



PROTECTING THE POOR DURING THE GLOBAL CRISIS: 2009 Bosnia and Herzegovina Poverty Update



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**PROTECTING THE POOR DURING THE GLOBAL CRISIS:
2009 Bosnia and Herzegovina Poverty Update**

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ACRONYMS AND ABBREVIATIONS

BH	Bosnia and Herzegovina
BHAS	Statistical Agency of BH
CEPOS	Center for Policy Studies, Sarajevo
CSW	Center for Social Work
CVW	Civil Victims of War
ECA	Europe and Central Asia
ECA POV	Europe and Central Asia Poverty
EU	European Union
FBH	Federation of Bosnia and Herzegovina
GDP	Gross Domestic Product
HBS	Household Budget Survey
HMT	Hybrid means-testing
ICP	International Comparison of Prices
IMF	International Monetary Fund
KM	Convertible Marks
LSMS	Living Standard Measurement Survey
MT	Means-testing
NWI	Non-war Invalids
OECD	Organization for Economic Co-operation and Development
PER	Public Expenditure Review
PMT	Proxy Means-Testing
PPP	Purchasing Power Parity
RS	Republika Srpska
SA	Social Assistance
SAA	Stabilization and Association Agreement
SEE	Southeastern Europe
VAT	Value Added Tax

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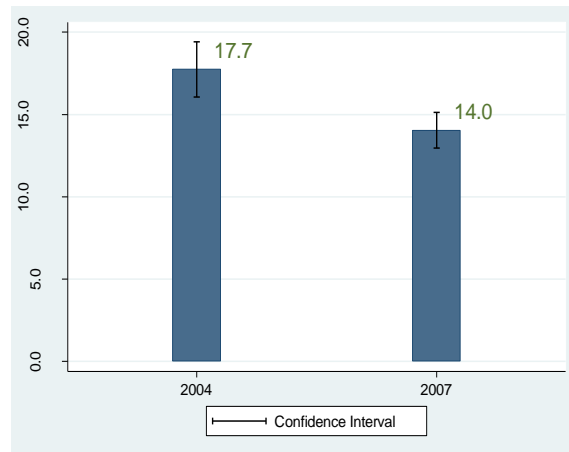
The production of this book would not have been possible without Zeljka Njuhovic's efforts. The cover and the layout have been designed by Sanja Tanic.

EXECUTIVE SUMMARY

Bosnia and Herzegovina's immediate past has been marked by a hopeful recovery

1. **Prior to the current crisis, living standards were rising.** Overall, household consumption per capita grew in line with GDP growth, after a tepid record in the first half of the 2000s. Unemployment fell for the first time in years, exports grew and became more diversified and inflation remained low for most of the period. As a result, headcount poverty measured as the fraction of the population with incomes below 205KM per person per month declined by almost 4 percentage points - or a 20 percent reduction in headcount poverty - between 2004 and 2007 (Figure 1). Other measures of poverty, such as poverty gap and severity of poverty also declined.

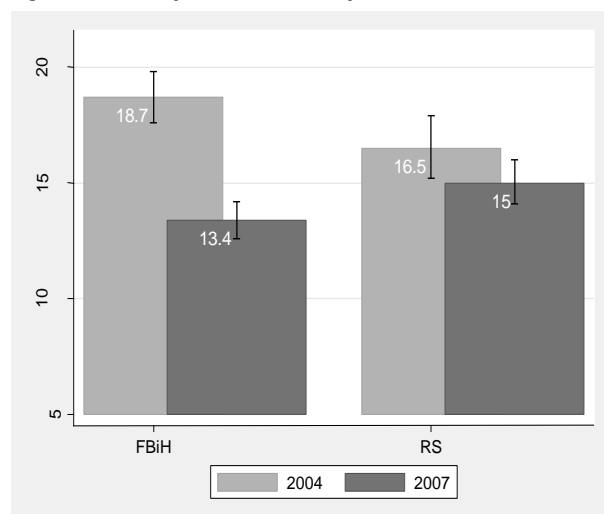
Figure 1: Absolute Poverty Rates, 2004 and 2007



Source: HBS data, 2001 LSMS poverty line.

2. **There is no statistically significant difference in poverty rates across the two entities.** As shown in Figure 2, the initial (2004) and latest (2007) poverty differences between the entities are about the same. However, between 2004 and 2007, the poverty rate in the Federation declined by 5 percentage points - from 18.6 to 13.3 percent (Figure 2). By comparison, the poverty rate in the RS declined from 16.5 to 15. Since about two-thirds of the poor live in the Federation and the pace of poverty reduction was a bit faster in FBH, there was a statistically significant decrease in overall poverty. One source of the difference in the pace of poverty reduction may be the relatively higher growth in private transfers from abroad and within the country in the FBH. In this period remittances from abroad to families in the FBH

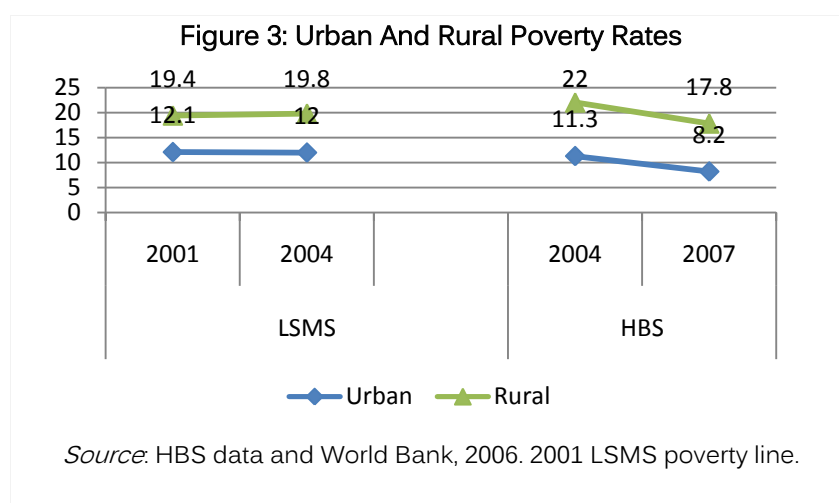
Figure 2: Entity Level Poverty Trends



Source: HBS data, 2001 LSMS poverty line.

rose by 44 percent but declined by 14 percent in the RS. Finally, it is important to note that the trends in poverty outcomes for the Brcko district were difficult to assess primarily because there were substantial problems with sampling and field work in the district in 2004.

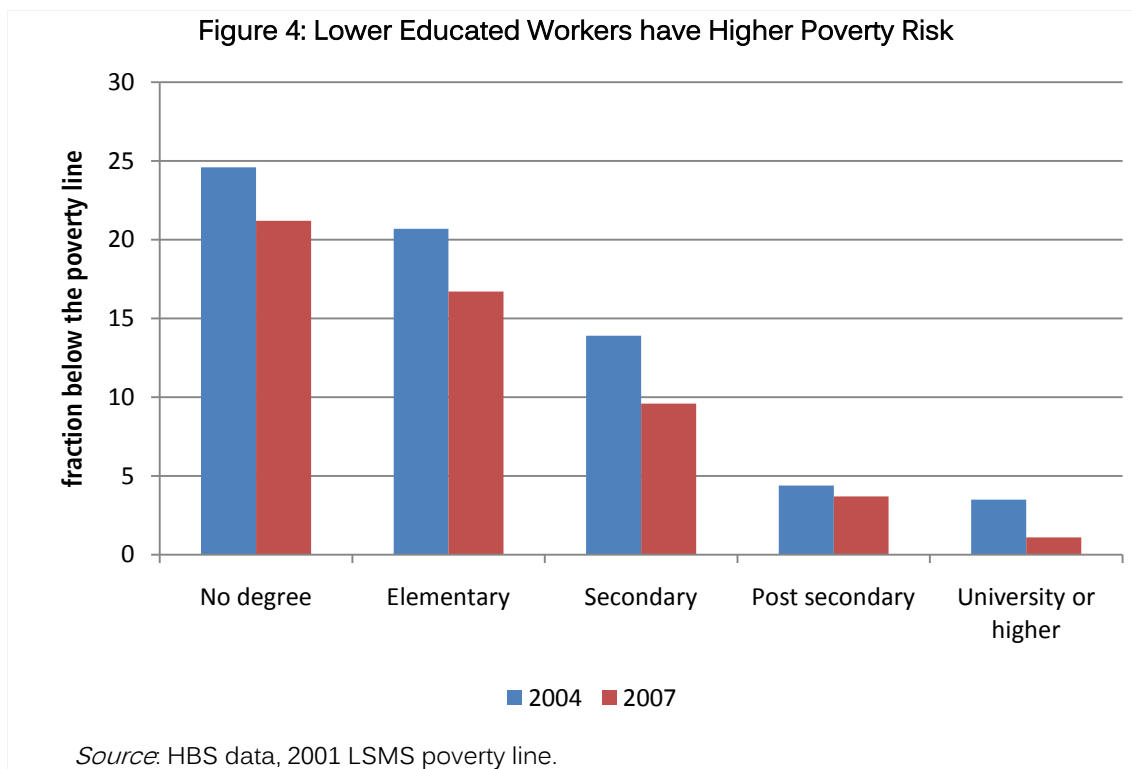
3. **Despite these positive developments certain structural rigidities remain. First, poverty continues to remain primarily rural.** Both urban and rural poverty rates have declined, but roughly by the same order of magnitude (Figure 4). Therefore, no progress was made in reducing the huge initial disparity between urban and rural poverty outcomes. Rural poverty is still twice as high as that in urban areas and three out of four poor people live in rural areas. Per capita consumption of the average rural resident is 4 percent lower than the per capita consumption of the average urban resident, after accounting for differences in educational and other characteristics:



4. **Second, the risk of being in poverty is highly correlated with low skills.** One common measure of low skills is low education. The analysis in this report shows that the population living in households whose head has attained either an elementary or lower education is significantly more likely to be in poverty than those living with heads with higher education. For instance, the poverty rate of the population living with secondary educated household heads was 10 percent in 2007 (itself a decline from 14 percent in 2004) (Figure 5). By comparison, the poverty rate for those residing with household heads with no more than primary education was between 17 to 21 percent in 2007. In fact, seven in ten poor people live with heads of households with no more than primary education. Rather than looking at the likelihood of being in poverty one can look at the consumption (or income) comparing households headed by more educated people in a regression analysis. The estimates show that families living with elementary educated household heads consume about 8 percent less per capita than

¹ Based on a regression analysis of consumption using the 2007 HBS data, see Section 2D and Annex 2.

secondary school educated heads of households, and 25 percent less per capita than individuals living with household heads with higher education².



