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# Poverty Reduction, Shared Prosperity and Inequality in FYR Macedonia in the Post Financial Crisis Period (2009-2013)

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## Contents

Executive Summary .....	6
1. Introduction.....	7
2. Evolution of Poverty, Inequality and Shared Prosperity .....	8
3. Drivers of Poverty Reduction and Shared Prosperity .....	17
4. Changes in Characteristics of the Poor and Bottom 40 .....	27
5. Challenges Ahead .....	31
6. Conclusions.....	35
References .....	37
Appendix .....	39

## List of Figures

Figure 1: Real GDP Growth, FYR Macedonia 2003-2013 (Percentage) .....	8
Figure 2: Relative Poverty Rate and Relative Poverty Line, FYR Macedonia 2009-2013 (Headcount, 2011 MKD denars).....	8
Figure 3: Absolute Poverty Rates, FYR Macedonia 2009-2013 (Headcount) .....	9
Figure 4: Absolute Poverty Rates and Economic Development, EU-SILC countries 2012 (Headcount, 2011).....	9
Figure 5: Poverty Gap, FYR Macedonia 2009-2013 (Foster–Greer–Thorbecke index 1 (FGT1)) .....	11
Figure 6: Poverty Severity, FYR Macedonia 2009-2013 (FGT2) .....	11
Figure 7: Absolute Poverty and GDP per capita, FYR Macedonia 2003-2014 (Headcount, USD 2011 PPP).....	12
Figure 8: Growth Incidence Curve, FYR Macedonia 2003-2008.....	12
Figure 9: Growth Incidence Curve, FYR Macedonia 2009-2013.....	12
Figure 10: Shared Prosperity Indicator, FYR Macedonia 2003-2008 and 2009-2013 (annual growth rate).....	13
Figure 11: Income-based and Consumption-based Poverty and GDP per capita, Selected countries c. 2012 (Headcount, USD 2011 PPP) .....	13
Figure 12: Inequality Indicators, FYR Macedonia 2003-2008 (Gini, Theil).....	14
Figure 13: Inequality Indicators, FYR Macedonia 2009-2013 (Gini, Theil).....	14
Figure 14: Percentile ratios, FYR Macedonia 2009-2013 .....	15
Figure 15: Growth and Inequality Poverty (\$3.1/day) Reduction Micro-decomposition, FYR Macedonia 2009-2013 .....	15
Figure 16: Poverty rates and projected poverty rates, FYR Macedonia 2009-2018 (Headcount) 16	

Figure 17: Employment to Population Ratio, FYR Macedonia 2003-2013 (Percentage of population 15+).....	18
Figure 18: Employment to Population Ratio (15+), World Regions 2003-2013 (Percentage of population 15+).....	18
Figure 19: Labor Force Participation Rate, FYR Macedonia 2003-2013 (Percentage of population 15+).....	18
Figure 20: Unemployment Rate, FYR Macedonia 2003-2013 (Percentage of labor force 15+)..	18
Figure 21: Decomposition of Total Value Added Growth by Major Sector, FYR Macedonia 2004-2014 (Percentage points of annual growth).....	19
Figure 22: Contribution to Total Value Added Growth by Major Sector, FYR Macedonia 2003-2008, 2009-2013 (Percentage of total value added) .....	19
Figure 23: Contributions to Employment Growth, by Subsector, FYR Macedonia, 2009-2013 (Percentage of employment growth).....	20
Figure 24: Contributions to Employment Growth, by Sector, FYR Macedonia, 2009-2013 (Percentage of employment growth) and Average Wage, December 2013.....	20
Figure 25: Productivity and Real Wage Growth, FYR Macedonia 2004-2013 (Percentage points) .....	21
Figure 26: Annual Gross Real Wages, FYR Macedonia 2005-2013 (2011 PPP Dollars).....	21
Figure 27: Employment-to-Population Ratio, FYR Macedonia 2009, 2013 (Percentage of population 15+).....	22
Figure 28: Average household per capita labor income, FYR Macedonia 2009, 2013 (2011 PPP Dollars) .....	22
Figure 29: Employment-to-Population Rate by Educational Level, FYR Macedonia 2009, 2013 (Percentage of population 15+).....	23
Figure 30: Mean income shares by quintiles, FYR Macedonia 2009 (Percentage of gross income) .....	23
Figure 31: Decomposition of household per capita net income growth, 2009-2013 (Percentage points) .....	23
Figure 32: Social transfers beneficiaries, 2009-2014 (Beneficiaries).....	25
Figure 33: Personal remittances, selected Western Balkans countries 2003-2013 (Percentage of GDP) .....	25
Figure 34: Unemployment Rate, FYR Macedonia 2009, 2013 (Percentage of labor force) .....	32
Figure 35: Informality Rate, FYR Macedonia 2009, 2013 (Percentage points).....	32
Figure 36: Distribution of Employment by Sector among the \$3.1/day poor, 2009, 2013 (Percentage of working poor) .....	33
Figure 37: Average Annual Income of the \$3.1/day Poor by Component, FYR Macedonia 2009, 2013 (USD 2011 PPP) .....	33
Figure 38: Labor force participation by gender, Western Balkans countries, 2013 (Percentage of population 15-64).....	34

Figure 39: Youth unemployment, Western Balkans countries, c.2014 (Percentage of labor force 15-24).....	34
Figure 40: Old age dependency ratio (population 65+ over population 15-64) .....	35
Figure 41: GDP per capita in year in which total dependency ratio begins to rise (USD 2011 PPP).....	35

## List of Tables

Table 1: Profile of Poor and Bottom 40 in Assets Framework, 2009.....	29
Table 2: Profile of Poor and Bottom 40 in Assets Framework, 2013.....	30
Table 3: Country Typology Based on Demographics.....	34

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## Executive Summary

FYR Macedonia has experienced a decline in poverty in the post global financial crisis period (2009-2013) in spite of a weak macroeconomic performance. In contrast to the pre-crisis period when growth was robust but poverty stagnant, poverty indicators for the most recent years indicate an improvement on the living conditions of the bottom of the distribution. Poverty projections based on GDP growth also indicate a continued decreasing trend in 2014 and 2015.

While before the crisis the incomes of the poor were less closely tied to overall economic growth, after the crisis growth became pro-poor. The increased sensitivity of poverty to growth is explained to a large extent by the bottom of the distribution growing closer to the rest rather than generalized improvements along the entire income distribution. Employment gains were the main reason for the increase in welfare among the less well-off after the crisis, while other income sources like pensions, social assistance or remittances have played a very limited role. Labor income at the bottom of the distribution continues to be very low, however, and the sustainability of the employment gains is uncertain as the public sector played an important role for employment expansion in the period. A reduction in labor incomes was the most important contributor of overall negative income growth for those at the upper tail of the distribution.

Still, FYR Macedonia faces many challenges looking forward. Despite the recent improvements, poverty and inequality is still high when compared with other countries with similar levels of GDP per capita in the region. Low productivity growth is setting a bound for future wage increases. Income-generation opportunities for the poor are limited as the poor have very weak labor market attachment, their employment quality is lower than for the rest and are more likely to be employed in low productivity sectors. Inclusive growth seem also to be challenged by the differences in access to high wage jobs for women and the youth. Demographics seem important looking forward, since they will shape future labor markets performance.

## 1. Introduction

**Poverty statistics are critical to measure the success of economic policies in bringing greater and sustained prosperity for all citizens.** A detailed assessment of the evolution of living standards allows policy makers to maintain the poor on the agenda, to target interventions toward to the most vulnerable groups, and to monitor and evaluate projects designed to improve equity and reduce poverty.

**Poverty dynamics in Macedonia have been difficult to monitor in recent years on account of a methodological change in 2010.** Before 2010, official poverty estimates were measured using a consumption aggregate based on data from the Household Budget Survey (HBS), using a relative poverty line equivalent to 70% of median consumption. Other estimates were available, mainly by the World Bank, using a national absolute poverty line. Starting in 2010 and with support from Eurostat, FYR Macedonia State Statistics Office (SSO) moved to collecting household income using the Survey of Income and Living Conditions (SILC), with the objective of producing poverty and social statistics comparable with EU member countries. Poverty is now measured as 60% of the median income, and the SILC has allowed the production of additional indicators, such as material deprivation and low-work intensity, monitored as part of the Europe 2020 strategy for reduction of poverty and social exclusion in the EU (European Commission, 2013). While positive from a point of view of harmonizing statistical procedures with the European Union countries, the changes introduced made difficult to compare poverty statistics before and after 2010 on account of the differences in measurement of welfare.

**Macedonia's official poverty statistics in recent years are based on a relative measure, while the World Bank reports absolute poverty levels.** Measures of relative poverty are useful to identify segments of the population that may be lagging considerably behind the rest of the country. These measures usually rely on a point of the income distribution (e.g. median) to define a threshold of poverty (e.g. 60 percent of median income) and hence the value of the relative poverty line can change from one year to another. This, however, may lead to counterintuitive results when measuring poverty over time. For instance, if the median income falls but there are no changes at the bottom, the relative poverty rate would pick up a decrease in poverty when living conditions have not changed at the bottom. The World Bank, in contrast, reports estimates based on fixed poverty lines that aim to capture a minimum standard of living. Usually, these lines are defined at the national level and are tied to the cost of a minimum basket of goods for subsistence. In absence of these, the World Bank reports absolute poverty based on international poverty lines, as the \$1.9/day 2011 PPP or the \$3.1 2011 PPP used in this report.

**This report deepens the poverty analysis from previous notes by taking advantage of a longer series of microdata recently made available (2010-2014).** A first glance of the post-2009 poverty indicators was presented in the 2015 Macedonia Poverty Note (World Bank, 2015), though the limited span of time for which microdata was available (2010-2011 with reference to income earned in 2009-2010) limited the possible analysis of dynamics. More recently, new rounds of microdata from the SILC (2012-2014 with reference to income earned in 2011-2013) have been made available by the SSO through on-site access, making possible to analyze poverty changes. This note reports these trends and analyzes the changes observed, linking performance to indicators of labor markets, social assistance and remittances to understand the drivers of changes in living conditions at the bottom of the distribution. Due to limited access to microdata, these other indicators come from published results of nationally representative surveys, like the Labor

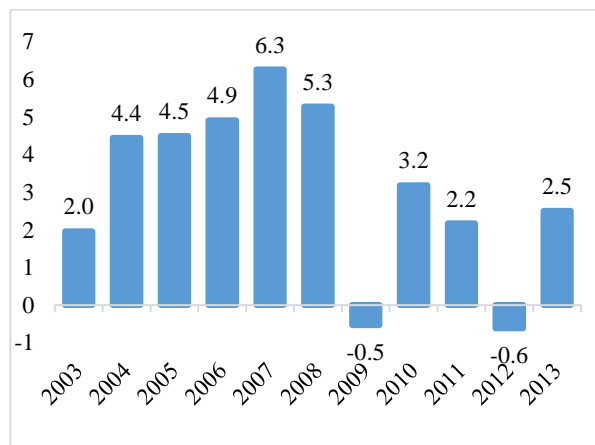
Force Survey or surveys of business and enterprises, and from administrative records publicly available. For internal consistency, the analysis refers to the years 2009-2013.

**The rest of the document is organized as follows.** Section 2 describes trends of poverty, inequality and shared prosperity in FYR Macedonia over time. Section 3 discusses the main changes in labor markets and other sources of income that could have explained changes in living conditions and poverty over the period 2009-2013. Section 4 presents the profile of the poor and how it changed between 2009 and 2013. Section 5 presents the main challenges for poverty reductions looking forward. Section 6 concludes.

## 2. Evolution of Poverty, Inequality and Shared Prosperity

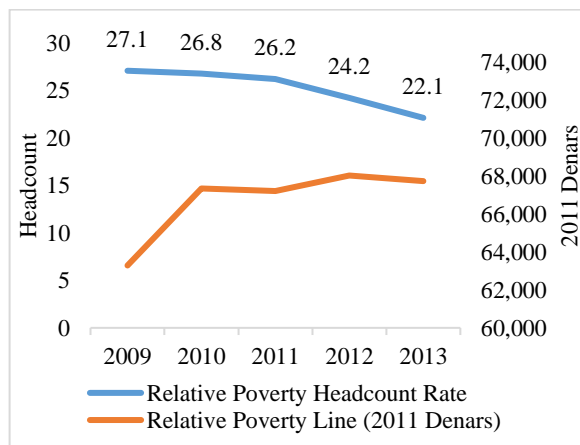
**Macedonia enjoyed high growth rates until the global financial crisis, but growth has since decelerated.** Economic growth averaged 4.4 percent annually before the crisis (2003-2008), compared to 1.6 percent in the post-crisis period (2009-2013). Moreover, growth has been volatile in the post-crisis period (Figure 1). Recovery was sluggish in 2010, and recession returned in 2012, when the economy contracted by 0.6 percentage points on account of factors associated with the European debt crisis and extreme weather conditions that affected the Western Balkans.

Figure 1: Real GDP Growth, FYR Macedonia 2003-2013 (Percentage)



Source: World Development Indicators (WDI)

Figure 2: Relative Poverty Rate and Relative Poverty Line, FYR Macedonia 2009-2013 (Headcount, 2011 MKD denars)



Source: Own estimates based on 2010-2014 Survey on Income and Living Conditions (SILC). Note: Welfare aggregate is household per adult equivalent disposable income.

**Despite the weaker macroeconomic performance in the post global financial crisis period, Macedonia has made progress in reducing relative poverty.** Relative poverty (60% of median household per adult equivalent income, see Box 1) decreased, from 27.6 percent in 2009 to 24.4 percent in 2013. Note that the value of the relative poverty line increased or stayed fixed between

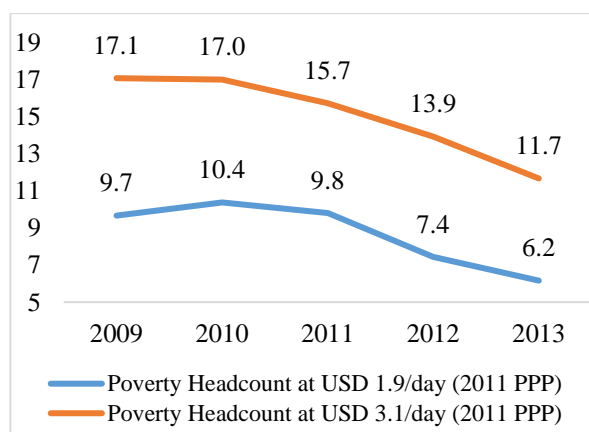


2009 and 2013 in real terms between 2009 and 2013, indicating that the fall in relative poverty points to an improvement in living conditions at the bottom of the distribution (Figure 2).

**Poverty measured in absolute terms also decreased between 2009 and 2013.** Using per capita disposable income as the welfare aggregate and the 2011 PPP values of the global extreme poverty and moderate poverty lines (US\$1.9/day and US\$3.1/day, respectively) we obtain that absolute poverty decreased in the period of analysis. Moderate poverty declined by 5.4 percentage points in 2009-13, from 17.1 percent to 11.7 percent (Figure 3). Extreme poverty also experienced a consistent decline at a lower proportional rate, decreasing from 9.7 to 6.2 percent. Similar trends are observed when using a welfare aggregate based on adult equivalent scales.

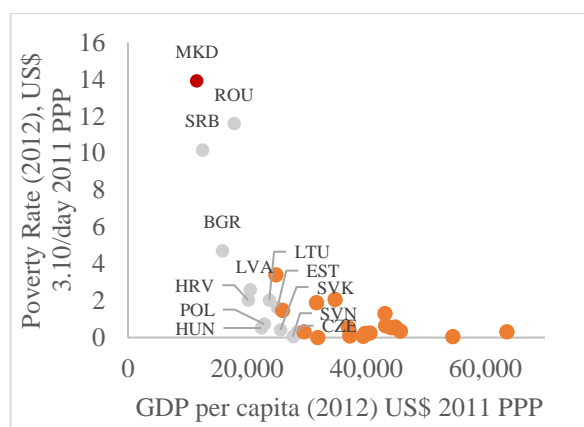
**However, absolute poverty in Macedonia is still higher than in most of the EU countries, even after controlling for level of economic development.** Among the countries with comparable statistics (EU countries and candidates) Serbia and Romania had similar GDP per capita levels in 2012 (2011 PPP dollars) but reported lower poverty incidence. Moreover, the closest countries with higher level of GDP per capita report considerably lower levels of poverty (e.g. Bulgaria and Croatia) than Macedonia (Figure 4).

Figure 3: Absolute Poverty Rates, FYR Macedonia 2009-2013 (Headcount)



Source: Own estimates based on 2010-2014 SILC. Note: Welfare aggregate is household per capita disposable income.

