia's economy. In addition, measures to improve Armenia's investment climate could also have positive long-term impacts on labor productivity. The 2009 Business Environment and Enterprise Performance Survey (BEEPS) revealed that the three biggest obstacles perceived by Armenian firms are: (i) the practices of the informal sector; (ii) high tax rates; and (iii) political instability (World Bank and EBRD 2009). Promoting formalization, lowering the tax burden, and strengthening government capacity should encourage firms to create jobs for unemployed Armenians.

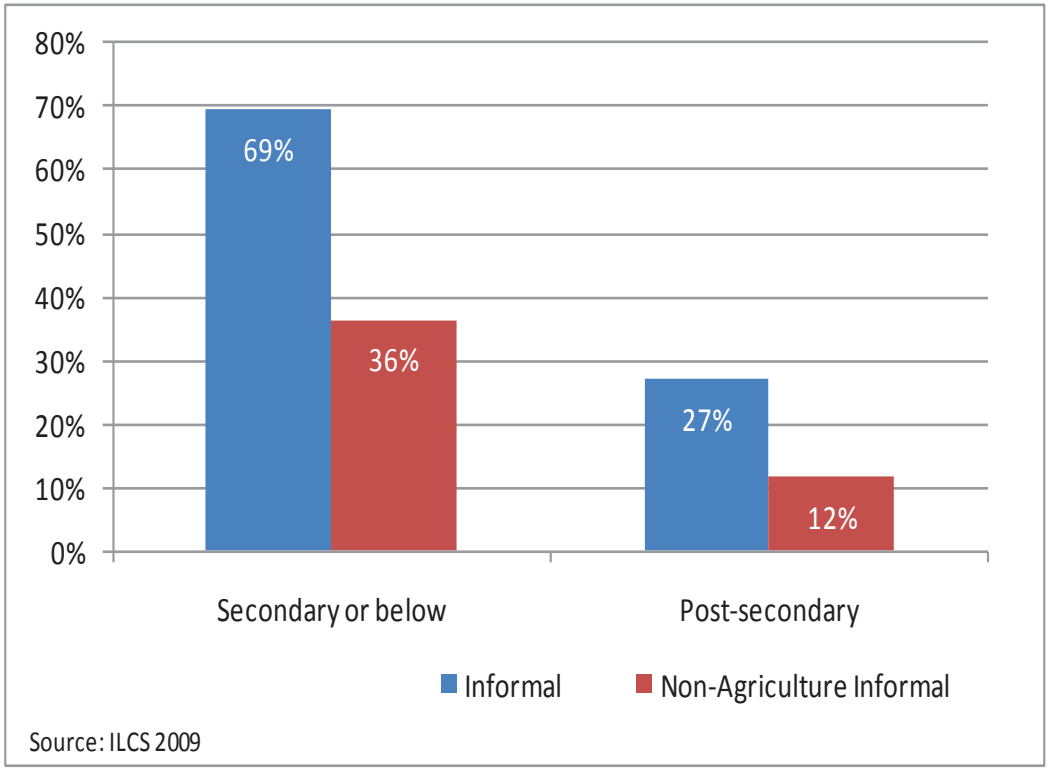
Figure 12: Unemployment Rate by Age Group in Armenia, 2009



22. ***In addition to raising the sheer number of employed Armenians, measures to improve the productivity of workers could help mitigate the impact of the demographic changes.*** Indeed, growth in labor productivity can substitute for labor supply growth. Improvements in labor productivity can arise from a better educated and more flexible workforce, more effective uses of technology by individual workers, and better matching between worker skills and jobs. A key step for improving worker productivity would be reform of the education system. Figure 13

reveals that working-age able-bodied adults with post-secondary education are less likely to be engaged in informal work—which is known to be less productive.