5. **Finally, the majority of the poor are working poor.** The poverty rate among those who are classified as employees was the lowest compared to self-employed, unemployed, retirees and those out of the labor force. The self-employed were poorer than both formal employees and retirees. Still, about one in every three poor people is an employee, suggesting that the majority of the poor are working poor. The next largest group among the poor is the retirees, who make up 25 percent of the poor. The large fraction of the employees among the poor probably means that the quality of jobs is low and this coexists with a high level of structural unemployment, particularly among the youth (See Box 2.1). This implies that sequencing of policies that focus on expanding job opportunities for the unemployed, followed by productivity growth to boost wages would be a desirable strategy.

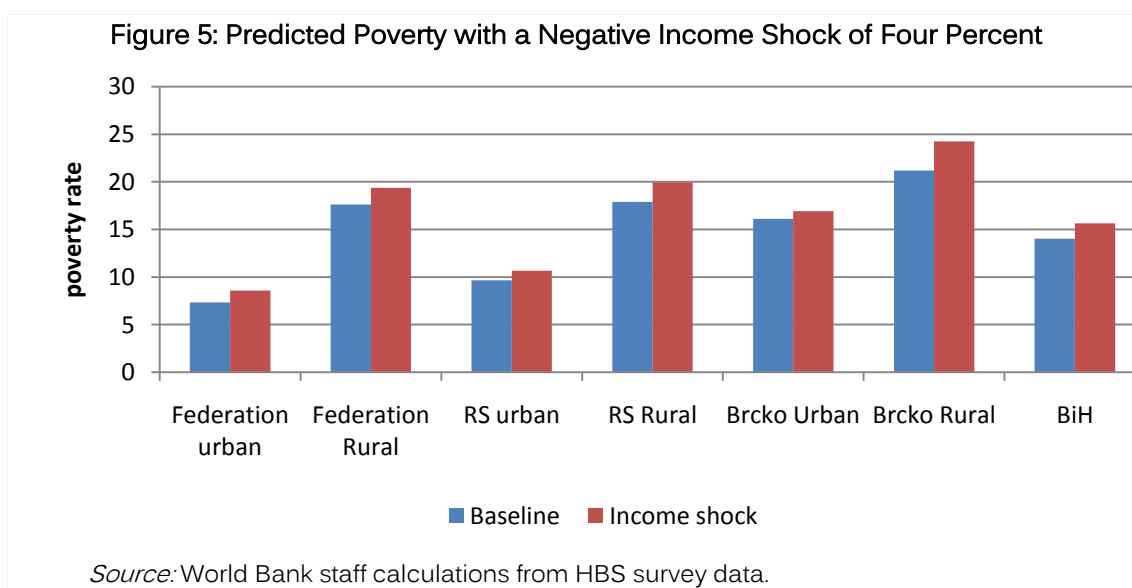
The global economic crisis is likely to erode the past gains

6. **The unfolding global economic crisis is expected to affect BH severely.** Output is expected to contract by 3.5 to 4 percent in 2009 but the size of the downturn and how long it will last remains uncertain. Even if a recovery in the global economy emerges in 2010, it is expected to be slow. The current contraction in output has been particularly severe in export intensive sector. The manufacturing sector has borne the brunt of the

² Based on a regression analysis of consumption using the 2007 HBS data, see Section 2D and Annex 2.

fallout. Output in the sector is expected to decline by more than 20 percent in the first quarter of 2009 compared to the same quarter in 2008.

7. **Household vulnerability on several dimensions is already going up.** The unemployment rate in BH stood at 23 percent at the beginning of 2009 (LFS 2008 data, BHAS 2009) and is one of the highest in South Eastern Europe. The first quarter of 2009 already shows signs that employment levels have declined – official employment data suggests a 0.1 percent drop in official employment year-on-year for January 2009 (BHAS, 2009b). In particular, two sectors that have contributed the most to employment growth – manufacturing and wholesale and retail – are also two of the hardest hit in the crisis and where job losses are most likely. Second, remittances, which constituted on aggregate 15 percent of the national income of BH, are projected to decline 3 to 5 percent compared to the 2008 flows. Lastly, indebtedness adds an additional dimension to household vulnerability. By 2007, household debt was 27 percent of GDP and this constituted half of all private sector debt. Most of the loans in BH are with variable interests and indexed in foreign currency. Therefore, a rise in interest rates in major loan originating countries forced by the on-going credit crunch is likely to lead to a rise in repayment costs.

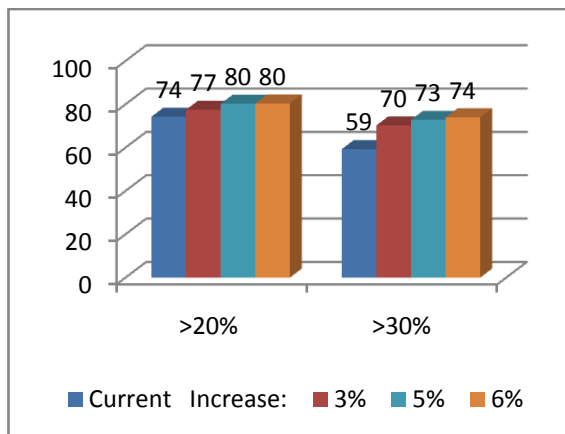


8. **Empirical simulations suggest that the predicted GDP decline may lead to a rise in poverty, reversing half of the gains prior to the crisis.** A 4 percent income shock will lead to a rise in the poverty rate of 2 percentage points (Figure 6). This prediction is based on the assumption that the propensity to consume out of an additional income is essentially 1 – so that an income decline of 4 percent translates into a consumption decline of the same magnitude. Thus a 4 percent income shock will lead to a rise in the poverty rate of 2 percentage points. The predicted losses appear higher in rural areas compared to urban areas (except in the Federation), not surprisingly because the consumption levels are lower and poverty levels are already higher in these areas. Alternative scenarios, which focus on shocks via transmission channels (simultaneous

employment shocks and decline in remittances) show similar predicted welfare losses (Figure 8). The predictions indicate that a 15 percent unemployment shock to the already employed – an aggregate increase in unemployment of 9 percentage points - would lead to a 2 to 3 percentage point increase in poverty. Introducing additional shocks, such as a decline in remittances received, does not lead to a substantial increase in predicted poverty.

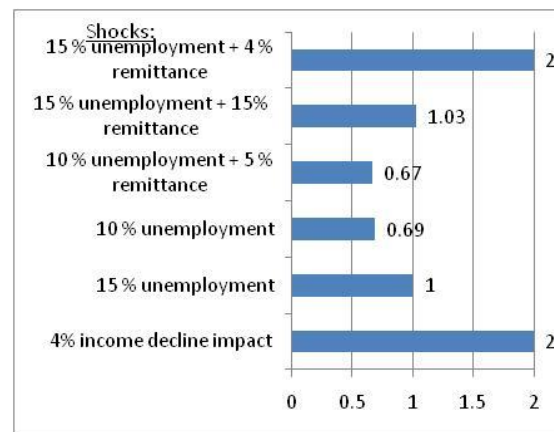
9. **Household indebtedness will rise.** For many households, pre-crisis levels of indebtedness were already high. Almost 74 percent of households in debt used at least 20 percent of their income for debt repayment and as many as 59 percent spend more than 30 percent of income on servicing debt (Figure 7). As interest rates increase and as loan amounts indexed to foreign currencies adjust, the “debt stress” will rise.

Figure 6: Interest Rate Simulations – Percent of Households with Difficulty Servicing Debt



Source: HBS 2007 data.

Figure 7. Simulation Results, Poverty Percentage Point Decrease



Responding to the crisis would need better targeted social protection policies

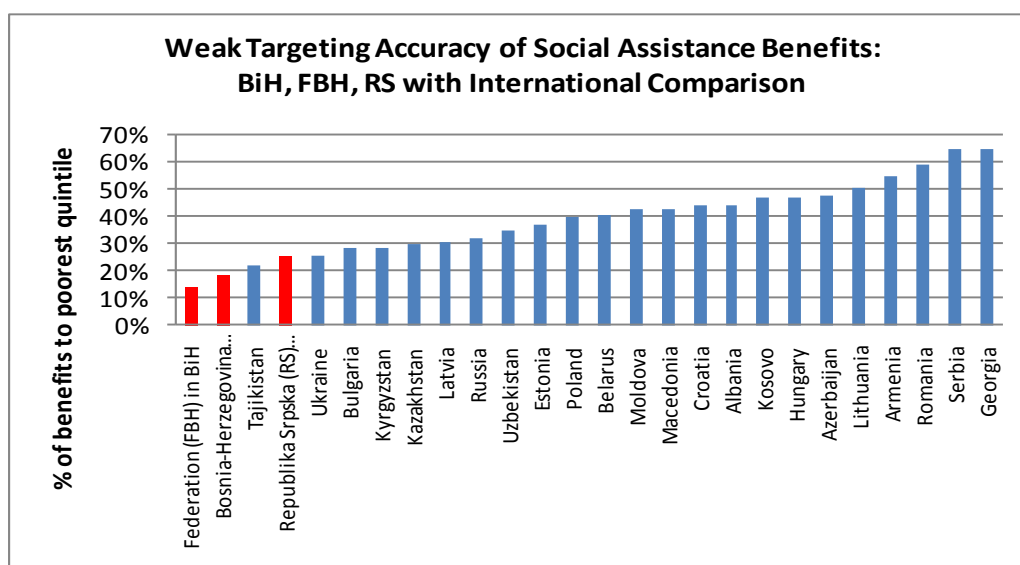
10. **Effective safety nets can be an efficient tool to protect households, especially during a generalized crisis.** During a crisis, well-functioning safety nets can be a first line of defense against falling into poverty. They help households manage risk better: protect themselves from engaging in inefficient ways to smooth consumption (such as foregoing health) and avoiding investment in the future. BH has a plethora of social protection programs that are designed to protect households. Most of them are on the basis of rights (i.e. non-contributory). However, the BH programs as currently designed have several weaknesses, which make them less effective in protecting the poor and vulnerable.