Figure 4: Absolute Poverty Rates and Economic Development, EU-SILC countries 2012 (Headcount, 2011)



Source: World Development Indicators (GDP) and own estimates based on EU-SILC (poverty) Note: Orange dots represent Western European countries. Poverty based on household per capita disposable income.

**Box 1: How is Poverty Measured in FYR Macedonia?**

Poverty is officially measured in FYR Macedonia using an income-based welfare aggregate and a relative poverty line. This methodology has been in place since 2010, and it is consistent with the methodology in EU countries, according to the Europe 2020 strategy. In addition, official poverty

indicators also report Severe Material Deprivation and Very-Low Work Intensity, two non-monetary indicators oriented to capture vulnerability and social exclusion.

### **Income-based Welfare Aggregate**

The income aggregate used includes income from market sources and cash benefits. Income from market sources includes employee cash or near cash income, cash benefits from self-employment, income from rental of a property or land, regular inter-household cash transfer received, interest, dividends, profit from capital investments in unincorporated businesses and income received by people aged under 16. Cash benefits are a sum of all unemployment benefits, old age and survivor's pensions, sickness and disability benefits; education-related, family/children related and housing allowances; and benefits for social exclusion or those not elsewhere classified. Direct taxes and regular inter-household cash transfers paid are deducted from gross income to obtain disposable income. The current definition of total household disposable income used for the calculation of poverty indicators excludes imputed rent, value of goods produced for own consumption, social transfers in kind and non-cash employee income except company cars. The income reference period is a fixed 12-month period from the previous calendar year.

To reflect differences in household size and composition, the income figures are given in per equivalent adult scale. This means that the total household income is divided by its equivalent size using the modified OECD equivalence scale, which gives a weight of 1.0 to the first adult, 0.5 to any other household member aged 14 or over and 0.3 to each child below age 14. The resulting figure, which is the sum of these weights, is attributed to the household. Thus, for instance, a household that consists of 2 adults and 2 children below the age of 14 is therefore:  $1.0 + 0.5 + (2 \times 0.3) = 2.1$ .

### **Relative Poverty Line**

Referred to as the at-risk-of-poverty line. This line is defined as the 60 percent of the median national equivalised disposable income of the persons living in households.

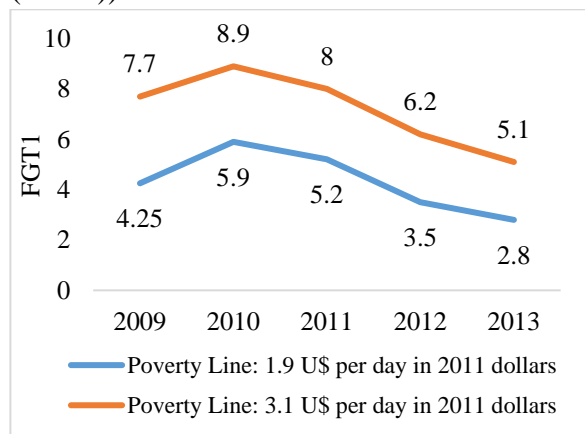
*Source: Modified from World Bank (2015), originally based on FYR Macedonia SSO (2013)*

**Progress has also been observed below the poverty line.** The poverty gap index (Foster et al., 1984), which measures the average distance to the poverty line (\$3.1/day line), decreased from 7.7 percent of the poverty line in 2009 to 5.1 percent of the poverty line in 2013 (Figure 5). This indicates that in addition to having fewer poor people in 2013 than in 2009, the poor in 2013 were on average better off than the poor in 2009. A similar result is obtained when using the extreme poverty line (\$1.9/day line), for whom the poverty gap fell by 1.4 percentage points of the poverty line. A complementary indicator designed to measure the depth of poverty gives more importance to households that are furthest from the poverty line, called the poverty severity index, also shows improvements (Figure 6). The poverty severity index estimates the weighted average distance to the poverty line, using as weights the distance to the poverty line itself hence giving more importance to the poorest households. The estimated index fell from 4.8 in 2009 to 3.2 in 2013, using the \$3.1/day, indicating that the depth of poverty has decreased in this period.

**Further disaggregation of poverty trends by urban/rural areas and regions is not possible at this stage of the analysis.** Due to lack of availability of geographic identifiers (urban/rural and region) made available in the SILC microdata, a more detailed analysis by locations or region is not possible. We therefore restrict our analysis of welfare, poverty and shared prosperity to the national level. Indicators at the regional level from the 2009 Macedonia Poverty Assessment

indicate, however, that standards of living were higher in 2006 in Skopje than in the rest of the country, including other cities and rural areas. To the extent that internal migration in the last 10 years had not led to relocation of the poor across the country, this difference is expected to persist.

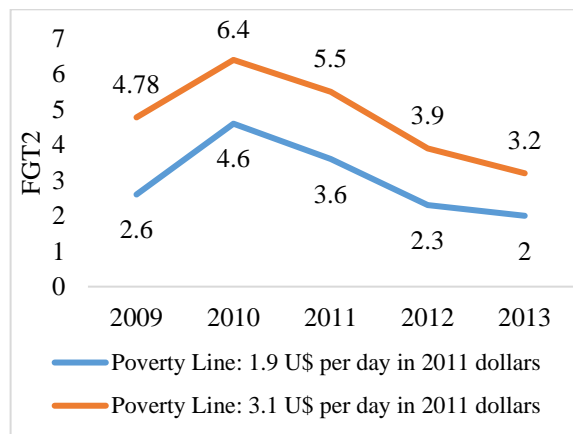
Figure 5: Poverty Gap, FYR Macedonia 2009-2013 (Foster–Greer–Thorbecke index 1 (FGT1))



Source: Own estimates based on 2010-2014 SILC.

Note: Welfare aggregate is household per capita disposable income.

Figure 6: Poverty Severity, FYR Macedonia 2009-2013 (FGT2)



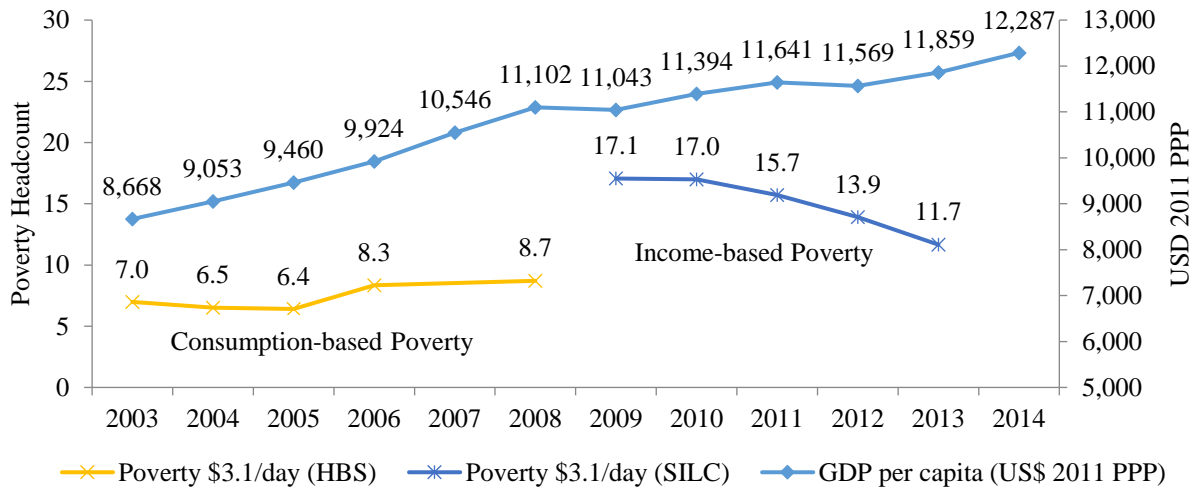
Source: Own estimates based on 2010-2014 SILC.

Note: Welfare aggregate is household per capita disposable income.

**The declining trend in poverty is a break with the pre-2008 trend, when absolute poverty was stagnant.** Consumption-based poverty indicators between 2003 and 2008 showed a stagnant trend, increasing slightly in 2008. In contrast, recent years show a clear decreasing trend for the poverty estimates (Figure 7). While direct comparisons of levels are not possible because of the use of different welfare aggregates, the divergent patterns can indicate a change in the connection between growth and poverty. As noted in the 2009 Macedonia Poverty Assessment (World Bank, 2009) in the pre-crisis period economic growth did not lead to declining poverty. Job creation was not a channel for poverty alleviation as new job creation was primarily in unpaid or low wage employment and net formal job creation was by firms with negative productivity growth (i.e. low wage jobs unlikely to be long-lasting). The extent to which this pattern has changed after the crisis is the analyzed on section 3.

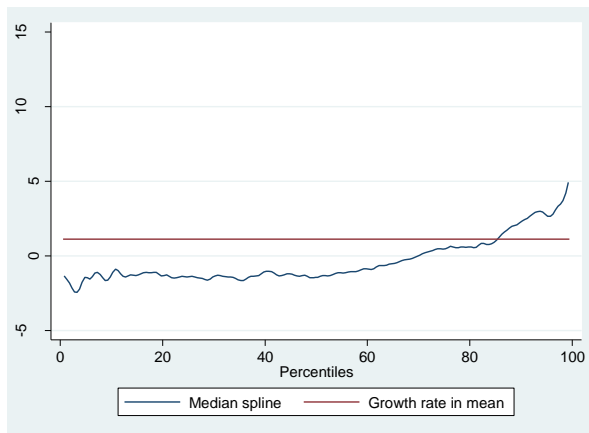
**Moreover, growth has been pro-poor in the post-crisis period.** Pre-crisis growth particularly benefitted the top quintile of the welfare distribution, which was particularly hurt during the slowdown and recession. In contrast, the bottom of the distribution experienced lower than average growth before the crisis. Contrary to what happened in other Western Balkans countries such as Serbia, Albania and Montenegro (World Bank 2015d, 2015e, 2016), after the crisis the slowdown did not hurt relatively more those at the bottom, and the distribution of growth started benefiting the poor. In the pre-crisis period, growth was positive only for the upper section of the distribution (Figure 8). In the post-crisis period this patterns reverses, with higher welfare growth for the bottom of the distribution and a fall in welfare for the top 10 percent of the distribution (Figure 9).

Figure 7: Absolute Poverty and GDP per capita, FYR Macedonia 2003-2014 (Headcount, USD 2011 PPP)



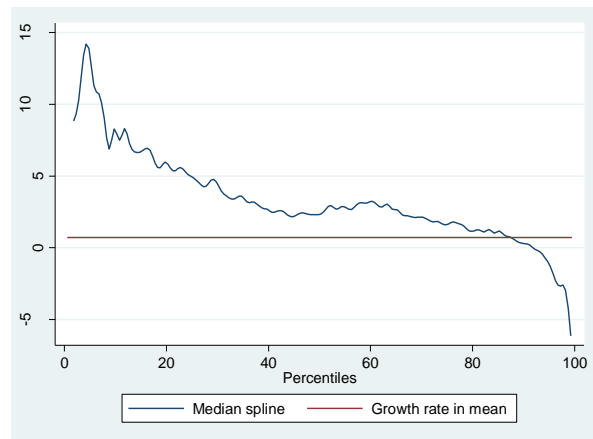
Source: Own estimates based on 2003-2008 Household Budget Survey (HBS) and 2010-2014 SILC. Note: Welfare aggregate is household per capita consumption for 2003-2008 and household per capita disposable income for 2009-2013.

Figure 8: Growth Incidence Curve, FYR Macedonia 2003-2008



Source: Own estimates based on 2003-2008 HBS. Note: Welfare aggregate is household per capita consumption. Growth rate in mean (red) 1.13. Growth rate at median (blue) 1.41.

Figure 9: Growth Incidence Curve, FYR Macedonia 2009-2013

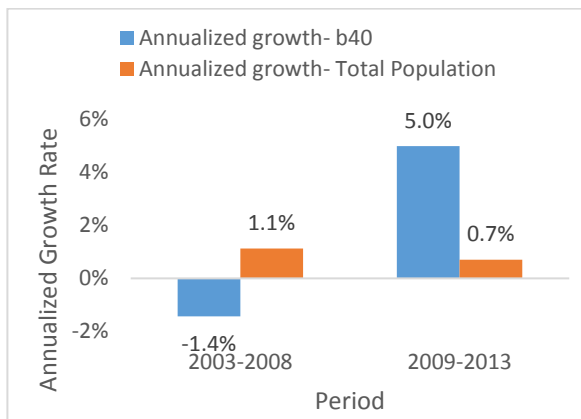


Source: Own estimates based on 2010-2014 SILC. Note: Welfare aggregate is household per capita disposable income. Growth rate in mean (red) 0.73. Growth rate at median (blue) 2.34.

**Poverty reduction experienced in FYR Macedonia in the post-crisis period was matched by an overall positive record in shared prosperity, in contrast to the pre-crisis period. Shared**

prosperity is measured as the income growth among the bottom 40 percent of the income distribution. Income growth of the bottom 40 percent was much faster than the income growth for the total population between 2009 and 2013 (Figure 10). In contrast, in the pre-crisis period, though average growth was positive, the bottom 40 saw their consumption levels decrease while the top 60 percent of the country did indeed benefit from the growth spell.

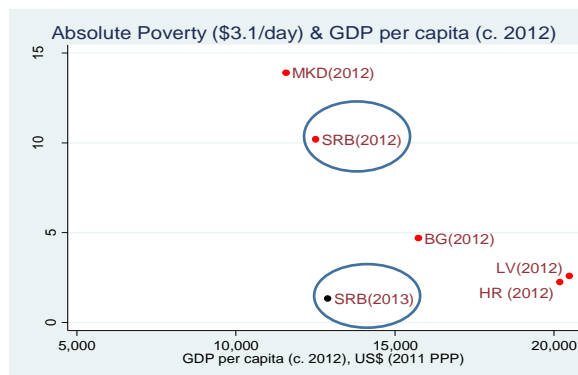
Figure 10: Shared Prosperity Indicator, FYR Macedonia 2003-2008 and 2009-2013 (annual growth rate)



Source: Own estimates based on 2003-2008 Household Budget Survey (HBS) and 2010-2014 SILC.

Note: Welfare aggregate is household per capita consumption for 2003-2008 and household per capita disposable income for 2009-2013.

Figure 11: Income-based and Consumption-based Poverty and GDP per capita, Selected countries c. 2012 (Headcount, USD 2011 PPP)



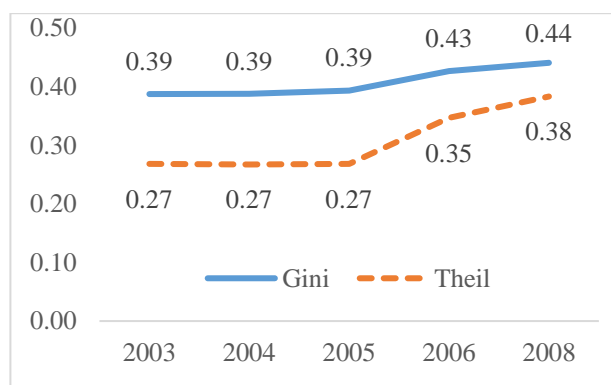
Source: World Development Indicators (GDP) own estimates based on EU-SILC and Serbia HBS (poverty) Note: Red dots indicate income-based poverty, blue dot indicate consumption-based poverty.

**Welfare comparisons before and after the crisis should be performed with caution due to the change of measure from consumption to income.** Differences in poverty estimates based on income and consumption may not reflect actual differences in living standards but the differences in the measures, so direct comparisons are not advisable. As an illustration, Figure 11 presents poverty indicators for selected countries based on income and consumption. Among these countries is Serbia, for which there is poverty based on income for 2012 and based on consumption for 2013. As shown, there is a considerable decrease from 2012 to 2013, most likely driven by the change in welfare aggregate rather than by actual improvements in the living conditions at the bottom of the distribution. Hence, to avoid spurious comparisons we do not compare poverty levels from different welfare aggregates directly, but instead focus on changes in trends.

**Consumption and income trends are comparable to the extent that changes in both measures reflect changes in households' welfare.** In principle, measures based on income and consumption should follow similar trends in time as both measures reflect resources available at the household level. This has actually been observed in Peru 2006-2011 and Poland 2006-2011, where income

and consumption growth trends showed similar patterns (see Appendix D). It may occur, however, that dynamics differ because of changes in savings or assets accumulation (Meyer and Sullivan, 2009), increases in expenses not typically considered in the consumption aggregates (e.g. durables or ceremonies), differences on response patterns between income and consumption (including under-reporting and non-response) or methodological changes in data collection. Discarding methodological changes (these remained constant, which is actually the foundation for comparisons within periods), it is possible that the trend reported using income may have not been completely captured by the consumption aggregate, so contrasts in welfare before and after the crisis should also be done with some caution. Household income information was also collected in the HBS but it was considered not fit for analysis due to potential underreporting and a long recall period (World Bank, 2009).