Figure 13: Informality in Armenia, by Educational Attainment, 2009



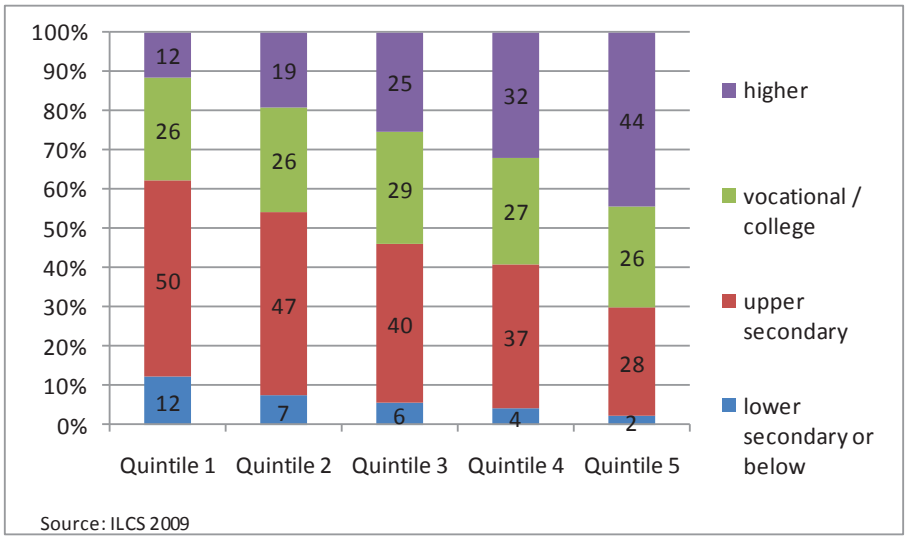
23. ***Social programs targeting the adult population can have a major impact on "equality of outcomes", particularly among those who can no longer work—social programs targeting the youngest can have a major impact on "equality of opportunity".*** In Armenia, as elsewhere, life chances are often strongly influenced by circumstances beyond the control of the individual. For example, there is a spatial dimension: poverty rates are significantly higher in rural areas and in particular regions (e.g., Shirak). There is also a strong inter-generational channel: households in which somebody has attained a higher education degree have half the poverty risk of other households—a factor beyond the control of the children in the household. The notion that poverty is caused by much more than just individual effort is well-supported by the Armenian population: only 15% attributed the existence of poverty to "laziness and lack of willpower", whereas 62% pointed to "injustice in society" or "an absence of luck."[6]

24. ***Labor market productivity can also be increased through programs for adult education and life-long learning for the working-age population that help workers keep their skills up to date.*** Currently, only about 1.5% of the adult population participates in qualification upgrading and requalification courses, However, the Ministry of Education and Science is presently

[6] World Bank-EBRD Life in Transition Survey, 2007.

working on a Strategy for lifelong learning. These programs are best targeted to the poor, who generally have lower educational attainment (Figure 14).

Figure 14: Education of Working-Age Able-Bodied Adults, by Consumption Quintile



25. ***In sum, poverty-reduction policies that seek to enhance equality of opportunity—particularly among the young—merit serious consideration.*** This would entail exploring options for directing a greater share of social spending to younger age groups, focusing particularly on early childhood development programs. The Armenian Government—with support from the World Bank and UNICEF—is already working on enhancing the quality of and access to ECD services, and this issue is emphasized in Armenia's *Strategic Programme for 2008-2015 Reforms in Preschool Education*. Other policies that should be considered in this vein include life-long learning and active labor market programs. Moreover, participation in the formal labor force can be encouraged through revising retirement ages and developing better options for child care. Finally, the design of social transfer programs should be closely monitored for the presence of labor disincentives.