11. **BH spends a significant amount of resources (4 percent of GDP) but these are not very effective in reducing poverty.** Several reasons underlie this finding:

12. **First, coverage of the poor by non-contributory transfers is low.** About 12.4 percent of the population reported receiving benefits while only 17% of those in need are covered by the programs. Coverage of veteran-related benefits is higher than civilian benefits, but the coverage of veteran-related benefits is highest among the middle and upper quintiles.

13. **Second, targeting accuracy is fairly weak, with a higher share of benefits going to those in richer quintiles.** Overall, the distribution of social protection benefits is regressive. Those in the bottom 20 percent of the population receive 16.9 percent of total social protection benefits. Veteran-related benefits are the most regressive, with 26.7 percent of veteran-related benefits reaching those in the richest quintile. About 72 percent of the targeted SA program funds leak to the non-poor top four quintiles. In this regard, BH's programs compare poorly to other income-support programs in the region (Figure 9).

Figure 8: Targeting Comparisons Between BH (and Entities) with ECA Countries



Source: van Nguyen and Lindert (2009) and World Bank staff calculations using HBS 2007 data (for BH).

14. **Third, non-contributory social benefits are not efficient at reducing poverty.** This is not surprising given the low coverage and weak targeting accuracy. The HBS 2007 estimates the poverty headcount rate at about 14 percent of the population with the transfers counted in total consumption. Without the transfers, the poverty headcount would increase to 15.9 percent of the population.

15. **Finally, the numerous non-contributory programs have reached the limits of the fiscal envelope.** The portfolios of targeted and untargeted programs have overlapping benefits. A large share of the budget for these programs is devoted to the untargeted programs. This has led to two major problems. One claims have skyrocketed in the non-

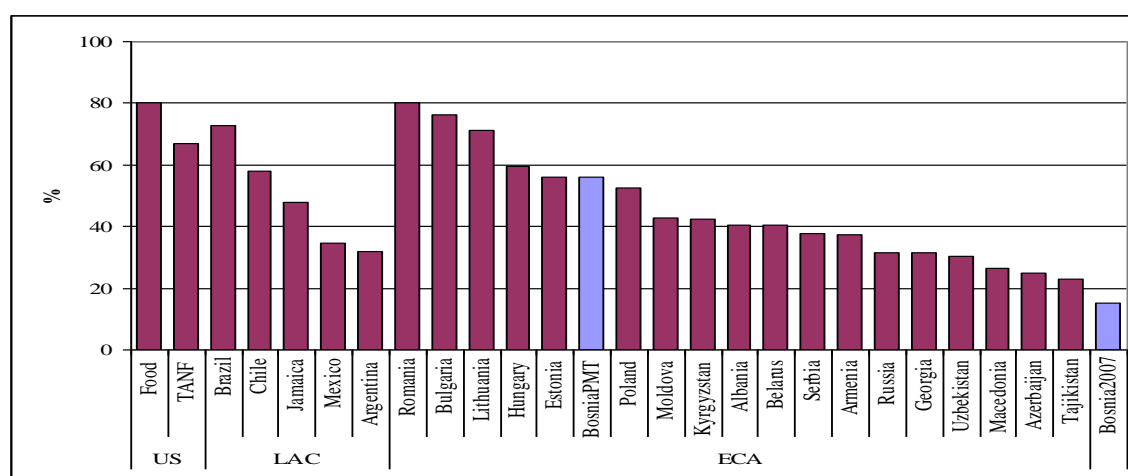
targeted programs so much that the program funds became depleted and went into arrears in 2009 before the year ended. Two, the size of the non-targeted programs is beginning to crowd out the targeted programs.

16. **Because of these weaknesses, BH safety net programs do not have the ability to respond adequately to the crisis.** Therefore, substantial reforms are required to the social safety net programs in order to contain the runaway program budgets and increase the protection for the poor. The starting point for such a reform is to introduce better targeting of these programs.

17. **This report proposes the introduction of proxy-means testing to improve the targeting of social safety nets.** Currently the targeting accuracy, as measured by funds disbursed to the poorest 20 percent of the population, of the BH means-tested programs such as child protection allowance and some of the Centers of Social Work Benefits is in the 25 to 30 percent range. There are several methods for screening applicants (individuals or families) that the government could consider, including: (a) means-testing (MT), currently in use for some programs; (b) proxy means-testing (PMT) and (c) hybrid means-testing (HMT). The choice among methods generally depends on administrative capacities, degree of formality or “measurability” of “incomes” and variation in other observable characteristics associated with “need.”

18. **The empirical simulations suggest that the use of a PMT mechanism could boost the targeting accuracy of the programs by up to 40 percent, from the current 17 percent, thus bringing it in line with international standards.** Should the proxy-means testing procedure be implemented perfectly, the empirical simulations with the 2007 HBS data suggest that a substantial improvement in accuracy over the means-tested programs can be expected. A targeting accuracy of over 30 percent would bring the Bosnia program in line with the performance of programs in other countries (Figure 10).

Figure 9: Share of Beneficiaries in the Bottom Quintile - International Comparisons



Source: HBS 2007 actual and simulated results, and Nguyen and others 2009.

19. **A three step process could help deliver an effective safety net.** Introducing substantial reforms to these programs would be difficult under normal circumstances given the fragile political environment. In a crisis situation it is bound to prove even harder. This would be especially true for any substantive measures to reform the (regressive) veteran-related benefits. Nonetheless, given the fiscal burden that untargeted programs impose, there are likely no alternatives to reform. There are steps which BH could take to reform its programs and systems to strengthen and develop a true social safety net that does not impose an unbearable burden on public resources, and is more efficient at reaching the most vulnerable populations. Specifically, it is recommended that the government considers a three-pronged approach to reform, involving (a) publicity campaigns that nudge the population to support the reforms, (b) ensuring that the new targeting tools are transparent and superior to what they replace, and (c) putting in place monitoring and evaluation mechanisms that would make it possible to learn and adapt the programs to the evolving context. This would involve an assessment of institutional and implementation aspects of existing enrollment criteria and processes in each Entity (RS and FBH) and further diagnostics on proposed mechanisms to reform such criteria and processes.

20. **After the crisis, longer term issues such as returning to the pre-crisis or higher growth path will become necessary in order to continue to improve living standards.** The signing of the Stabilization and Association Agreement (SAA) will help as it speeds up the reform agenda. One reform area which will be essential in the process is the creation of a common economic space. It has the promise of leading to better land and labor markets and providing opportunities for individuals to manage risk through mobility.

21. **The rest of the report is structured as follows.** Section 1 provides a brief background on the recent macroeconomic developments, starting with the immediate positive past, the growth payoffs in terms of poverty reduction and concluding with a description of persistent and emerging vulnerabilities. Section 2 continues with the story of the growth payoff by outlining the distribution and profile of the poor, noting in particular the correlation between space, skills and welfare outcomes. The focus on these specific areas is deliberate since they take on special significance in the BH context. Section 3 takes note of the present global crisis, which has introduced huge uncertainties in BH. Specifically, it looks in detail at the channels through which the on-going economic crisis will be felt in Bosnia. It also forecasts the welfare losses, measured in terms of poverty and economic stress, measured by levels of indebtedness. Section 4 builds on the message of Section 3, which is that to protect the population from a severe downturn and to minimize erosion of the recent gains, an effective social protection system is called for. After reviewing the existing income support programs, the section then proposes new tools for improving the current system, paying particular attention to the targeting mechanisms. Section 5 draws policy recommendations based on the evidence in the report. In particular, it calls for the

improvement of safety nets in the short run and for addressing distortions such as slow structural reforms and lack of a common economic space in the long run.

1. MACROECONOMIC CONTEXT AND POVERTY TRENDS

This section makes three main points. First, growth in BH between 2001 and 2008, but especially in the latter half of the 2000s, remained robust on account of strong export performance, which was fueled by buoyant global demand and improved competitiveness. Second, this strong growth performance has led to substantial poverty reduction, as seen by a 20 percent poverty reduction from 2004 to 2007 – from 17.7 to 14 percent respectively. It notes that differences in the overall poverty rates in the entities remain indistinguishable. . Third, despite the overall positive performance in recent years, the current global economic crisis is likely to threaten recent gains. In particular, the section makes the point that by increasing levels of unemployment, limiting credit growth, and putting pressure on fiscal stability, the crisis is likely to amplify some existing structural weaknesses and increase household vulnerabilities.

THE OBJECTIVE AND CONTENT OF THE REPORT

1.1 The main focus of this report is to update our knowledge of poverty outcomes in BH at a time of great uncertainty. The last comprehensive poverty assessment for BH was completed in 2003. That report relied on the Living Standard Measurement Surveys (LSMS) that were conducted annually between 2001 and 2004. In 2004 the country switched from LSMS to the Household Budget Survey (HBS) as the key tool to monitor poverty outcomes, in keeping with the practice of many countries in Europe. Therefore, this report takes advantage of the availability of two surveys (2004 and 2007) in the HBS series to understand how living standards have evolved in the country in the latter half of 2000s. Furthermore, the unfolding global crisis casts a cloud over the depth and length of the economic downturn of so many countries. There is a fear that the gains in living standards of the last few years will be lost. Understanding such a prospect for BH is an urgent concern.