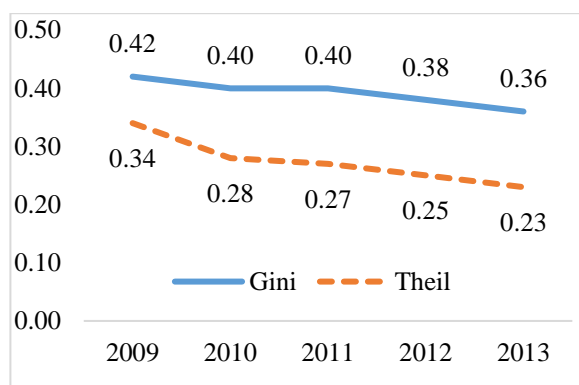
Figure 12: Inequality Indicators, FYR Macedonia 2003-2008 (Gini, Theil)



Source: Own estimates based on 2003-2008 HBS.

Note: Welfare aggregate is household per capita consumption.

Figure 13: Inequality Indicators, FYR Macedonia 2009-2013 (Gini, Theil)



Source: Own estimates based 2010-2014 SILC.

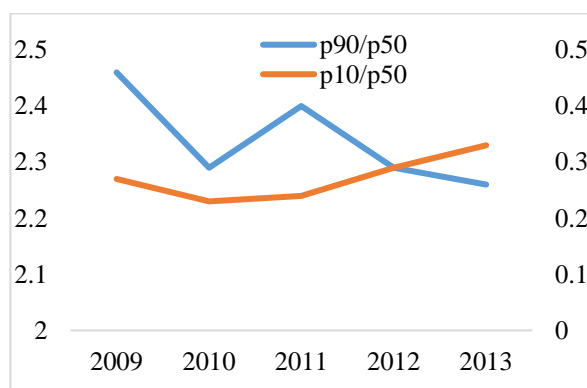
Note: Welfare aggregate is household per capita disposable income.

**Inequality trends also reversed in the post-crisis period.** Inequality, as measured by the Gini coefficient, increased during the pre-crisis growth spell (Figure 12), but the trend was reversed after the crisis. In spite of perceptions of increasing inequality in recent years, from 2009 to 2013 the Gini coefficient decreased from 0.42 to 0.36 (Figure 13). The Theil index also fell consistently during this period. Inequality measures in the pre-crisis period are based on consumption, while in the post-crisis are based on income, hence comparison of specific Gini values between periods should be avoided. Trends, however, are more robust to the change in welfare aggregate and the comparisons are appropriate. The captured reduction in inequality in 2009-2013 is particularly striking considering perceptions of the contrary. For instance, qualitative studies in the region have shown that, in line with what is reported in other countries in the Western Balkans, the vast majority of people in FYR Macedonia perceived increases in the distance between the rich and the poor in the last 10 years (Davalos et al, 2016). A possible explanation for reconciling these two results is to consider that household surveys usually do not capture well the income of the very top

of the income distribution (Hlasny and Verme, 2013; Van Der Weide et al., 2016), so the described inequality dynamics could be understood as excluding the very top of the distribution.

**The decreasing income inequality in the post-crisis period is mostly driven by negative income growth of those located at the top of the distribution.** Improving income inequality was due more to the losses of upper income earners rather than by gains of lower income earners, as indicated by a large fall in p90/p50, as well as a moderate increase in the p10/p50 ratio (Figure 14).

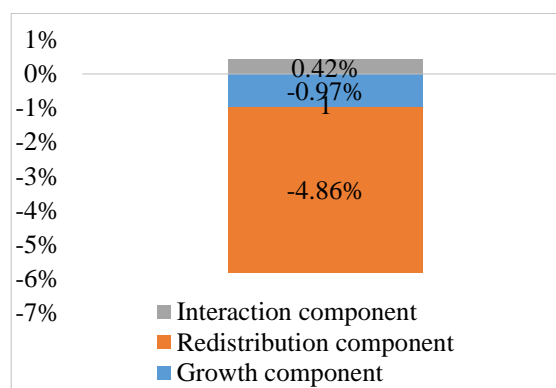
Figure 14: Percentile ratios, FYR Macedonia 2009-2013



Source: Own estimates based 2010-2014 SILC.

Note: Welfare aggregate is household per capita disposable income.

Figure 15: Growth and Inequality Poverty (\$3.1/day) Reduction Micro-decomposition, FYR Macedonia 2009-2013



Source: Own estimates based 2010-2014 SILC.

Note: Welfare aggregate is household per capita disposable income. Based on methodology presented in Datt and Ravallion (1992).

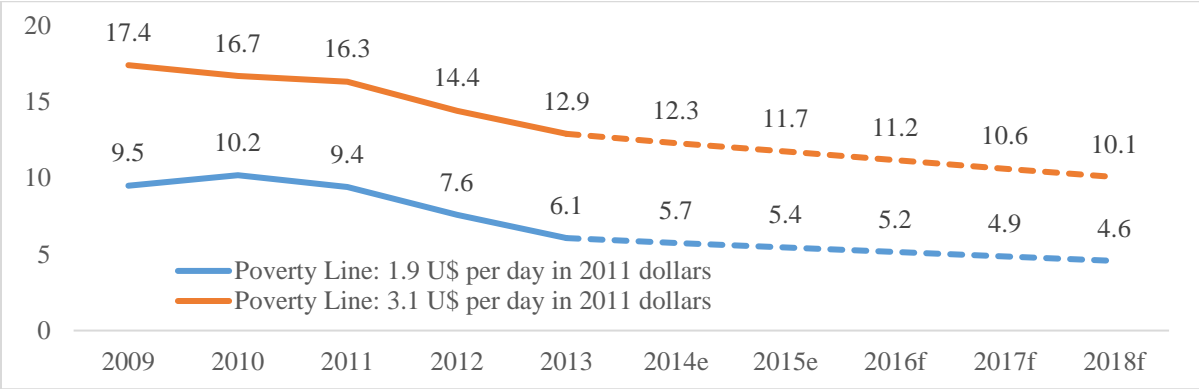
**The drop in poverty rate was largely the result of a more equitable income distribution.** Changes in income at the bottom and top of the distribution resulted in a more equitable distribution, which is the main factor behind the poverty reduction observed in 2009-2013. Figure 15 presents the results of a microdecomposition following the Datt-Ravallion method (Datt and Ravallion, 1992). Results indicate that the most important factor to explain the reduction in poverty at \$3.1/day (2011 PPP) was changes in the shape of the distribution (labelled as Redistribution component). In contrast, the average level of income increased only minimally and hence growth of the entire distribution (Growth component) played a limited role in explaining the observed reduction in poverty.

**Poverty is expected to have continued decreasing in 2014 and 2015.** While microdata-based poverty estimates are not available beyond 2013, there are indications that poverty has continued to decline more recently. Poverty projections based on the assumption that the 2009-2013 relationship between GDP growth and household income remain stable show that poverty should



have continued decreasing (Figure 16). Applying the observed GDP per capita growth in 2014 and 2015 to the household income distribution results in a reduction in poverty between 2013 and 2015 of roughly one percentage point when using the \$3.1/day line and 0.7 percentage points when using the \$1.9/day line. Projections for the period 2016-2018 based on World Bank projected GDP (World Bank, 2016a) growth show a continuation of the decreasing trend, as well.

Figure 16: Poverty rates and projected poverty rates, FYR Macedonia 2009-2018 (Headcount)



Source: Own estimates based on SILC 2010-2014 and projected GDP data.

Note: Welfare aggregate is household per capita disposable income. Projection using neutral distribution with pass-through = 1 based on GDP per capita constant PPP growth. 2014 and 2015 estimated GDP growth. 2016-2018 projected GDP growth.

**Box 2: Income-based and Consumption-based Poverty Indicators: A Contrast**

Measuring poverty requires the use of either income or consumption as welfare aggregate, a proxy for household utility level. Choosing either one has some advantages and disadvantages, depending on the economic environment of the country.

**A. Income**

- Income can be easily collected when is mostly composed of wages and salaries. It may be possible to get adequate information on interest, dividends and income from some type of self-employment.
- It is difficult to collect accurate measures of farm income, the value of housing services and capital gains. For instance, the value of animals on a farm or the change in the value of a house is not always readily available for collection when an interview is performed.
- Income tends to be underreported, especially in economies with large agricultural or self-employed populations. The reasons may range from people forgetting items sold to reluctance to disclose the full extent of income, or reluctance to report income earned illegally.
- Income measures do not capture how households smooth consumption when facing a negative or positive economic shock.

**B. Consumption**

- Consumption can provide a more accurate picture of household wellbeing because households are more able, or willing, to recall what they have spent rather than what they earned.
- Consumption can still be underreported, especially consumption of luxuries or illicit items, or if the questions asked are not detailed.



- Consumption patterns are informative for policymaking, for example in terms of food consumption and caloric intake, energy expenses, expenditure impact of income transfers and others.

Most developed countries base their poverty indicators on income, mainly because it is easier to collect than consumption and that given the structure of their economies, figures result in reasonably accurate estimates. As FYR Macedonia moves from consumption to income as a measure of welfare, it is important to keep in mind characteristics of the FYR Macedonian economy, such as high informality and reliance on farming income for poor rural households that can make more complex accurate poverty estimations.

Source: Haughton and Khandker (2009) and World Bank staff.

### 3. Drivers of Poverty Reduction and Shared Prosperity

**The break in the poverty reduction pattern after 2009 signals a change in the relationship between growth and poverty, indicating the need for a deeper analysis of labor income, social assistance, remittances and other sources of household income.** Before 2009, robust economic growth did not translate into poverty reduction. To understand the channels of transmission of growth into poverty reduction after 2009 this section presents the performance of labor markets, social transfers and other factors in 2009-2013 that may have affected household per capita income and have helped poverty reduction.

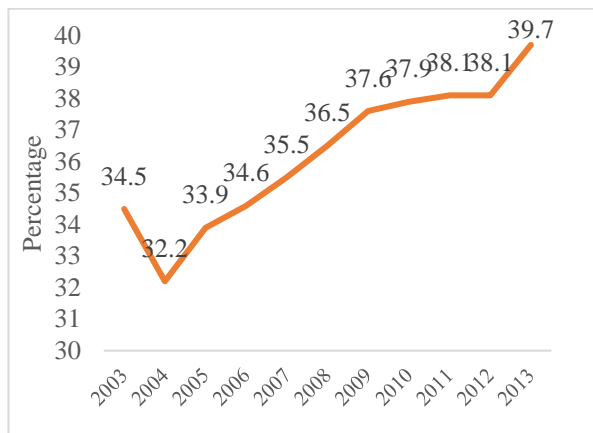
#### *Labor income*

**Employment increased steadily in FYR Macedonia in 2003-2013, in spite of the slowdown in economic growth after the financial crisis.** Overall employment increased at 2.2 annual growth rate in the 2003-2008 period and 1.6 annual growth rate in 2009-2013 (World Development Indicators). This has translated into a substantial increase in the employment-to-population rate. While in 2003, only 34 percent of the working-age individuals were employed in Macedonia, this ratio climbed to 40 percent in 2013 (Figure 17). Despite the improved employment performance, this ratio is still very low compared to other countries in the region, about 15 percentage point lower than the world average and more than 10 percentage points below the Europe and Central Asia region (Figure 18; Mojsoska-Blazevski and Kurtishi, 2012). While there may exist some concerns about what is exactly captured as employment in the LFS, the original source of information for the World Development Indicators, (World Bank, 2014; Jovanovic, 2015) the LFS is the internationally accepted tool for measuring unemployment and its data collection methodology has remained constant during the period, making it very unlikely to report a spurious trend. Moreover, the increase in employment is also captured by the SILC, which relies on an entirely different nationally representative survey.

**The continuous expansion in employment has translated into a sharp decline in the unemployment rate.** Before the financial crisis, rising employment was accompanied by increases in labor force participation, but still the net effect was a reduction of the unemployment rate. After the financial crisis labor force participation has stabilized at around 55 percent (Figure 19), which together with the slow demographic growth translated into the labor force growing at a slow pace between 2009 and 2013 (0.6 annually). The employment annual growth rate of 1.6 after the crisis

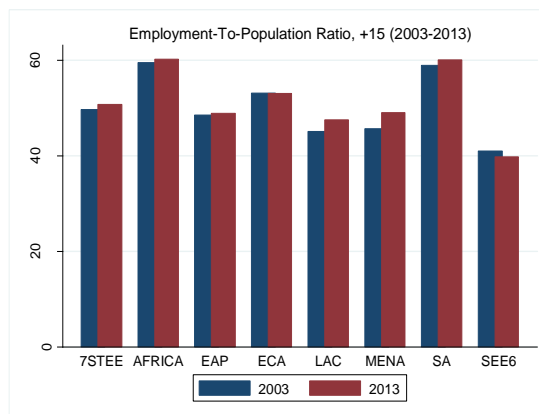
meant that most of the employment increases translated directly into unemployment reduction (Figure 20).

Figure 17: Employment to Population Ratio, FYR Macedonia 2003-2013 (Percentage of population 15+)



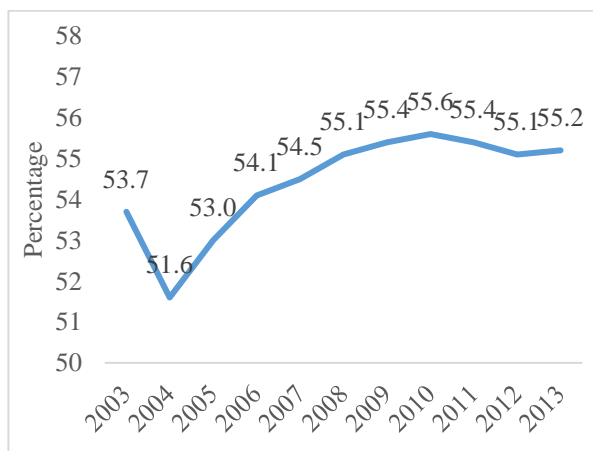
Source: World Development Indicators.

Figure 18: Employment to Population Ratio (15+), World Regions 2003-2013 (Percentage of population 15+)



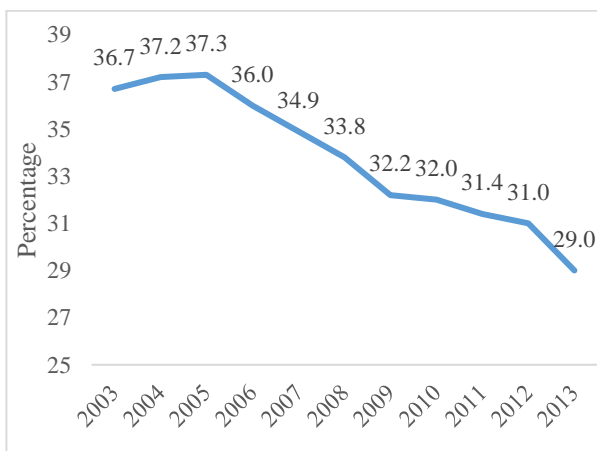
Source: Own estimates based on WDI (except Kosovo). For Kosovo, source is Kosovo Agency of Statistics.<sup>1</sup>  
Notes: Weighted regional averages.

Figure 19: Labor Force Participation Rate, FYR Macedonia 2003-2013 (Percentage of population 15+)



Source: World Development Indicators.

Figure 20: Unemployment Rate, FYR Macedonia 2003-2013 (Percentage of labor force 15+)

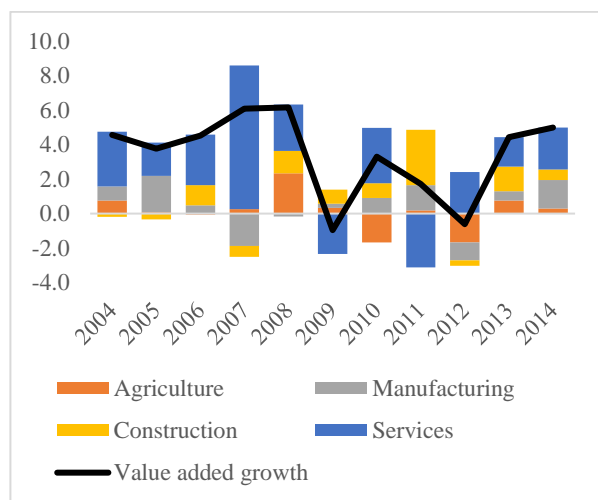


Source: World Development Indicators.