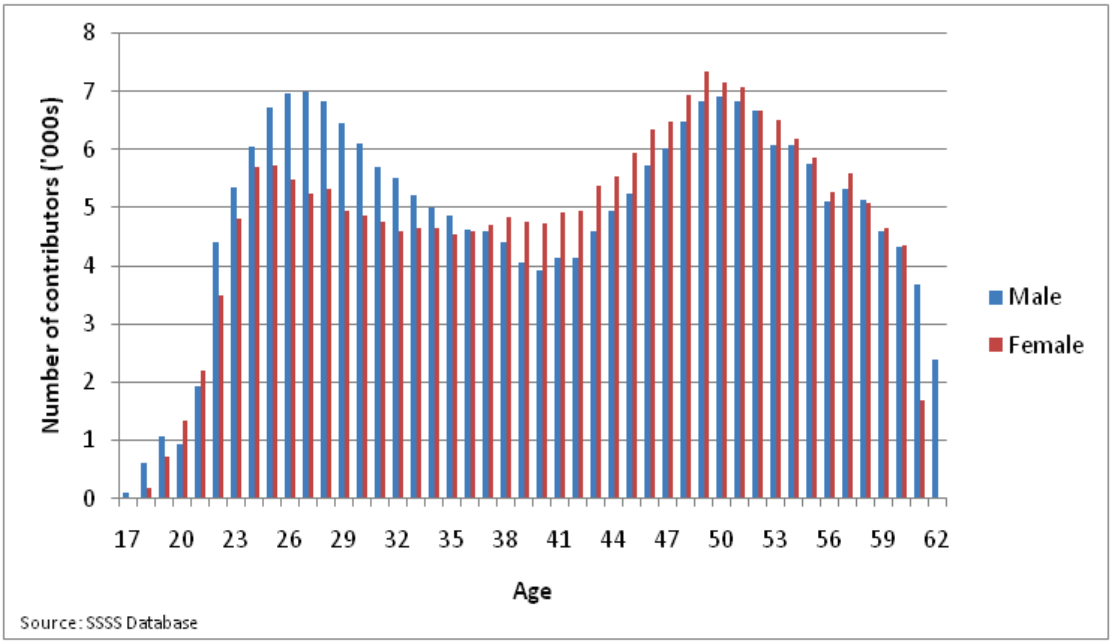
4.2. Fiscal sustainability of pensions and health care

26. ***Over the next few decades, Armenia will start experiencing an increase in its dependency ratio, which is currently at its historically lowest point. More elderly individuals per worker could have significant implications for the fiscal sustainability of social spending in Armenia in the years ahead.*** The two major programs from a budgetary perspective are old-age pensions and health care. The following section presents a briefly analysis of the potential costs of these programs under alternative scenarios.

27. ***The aging of Armenia's population is already putting a strain on the country's pension system.*** The pension system dependency rate is defined as the ratio of all pensioners (old-age, disabled, and survivors) to contributors. As of 2008, the pension system dependency rate in

Armenia was 106%—which is very high compared to other countries in the ECA region.[7] The age profile of contributors in Armenia is skewed towards older workers, which foreshadows a rising tide of new retirees over the next 15 years (see Figure 15).

Figure 15: Contributor by Age and Gender in Armenia, 2008



28. ***The main demographic trends shown in Figure 1—in particular, the expected decrease in the working-age population and increase in the elderly population—will add to the burden on the pension system.*** The World Bank's Pension Reform Options Simulation Toolkit (PROST) was used to analyze the sustainability of Armenia's pay-as-you-go (PAYG) pension system.[8] The PROST analysis used: (i) 2008 administrative data from the National Statistical Service for demographic and labor market projections; (ii) information from the Medium Term Expenditure Program for macroeconomic projections; and (iii) data on pension system indicators and parameters from the State Social Security Service (SSSS).[9] Most PROST simulations assumed a fairly optimistic demographic scenario, based on a rising fertility rate and zero net migration after 2030. The baseline simulation assumed no change in the existing retirement patterns beyond the legislated increase in female retirement age to 63 by 2011. The average length of