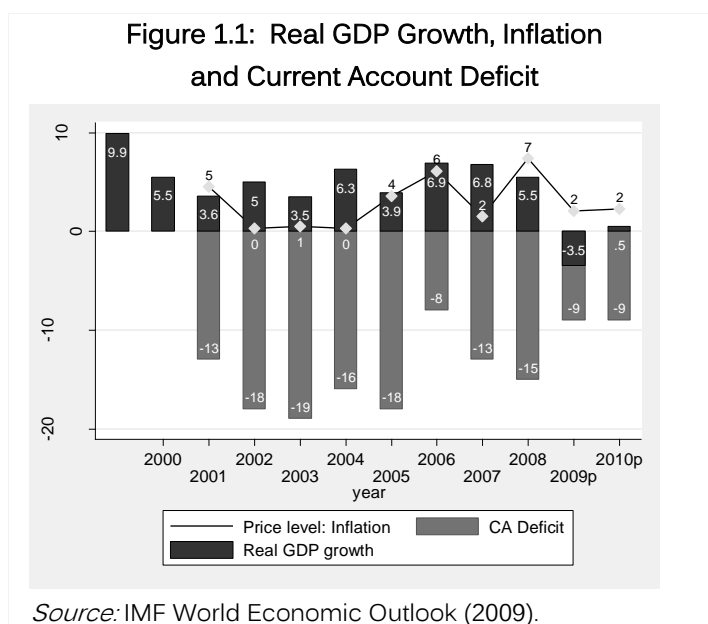
1.2 Some topics that would normally be covered under more comprehensive poverty assessments such as service delivery outcomes in education, health and the participation and performance of the labor market are not dealt with in this report. There are two related explanations for this. The first is that given the gap in knowledge and the importance of the economic crisis, there was a need to understand quickly the impact of the crisis and strategies to protect the population. Second, the poverty work in BH has a programmatic approach, which means that the topics are demand-driven, short and focused, timely and linked to operations. From this perspective, many of the topics that are not included here can be the focus of future analytic pieces or were recently analyzed, as for instance Labor Market Outcomes (Tiongson and Yemtsov, 2008). Potential areas of future work that are deemed important for welfare outcomes in BH

are labor markets, rural poverty and inequality dynamics – possibly with a strong spatial dimension – all of which could be approached as sub-regional issues for the SEE.

1.3 Furthermore, this report does not include a discussion of some of the most vulnerable groups, such as the Roma and the Internally Displaced People (IDP)/Refugee populations. This is due to the lack of reliable data. The Extended HBS, currently being tested, will obviate to this shortfall of data at least partly.³ First, the survey adds three rotating modules to the HBS with the aim of extending the breadth of the information available. Measures of income, social inclusion, health status, health service usage and other issues will be covered, and information on IDP and Refugee status will also be included. In addition, the survey benefits from a large nationally representative sample (7,000 interviews over a 12 month period). This will obviate the absence of reliable and accurate sampling frames which often plague data on these groups, and which leads to reliance on snowball sampling or other non-random methods in order to get sufficient cases.⁴ In short, the extension of the HBS will provide greater detail on the general population of BH and, because of the large sample size, researchers will be able to examine IDPs and Refugees as a sub-group and examine the living conditions of this sector of BH society.

A. MACROECONOMIC TRENDS

1.4 BH's growth, especially in the latter half of 2000s, and prior to the onset of the global crisis has been robust. After remaining sluggish and volatile in the first half of the decade, real GDP accelerated to an annual average of 6 percent through 2008 (see Figure 1.1) on account of strong productivity gains. This growth has been supported by strong growth in domestic consumption and investment, which in turn have been financed by strong credit growth, remittances and high metal prices. Furthermore,



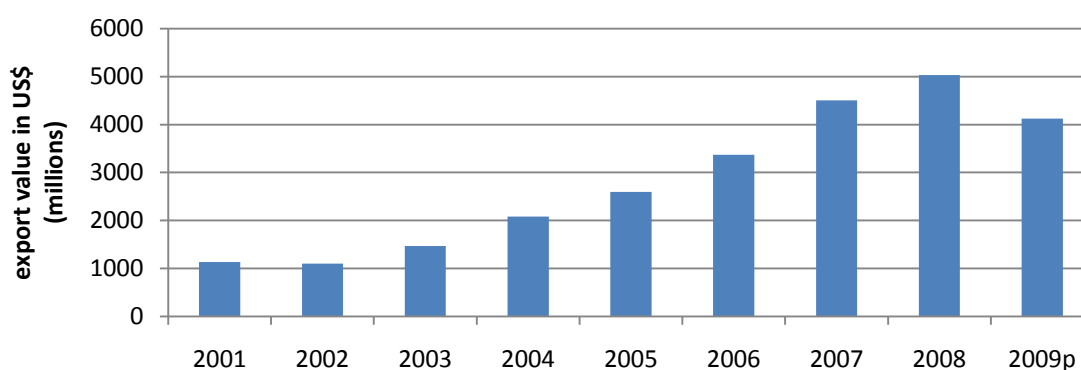
³ The data will not include ethnicity variables hence would not allow analysis of the Roma population.

⁴ As IDPs and Refugees constitute approximately 5 percent of the current population (UNHCR figures) we would expect the Extended HBS to include around 350 interviews with this group - just enough to do useful analysis.

the recent growth has been relatively balanced across sectors. For instance, in 2007, growth was strongest in the financial sector (19 percent), but also robust in manufacturing (14 percent) and retail trade (10 percent), while private investment stood at 21 percent of GDP.

1.5 Strong export performance is a mix of both global demand and improved competitiveness. Recent growth has been helped by strong exports, which grew at the average nominal rate of around 28 percent between 2004 and 2008 (Figure 1.2), hinting at an improved external competitiveness of the BH economy. During the period, the economy gained export market share (IMF, 2008). Nominal export growth was 15 percent in 2007 and 13 percent in 2008 (Figure 1.2). This contrasts sharply with previous growth episodes, particularly the period between 1995 and 2001, which was fueled by reconstruction and large inflows of foreign aid. Initially, export growth was largely focused in a few industries, with relatively low value added: base metals, wood products, and textile. But the structure of exports has improved, shifting from base metals and wood products towards higher value-added products in metal processing (mostly car parts), furniture, and other industries. Performance in service exports was also strong.

Figure 1.2: Trends in Export (US\$ millions)



Source: BHAS Data and World Bank staff calculations from official data. *Note:* The 2009 data is a projection from the observed trends in the first 6 months. We calculate the actual average month-to-month export growth in the first 6 months. We assume the same average for month-to-month growth for the rest of the year.

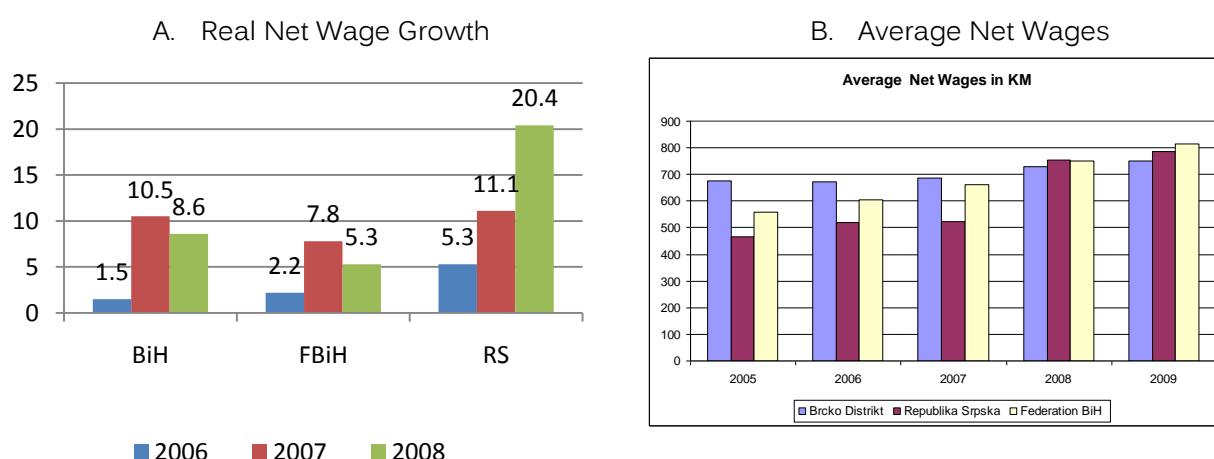
1.6 Recent agreements on some key institutions of economic governance offer the potential to support future reform and robust growth. Among them, the signing of the Stabilization and Association Agreement (SAA) paves the way for future EU integration, more EU funds for development, and provides the impetus for additional reforms. Furthermore, the long-awaited Fiscal Council was finally established, and immediately set the fiscal targets for 2009. There was also agreement on a permanent indirect tax allocation formula, though it has not yet been fully implemented. The Fiscal Council law and the tax revenue allocation formula provide the starting point for fiscal coordination. In fact, since this agreement, state and entity budgets were adopted in line with the

Fiscal Council law, and corporate and personal income taxes were lowered and harmonized across entities. Further, entity governments took concrete steps to settle domestic claims to improve fiscal sustainability.

1.7 **Despite the overall positive economic performance in recent years, there exist several macro-economic vulnerabilities.** One such vulnerability is the rising price level, although this has moderated in the current global crisis. Figure 1.1 shows that inflation has accelerated sharply in the latter half of the decade, after remaining very low in the first half of 2000s. Some of the price increase in the second half of the 2000s (especially in 2007 and 2008) is due to a global surge in food and fuel prices which affected all countries. Part of the increase is also due to a natural convergence to average EU price level. It is worth noting that global food and fuel price increases may not necessarily lead to a permanent price increase in BH. The main concern is that domestic demand has risen too fast and is the source of the observed surge in the price level. Signs of intensifying demand pressures are sharp growth in net wages and expanding current account deficit.