<sup>1</sup> SEE6 (Western Balkans) including Kosovo; SSA=Sub-Saharan Africa; SA=South Asia (all); 7STEE= Bulgaria, Croatia, Estonia, Latvia, Lithuania, Slovak Republic, Slovenia; LAC=Latin America and the Caribbean (all); EAP = East Asia and the Pacific (all). ECA includes all ECA excluding SEE6 and & 7STEE.

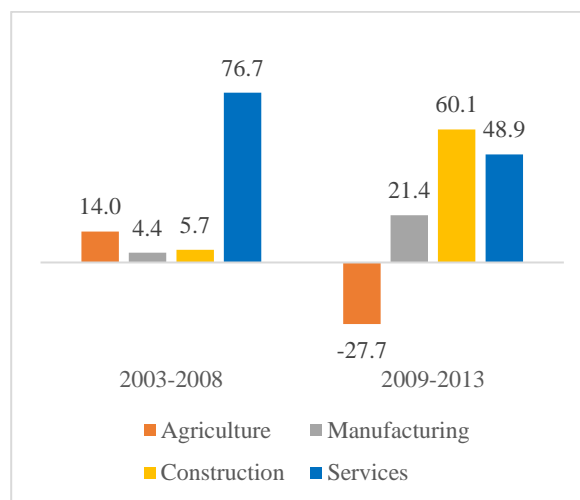
**Overall, construction has surpassed services as the main sectorial driver of growth after the crisis.** In the period preceding the global financial crisis, services was the main contributor to GDP growth, growing on average 5.7 percent between 2003 and 2008 and contributing about 75 percent of overall growth. Since the crisis, growth in the services sector has slowed down and industry has taken over as the most important sector (Figure 21). The increasing importance of industry is explained in part by the role of construction, as the government has pursued since 2009 a more active and countercyclical investment program concentrated in the energy sector and construction. Construction has grown 14 percent annually on average between 2009 and 2013, contributing to 60 percent of overall value added growth (Figure 22). The contribution of the agricultural sector was negative after the financial crisis.

Figure 21: Decomposition of Total Value Added Growth by Major Sector, FYR Macedonia 2004-2014 (Percentage points of annual growth)



Source: Own estimates based on Macedonia SSO published information.

Figure 22: Contribution to Total Value Added Growth by Major Sector, FYR Macedonia 2003-2008, 2009-2013 (Percentage of total value added)

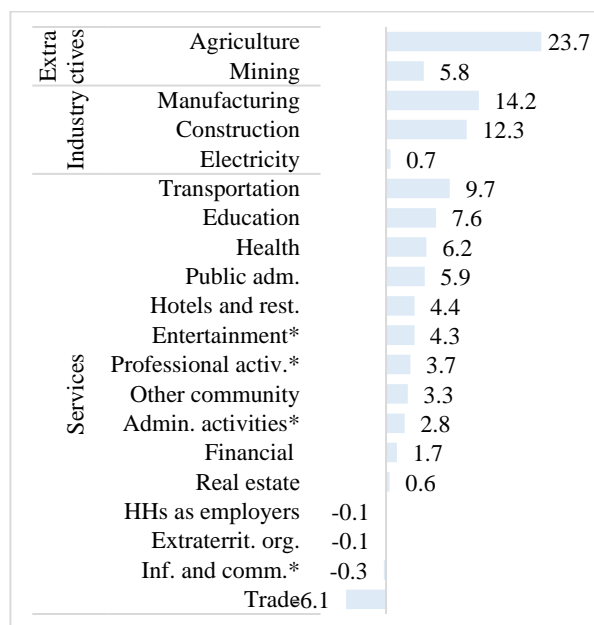


Source: Own estimates based on Macedonia SSO published information.

**Services continues to be the most important sector for employment creation, despite the increased importance of construction for driving output growth after the crisis.** Data from the Labor Force Survey (LFS) indicates that in the post crisis period, services has overall contributed to close to 43 percent of overall employment growth (Figure 23). Within services, education, transportation and storage are the major contributors to net employment creation, representing close to 7 and 10 percent, respectively, of employment creation. Agriculture, manufacturing and construction also had significant contributions to employment creation after the financial crisis, representing jointly half of all the new positions created. Net job creation after the financial crisis has concentrated more among sectors characterized by low productivity and low wages, benefitting potentially more those at the bottom of the income distribution (Figure 24). This represents a contrast with the pre-crisis period, where new jobs created were mostly unpaid jobs for low or unskilled youth, not contributing to poverty reduction (World Bank 2009, 2014).

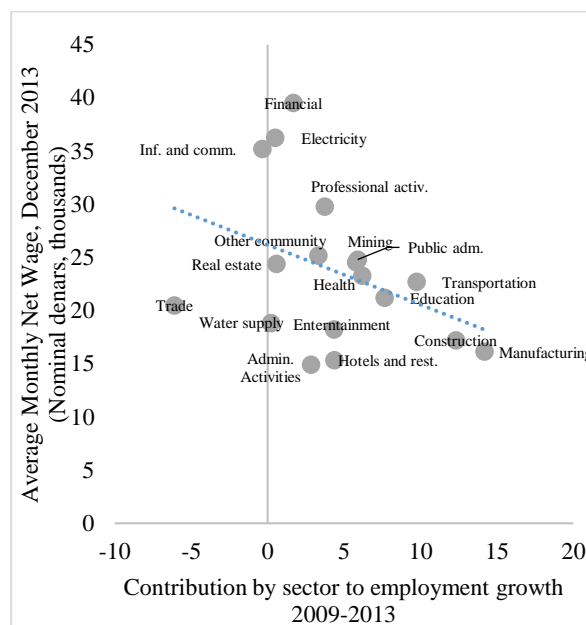
Unfortunately, limited access to the microdata precludes from analyzing the characteristics of the new positions, such as age or gender.

Figure 23: Contributions to Employment Growth, by Subsector, FYR Macedonia, 2009-2013 (Percentage of employment growth)



Source: Own estimates based on Labor Force Survey published statistics.  
 (\*) Categories not available in 2004-2008.

Figure 24: Contributions to Employment Growth, by Sector, FYR Macedonia, 2009-2013 (Percentage of employment growth) and Average Wage, December 2013



Source: Own estimates based on LFS and Business Enterprises Surveys.  
 Note: It does not include agriculture sector.

**The active role of the public sector in job creation raises concerns about the sustainability of the employment gains on account of the limited fiscal space to continue supporting employment creation and further investments in infrastructure.** While raw statistics show that the public sector employment share, as captured by the LFS, has decreased from 26.4 percent in 2009 to 23.2 percent in 2013, the government has played an important role in employment expansion. The expansion in construction in the post-crisis period coincides with the launching of large-scale public construction projects which, though reported as private employment, is ultimately driven by fiscal spending. In addition, new employment in the core public sector with budgetary implications (public administration, health, education, water supply) adds up to more than 20 percent of the net total employment growth in 2009-2013. Finally, active labor market policies (ALMP) implemented by the government may have also played a role in the expansion of the employment. Based on information from the Macedonia Employment Agency, close to 3,000 unemployed workers per year received some form of training or subsidy to work. While it may be difficult to track to what extent these workers became permanently employed as a consequence of the training and there is mixed evidence on the effectiveness of these programs (Mojsoska-Blazevski and Petreski, 2015), it provides an upper bound of the effect of government spending in

ALMP on employment. The total number of ALMP beneficiaries between 2009 and 2013 was 14,631 workers, which would represent 30 percent of total net employment creation in the period. Hence, considering altogether these effects, the impact of government on employment creation is between a third (construction and core public sector employment) and half (adding ALMP beneficiaries) of new employment.

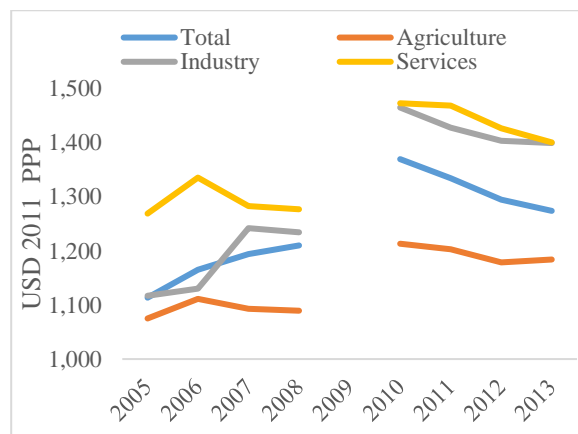
**The financial crisis did affect labor markets through productivity losses.** Labor productivity slowed down after the crisis, which translated into a decrease in average real wages after 2009. Average labor productivity growth, measured as GDP per worker, dropped substantially after the crisis, from 2.4 to 0.4 percent - well below the historical average. The weak productivity growth has mirrored the weak growth in real GDP per capita. With only marginal productivity increases, firms were not able to afford wage increases. Between 2009 and 2013 salaries decreased by 1.9 percent annually on average (Figure 25), according to information collected from business enterprise surveys (BES) by the Macedonia SSO. This decrease in average salaries is also consistent with new workers taking positions below the existing average salary in each sector. The information on wages refers to formal workers and excludes self-employed and agricultural workers. Unfortunately is not possible to validate this trend with SILC data because of limited access to microdata and how the data is collected in the SILC questionnaire.

Figure 25: Productivity and Real Wage Growth, FYR Macedonia 2004-2013 (Percentage points)



Source: Wage data from ILO Global Wage Database based on business enterprise surveys (BES) and productivity from World Development Indicators

Figure 26: Annual Gross Real Wages, FYR Macedonia 2005-2013 (2011 PPP Dollars)



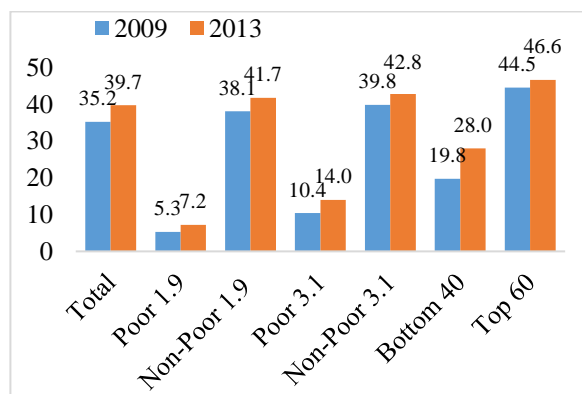
Source: Own estimates based on BES published statistics (Macedonia SSO). Break in the wage series in 2009 due to methodological changes.

**Across sectors, the real wage decrease was more pronounced in services.** In this sector, average salaries fell by 1.79 percent annually. Average salaries in industry fell by 1.14 percent annually, while average salaries in agriculture stayed roughly at the same level between 2010 and 2013 (Figure 26). Average salaries capture well the average earnings of workers in the services and industry sectors, to the extent that more than 90 percent of workers in these sectors are salaried. In agriculture, in contrast, the vast majority of workers are either self-employed (46 percent) or unpaid family workers (44 percent). To gain some insight in the earnings dynamics of these

workers, we consulted value added information for the agricultural sector. Though a very rough measure for incomes in the sector, value added per worker employed in the sector should at least capture the direction of the earnings trend. Value added per worker for the agricultural actually decreased between 2009 and 2013, by more than 7 percent annually, on average, in real terms. This indicates that earnings among self-employed workers in the agricultural sector have most likely decreased, too. Inflation during this period was contained, roughly 3 percent annually, hence unlikely to be the main driver behind the fall in real terms.

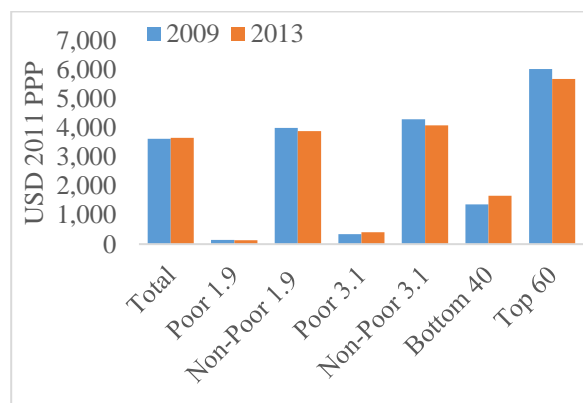
**The net effect on the bottom of the distribution of the increase in employment and fall in salaries has been an increase in labor earnings.** Labor earnings include cash wages and earnings of self-employed. Employment growth created relative more economic opportunities among the poor, even though their employment outcomes still lag considerably behind the rest. For the poor below the \$1.9/day and \$3.1 and for the bottom 40 the employment rate increased more than proportionally than for the rest of the population (Figure 27). The increase in employment translated into increases in labor earnings among the bottom. The poor (below the \$3.1 per day line) and the bottom 40 have seen their labor income increase (Figure 28). This result is also consistent with the existence of a composition effect to explain falling average salaries, where new workers entered the labor force with wages below the average in their sectors.

Figure 27: Employment-to-Population Ratio, FYR Macedonia 2009, 2013 (Percentage of population 15+)



Source: Own estimates based on SILC 2010 and 2014.

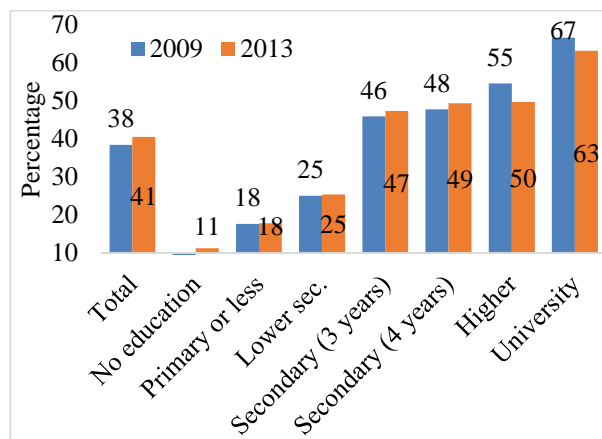
Figure 28: Average household per capita labor income, FYR Macedonia 2009, 2013 (2011 PPP Dollars)



Source: Own estimates based on SILC 2010 and 2014.

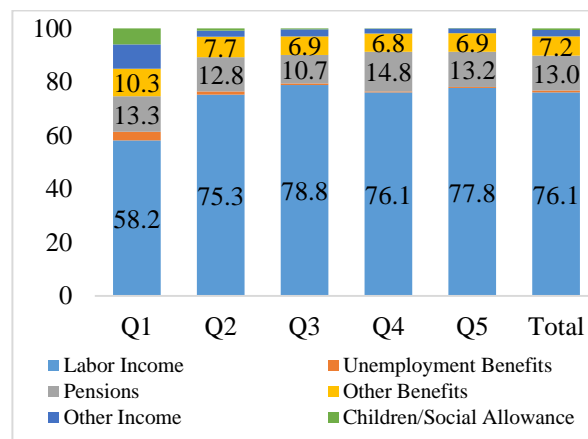
**In contrast, the top of the distribution have seen their labor earnings fall.** Although the non-poor also report increases on their employment rates (Figure 27), there is some heterogeneity within this group. Employment rates by level of education show that for the most educated, most likely located at the top of the income distribution, employment rates have actually fallen between 2009 and 2013 (Figure 29). This may be one of the forces behind the net labor income reduction among the non-poor.

Figure 29: Employment-to-Population Rate by Educational Level, FYR Macedonia 2009, 2013 (Percentage of population 15+)



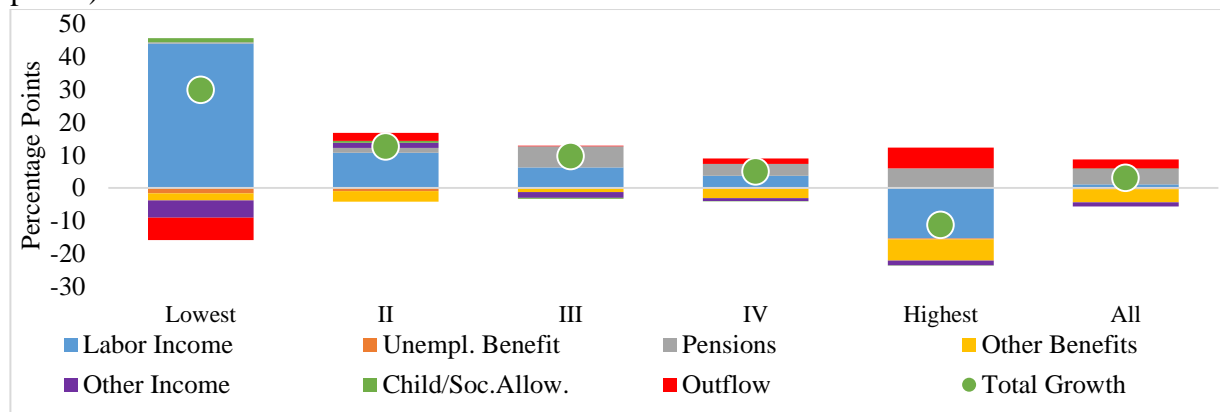
Source: Own estimates based on Labor Force Survey 2009 and 2013.