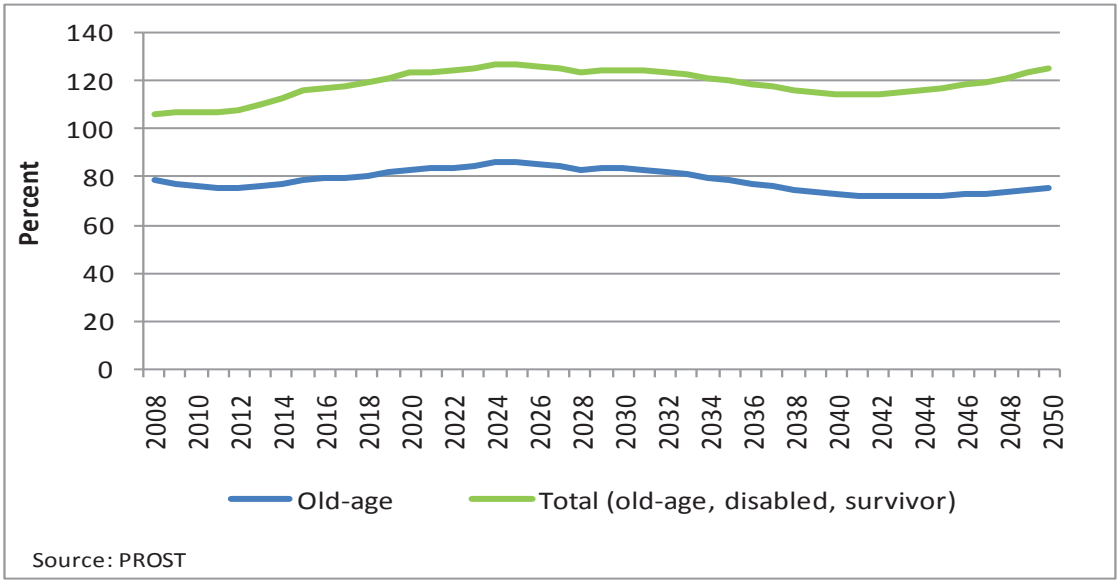
[7] The average reported in the World Bank's *From Red to Gray* report was 64% (Figure 4.1).

[8] The World Bank's Pension Reform Options Simulation Toolkit (PROST) is a computer-based toolkit used to simulate pension systems over the course of time. It has been used in over 90 countries. It is flexible enough to evaluate and compare different reform options in terms of their effects on system sustainability, levels of retirement income, and government liabilities.

[9] Prior to 2008, the social protection sector of Armenia was funded by the state budget (social assistance, social welfare services, non-contributory-based social pensions and military retirement benefits) and by the Social Insurance Fund (SIF) (labor or insured pensions, unemployment and sick leave benefits). Starting in January 2008, the SIF was reorganized into State Social Security Service (SSSS), meaning all social contributions are channeled to state budget and all social protection programs, including so-called insured pensions (or contributory-based pensions) are financed directly from state budget.

service at retirement was assumed to continue its recent declining trend for the next 10 years, and to stabilize thereafter. Given these assumptions, the simulation predicts a rising total system dependency rate (see Figure 16).

Figure 16: Projected System Dependency Rates in Armenia, 2008-2050



29. ***The Government of Armenia has a policy dilemma in attempting to create a balance between providing a reasonable standard of living for pensioners and ensuring the fiscal sustainability of the pension system.*** In 2009, the average replacement rate of pensions (defined as the ratio of average pension size to average wage) was very low at about 26%.[10] To increase the value of pensions, the Government of Armenia has set out targets for pension size as a percentage of the minimum consumption basket (MCB) in the Medium-Term Expenditure Program (MTEP).[11] Projected compliance with these targets would raise the average replacement rate to about 30% of the average wage by 2025 (see Figure 17). However, the planned indexation of pension benefits to inflation after 2025 would erode the real value of pensions—with the replacement rate falling below 10% of the average wage by 2050.[12] Indexation to prices rather than wages improves the financial sustainability of the overall pension system, because wage growth generally outpaces price growth. The affordable replacement rate in Figure 17 traces the rate that would result in zero current balance of the pension system—when pension value is