1.8 **Wage growth has been rising rapidly and threatens external competitiveness.** Some of the past wage growth has been in line with productivity growth. However, between 2007 and 2008, there has been a sharp upward adjustment in the public sector wages, most notably in the RS (Figure 1.3). Due to the relatively large public sector such a development has the potential to put further upward pressure on private sector wages and erode competitiveness. Additionally, the acceleration in wage growth puts pressure on public finances and underlying inflation via a feedback loop.

Figure 1.3: Nominal and Real Net Wage Growth, Administrative Data



Source: BHAS (2009); BHAS (2008) and Statistical Bulletin of the Brcko district (2009). Average net wage for 2009 is for the month of February.

1.9 **Even with these growing wage pressures, labor market slack remains substantial.** Unemployment remains a large concern, although it has been on a

declining path in the two years prior to the onset of the financial crisis. In the Federation, the number of registered unemployed grew every year between 2000 and 2007, from about 259,000 to 370,000. In 2008, it has declined slightly to 345,000. On the other hand, formal employment initially dropped between years 2000 to 2002, then stayed flat until 2007, when it started growing both as a result of increased formalization, but also growing labor absorption by the economy as evidenced by the reduction in unemployment. In Republika Srpska, with the exception of 2006, registered unemployment decreased every year since 2001. The data on formal employment for Republika Srpska are available only since 2006 and show that the number of employed in the formal sector was relatively constant during this period (257 thousand employed in both 2006 and 2007 and 259 thousand in 2008).⁵

1.10 Informal employment also appears large. For the BH as a whole, “official” or registered unemployment still stands at just above 40 percent. By comparison, the Labor Force Survey of 2008 shows that the real unemployment rate is around 23 percent, suggesting large informal employment. There are several reasons that could explain the size of the informal sector. First, direct taxes on formal employment are relatively high (social contributions amount to around 41 percent of gross wage and personal income tax is 10 and 8 percent in the Federation and Republika Srpska respectively). There are incentives for tax evasion, especially in relation to low-productivity jobs, where the burden of taxes could make formal employment prohibitively expensive. Furthermore, the eligibility criteria for a number of social benefits is based on the proof of being unemployed in the formal sense, which also provides an incentive for workers with low skills to stay in the informal sector. Certain rigidities in the labor market, such as the minimum wage and the relative difficulty of hiring workers on a temporary basis, as well as the difficulty of firing workers also contribute to the size of the informal sector.

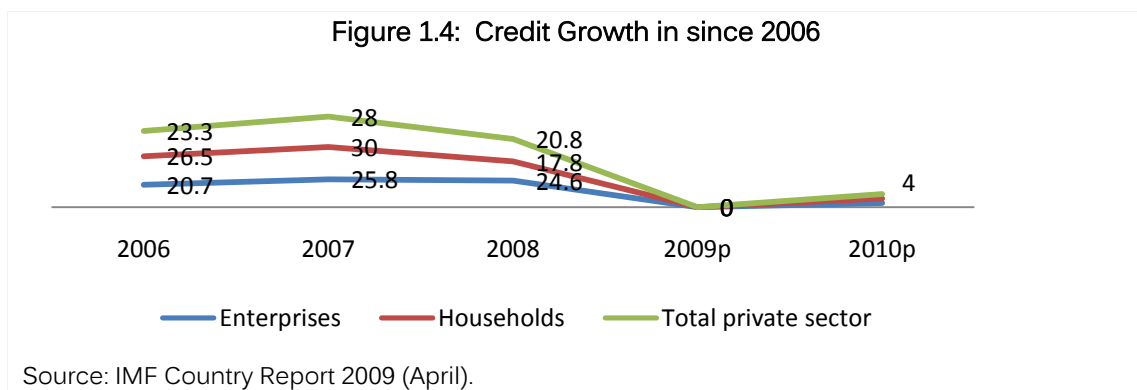
1.11 Informal and low productivity employment is especially huge in rural areas and is linked to subsistence agriculture. The agriculture sector comprises about 8 percent of GDP. However, formal employment in the sector amounts to a mere 2 percent of formal employed workers, which may indicate a very high degree of productivity. The situation is, however, quite the contrary. It is estimated that as many as 18 percent of employment is within the agriculture sector, most of it obviously informal. Productivity in the agriculture sector is very low, even by regional standards and therefore such a discrepancy between the small contribution to GDP and the large employment in the sector. The investments in the sector are relatively low and it suffers from poor liquidity of the land market, poor technology and infrastructure (the majority of farms don't have irrigation systems), relatively low level of skills and know-how, and weak support from the public sector. All of these challenges will have to be addressed in order to make the

⁵ Republika Srpska publishes employment data twice a year, while the Federation does it on a monthly basis. The methodologies are not the same, which renders it difficult to make comparisons between the two.

agriculture sector more productive and to facilitate the creation of jobs in rural areas outside of primary agricultural activities.

1.12 **Workers in the informal sector may not have access to healthcare and other benefits that are attached to formal employment.** Their wages tend to be lower than those employed in the formal sector. Furthermore, low productive employment in subsistence agriculture translates into very low income, which in turn contributes to a disproportionately high poverty rate in rural areas. Thus, it is reasonable to assume that informal employment has a lower impact on poverty reduction than formal employment. The adoption of policies to stimulate formal sector employment can, therefore, be an important instrument in poverty reduction.

1.13 **Another macro-economic vulnerability is the slowdown in credit.** Starting from a low base, credit growth has been rapid and overall welfare enhancing. It has enabled enterprises and households to finance investments and consumption, respectively. For households, this has meant the capacity to smooth consumption, buy more or better quality housing services and expand their durables consumption. Yet with the global downturn, there exists the possibility that credit will decline or/and interest rates will rise, which will reduce both investment and consumption (Figure 1.4). Since recent growth has been very dependent on exports and consumption, the global slowdown will be doubly decelerating – external exports markets and domestic demand may both shrink. Indeed, in mid-2009 the total portfolio of commercial bank credits to enterprises has been largely stagnant over the past two months (World Bank, 2009d).



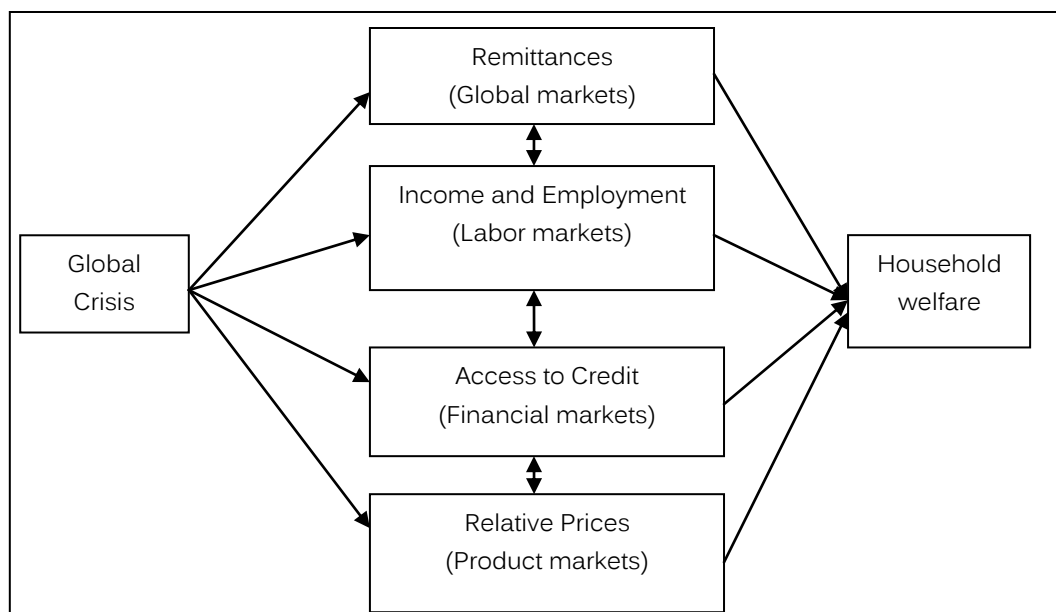
1.14 **In addition to these vulnerabilities, the government is dealing with severe fiscal constraints, driven by unfunded public transfer commitments in the Federation.** The general government deficit widened to 4 percent of GDP from a near-balance in 2007 (2009b). Revenue performance weakened, as VAT refunds accelerated and customs duties on EU imports began to be phased out. In the Federation, the inability of the government to come to grips with large unfunded spending legislation related to benefits for war veterans and demobilized soldiers (currently absorbing a third of the Federation's budget), and the lack of progress with the privatization agenda

undermined the Entity's financial health. By end-2008, the Federation's budget accumulated expenditure arrears of 1.4 percent of national GDP.

1.15 **The current global economic crisis has deepened the country's vulnerability.** Since October 2008, the BH economy has been on a declining path. GDP is expected to contract by about 3.5-4 percent in 2009 and companies in several industries have been shedding labor. The most severely affected are construction, metal processing and wood processing industries. Consumption has been dropping quickly, as evidenced by the reduction in VAT revenues (about 17 percent drop). The current account deficit dropped 58 percent in the first quarter of 2009 (World Bank, 2009d) as imports declined faster than exports, with wage cuts and rising unemployment reducing domestic demand. As government revenues shrunk the Government of the Federation has been facing liquidity problems accumulating some arrears in the form of unpaid salaries, social benefits, and bills to private companies. Thus, the Government became a source of illiquidity for the economy.

1.16 **The report examines household vulnerabilities along three main transmission channels – employment, remittances and indebtedness shocks.** Figure 1.5 represents a stylized diagram for understanding the impact of macroeconomic shocks to date on household welfare. These channels are not exhaustive and are likely to be context specific. In BH, we will focus on three main channels through which major macroeconomic shocks—such as the regional growth slowdown or the credit crunch—are transmitted to household welfare. These are the income and employment of members of the household; the remittances; and their access to financial market (in particular, the burden of servicing debt).