Figure 30: Mean income shares by quintiles, FYR Macedonia 2009 (Percentage of gross income)



Source: Own estimates based on SILC 2010.<sup>2</sup>

Figure 31: Decomposition of household per capita net income growth, 2009-2013 (Percentage points)



Source: Own estimates based on SILC 2010 and 2014.

**The increase in labor incomes at the bottom has contributed to lifting people out of poverty since labor earnings continue to be a primary source of income for the poor.** Labor tend to be the most abundant asset of the poor, and labor force status is repeatedly found to be a critical

<sup>2</sup> Labor income includes: Wages Cash, Wages non Cash and Self Employment. Pension includes: Old Age Benefits and Private Pension Benefits. Other Benefits include: Survivor, Sickness, disability benefits and Education allowances. Other income includes: Underage income, capital, household transfers, housing allowance, Children/Social includes: Children Allowance and Social Allowance. Outflow includes: Regular taxes on wealth, Regular inter-household cash transfer paid, and Tax on income and social insurance contributions.



determinant of household welfare in developing countries and what generally distinguishes the poor from the non-poor is labor income (Figure 30).

### *Social Assistance*

**The Social Financial Assistance (SFA) and Children Allowance programs have had only a limited role for increasing incomes in 2009-2013.** Social assistance spending in Macedonia is low and fragmented. Social transfer programs include a last-resort social assistance program (SFA), as well as other benefits such as child allowances, parental and disability benefits. The SILC reports them in two categories, as Children/Social, which includes Children Allowance and SFA and other benefits, including survivor, sickness, disability benefits and education allowances. The effect of the first of these components is positive to lift the incomes of the bottom and second quintile, though their magnitude is very small (Figure 31). This can be explained by the transfer remaining constant during this time and the low coverage of the programs. Only 8 percent of households in the country receive SFA and roughly 10 percent receive Children Allowance.

**Other social benefits have had a negative effect over incomes across the whole distribution and the magnitude has been larger in the upper deciles.** The other social benefits category captures survivor, sickness, disability benefits and education allowances. Their negative effect on household income could be capturing the introduction of the Cash Benefits Management Information System (CBMIS) in late 2011, a centralized database that registers all cash transfer beneficiaries. Since its introduction, the number of social assistance recipients has declined, as possibilities for abuse of the system were considerably curtailed (Figure 32). The larger impact in the top quintile is a positive signal of the improved targeting system introduced by the CBMIS (World Bank, 2015a).

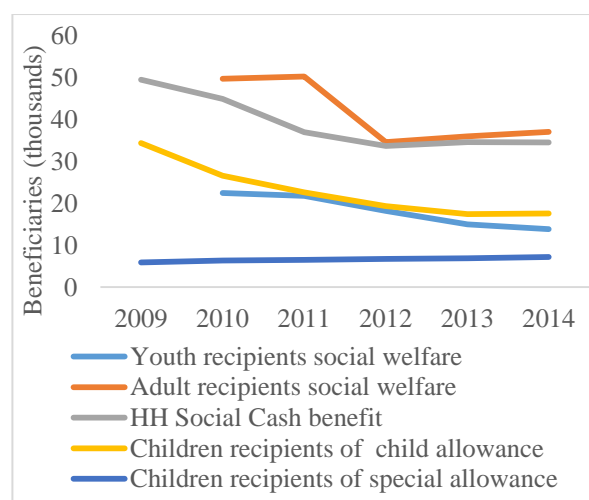
**Pensions contributed significantly to income growth among the top three quintiles of the distribution.** Between 2009 and 2013, income from pension for those in the top 60 percent of the distribution increased at an average annual rate of 7 percent, compared to only 1.3 percent among those in the bottom 40. These increases are related to the decision of the government of Macedonia, in spite of a firm indexation rule, to increase pensions in 2013, 2014 and 2015 as a compensatory measure for the impact of the 2009 recession. In 2013, the pension benefits were raised by an average of 5 percentage points above regular indexation, which at that year stood at 2 percent (indexation is based on 50% average gross wage growth plus 50% CPI (World Bank, 2015a). Since income from pensions for the two lowest quintiles increased only marginally in this period, it did not play a role in the reduction of absolute poverty (Figure 31).

**Although pensions played a minimal role for income growth at the bottom of the distribution, pensions still represent a significant share of household income among the bottom 40.** The minimal role played by pensions to explain the increase in income in 2009-2013, especially among the bottom, does not mean that pensions do not play an important role to complement household income. Pensions represent close to 13 percent of disposable income for the bottom 40, which means that poverty would increase considerably if pensions were subtracted from disposable



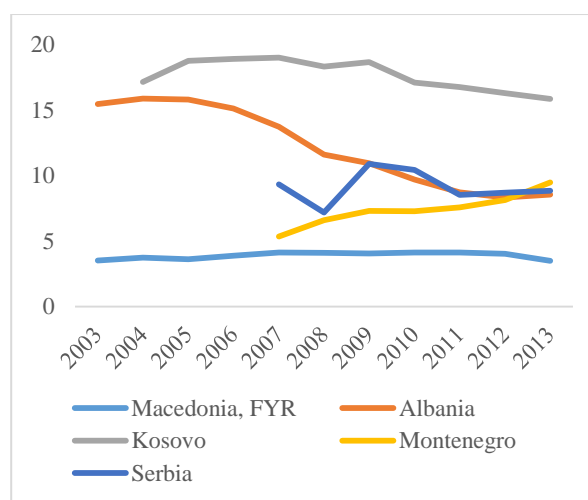
income. As an illustration, in 2013 relative poverty would increase from 22.1 to 24.8 if social assistance were subtracted, and up to 41.7 if pensions were additionally subtracted (Macedonia State Statistical Office, 2015). This difference indicates the critical role of pensions to complement income around the value of the relative poverty line. Indeed, this may be one of the reasons why the share of people over 65 years old is lower among the poor (5 percent) and bottom 40 (8 percent) than among the rest (13 and 14 percent for the non-poor and top 60, respectively).

Figure 32: Social transfers beneficiaries, 2009-2014 (Beneficiaries)



Source: Macedonia SSO published statistics.

Figure 33: Personal remittances, selected Western Balkans countries 2003-2013 (Percentage of GDP)



Source: World Development Indicators.

### Other Income

**Other sources of income have contributed negatively to income dynamics in the lowest quintile.** Other sources capture income from remittances, underage income, capital, and housing allowance. Remittances, while important in other countries in the region, represents only 4 percent of GDP (Figure 33) and a small fraction of household income in Macedonia (unofficial estimates of remittances, though, can situate this number as high as 17 percent). The value of household transfers captured by the SILC represented only 1.9 percent of income in 2009 and 1.4 percent in 2013, with higher shares at the bottom of the distribution. Other surveys in the country specifically designed to measure remittances obtain values between 2 and 5 times higher (Petreski and Jovanovic, 2016), meaning that remittances could actually represent a larger share of household income (somewhere between 5 and 6.5 percent). Based on SILC data, however, remittances are only a small share and decreased in real terms for all quintiles between 2009 and 2013, with the only exception of the second quintile. The small share that remittances represent means that they played a limited role to explain total income dynamics, with the exception of the lowest quintile, where the fall in remittances translated into a decrease in the share of income from 9 to 3 percent

of total income. Petreski and Jovanovic (2016) identify an impact of remittances on poverty reduction but this estimation is based a counterfactual where households do not receive any remittances. Hence, this result shows the role of remittances for lifting households out of poverty at one point in time but does not addresses whether changes in the value of remittances in time is translating into households escaping poverty, as is presented in this note. Other sources of income (underage income, capital, and housing allowance) represent jointly less than one percent of household income and play a very minor role in household income dynamics.

### *Outflows*

**Changes in taxation can explain the positive impact that households' outflows had on income at the top of the distribution.** Outflows captured in the SILC include regular taxes on wealth, regular inter-household cash transfer paid, and taxes on income and social insurance contributions. Among these categories, taxes and contributions were reduced in the after crisis period. Personal income tax was lowered from 12 to 10 percent in 2009. In addition, government reduced contribution rates in order to cut labor costs and improve labor competitiveness. Social security contributions (health, pensions and unemployment) were reduced from 32.5 percent in 2008 to 27 percent in 2011 (See Appendix C). The joint effect of these reductions may explain the positive effect of outflows at the top of the income distribution, where more likely formal well-paid employment is located (Figure 31).

**The negative effect of households' outflows at the bottom of the distribution may be driven by the effect of increased employment.** As employment rates increased at the bottom of the distribution, contributions and taxes passed from zero to positive, hence increasing for the bottom and explaining the observed negative effect (Figure 31).

### *Poverty projections*

**The performance of labor markets and social protection indicators in 2014 and 2015 supports the projected declining trend in poverty.** Employment continued to increase in 2014 and 2015 for most educational levels, including Higher vocational and University, which declined between 2009 and 2013. The only worrisome exceptions are employment for the groups with no education and the higher vocational education, though each of them only represents 2 percent of total employment, respectively (Appendix, Table A1). Real salaries have also increased from 2013 to 2015, benefiting from the price deflation in 2014. Salaries in agriculture have grown by one percentage point annually, and in services and industry by roughly 3 percent annually (Appendix, Table A2). The implementation of the government program for the 2014-2018 period, which included increases in pensions and social benefits, should have a positive impact on household income (World Bank, 2015a).

***Box 3: Using the 2002 Census as sampling frame***

The Survey of Income and Living Conditions (SILC) and the Labor Force Survey (LFS) used for the analysis of labor markets use the 2002 Census as sampling frame. To the extent that the composition of the population may have changed since the 2002 Census (particularly due to outmigration), the use of this sampling frame may lead to estimates that are not entirely representative of the country in recent years. However, there are reasons to believe that the impact using the 2002 Census as sampling frame is minimal. First, the SSO has been progressively updating the sampling frame in recent years, consistent with United Nations Statistics Division recommendations for cases when a more recent census is not available (United Nations, 2005). Second, the typical profile of out-migrants, young single professionals, is different from that of the poor in Macedonia, reducing the possibilities of miscounting the poor. Finally, contrasts with other nationally representative sources of information, as for instance business enterprises surveys, show general consistent results.

Nevertheless, it is still of critical importance to conduct a new population census. Among other things, these new estimates will provide an accurate estimate of outmigration (which is otherwise very difficult to estimate) and will permit to update the sampling frame, ultimately dissipating doubts about the representativeness of recent household surveys.

## **4. Changes in Characteristics of the Poor and Bottom 40**

### ***Sociodemographic characteristics***

**The poor tend to live in larger households than the non-poor, but the difference in household size among poor and non-poor is shrinking over time.** In fact, while in 2009 about 76.5 percent of poor households tend to live in households with more than 4 people, in 2013 this was reduced to 65.9 percent (Appendix, Table B9 and B10).

**Less well-off households have a higher share of children 0-14 years old and a lower share of elderly (over 65 years old) than the non-poor households, and these shares are relatively constant over time.** While the more affluent groups have a share of children among household members of about 10-11 percent, for the poor and bottom 40 this share goes up to around 20 percent. The higher share of children together with the higher household size points to a higher burden on the working age adults at home responsible for providing for their families.

**Poor households and those at the bottom 40 percent are significantly more likely to live in smaller and more crowded houses, but their housing conditions seem to be improving over time.** Considering that poor and bottom 40 households tend to have more members, and live in smaller dwellings, the higher reported overcrowding in these groups is not surprising. Using the household members per room as a metric for overcrowding, we obtain the share of households with more than two people per room was more than three times in the bottom 40 percent compared to the top 60 percent in 2009 (21 vs. 8 percent), and a similar pattern repeated along the poverty status (17 vs. 4 percent). In 2013, the share of poor households living with more than 2 people per

room decreased by a few percentage points; only 16 percent of the poor and 15 of the bottom 40 lived in overcrowded houses.

**Some characteristics of the household heads may be closely related to poverty, such as gender, age, marital status, and educational levels.** Differences in the gender and age of household heads are small between poor and non-poor households. In 2009, all households are much more likely to be headed by a male than a female, but this is less common among the non-poor and the top 60. For instance, for the top 60 the share of households headed by males in 2009 was 78.7%, while for less affluent bottom 40 this share was 87.5% in 2013. Along the poverty status division the gap is similar in magnitude, although slightly smaller. Similarly, across all the groups considered, household heads tend to be older as more than two thirds of households across groups are headed by someone 45 years old or older. Results are similar for 2013.

**Household heads living in poor households have lower education attainment than their non-poor counterparts.** In 2009, a much higher fraction of poor household heads have completed primary education, while the non-poor heads are more likely to have completed secondary and tertiary education. These results point to the fact that the set of human capital assets that poor and bottom 40 families have to improve their living conditions are limited. Even before entering to compete in the labor market, they start with a clear disadvantage for their income earning prospects, particularly given the high rates of return to tertiary education prevalent in FYR Macedonia (Arias et al., 2014).

**Labor market attachment is significantly weaker among the less well-off, but is improving over time.** In both years, the poor and bottom 40 households are less likely to have individuals currently working, either as employed or self-employed. The gap, though, is considerably higher for wage employment, which is consistent with the low levels of accumulated human capital. Unemployment and inactivity, particularly the former, are much more prevalent among the poor and bottom 40 percent. The share of retirees is lower among the poor and bottom 40 households, consistent with the lower levels of employment and lower levels of wage employment among these groups. However, the average poor person in 2013 is much more likely to be employed and less likely to be unemployed than the average poor person in 2009.

### *Income generation capacity*

**A household's income generation capacity is determined by its net assets, the intensity of use of these assets, the returns on the assets, and private and public transfers.** In order to enhance our understanding of growth incidence and the ability of households at the bottom to generate income and contribute productively to overall growth, we use an asset-based approach, as in Bussolo and Lopez-Calva (2014).

**Gaps between poor and non-poor human capital endowments are especially large when looking at them from an income generation perspective.** On average, individuals living in poor households have two years of schooling less than individuals living in non-poor households (Table

1). This gap is of similar size when looking at bottom 40 and top 60 households. These differences in the means of the distribution are explained by a much larger share of relatively unskilled population living in extremely poor households. In 2009 while 14.4 percent of the population in non-poor households have completed tertiary education, this share was only 3 percent among poor households (Table 2).

<b>Table 1: Profile of Poor and Bottom 40 in Assets Framework, 2009</b>							
	Total	Absolute Income Poverty				Shared Prosperity	
		Extreme (US\$1.9 2011 PPP)		Moderate (US\$3.1 2011 PPP)		Relative Group Bottom 40    Top 60	
		Poor	Non-Poor	Poor	Non-Poor		
<b>Endowments</b>							
Mean Years of Schooling	10.4	8.9	10.6	9.0	10.7	9.3	11.1
<b>Use of Assets</b>							
Aggregate Labor Market Indicators							
Labor Force Participation Rate (working-age 15+)	58.2	59.2	58.2	59.5	58.0	56.9	59.0
Employment Rate (Total Employment/ Working-Age)	35.2	5.3	38.1	10.4	39.8	19.8	44.5
Unemployment Rate	39.6	90.8	34.4	82.2	31.3	65.2	24.6
Informality Rate (Firm Size and Occupation)	37.7	62.5	37.4	61.5	26.6	48.6	34.9
Unemployment Duration (Weeks)	2.7	2.9	2.7	2.7	2.9	2.8	2.6
<b>Returns to Assets</b>							
Mean Annual Household Per Capita Income from Wages (USD 2011 PPP)	2807.0	53.7	3101.9	180.4	3347.4	802.4	4144.9
Source: Own estimates based on 2010 Survey on Income and Living Conditions (SILC) survey data. Unemployment duration is truncated in the database, so this is probably underestimated.							

**Poor households also use their human capital less intensively than non-poor households, but their intensity of use is improving over time.** Even though labor force participation rates are not significantly different between poor and non-poor, when individuals living in poor households participate in the labor market, they are more likely to be unemployed or employed in informal-sector jobs. The estimated labor force participation rate for all groups is close to 60 percent. There

are statistically significant differences in unemployment rates between individuals living in poor and non-poor households. In 2009, the unemployment rate among individuals living in poor households (82 percent) is significantly higher than among non-poor households (31 percent). When poor individuals are employed, about 61.5 percent of them are employed in the informal-sector, compared to 26.6 percent among individuals living in non-poor households. As mentioned before, there is a significant reduction in the unemployment rate among the poor over time and a higher employment-population ratio, which for a relatively constant labor force participation means a higher intensity of use of their human capital.