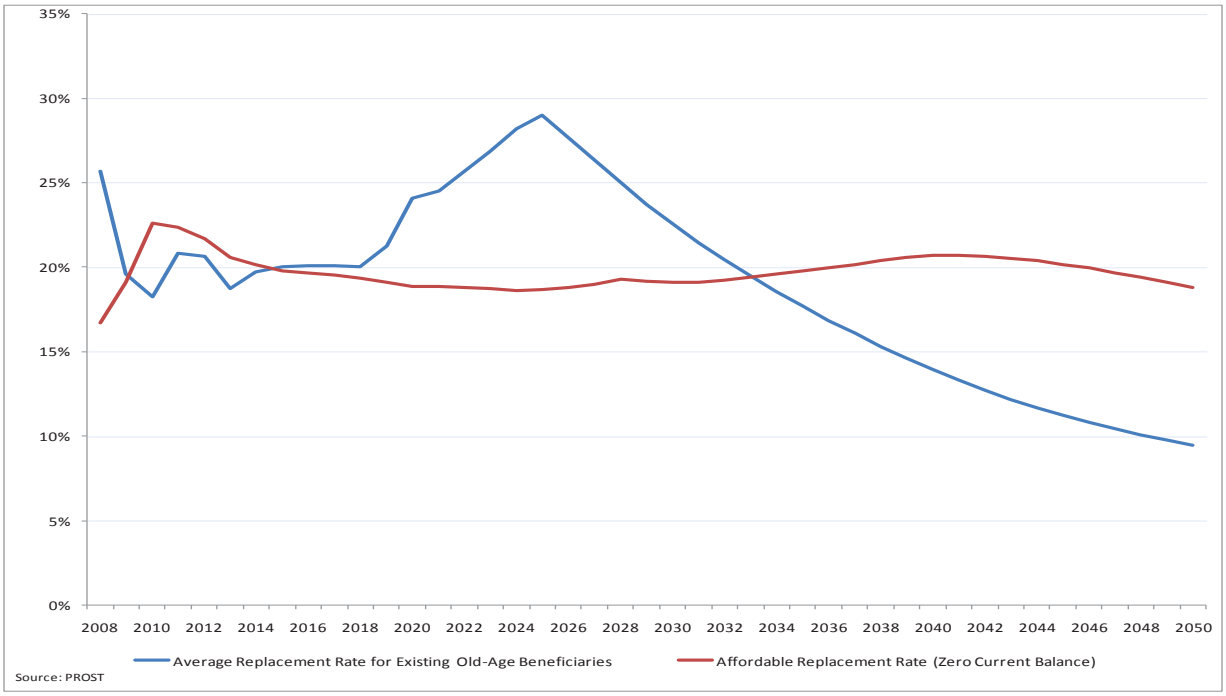
[10] The lowest gross replacement rate among OECD countries was 31% (for the United Kingdom), whereas countries in the ECA region—The Czech Republic, Hungary, Poland, and the Slovak Republic—had replacement rates of 50-77% (OECD 2009).

[11] The average size of insured pensions should reach at least 100% of MCB by 2017, and at least 150% of MCB by 2021; the size of the basic pension should reach at least 100% of MCB by 2020, and at least 120% of MCB by 2021. These are the revised deadlines that take into account the recession in Armenia following the global economic crisis.

[12] Another factor driving the decrease in replacement rates was the introduction of the unified income tax in 2013, and the optimistic assumption that employers would transfer the full amount of their prior contribution to employees' wages. This assumption resulted in an artificially high (about 20%) wage growth in 2013, affecting average wage levels for the rest of the projection period.

being raised to fulfill MTEP targets, the system enters deficit territory, but when pensions become indexed to inflation, the system gradually tends to surplus.

Figure 17: Projected Average Replacement Rate for Old Age Pensioners (% of average wage), 2008-2050 (Baseline Scenario)



30. ***In December 2010, Armenia's National Assembly adopted a new package of pension reform laws. The new laws are expected to result in a somewhat higher replacement rate for participants in the new funded pillar at the cost of a lower current surplus of the pension system.*** The reform is expected to come into force in 2013—the main change will be the introduction of the second, mandatory-funded pillar.[13] The future retirement benefits of participants in the funded pillar will consist of the basic pension and the annuities or programmed withdrawals from personal accounts.[14] The pension benefits for the first retirees with funded pensions would be only slightly higher than those with PAYG benefits (with a replacement rate of 17.2% and 15.9%, respectively).[15] However, as the value of PAYG benefits