Figure 1.5: Stylized Diagram of Impact Channels of the Crisis



1.17 **It is important to note that the channels identified in Figure 1.5 or even the three transmission channels on which we focus are not exhaustive.** In the context of BH, employment shocks, credit contraction and a decline in remittances are likely to loom large – that is, their effects are likely to be first-order. However, a general contraction in all three is likely to lead to a decline in aggregate demand, which in turn will lead to second-order impacts. For instance, as a result, the incomes of the self-employed and agricultural producers may suffer. Other markets may also shrink – including as a matter of experience housing markets and financial markets via decreasing asset values. This toxic mix of heightened risk in primary markets for earning a livelihood and a generalized contraction in several markets associated with levels of household wealth will naturally lead to the possibility of rising poverty (World Bank, 2009c), a topic which we discuss in detail in Section 3.

1.18 **This brief review of macroeconomic developments shows that BH's economy has come a long way since war ended and transition began in 1995.** Growth picked up in the latter half of the 2000s, after a relatively sluggish start in the early part of the 2000s. However, the future remains uncertain because of the global crisis, existing distortions and fragile political environment. In the next section and the chapter that follows, we take a look at the progress made in the recent past and in chapter three we look at the vulnerabilities and their predicted impact on poverty.

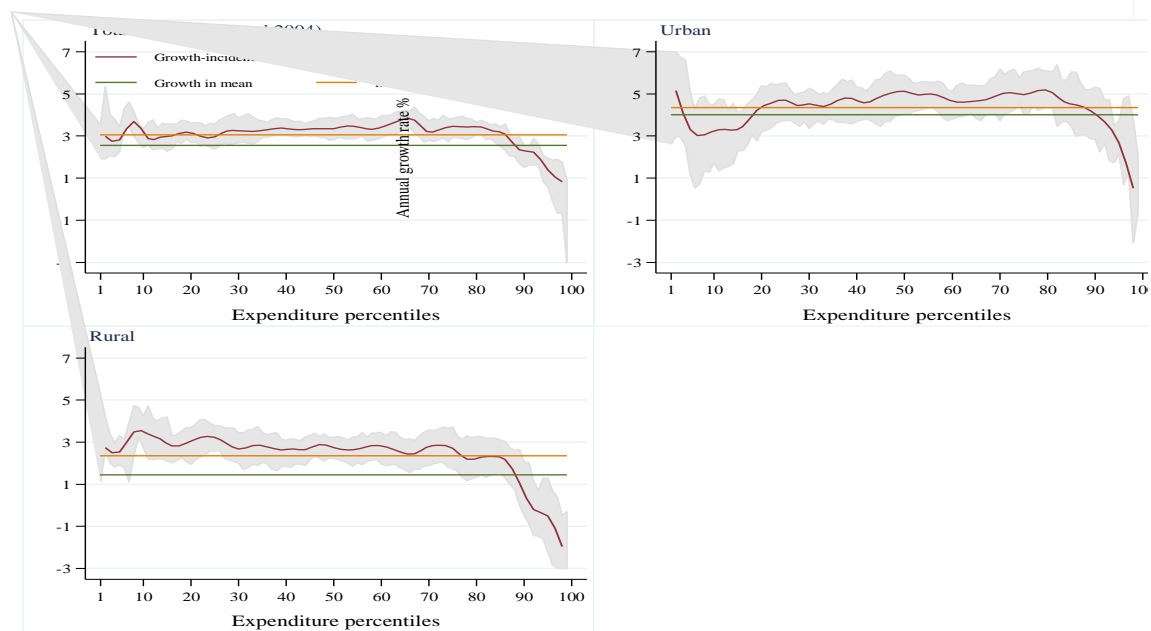
B. EVOLUTION OF POVERTY: BASIC TRENDS

1.19 **Household consumption has grown in line with aggregate income growth.** Figure 1.6 depicts consumption growth at the national, urban and rural areas across the entire distribution. There are two observations to note from these distributions. First, consumption growth at the national level masks huge differences in the growth of consumption between rural and urban areas. While urban consumption growth has been in line with income growth, there appears to have been only limited growth in consumption in rural areas. This suggests that most of the income growth of the last few years may have accrued disproportionately to urban areas. Second within group differences in consumption growth are sharper in rural than in urban areas. For instance, in urban areas, consumption growth was only slightly higher than the group average for those in the upper tail of the distribution compared to those at the bottom half. However, in rural areas, the consumption growth for those in the upper half actually declined and was much lower than the group average. As we shall see in the next chapter, this has led to huge differences in poverty outcomes in urban and rural areas.

1.20 **Not surprisingly, GDP growth has been accompanied by reduction in poverty.** The fraction of the population below the poverty line, a consumption level defined as

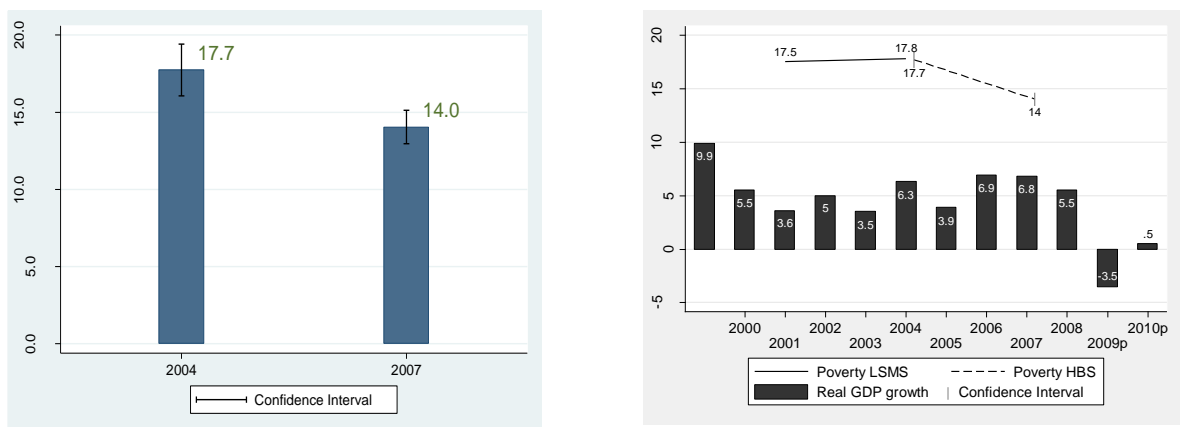
205 KM per person per month⁶ declined from about 18 to 14 percent between 2004 and 2007 (Figure 1.7). This compares favorably to the first half of the 2000s when there was no observed poverty reduction. It is important to be clear that in that period a different data series was used – the Living Standard Measurement Survey series (LSMS) - that was conducted every year between 2001 and 2004. Since 2004, the Statistical Agency of BH (BHAS) has relied on the Household Budget Survey to monitor poverty outcomes. So strictly speaking the two data sets are not comparable, and in this report we take this line. Nonetheless, it is worth pointing out that poverty in 2004 is similar for both series using the same poverty line (see Figure 1.7). In this report, we rely on the trends observed using the HBS.

Figure 1.6: Growth Incidence Curves, 2004-2007



Source: Staff calculations using the 2004 and 2007 HBS data, based on BHAS consumption aggregate.

Figure 1.7: Absolute Poverty Rate Estimates, 2004 and 2007



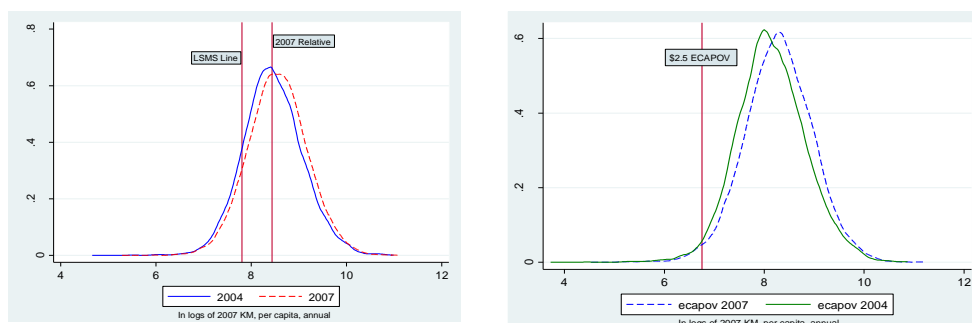
Source: HBS 2007, World Bank (2006b), IMF.

⁶ This is the 2001 LSMS poverty line in 2007 prices. See next paragraph for full discussion.

1.21 In order to track poverty over time, this report uses the 2001 LSMS-based poverty line in real terms – 205 KM per month per capita in 2007 prices. Since the main goal is consistency over time, the basic approach is to use a poverty line set at an initial point and then use prices (as disaggregated as possible) to create equivalent values of that line for other points in time. From this perspective consumption in BH clearly shifted to the right, indicating an improvement (Figure 1.8, left panel).

1.22 As shown in Table 1.1 the 2001 LSMS based poverty line is one of several poverty lines that have been calculated for BH. The rationale for the choice of this poverty line is to ensure consistency with previous analysis, and to evaluate poverty trends. The BH Agency for Statistics reports poverty trends based on a relative poverty line, which is set relative to median consumption per adult equivalent. Consistent with practice common in Europe, the poverty line is set at 60 percent of median consumption per adult equivalent. Such a line was defined as 386 KM per month per adult equivalent in 2007. On the basis of these lines, headcount poverty rates were estimated at 18.3 percent in 2004 and 18.2 percent in 2007. Because these relative poverty lines are set relative to a specific year’s consumption distribution they are not suitable for establishing a time trend of the poverty rate. In addition, absolute poverty lines (referred to as “general poverty lines”) have been calculated for the HBS 2004 and 2007. The 2004 general poverty line was set at a level very close to the 2001 LSMS-based poverty line used in this report, so trends are consistent with the ones reported here. Note also that the practice of recalculating a line for each new survey de facto prevents comparability in poverty trends. As an alternative to BH specific lines, one could use the international poverty line currently set at US\$2.50/person/day and an internationally comparable consumption aggregate (ECAPOV) which is constructed by the World Bank for ECA countries which participated in the most recent International Comparison Program (ICP 2005). Applying this measure, which is much lower than the national poverty line and thus captures trends in chronic poverty, the poverty rate declined from 2.2 to 1.5 percent, though this is not statistically significant.