<b>Table 2: Profile of Poor and Bottom 40 in Assets Framework, 2013</b>							
	Total	Absolute Income Poverty				Shared Prosperity	
		Extreme		Moderate		Relative Group	
		(US\$1.9 2011 PPP)		(US\$3.1 2011 PPP)			
		Poor	Non-Poor	Poor	Non-Poor	Bottom 40	Top 60
<b>Endowments</b>							
Mean Years of Schooling	10.7	9.1	10.7	9.0	10.9	9.5	11.3
<b>Use of Assets</b>							
Aggregate Labor Market Indicators							
Labor Force Participation Rate (working-age 15+)	60.1	61.5	60.0	59.0	60.2	59.9	60.0
Employment Rate (Total Employment/ Working-Age)	39.7	7.2	41.7	14.0	42.8	28.0	46.6
Unemployment Rate	33.8	88.2	30.4	76.2	28.9	53.5	22.2
Informality Rate (Firm Size and Occupation)	36.4	53.6	36.2	61.6	35.4	51.7	31.0
Unemployment Duration (Weeks)	2.7	3.0	2.7	2.9	2.7	2.8	2.6
<b>Returns to Assets</b>							
Mean Annual Household Per Capita Income from Wages (USD 2011 PPP)	2892.4	29.1	3080.4	219.3	3245.3	924.9	4201.2
Source: Own estimates based on 2014 Survey on Income and Living Conditions (SILC) survey data. Unemployment duration is truncated in the database, so this is probably underestimated.							

**There is a significant wage gap between poor and non-poor individuals but the gap is shrinking over time.** While in 2009 the average household per capita wages among the non-poor

was 18.6 times the average wage of their poor counterparts, this was only 14.8 times in 2013. Average household per capita wages of those living in extreme poverty are strikingly low, a fact that is consistent with the low human capital endowments that these households possess, the high unemployment rates among its household's members, the low quality jobs that this population has access to (informal), and the low market returns for each additional year of schooling driven by low productivity. These differences may also be related to occupational and sectoral choices, since a significantly high share of individuals living in poor households work in the agricultural sector, usually characterized by having much lower labor productivity than other sectors. Such gaps are also stark when bottom 40 and top-60 households are compared.

## 5. Challenges Ahead

**Despite considerable reduction in poverty over the last few years, approximately 241,000 people in Macedonia still live in poverty and 127,000 live in extreme poverty.** As shown, by 2013 income poverty and extreme poverty rates (based on U\$3.1 and U\$ 1.9 per day, 2011 PPP) in the country were 11.7 percent and 6.2 percent, above the average poverty headcount rates of the EU SILC countries region. These rates are higher than for countries with similar level of GDP per capita.

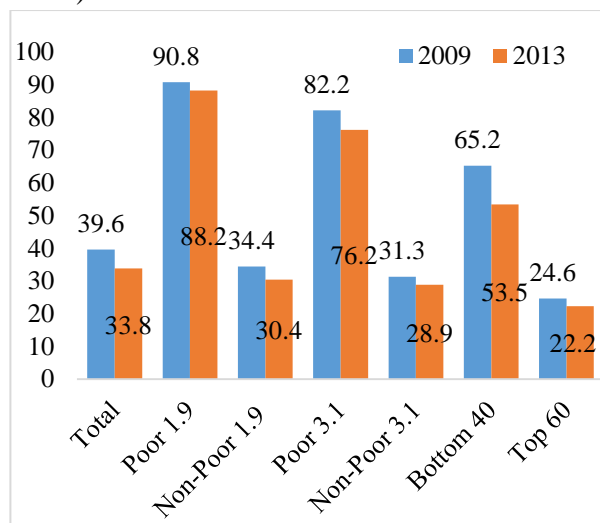
**The sluggish performance of labor markets in Macedonia is an obstacle for sustained inclusive growth.** Jobs are shown to be a crucial mechanism to accelerate growth and to translate growth into shared prosperity and poverty reduction. Despite recent improvements, FYR Macedonia faces three key challenges to promote shared prosperity into the future: low employment-population ratios, high inactivity and persistently high levels of long-run unemployment even when compared to other Western Balkans countries. Only 36 out of 100 working-age individuals is employed in Macedonia, compared to 50 in the whole ECA region, 59 in Latin America and 57 in OECD countries. This is primarily explained by low labor force participation rates and high levels of long-run unemployment. These levels of unemployment and inactivity are also significantly higher than in other countries with similar income levels.

**Income-generation opportunities for the poor are limited.** The poor have very weak labor market attachment, hindering opportunities for future growth, inclusion, and poverty reduction. Despite recent improvements, employment and unemployment are much worse for the poor and the bottom 40 than for the rest. In 2013, employment rates were only 7 and 14 percent for the extreme poor and poor (Figure 27). For the bottom 40 employment rate was higher (28 percent), but still considerably behind the national rate (40 percent) or the top 60 (47 percent). Unemployment rates depict a similar picture, with very large unemployment rates for the less well off (Figure 34). Bringing those at the bottom of the distribution back to work is key to both economic growth and inclusion.

**Employment quality for the less well-off is also lower than for the rest of the country.** Poor and bottom 40 workers are more likely to be in the informal sector of the economy, which typically

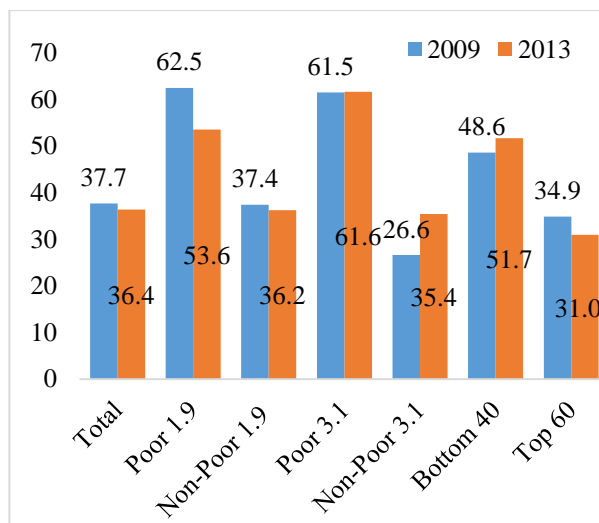
means lower salaries and protection (Figure 35). The share of workers in the informal sector among the ones below the extreme poverty line (\$1.9/day) is 54 percent, and is even higher for those below the \$3.1/day line (62 percent). In both cases this is much higher than what is reported for the non-poor (close to one third).

Figure 34: Unemployment Rate, FYR Macedonia 2009, 2013 (Percentage of labor force)



Source: Own estimates based on SILC 2010 and 2014.

Figure 35: Informality Rate, FYR Macedonia 2009, 2013 (Percentage points)



Source: Own estimates based on SILC 2010 and 2014.

Note: Informality defined as self-employment in companies with 5 or less workers.

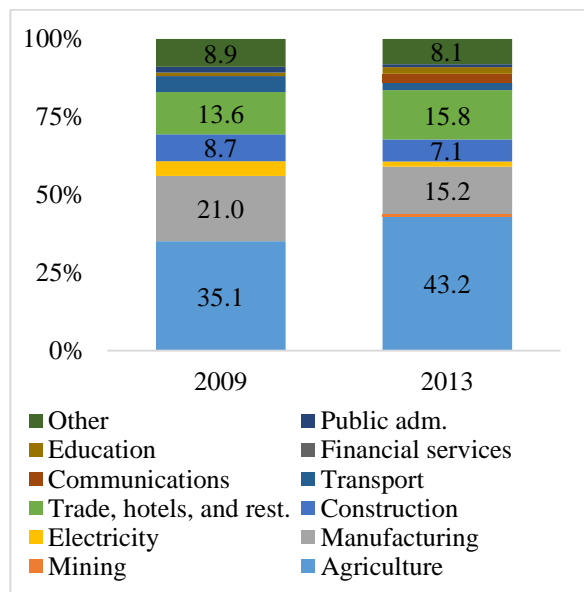
**The employed poor are more likely to be employed in low productivity sectors.** A higher fraction of the poor is employed in traditionally low productivity or low wage sectors. Agriculture, composed mostly by self-employed or unpaid family workers cultivating their own land, represented 43 percent of employment among the poor in 2013, more than double the national share of employment for the sector (19 percent). This result indicates, as well, that the poor are over represented in rural areas. The other important sectors among the poor are manufacturing, trade, hotel and food services, and construction, sectors that rank among the lowest in terms of average salary (Figure 36).

**The poor rely in government transfers to complement their income.** In spite of the weak labor market attachment of the poor, labor income still represents close to the two thirds of their income in 2013, up from close to half in 2009 (Figure 37). The rest comes largely from social transfers (Children and Social Allowance, Other benefits and Pensions) and to a lesser extent from unemployment benefits and other sources of income like inter-household transfers. The importance of social transfers to complement the income of the less well-off is more a reflection



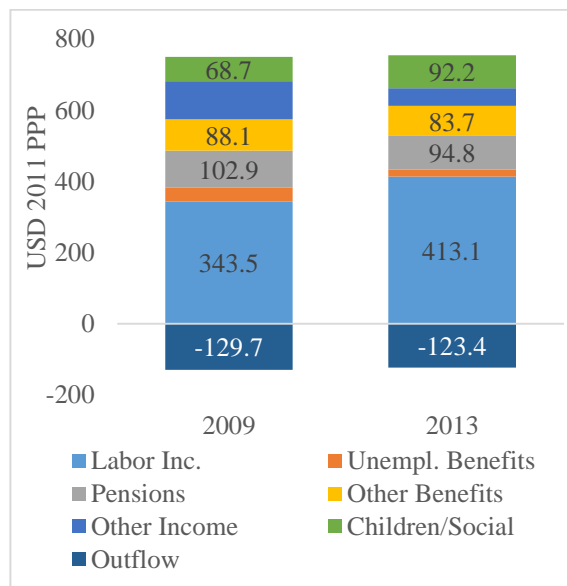
of the low levels of labor income for this group than the generosity of the transfers system. For instance, in 2013 the poor earned on average only one tenth of the non-poor in the labor markets.

Figure 36: Distribution of Employment by Sector among the \$3.1/day poor, 2009, 2013 (Percentage of working poor)



Source: Own estimates based on SILC 2010 and 2014.

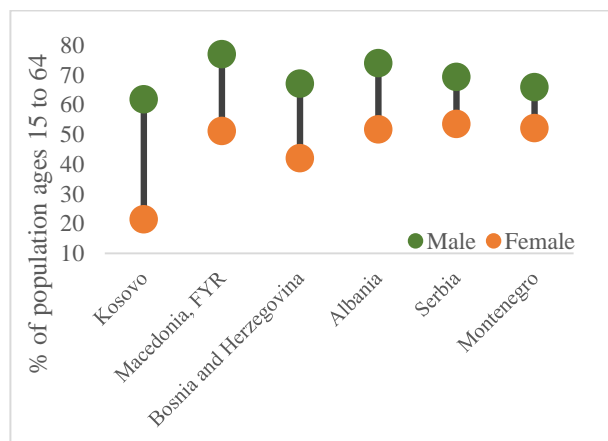
Figure 37: Average Annual Income of the \$3.1/day Poor by Component, FYR Macedonia 2009, 2013 (USD 2011 PPP)



Source: Own estimates based on SILC 2010 and 2014.

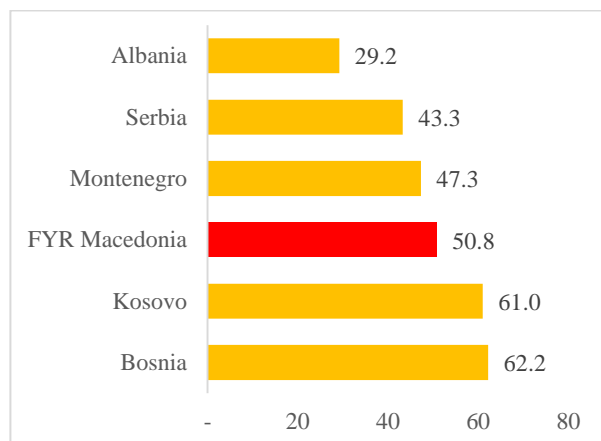
**Inclusive growth seem also to be challenged by the differences through the population subgroups in access to jobs, and in particular, to high productivity and high wages jobs.** When looking across genders, the unemployment rate is not significantly higher among females than males in Macedonia. In fact, in 2014 the unemployment rate among females was higher than males by only 1 percentage points. This is low when compared to other countries in the Western Balkans. However, female labor force participation is considerably lower for women than for men; the second highest gap among Western Balkans countries (Figure 38: Labor force participation by gender, Western Balkans countries, 2013 (Percentage of population 15-64)Figure 38), and, as noted by World Bank (2015b), these differences become even larger when adding the ethnicity dimension (Albanian, Roma, Turkish). Opportunities of employment for the youth are limited. More than half of the youth willing to work are unable to find a job (Figure 39).

Figure 38: Labor force participation by gender, Western Balkans countries, 2013 (Percentage of population 15-64)



Source: Own estimates based on World Development Indicators except by Kosovo For Kosovo, source is Kosovo Agency of Statistics.

Figure 39: Youth unemployment, Western Balkans countries, c.2014 (Percentage of labor force 15-24)



Source: Own estimates based on World Development Indicators except by Kosovo For Kosovo, source is Kosovo Agency of statistics. Modeled ILO estimate

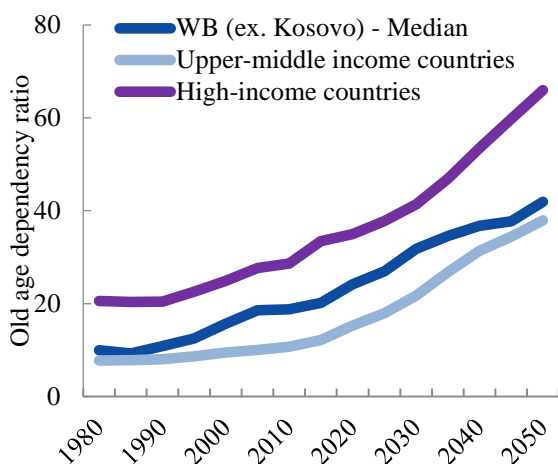
**Demographics seem important looking forward, since they will shape future labor markets performance.** The window of opportunity to grow based on the demographic dividend seems to be short, in particular for a country like Macedonia with medium-term aging. As other countries in the region, Macedonia does not have a youth bulge anymore, and they are relatively poorer than other countries (in terms of GDP per capita) given its median age (Table 3).

<b>Growing quickly, youth bulge</b>	<b>Growing or declining slowly, medium-term aging</b>	<b>Declining quickly, aging rapidly</b>
Albania, Kosovo	Bosnia and Herzegovina, Macedonia FYR, Montenegro, Serbia	

Source: Arias et al (2014)

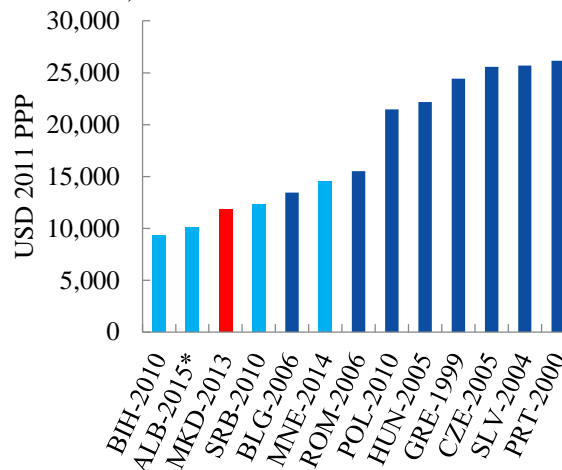
**Some estimates for the Western Balkans suggest that aging and stagnant populations will lead to doubling of dependency of the old on the working age from 2015 to 2050.** As populations age, the support burden placed on families and governments will increase relative to GDP, a matter of great concern in many countries Figure 40: Old age dependency ratio (population 65+ over population 15-64)(Figure 40). By the time many countries in the region have exhausted their demographic dividend they will remain at relatively low incomes (Figure 41).

Figure 40: Old age dependency ratio (population 65+ over population 15-64)



Source: World Bank (2015c)

Figure 41: GDP per capita in year in which total dependency ratio begins to rise (USD 2011 PPP)



Source: World Bank (2015c).

## 6. Conclusions

**This note reports and analyzes the changes in poverty in the 2009-2013 period.** It takes advantage of microdata made recently available by the Macedonia State Statistical Office.

**Results show that FYR Macedonia has experienced a steady decline in poverty in the post-crisis period (2009-2013) in spite of the economic growth slowdown.** In contrast to the pre-crisis period when growth was robust but poverty stagnant, poverty indicators for the most recent period indicate an improvement on the living conditions of the bottom of the distribution. The drop in poverty rate was largely the result of a more equitable income distribution rather than growth of the entire distribution.