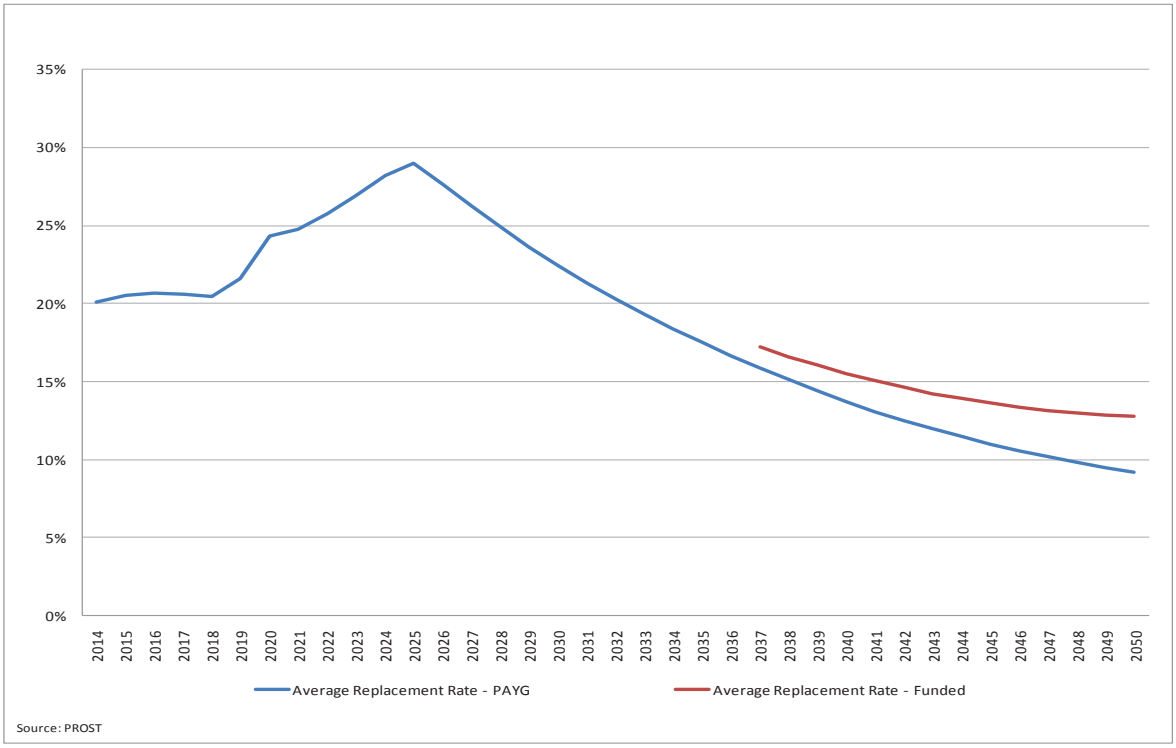
[13] Workers aged 16-40 will be switched to the funded pillar, while pension benefits of existing pensioners and workers aged 41+ will still be comprised of the basic pension and the year value part. The accumulation rate in the funded pillar will be 10%, of which the government has committed to co-finance 5% up to 25,000 AMD, with the employee responsible for the residual. This implies that workers earning more than 500,000 AMD will pay more than 5% of their earnings to reach the required 10% accumulation rate.

[14] For individuals who have accrued pension rights prior to 2014, these benefits will also be complemented by the year value part based on the number of covered years prior to the reform. The mandatory insured length of service required for receiving contributory (as opposed to social) pension will be set to increase gradually from 5 to 10 years by 2018.

[15] This calculation assumes that the annual real rate of return on investment is 4% in 2014-2017, 3% in 2018-2022, and 2% in 2023-2080 and that the annual fees for fund administration are 1.5% of contributions.

gets eroded due to indexation to inflation, the value of the funded benefits declines much more slowly, so that the difference in replacement rates continues to increase (Figure 18).

Figure 18: Projected Average Replacement Rate for Old Age Pensioners (% of average wage), 2008-2025 (Reform Scenario)



31. ***Concerns about cost pressures in the health sector also arise frequently in the context of aging populations.*** Older people are typically in worse health, and therefore require more medical care. In Armenia, the 50+ age group spends on average twice as much on health than the 18-49 age group.[16] As the population ages, overall health spending should rise.