Figure 1.8: Welfare Distributions Using National and ECA POV Consumption Aggregates and Poverty Lines



Source: World Bank staff calculations using HBS 2004 and 2007 data.

1.23 In addition to growth, “redistribution” to the poor helped reduce poverty. Following Datt and Ravallion (1992), changes in poverty may be decomposed into a growth effect (or changes in poverty due to changes in mean consumption, holding distribution constant) and a distribution effect (or changes in poverty due to changes in the distribution, holding the mean growth constant). Our analysis indicates that gains from increases in mean consumption were further reinforced by changes in the distribution. This is a positive development that contrasts with the findings of the decomposition analysis for the period between 2001 and 2004. An additional positive development is that this redistribution happened in rural areas, where most of the poor live. Indeed from the decomposition alone, the role played by redistribution was just as strong as the growth in consumption in explaining the poverty reduction observed in rural areas (Table 1.2).

Table 1.1: Poverty Lines and Corresponding Poverty Rates

	2004 HBS data			2007 HBS data		
	Nat	FBH	RS	Nat	FBH	RS
2001 LSMS-based Poverty Line: KM 205 per capita per month, 2007 prices						
Poverty rate:	17.7	18.6	16.5	14	13.3	15
Standard	-0.8	-1.1	-1.3	-0.6	-0.8	-0.9
Official Relative Poverty Line:	KM 311 per adult equivalent per month, 2004 prices			KM 386 per adult equivalent per month, 2007 prices		
Poverty rate:	18.3	18.8	17.8	18.2	17	20.1
Standard	-0.8	-1.1	-1.3	-0.7	-0.9	-1
Absolute Poverty Line, 2004						
Poverty rate:	17.9	18.5	17.5			
Standard	-0.4	-0.6	-0.7			
Absolute Poverty Line, 2007						
Poverty rate:				18.6	17.4	20.2
Standard				-0.6	-0.8	-0.9
International Poverty Line: \$2.5 per day per capita, 2005 PPPs						
Poverty rate:	2.2	2.4	2.1	1.5	1.2	2
Standard	-0.3	-0.4	-0.4	-0.2	-0.2	-0.4
International Poverty Line: \$5.0 per day per capita, 2005 PPPs						
Poverty rate:	16.2	16.5	15.7	11	10.7	11.5
Standard	-0.8	-1	-1.4	-0.5	-0.6	-0.9

Source: BHAS (2008) and World Bank staff calculations using the 2004 and 2007 HBS data.
Notes: † Using the ECAPOV internationally-comparable consumption aggregate. LSMS poverty line is KM 205 / month in 2007 prices and KM 185/month in 2004 prices. BHAS relative poverty line is KM 386/month in 2007 and KM 311/month in 2004 per adult equivalent.

Table 1.2: Growth and Redistribution Decomposition of Poverty Changes

	2007	2004	Actual Change	Growth	Redistribution	Interaction
Total	14.04	17.74	-3.70	-2.86	-0.57	-0.27
Urban	8.23	11.33	-3.10	-3.50	0.42	-0.03
Rural	17.78	22.00	-4.22	-2.02	-1.91	-0.28

Source: Authors' calculations using the 2004 and 2007 HBS data, 2001 LSMS poverty line and BHAS consumption aggregate.

1.24 The preceding decomposition results show that in urban areas growth in consumption accounts for most of the estimated poverty reduction while in rural areas both growth in consumption and redistribution (or more appropriately a decline in inequality) played equal roles. At first glance the large role played by “redistribution” in rural areas is surprising given the slow growth of what is predominantly subsistence agriculture. But a number of developments in the country could possibly explain this result. One possibility is that the rich rural residents simply moved to urban areas, which cannot be confirmed with the data available because detailed migration histories of ‘movers’ is needed. Another possibility, for which there is some evidence, is substantial redistribution of income. As Tables 2.2 and 2.3 (Annex 2) shows the fraction of the population receiving pension income, (particularly domestic pensions, a substantial fraction of which are non-contributory), rose sharply between 2004 and 2007. Furthermore, the increase was faster in rural areas than in urban areas. In addition to a wider coverage of the publicly provided domestic pensions, there was a positive increase in inter-household transfers (within BH and from abroad via remittances). Unlike the public transfers, the proportion of households receiving private transfers increased only for rural areas. Finally, not only the coverage but the generosity of both public and private transfers increased. This provides one source of the observed increase in “redistribution” in rural areas.

1.25 This favorable shift in the distribution resulted in a decline in inequality. The Gini coefficient, a common measure of inequality, fell from 34.7 to 33.3, and the decrease was more marked in rural than in urban areas. The overall decline in inequality was driven by changes at the very bottom of the distribution and in the top quartile of the distribution.⁷ This is reflected also in the sharp decline of one of the Generalized Entropy measure (GE(2)) which is very sensitive to changes at the top of the distribution. It declined by almost 5 percentage points (from 27.9 percent to 23.2 percent) between 2004 and 2007 and the decline was particularly marked in the rural areas of the FBH (see Table 2.8, Annex).

⁷ Note in Table 1.3 while the interquartile range increased overall (i.e. there was more dispersion between the 25th and the 75th percentile) the ratio of the 90th percentile to the 10th percentile decreased. As the dispersion between the 25th and the 10th percentile increased, the distribution must have become less dispersed between the 75th and the 90th percentile.

Table 1.3: Inequality in Per Capita Expenditure Distribution by Urban and Rural Areas

	Bottom Half of the Distribution		Upper Half of the Distribution		Interquartile Range	Tails	Gini	GE(2)
	p25/p10	p50/p25	p75/p50	p90/p50	p75/p25	p90/p10		
Total								
2004	1.44	1.47	1.52	2.28	2.23	4.84	34.7	27.9
2007	1.45	1.49	1.52	2.20	2.27	4.72	33.3	23.3
Urban								
2004	1.40	1.47	1.49	2.17	2.19	4.49	33.8	26.0
2007	1.47	1.49	1.48	2.11	2.20	4.62	32.8	22.2
Rural								
2004	1.44	1.47	1.48	2.23	2.19	4.72	34.2	27.7
2007	1.43	1.45	1.48	2.09	2.16	4.36	31.8	20.5

Source: Authors' calculations using the 2004 and 2007 HBS data. 2001 LSMS poverty line and BHAS consumption aggregate.

C. REGIONAL COMPARISONS OF POVERTY

1.26 While a substantial fraction of the country's population remains vulnerable despite these recent improvements, Bosnia compares favorably to countries in Eastern and Central Europe. A significant share of the population has consumption levels that are just above the national poverty line. Using 2007 HB⁸ data, it is estimated that about 20 percent of the population, for example, has per-capita monthly consumption levels between 204 KM and 306 KM, which represent 100 to 150 percent of the poverty line⁹. This suggests that a large share of Bosnia's population is vulnerable to an economic downturn that may lead to a reduction in incomes of even modest amounts.

1.27 However, in Southeastern Europe, Bosnia's poverty rates are estimated to be some of the lowest. Bosnia has one of the lowest poverty rates in the region when the comparable international poverty estimates (ECA POV) are used (Figure 1.9). The ECA POV poverty estimates use Purchasing Power Parity (PPP) to make consumption across countries comparable. In particular, the definition of the consumption aggregate¹⁰ is standardized¹⁰ across countries and a common line of USD 2.5 per capita per day in 2005 prices is used. Vulnerability, defined as percent of the population living on less than USD 5 per day, is estimated at 11 percent and poverty, on less than USD 2.5 per

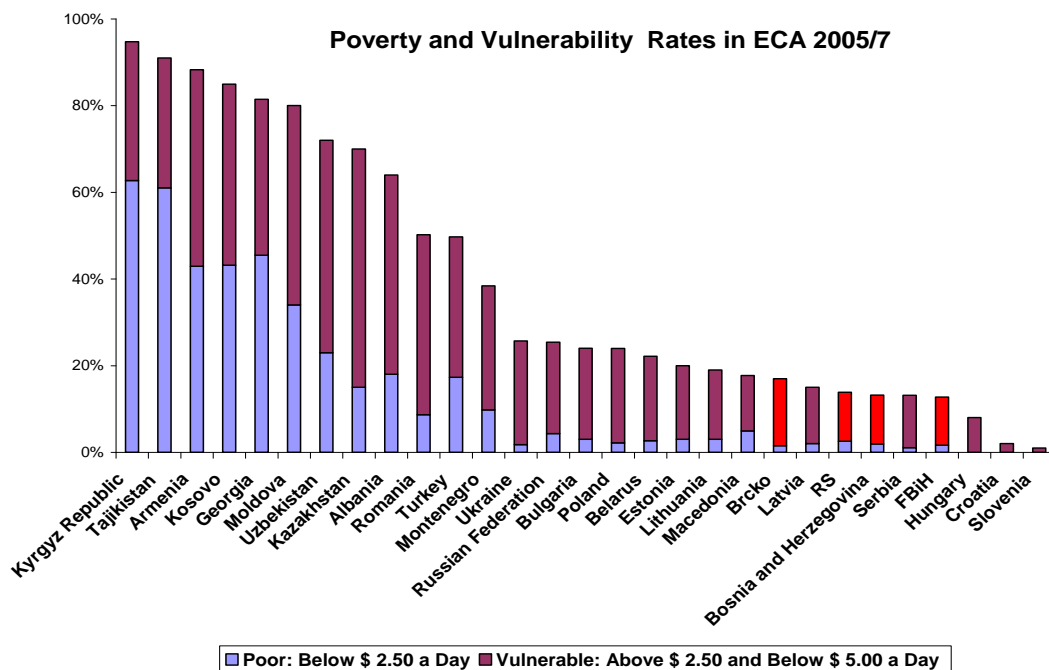
⁸ Using the 2001 poverty line in real terms.

⁹ The consumption aggregate is the main household welfare indicator and shows the total consumption of the household.