**Employment gains and labor incomes were the main reason for the increase in welfare among the well-off after the crisis.** Despite the recent gains, labor income levels at the bottom of the distribution continue to be very low. Among the top deciles, household income has decreased, on account of a reduction in employment. Social protection and remittances play a very limited role to explain the reduction in poverty in the period.

**The active role of the public sector in job creation raises concerns about the sustainability of the employment gains on account of the limited fiscal space to continue expanding spending.** The launching of large-scale public construction projects, expansion of employment in the core public sector and ALMPs implemented by the government have played a critical role in the expansion of employment. The impact of government spending is estimated between a third and half of net employment creation. These measures have contributed to significant fiscal pressures and raise concerns about the sustainability of this employment growth and the derived welfare gains.

**FYR Macedonia faces many challenges looking forward.** Despite the recent improvements, poverty and inequality is still high when compared with other countries in the Western Balkans. Low productivity growth is setting a bound for future wage increases. Income-generation opportunities for the poor are limited as the poor have very weak labor market attachment, their employment quality is lower than for the rest and are more likely to be employed in low productivity sectors. Inclusive growth seem also to be challenged by the differences in access to high wages jobs for women and the youth. Demographics seem important looking forward, since they will shape future labor markets performance.

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## Appendix

### A. Labor Market Indicators

	2011	2012	2013	2014	2015
<b>Total</b>	38.9	39	40.6	41.2	42.1
<b>Without education</b>	8.3	8.9	11.2	9.6	5.8
<b>Incomplete primary and lower secondary</b>	17.2	16.7	17.8	16.7	18.3
<b>Primary and lower secondary</b>	25.1	23.4	25.4	27.1	26.6
<b>3 years of secondary</b>	47.3	47.9	47.4	48.3	49.6
<b>4 years of secondary</b>	46.5	47	49.4	48.8	49.5
<b>Higher vocational</b>	50.8	50.3	49.8	48.6	45.6
<b>University level</b>	64.8	63.8	63.2	63.7	66.8

Source: Own estimates based on Labor Force Surveys 2011-2015

	2013	2014	2015
<b>Agriculture</b>	17,801	18,073	18,177
<b>Industry</b>	25,915	26,681	27,517
<b>Services</b>	27,232	27,854	28,718

Source: Own estimates based on Macedonia SSO business enterprise surveys information (average monthly gross wage paid per employee, 2013-2015).

### B. Welfare Indicators

	\$1.9/day line		\$3.1/day line		Total
	Poor	Not Poor	Poor	Not Poor	
<b>Labor Income</b>	142.9	3999.9	343.5	4302.3	3626.8
<b>Unemployment Benefits</b>	42.1	32.4	39.7	32.0	33.3
<b>Pensions</b>	40.0	683.9	102.9	728.3	621.6
<b>Other Benefits</b>	34.8	376.0	88.1	395.5	343.0
<b>Other Income</b>	100.6	114.1	107.4	113.9	112.8
<b>Children/Social</b>	79.6	20.5	68.7	17.5	26.2
<b>Outflow</b>	-51.5	-1445.0	-129.7	-1553.0	-1310.2
<b>Total Income</b>	388.5	3781.9	620.5	4036.5	3453.6

Note: Welfare measure is annual household per capita income in 2011 PPP Dollars.

	\$1.9/day line		\$3.1/day line		Total
	Poor	Not Poor	Poor	Not Poor	
<b>Labor Income</b>	137.3	3894.6	413.1	4092.2	3663.1
<b>Unemployment Benefits</b>	27.0	19.1	20.3	19.5	19.6
<b>Pensions</b>	60.1	837.5	94.8	881.3	789.6
<b>Other Benefits</b>	26.4	216.3	83.7	220.5	204.6
<b>Other Income</b>	48.6	72.7	50.2	74.0	71.2
<b>Children/Social</b>	123.9	22.4	92.2	20.3	28.7
<b>Outflow</b>	-46.5	-1298.0	-123.4	-1366.2	-1221.8
<b>Total Income</b>	376.8	3764.6	630.9	3941.7	3555.1

Note: Welfare measure is annual household per capita income in 2011 PPP Dollars.

	Quintile					Total
	1	2	3	4	5	
<b>Wages Cash</b>	454.0	1621.2	2481.3	3955.5	7644.0	2807.0
<b>Wages Non Cash</b>	0.0	0.0	0.0	0.0	0.0	0.0
<b>Self-employment</b>	171.0	496.3	883.6	886.3	2222.0	819.8
<b>Private Pension</b>	0.0	0.0	0.0	0.0	0.0	0.0
<b>Unempl. Benefit</b>	33.7	33.1	26.6	27.8	48.0	33.4
<b>Old Age Benefit</b>	142.7	359.5	455.1	944.6	1669.9	621.6
<b>Survivor Benefit</b>	56.0	102.3	155.0	210.2	535.0	185.2
<b>Sickness Benefit</b>	0.6	0.0	0.9	0.6	18.9	3.3
<b>Disability</b>	53.8	113.6	139.3	216.3	323.1	152.7
<b>Education Allowance</b>	0.6	1.1	0.1	4.4	4.2	1.8
<b>Capital</b>	4.1	7.0	5.5	16.2	82.8	19.1
<b>children allowance</b>	11.2	7.6	3.7	1.8	0.9	5.7
<b>Social allowance</b>	52.3	15.9	11.1	6.0	2.9	20.5
<b>Housing Allowance</b>	0.0	0.0	0.0	0.0	0.0	0.0
<b>Household Transfers</b>	92.2	55.6	104.8	96.6	130.7	93.0
<b>Underage Income</b>	1.9	0.3	1.1	0.0	0.2	0.8
<b>Outflow</b>	-227.8	-745.0	-1151.6	-1788.3	-3631.1	-1310.2
<b>Total Net Income</b>	846.3	2068.6	3116.5	4578.0	9051.3	3453.6
<b>Total Gross Income</b>	1074.0	2813.6	4268.2	6366.3	12682.4	4763.8

Note: Welfare measure is annual household per capita income in 2011 PPP



**Table B4. Average Income by Components and Quintile, 2014 SILC (Reference year: 2013)**

	Quintile					Total
	1	2	3	4	5	
<b>Wages Cash</b>	629.9	1606.5	2804.5	4150.9	7086.2	2892.4
<b>Wages Non Cash</b>	0.0	0.0	0.0	0.0	0.6	0.1
<b>Self-employment</b>	367.0	733.8	754.4	862.0	1390.9	770.6
<b>Private Pension</b>	0.0	0.0	0.0	0.0	0.0	0.0
<b>Unempl. Benefit</b>	20.2	12.5	24.8	20.4	21.4	19.6
<b>Old Age Benefit</b>	146.5	388.3	656.6	1108.4	2207.5	789.6
<b>Survivor Benefit</b>	59.1	109.6	210.0	232.6	230.6	156.5
<b>Sickness Benefit</b>	0.7	0.0	0.0	0.0	0.0	0.2
<b>Disability</b>	30.5	42.0	45.4	52.8	56.4	43.8
<b>Education Allowance</b>	2.6	0.5	1.4	10.7	7.9	4.1
<b>Capital</b>	5.7	3.4	1.7	11.6	4.5	5.2
<b>children allowance</b>	29.5	21.8	4.9	2.1	0.0	13.6
<b>Social allowance</b>	44.7	14.4	2.4	0.3	0.1	15.1
<b>Housing Allowance</b>	0.0	0.0	0.0	0.0	0.0	0.0
<b>Household Transfers</b>	47.8	92.7	55.9	62.9	73.8	66.0
<b>Underage Income</b>	0.0	0.0	0.0	0.0	0.0	0.0
<b>Outflow</b>	-285.7	-696.2	-1128.7	-1710.4	-3052.3	-1221.8
<b>Total Net Income</b>	1098.4	2329.1	3433.1	4804.2	8027.5	3555.1
<b>Total Gross Income</b>	1384.1	3025.3	4561.8	6514.6	11079.8	4776.9

Note: Welfare measure is annual household per capita income in 2011 PPP

**Table B5. Average Share by Income Components and Quintile, 2010 SILC (Reference year: 2009)**

	Quintile					Total
	1	2	3	4	5	
<b>Wages Cash</b>	42.3	57.6	58.1	62.1	60.3	58.9
<b>Wages Non Cash</b>	0.0	0.0	0.0	0.0	0.0	0.0
<b>Self-employment</b>	15.9	17.6	20.7	13.9	17.5	17.2
<b>Private Pension</b>	0.0	0.0	0.0	0.0	0.0	0.0
<b>Unempl. Benefit</b>	3.1	1.2	0.6	0.4	0.4	0.7
<b>Old Age Benefit</b>	13.3	12.8	10.7	14.8	13.2	13.1
<b>Survivor Benefit</b>	5.2	3.6	3.6	3.3	4.2	3.9
<b>Sickness Benefit</b>	0.1	0.0	0.0	0.0	0.2	0.1
<b>Disability</b>	5.0	4.0	3.3	3.4	2.6	3.2
<b>Education Allowance</b>	0.1	0.0	0.0	0.1	0.0	0.0
<b>Capital</b>	0.4	0.3	0.1	0.3	0.7	0.4
<b>children allowance</b>	1.0	0.3	0.1	0.0	0.0	0.1
<b>Social allowance</b>	4.9	0.6	0.3	0.1	0.0	0.4
<b>Housing Allowance</b>	0.0	0.0	0.0	0.0	0.0	0.0
<b>Household Transfers</b>	8.6	2.0	2.5	1.5	1.0	2.0

<b>Underage Income</b>	0.2	0.0	0.0	0.0	0.0	0.0
<b>Outflow</b>	-21.2	-26.5	-27.0	-28.1	-28.6	-27.5
<b>Total Net Income</b>	78.8	73.5	73.0	71.9	71.4	72.5
<b>Total Gross Income</b>	100.0	100.0	100.0	100.0	100.0	100.0

Note: Welfare measure is annual household per capita income in 2011 PPP

**Table B6. Average Share by Income Components and Quintile, 2014 SILC (Reference year: 2013)**

	Quintile					Total
	1	2	3	4	5	
<b>Wages Cash</b>	45.5	53.1	61.5	63.7	64.0	60.6
<b>Wages Non Cash</b>	0.0	0.0	0.0	0.0	0.0	0.0
<b>Self-employment</b>	26.5	24.3	16.5	13.2	12.6	16.1
<b>Private Pension</b>	0.0	0.0	0.0	0.0	0.0	0.0
<b>Unempl. Benefit</b>	1.5	0.4	0.5	0.3	0.2	0.4
<b>Old Age Benefit</b>	10.6	12.8	14.4	17.0	19.9	16.5
<b>Survivor Benefit</b>	4.3	3.6	4.6	3.6	2.1	3.3
<b>Sickness Benefit</b>	0.1	0.0	0.0	0.0	0.0	0.0
<b>Disability</b>	2.2	1.4	1.0	0.8	0.5	0.9
<b>Education Allowance</b>	0.2	0.0	0.0	0.2	0.1	0.1
<b>Capital</b>	0.4	0.1	0.0	0.2	0.0	0.1
<b>children allowance</b>	2.1	0.7	0.1	0.0	0.0	0.3
<b>Social allowance</b>	3.2	0.5	0.1	0.0	0.0	0.3
<b>Housing Allowance</b>	0.0	0.0	0.0	0.0	0.0	0.0
<b>Household Transfers</b>	3.5	3.1	1.2	1.0	0.7	1.4
<b>Underage Income</b>	0.0	0.0	0.0	0.0	0.0	0.0
<b>Outflow</b>	-20.6	-23.0	-24.7	-26.3	-27.6	-25.6
<b>Total Net Income</b>	79.4	77.0	75.3	73.8	72.5	74.4
<b>Total Gross Income</b>	100.0	100.0	100.0	100.0	100.0	100.0

Note: Welfare measure is annual household per capita income in 2011 PPP

**Table B7. Annualized Growth of Income Components (2009-2013)**

	Quintile					Total
	1	2	3	4	5	
<b>Labor Income</b>	12.4	2.5	1.4	0.9	-3.7	0.3
<b>Unemployment Benefits</b>	-12.1	-21.6	-1.8	-7.4	-18.3	-12.4
<b>Pensions</b>	0.7	1.9	9.6	4.1	7.2	6.2
<b>Other Benefits</b>	-4.3	-8.5	-3.4	-9.0	-24.0	-12.1
<b>Other Income</b>	-14.1	11.2	-15.2	-9.9	-22.2	-10.9
<b>Children/Social Allowance</b>	3.9	11.4	-16.3	-25.6	-55.7	2.3
<b>Outflow</b>	5.8	-1.7	-0.5	-1.1	-4.3	-1.7
<b>Total Net Income</b>	6.7	3.0	2.5	1.2	-3.0	0.7

Source: SILC 2009-2013

**Table B8. Decomposition of Overall Household per capita Net Income Growth (2009-2013)**

	Quintile					Total
	1	2	3	4	5	
<b>Labor Income</b>	43.9	10.8	6.2	3.7	-15.3	1.1
<b>Unemployment Benefits</b>	-1.6	-1.0	-0.1	-0.2	-0.3	-0.4
<b>Pensions</b>	0.5	1.4	6.5	3.6	5.9	4.9
<b>Other Benefits</b>	-2.1	-3.1	-1.2	-3.0	-6.5	-4.0
<b>Other Income</b>	-5.3	1.6	-1.7	-0.8	-1.5	-1.2
<b>Children/Social Allowance</b>	1.3	0.6	-0.2	-0.1	0.0	0.1
<b>Outflow</b>	-6.8	2.4	0.2	1.7	6.4	2.7
<b>Total Net Income</b>	29.8	12.6	9.6	4.9	-11.3	3.1

Source: SILC 2009-2013

**Table B9: Household Characteristics of poor, non-poor and bottom 40 populations, 2009**

	Total	Absolute Income Poverty				Shared Prosperity	
		Extreme (US\$1.9 2011 PPP)		Moderate (US\$3.1 2011 PPP)		Relative Group	
		Poor	Non-Poor	Poor	Non-Poor	Bottom 40	Top 60
<b>Size</b>							
1	9.7	1.6	10.3	1.8	10.9	1.9	13.5
2	19.2	9.9	19.9	10.9	20.5	16.3	20.6
3	17.9	12.0	18.4	14.2	18.5	13.8	20.0
4	28.4	32.8	28.1	29.3	28.3	29.1	28.1
5	13.0	19.7	12.4	19.6	11.9	17.6	10.7
6+	11.9	24.1	10.9	24.2	10.0	21.3	7.2
<b>Composition</b>							
Share children 0-15	13.3	23.4	12.5	21.8	12.0	19.1	10.4
Share elderly 65+	18.9	3.5	20.1	5.0	21.0	11.5	22.5
<b>Dwelling type</b>							
Detached house	64.8	83.9	63.2	79.5	62.6	75.8	59.4
Semi-detached house / Terrace	10.8	8.6	11.0	10.3	10.9	10.9	10.7
Apartment / flat in bldg. <10 dwellings	2.9	0.5	3.1	1.5	3.1	1.4	3.7
Apartment / flat in bldg. 10+ dwellings	21.2	6.5	22.4	8.5	23.2	11.7	25.9
Other	0.3	0.4	0.3	0.3	0.3	0.3	0.3
<b>Rooms</b>							
1	1.6	0.0	1.7	0.6	1.7	0.6	2.1
2	31.7	39.5	31.1	35.9	31.1	34.4	30.4
3	31.1	27.0	31.5	26.6	31.8	28.7	32.4
4	21.8	22.7	21.8	24.2	21.5	24.2	20.7
5+	13.7	10.8	14.0	12.7	13.9	12.2	14.5
<b>Over-crowding</b>							

Mean ratio (hh size/rooms)	1.2	1.7	1.2	1.6	1.2	1.5	1.1
Share ratio>2	8.6	21.1	7.6	21.1	6.7	17.1	4.4
Share ratio>3	1.8	4.1	1.6	3.7	1.5	2.8	1.4