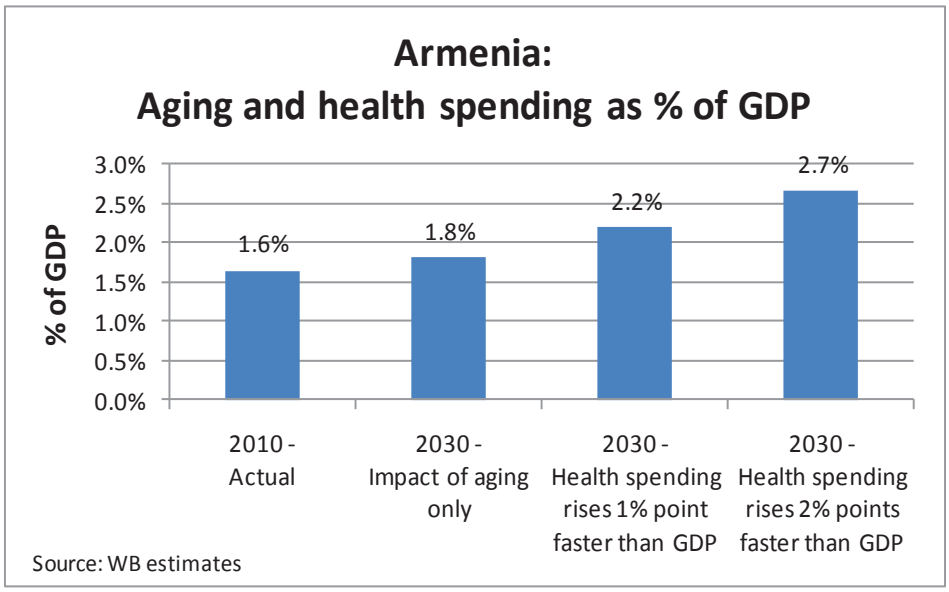
32. ***However, international literature suggests that population aging is typically not the major driver of health spending increases over the course of time.*** While an aging population does contribute to rising health costs, it happens only gradually. Thus, it cannot explain the significant increases in health expenditures over the course of time that are common around the world. There are more significant factors—in particular, the adoption of new technologies and the expansion of insurance coverage. These can be viewed as "age-specific" costs—in other words, these factors can drive up the amount that will be spent on a 65-year old in five years compared to the amount that is spent on a 65-year old today. These factors may be particularly important in Armenia during the years ahead, because at present there are significant out-of-pocket payments even for the Basic Benefit Package, and the availability of technologies (e.g., to

[16] These estimates are based on survey data that capture out-of-pocket spending, which represents about 2/3 of total health spending in Armenia. It is assumed that a similar spending-by-age differential applies to that portion of expenditures covered by government.

treat cardiovascular disease and cancer) is far behind Europe and the U.S. However, unlike aging-related costs, age-specific expenditures are very much amenable to policy influence: judicious expansions of population coverage and benefit packages can help ensure that cost increases are manageable within the available budget.

33. ***Several simple projections are laid out in Figure 19 that illustrate the potential impact of aging and other factors on future health care costs in Armenia***. In 2010, government spending on health in Armenia was 1.6% of GDP. If medical spending per person rises at the same rate as GDP until 2030, the aging of the population will mean that health spending still increases—to about 1.8% of GDP. If, however, age-specific factors such as technology and insurance cause medical spending per person to increase at a rate of 1 or 2 percentage points faster than GDP, government health spending would increase to 2.2% or 2.7% of GDP, respectively. Therefore, age-specific factors are likely to be more important drivers of health spending increases in Armenia going forward than the aging population per se.

Figure 19: Aging and Health Spending in Armenia (% of GDP)

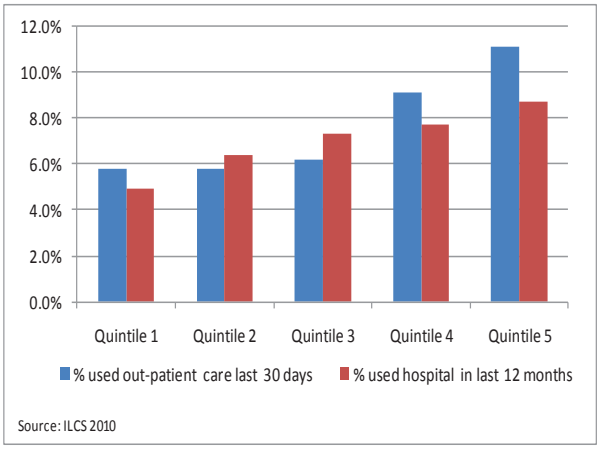


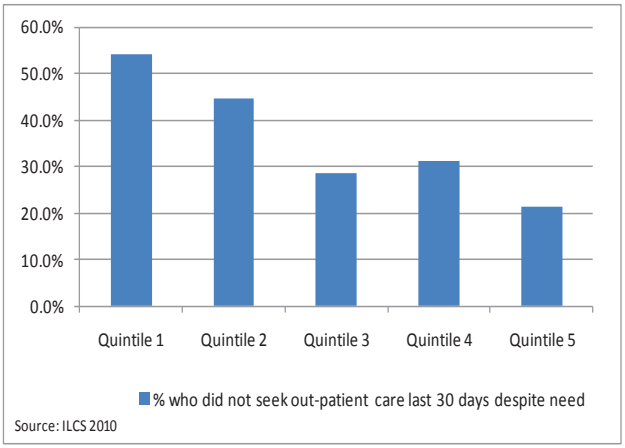
34. ***In sum, the impact of an aging population on health costs in Armenia does not appear to threaten the system's sustainability.*** Age-specific drivers, such as insurance and technology, are more likely to be the cause of spending increases—but these factors can be managed through careful policy design. Moreover, government spending in Armenia is among the lowest in the region—and in *all* of the scenarios presented above, health expenditures would remain below regional averages.

35. ***Utilization rates of out-patient and in-patient care are lower among the poor.*** Figure 20 indicates that individuals in the richest quintile visit health care facilities nearly twice as often as those in the poorest quintile. The poor are also significantly more likely to cite affordability as the reason for not seeking care. The Basic Benefit Package includes a targeted program for vulnerable groups, but the level of funding is modest. Thus, there is scope to further enhance

access to health care services by the poor—for example, by changing the program eligibility from its current score of 36, to 30 (i.e., to make it the same as the Family Poverty Benefit). In addition to improving access, a stronger targeting effort would also help lower out-of-pocket payments for the poor, without imposing the same fiscal burden as universal coverage.

Figure 20: Health Utilization in Armenia, by Consumption Quintile





V. Summary

36. ***This note aimed to provide an overview of demographic changes in Armenia and their policy implications for poverty reduction and social spending.*** Armenia's population is expected to decline slightly between 2010 and 2050. This trend will be accompanied by a growing percentage of elderly persons and a decreasing working-age population. The major cause of these changes is the continuing decrease in the fertility rate, along with a gradual increase in longevity and population emigration. Currently, Armenia's social spending is skewed towards the elderly. This helps to alleviate old-age poverty, but may give insufficient attention to the needs of the young, who will need to be increasingly more productive in order to sustain the growing ranks of the elderly in the future.

37. ***The note presented a number of policy issues associated with these demographic changes.*** Labor force participation in Armenia is relatively high by international standards. However, over the next decade the total number of workers is expected to reach its peak and then start to decline. Female labor force participation is lower in households with young children who are not attending pre-school—therefore, investment in early childhood development services could have the additional benefit of helping to expand the labor force. The persistently high unemployment rate in Armenia indicates the need for faster job creation and investment in active labor market programs, such as job search assistance and training/re-training. The government of Armenia has passed a new pension reform, which is intended both to raise the real value of pensions in the short- to medium-term through *ad hoc* increases in the basic pension, and to make the pension system more sustainable in the long-term. It remains to be seen how the reform will be implemented in practice. The fiscal sustainability of the health system in its current form does not appear to be under threat from demographic changes.

38. ***Potential topics for further analytical work that emerge from the foregoing discussions may include***: (i) early childhood development and life-long learning programs for enhancing labor force participation and labor productivity; (ii) active labor market policies aimed at linking the poor and disadvantaged with job opportunities; and (iii) linkages between health status and labor force participation.

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