	Total	Absolute Income Poverty				Shared Prosperity	
		Extreme (US\$1.9 2011 PPP)		Moderate (US\$3.1 2011 PPP)		Relative Group	
		Poor	Non-Poor	Poor	Non-Poor	Bottom 40	Top 60
<b>Size</b>							
1	9.7	2.4	10.1	2.3	10.4	1.7	13.6
2	19.2	13.1	19.5	10.2	20.1	14.8	21.4
3	17.9	18.7	17.9	15.5	18.2	14.3	19.8
4	28.4	31.3	28.3	31.9	28.0	30.8	27.2
5	13.0	19.3	12.6	20.1	12.2	19.3	9.8
6+	11.9	15.3	11.7	20.0	11.0	19.2	8.2
<b>Composition</b>							
Share children 0-15	12.9	20.3	12.5	21.9	12.0	20.0	9.4
Share elderly 65+	20.7	4.5	21.6	5.3	22.3	11.2	25.5
<b>Dwelling type</b>							
Detached house	68.0	72.5	67.7	73.3	67.4	73.9	65.0
Semi-detached house / Terrace	15.1	21.9	14.7	20.1	14.6	16.6	14.4
Apartment / flat in bldg. <10 dwellings	3.0	0.0	3.1	0.6	3.2	0.7	4.1
Apartment / flat in bldg. 10+ dwellings	13.8	5.6	14.2	6.0	14.6	8.4	16.4
Other	0.2	0.0	0.2	0.0	0.2	0.4	0.1
<b>Rooms</b>							
1	5.3	9.5	5.0	8.5	4.9	6.1	4.8
2	29.4	33.0	29.2	33.1	29.1	31.5	28.4
3	18.1	15.6	18.2	17.7	18.1	18.2	18.0
4	13.3	13.3	13.3	12.0	13.5	14.1	12.9
5+	33.9	28.6	34.2	28.7	34.4	30.1	35.8
<b>Over-crowding</b>							
Mean ratio (hh size/rooms)	1.2	1.5	1.2	1.6	1.2	1.5	1.0
Share ratio>2	7.7	15.8	7.2	18.4	6.5	15.1	4.0
Share ratio>3	2.3	4.7	2.2	5.8	1.9	4.7	1.1

<b>Table B11: Household Head Characteristics of Poor, Non-Poor and Bottom 40, 2009</b>							
	Total	Absolute Income Poverty				Shared Prosperity	
		Extreme (US\$1.9 2011 PPP)		Moderate (US\$3.1 2011 PPP)		Relative Group	
		Poor	Non-Poor	Poor	Non-Poor	Bottom 40	Top 60
<b>Gender of Head</b>							
Male-Headed	81.6	90.5	80.9	88.5	80.6	87.6	78.7
Female-Headed	18.4	9.5	19.1	11.5	19.4	12.4	21.3
<b>Age of Head</b>							
0-15	0.0	0.0	0.0	0.0	0.0	0.0	0.0
16-24	0.3	0.3	0.3	0.2	0.3	0.2	0.4
25-34	4.7	7.5	4.4	5.8	4.5	5.2	4.4
35-44	16.7	26.6	15.9	24.2	15.6	21.2	14.5
45-54	26.9	37.1	26.1	32.2	26.1	28.6	26.1
55-64	25.0	18.4	25.5	23.5	25.2	24.6	25.1
65+	26.5	10.1	27.8	14.1	28.4	20.2	29.6
<b>Marital Status of Head</b>							
Never married	2.4	0.3	2.6	1.1	2.6	1.0	3.1
Married	77.0	87.8	76.1	84.4	75.9	84.7	73.2
Widowed							
Divorced	17.5	9.2	18.2	11.2	18.5	11.6	20.4
Unknown	3.1	2.8	3.2	3.3	3.1	2.6	3.4
<b>Education of the Head</b>							
Complete Primary	39.6	60.5	37.9	59.0	36.6	53.8	32.6
Secondary education	40.9	33.1	41.5	32.6	42.2	37.7	42.5
Tertiary education	15.4	2.0	16.4	3.7	17.1	2.9	21.5

Source: Own estimation based on 2010 SILC.

<b>Table B12: Household Head Characteristics of Poor, Non-Poor and Bottom 40, 2013</b>							
	Total	Absolute Income Poverty				Shared Prosperity	
		Extreme (US\$1.9 2011 PPP)		Moderate (US\$3.1 2011 PPP)		Relative Group	
		Poor	Non-Poor	Poor	Non-Poor	Bottom 40	Top 60
<b>Gender of Head</b>							
Male-Headed	82.1	89.6	81.7	89.3	81.3	89.5	78.4
Female-Headed	17.9	10.4	18.3	10.7	18.7	10.5	21.6
<b>Age of Head</b>							
0-15	0.1	0.0	0.1	0.0	0.1	0.0	0.1
16-24	0.2	0.0	0.2	0.0	0.2	0.1	0.3
25-34	4.1	7.8	3.9	7.5	3.7	5.4	3.4
35-44	16.2	29.0	15.5	25.6	15.2	22.6	13.0
45-54	25.0	32.5	24.6	32.4	24.2	29.5	22.8

55-64	25.6	23.5	25.7	23.7	25.8	23.8	26.5
65+	28.8	7.2	30.1	10.3	30.8	18.5	34.0
Unknown	0.1	0.0	0.1	0.6	0.0	0.2	0.0
Marital Status of Head							
Never married	14.3	21.0	13.9	18.0	13.9	14.8	14.0
Married	67.9	70.0	67.8	71.1	67.6	73.6	65.1
Widowed	15.5	2.1	16.2	6.3	16.4	9.4	18.5
Divorced	2.2	6.6	1.9	3.8	2.0	1.9	2.3
Unknown	0.1	0.4	0.2	0.8	0.1	0.3	0.1
Education of the Head							
No education	2.4	2.5	2.4	2.3	2.4	2.2	2.4
Complete Primary	9.5	7.9	9.6	11.5	9.3	12.9	7.8
Lower Secondary	27.1	51.0	25.8	45.0	25.2	38.5	21.5
Upper-secondary	6.3	6.9	6.3	8.1	6.1	5.2	6.8
Upper-secondary (Voc.)	15.6	7.1	16.1	9.9	16.3	15.1	15.9
Post-sec. (Non-tertiary)	25.7	21.7	26.0	20.1	26.3	21.8	27.7
Short-Cycle Tertiary	3.5	2.6	3.5	1.5	3.7	1.4	4.5
Complete tertiary	9.3	0.0	9.8	0.7	10.2	2.4	12.7
Master or equivalent	0.3	0.1	0.3	0.1	0.4	0.2	0.4
Doctorate	0.1	0.0	0.1	0.0	0.1	0.0	0.1
Unknown	0.2	0.4	0.2	0.8	0.1	0.3	0.1

Source: Own estimation based on 2014 SILC. Education variable change from 2009 to 2013.

	Total	Absolute Income Poverty				Shared Prosperity	
		Extreme (US\$1.9 2011 PPP)		Moderate (US\$3.1 2011 PPP)		Relative Group	
		Poor	Non-Poor	Poor	Non-Poor	Bottom 40	Top 60
Individuals Characteristics							
Share of total population (%)	100.0	9.7	90.3	17.1	82.9	40.0	60.0
Gender							
Male	49.7	51.3	49.6	50.5	49.6	50.4	49.3
Female	50.3	48.7	50.4	49.6	50.4	49.6	50.7
Age							
0-17	20.4	28.8	19.9	30.4	19.1	27.9	15.5
18-24	10.4	13.5	10.2	11.9	10.2	11.0	10.0
25-64	56.7	53.6	56.9	52.8	57.2	53.4	58.9
65+	12.5	4.2	13.1	5.0	13.5	7.8	15.7
Marital Status (17+)							
Not married	31.9	29.9	32.0	32.5	28.4	28.4	33.9
Married	68.1	70.1	68.0	67.5	71.6	71.6	66.1
Education (16-64 years old)							
Complete Primary	10.1	13.2	9.8	12.6	9.6	12.4	8.7
Lower Secondary education	31.5	54.7	29.4	51.1	28.0	44.5	24.0
Upper-secondary education	45.6	29.5	47.0	33.3	47.8	40.0	48.8

Complete tertiary education	12.7	2.7	13.6	3.0	14.4	3.1	18.3
Graduate Degree	0.2	0.0	0.2	0.0	0.2	0.0	0.3
Health							
Very good	27.5	30.5	30.4	29.2	30.6	31.3	31.3
Good	44.5	44.9	42.0	42.9	42.2	42.5	42.5
Fair	16.6	12.0	16.3	14.6	16.1	15.9	15.9
Bad	9.4	10.2	9.3	11.0	9.1	8.5	8.5
Very bad	2.0	2.4	2.1	2.4	2.0	1.8	1.8
Employment Status (18-64 yo)							
Employee	27.2	2.4	29.6	4.9	31.4	13.2	35.6
Self-employed	8.7	3.2	9.2	5.9	9.2	8.2	10.1
Unemployed	23.5	55.8	20.4	50.5	18.5	38.1	14.8
Retired	13.1	1.7	14.1	3.9	14.7	7.3	16.5
Inactive	26.8	35.0	26.0	33.4	25.6	33.2	23.0
Type of Contract							
Temporary	11.5	19.8	12.7	17.0	12.6	17.1	11.5
Permanent	88.5	80.2	87.3	83.0	87.5	82.9	88.5
Sector of Economic Activity (Employee or Self-Employee with age 18-64)							
Agriculture	13.7	40.3	12.2	43.2	11.0	25.4	9.1
Mining	1.2	2.2	1.3	0.6	1.3	0.6	1.5
Manufacturing	21.5	12.5	21.4	15.2	21.6	21.1	21.3
Electricity, water, and gas	2.2	2.1	2.3	1.7	2.3	2.0	2.3
Construction	7.0	5.8	6.9	7.1	6.9	8.2	6.5
Trade, hotels, and rest.	16.3	8.1	16.9	15.8	16.8	17.1	16.6
Transport	5.5	5.7	5.8	2.4	6.0	5.5	5.9
Communications	1.9	5.3	2.1	2.8	2.1	1.1	2.5
Financial services	1.4	0.0	1.5	0.0	1.6	0.4	1.8
Education	6.7	5.4	6.5	2.2	6.7	2.9	7.4
Public administration	6.6	2.0	6.9	0.9	7.1	3.7	7.6
Other	16.1	10.8	16.5	8.1	16.8	12.0	17.6

Source: Own estimation based on 2010 SILC.

<b>Table B14: Individual Characteristics of poor, non-poor and bottom 40, 2013</b>							
	Total	Absolute Income Poverty				Shared Prosperity	
		Extreme (US\$1.9 2011 PPP)		Moderate (US\$3.1 2011 PPP)		Relative Group	
		Poor	Non-Poor	Poor	Non-Poor	Bottom 40	Top 60
Individuals Characteristics							
Share of total population (%)	100.0	6.2	93.8	11.7	88.3	40.0	60.0
Gender							
Male	50.1	52.1	50.0	50.6	50.0	50.8	49.7
Female	49.9	47.9	50.0	49.4	50.0	49.2	50.3
Age							
0-17	21.65	31.1	20.6	29.8	20.0	27.3	17.9
18-24	11.48	13.6	11.3	12.0	11.4	11.6	11.4
25-64	55.31	51.6	55.7	53.3	55.7	52.9	57.0
65+	11.56	3.7	12.4	4.8	13.0	8.3	13.8
Marital Status (17+)							
Not married	41.0	43.6	40.9	42.2	40.9	38.3	42.6

Married	59.0	56.4	59.1	57.8	59.1	61.7	57.4
Education (16-64 years old)							
No education	2.3	4.5	2.2	4.2	2.1	3.4	1.7
Complete Primary	7.5	10.4	7.3	12.6	6.9	11.2	5.3
Lower Secondary	27.0	42.6	26.0	42.7	25.1	36.7	21.3
Upper-secondary	8.3	7.4	8.3	7.8	8.3	6.3	9.4
Upper-secondary (Voc.)	11.3	8.0	11.5	9.2	11.5	11.2	11.3
Post-sec. (Non-tertiary)	29.0	21.7	29.4	18.8	30.1	25.7	30.9
Short-Cycle Tertiary	2.3	1.2	2.4	0.9	2.5	0.7	3.3
Complete tertiary	11.8	4.1	12.3	3.6	12.8	4.5	16.1
Master or equivalent	0.5	0.0	0.6	0.2	0.6	0.3	0.7
Doctorate	0.0	0.0	0.1	0.0	0.1	0.0	0.1
Health							
Very good	29.3	32.9	29.1	28.2	29.4	27.6	30.3
Good	49.4	49.1	49.5	48.8	49.5	50.1	49.0
Fair	12.6	7.5	12.9	10.4	12.8	11.5	13.2
Bad	7.0	8.1	6.9	10.0	6.6	8.4	6.1
Very bad	1.7	2.4	1.7	2.6	1.6	2.4	1.4
Employment Status (18-64yo)							
Employee	29.4	4.1	30.9	7.5	31.9	16.2	37.0
Self-employed	11.0	3.4	11.5	7.0	11.5	12.4	10.1
Unemployed	20.7	55.9	18.5	46.6	17.6	33.0	13.5
Retired	13.1	1.7	14.1	3.9	14.7	7.3	16.5
Inactive	26.8	35.0	26.0	33.4	25.6	31.2	23.0
Type of Contract							
Temporary		21.0	12.5	23.4	12.2	21.0	10.1
Permanent		79.0	87.5	76.7	87.8	79.0	89.9
Occupation (Employee or Self-Employee, 18-64yo)							
Managers		2.9	3.5	1.7	3.6	1.7	4.2
Professionals		2.3	11.8	2.9	12.1	3.1	15.0
Technicians and assoc. prof.		9.9	8.9	6.2	9.1	5.2	10.4
Clerical support workers		0.9	5.7	1.9	5.8	2.7	6.7
Service and sales workers		11.6	14.8	12.6	14.9	14.1	15.0
Skilled agricultural		7.4	8.7	10.2	8.6	13.2	6.8
Craft/related trades workers		31.2	20.1	28.1	19.9	24.0	18.9
Plant/machine operators		11.2	13.8	13.9	13.7	14.0	13.6
Elementary occupations		22.7	12.8	22.6	12.5	21.9	9.5
Sector of Economic Activity (Employee or Self-Employee with age 18-64)							
Agriculture	15.7	41.7	15.4	35.1	14.9	30.7	10.4
Mining	1.0	0.0	1.0	0.0	1.1	0.2	1.3
Manufacturing	22.1	13.9	22.2	21.0	22.1	24.3	21.3
Electricity, water, and gas	3.0	3.1	3.0	4.7	2.9	2.7	3.1
Construction	7.2	7.6	7.2	8.7	7.1	7.8	7.0
Trade, hotels, and rest.	16.9	12.9	16.9	13.6	17.0	13.6	18.1
Transport	4.3	1.4	4.3	5.1	4.3	3.6	4.6
Communications	1.7	0.0	1.7	0.0	1.7	0.8	2.0
Financial services	1.2	0.0	1.2	0.0	1.3	0.3	1.5
Education	6.0	0.0	6.0	1.2	6.1	2.7	7.1
Public administration	7.1	4.9	7.1	1.9	7.3	4.0	8.1



Other	13.9	14.5	13.9	8.9	14.1	9.4	15.5
Source: Own estimation based on 2014 SILC. . Note: Occupation based on NACE Rev.2 Code (2 digits)							

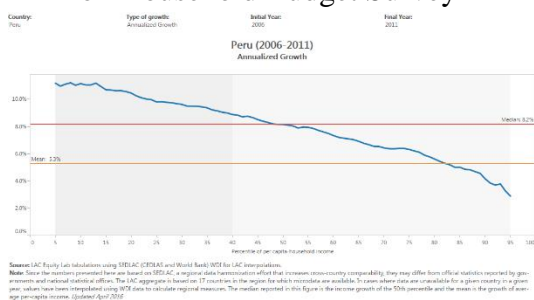
## C. Social Contributions

Table C1: Social Insurance contributions as a Percentage of Gross Wage				
	2008	2009	2010	2011
<b>Social Insurance Contributions (SIC) as a % of gross wage</b>	32.5	28.4	27	27
<b>Pension Insurance contribution</b>	21.2	19	18	18
<b>Health Insurance contribution</b>	9.7	8	7.8	7.6
<b>Unemployment Insurance contribution</b>	1.6	1.4	1.2	1.2

## D. Household Income and Consumption Comparisons

Figure D.1: Peru 2006-2011 Growth Incidence Curves

(a) Based on household income, based on Household Budget Survey



(b) Based on household consumption, based on Household Budget Survey

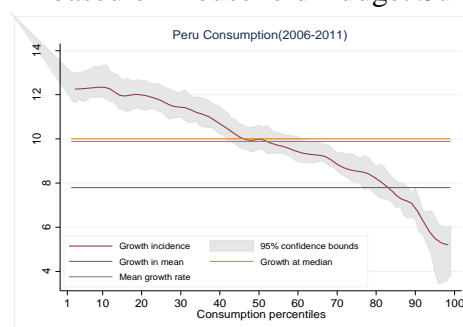


Figure D.2: Poland 2006-2011 Growth Incidence Curves based on household income (from SILC) and consumption (from HBS)