¹⁰ The uniformity has required a somewhat narrower definition of consumption which excludes imputation for expenditures on durable goods, catastrophic health care, and housing.

capita per day, at 1.5 percent. While these results seem remarkable given the country's recent past – that is, a war between 1992 and 1995, slower structural reforms compared to neighbors and a complex policy making environment – a word of caution is necessary in interpreting BH numbers. For instance, we find that BH PPP price levels are much lower than their neighbors so that if we use the average price level for the SEE countries, BH PPP based poverty estimates will be substantially higher than currently estimated, and this sensitivity to the price level is the basis for a caution in interpreting these PPP results.

Figure 1.9: Regional Comparison of Poverty Rates Using Comparable Consumption Aggregates and Latest PPP Rates (ICP 2005)



Source: ECA POV data archives. For the Western Balkans: Bosnia HBS 2007, Serbia HBS 2008, Montenegro HBS 2007, Macedonia HBS 2006, Kosovo HBS 2005, and Albania LSMS 2005.

**Box 1.1: What is Purchasing Power Parity (PPP) and
the International Comparison of Prices (ICP)**

The Purchasing Power Parity (PPP) between two countries is the rate at which the currency of one country needs to be converted into that of a second country to ensure that a given amount of the first country's currency will purchase the same volume of goods and services in the second country as it does in the first. For instance, the PPP for the Bosnian KM against the US dollar is defined as the number of KM needed to buy in Bosnia the same amount of goods and services as one US dollar would buy in the United States.

The International Comparison Program is a series of statistical surveys held worldwide to collect price data for a sample of commonly bought goods and services. It is a complex statistical exercise involving national, regional and international agencies and is overseen by a Global Office located in the World Bank. In 2007 the new 2005 ICP-based PPP rates were published for most of the countries in the world, including for almost all of the ECA countries.

Source: International Comparison Program (2009).

1.28 **In this chapter, we briefly discussed the growth patterns and the poverty trends. We showed that consumption growth was in line with measured income growth at the aggregate level and this has led to welfare improvement as measured by headcount and related poverty measures.** However, we also know that the last two years of the 2000s have been unlike the previous years. In chapter 3 we look at the emerging vulnerabilities and the risk they pose to the progress made so far. But before we move on to examine the challenges of the current crisis, we take a closer look at the profile of the poor in the following chapter, as they were observed in most recent year (2007).

2. CHARACTERISTICS OF THE POOR, 2007

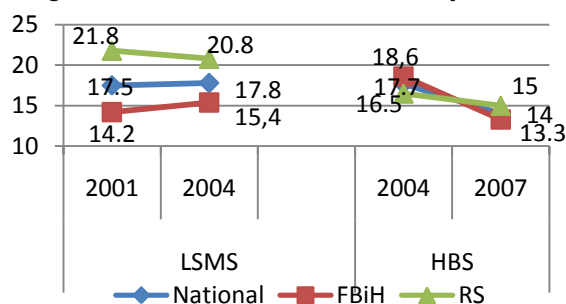
This section provides a brief description of the profile and distribution of the poor. It reaches the following conclusions: First, the face of poverty is rural – 7 out of 10 poor people live in rural areas. Second, there is no statistically significant difference between the poverty rates in RS and FBH, either in 2007 or 2004. However, FBH experienced a faster pace of poverty reduction compared to RS and this decline (within FBH) is significant. Third, the risk of falling into poverty is highly correlated with low skills. Fourth, the majority of the poor are working poor – one in every three poor people is an employee. Yet public services are either inaccessible or of low quality. Secondary and tertiary education coverage, at 75 and 33 percent respectively, is rather low for the region and worse for vulnerable groups. Lastly, about 2 percent of the population is deprived on multiple dimensions – they are materially poor and in addition have no access to certain public services such as a phone or indoor sanitation.

A. SPATIAL DIMENSIONS OF POVERTY

2.1 **Although, the poverty headcount has declined between 2004 and 2007, spatial disparities have persisted.** Using the information from the sample of 7,400 households (corresponding to about 24,600 individuals) in 2007 we find that despite the overall decline in poverty, where one lives matters in whether the decline was substantial or negligible. There are two broad definitions of spatial disparities in BH: the Entities and Rural/urban distinctions.

2.2 **Entity-level differences in welfare outcomes continued to be statistically insignificant.** Within year comparison (RS and FBH in 2004 or RS and FBH in 2007) show that there is no statistically significant difference between the poverty rates in RS and FBH. However, from Figure 2.1 and Table 2.1, poverty rates appear to have declined faster in the FBH compared to RS, and this decline (within FBH) is statistically significant. Since about two-thirds of the poor live in FBH, most of the observed decline at the national poverty rate is driven by the decline in FBH.

Figure 2.1: LSMS and HBS Poverty Trends



Source: World Bank 2006 and authors' calculations using HBS 2007 data.

Table 2.1: Incidence and Distribution of Poverty

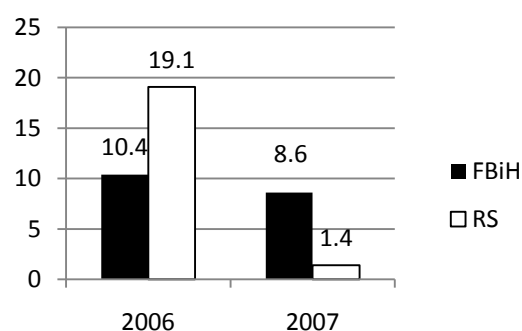
	Poverty Headcount Rate			Distribution of the Poor		
	2007	2004	change	2007	2004	change
FBH	13.4	18.7	5.3	61.2	65.4	4.2
Standard Error	0.8	1.1	0.3	2.2	2.7	0.5
RS	15.0	16.5	1.5	36.2	33.5	-2.7
Standard Error	0.9	1.3	1.6	2.2	2.7	3.5
Brcko District	18.8	10.1	-8.7	2.6	1.1	-1.5
Standard Error	2.2	1.9	-0.3	0.4	0.3	-0.1
Total	14.0	17.7	3.7	100.0	100.0	0.0
Standard Error	0.6	0.8	1.0	0.0	0.0	0.0

Source: World Bank staff calculations using the 2007 HBS data. Based on BHAS consumption aggregate and 2001 LSMS Poverty Line of 205 KM/capita/ month in 2007 prices. Note: √ The trends in poverty outcomes for the Brcko district were difficult to assess primarily because there were substantial problems with sampling and field work in the district in 2004 (conversation with BHAS statisticians).

2.3 **There are several factors that can explain the differences in the pace of poverty reduction within the entities**, but the most plausible explanation is the difference in the rate of growth in public and private transfers. In the last few years, reforms have proceeded faster in RS, the budget was in better shape, quality of spending is believed to be better, the stock market has grown, transfers are better targeted, and (formal) wages have increased more rapidly. Therefore, prior expectations are that RS poverty reduction should be stronger. But, while much progress in poverty reduction in RS was indeed achieved, the rate of decrease was slightly lower than that recorded in FBH, and while there are multiple hypotheses - not least because it could be that it is just too early to see the results of the reforms given the reforms only began a year or so prior to 2007 - one major driver is likely to be the substantially higher growth of private transfers in FBH. But first, a few other hypotheses.

2.4 **Growth in industrial output more than halved in 2007 compared to 2006 in the entire country and was close to stagnation in the Republika Srpska (RS).** The growth of industrial production in the Federation slowed from 10.4% in 2006 to 8.6% but declined significantly to 1.4% in the RS following a record level of 19.1% in 2006 (Figure 2.2). The slowdown in the RS was primarily due to the overhaul of production capacities in the mining and oil industry and declining output in the utilities sector, while the manufacturing sector moved ahead by 4.1%. Also in the Federation, utilities underperformed in 2007, but output growth rates in manufacturing and mining were strong at 11.7% and 5.6%, respectively.

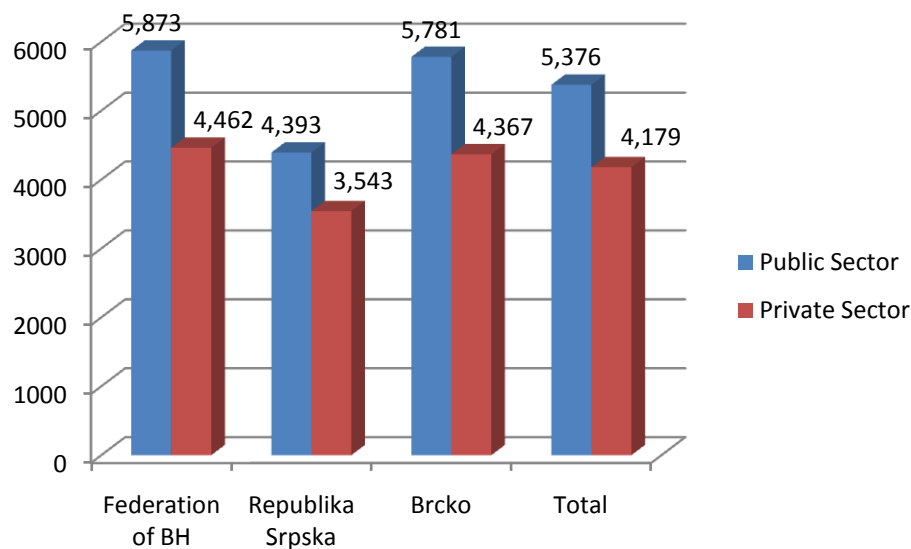
Figure 2.2. Industrial Output Growth, 2006-07



Source: BHAS (2008).

2.5 Wages have increased rapidly in the RS, but there is some evidence that in absolute terms they were still higher in the FBH in 2007. Wages increased faster in RS but not enough to allow a transition out of poverty among working poor (Figure 2.3). The increase in FBH could have been slow but enough to lift some working poor out of poverty.

Figure 2.3: Mean Income from Full/Part Time Employment, Recipients Only, 2007



Source: World Bank staff calculations using HBS 2007 data.

2.6 Both FDI flows and investments were driven by the public sector in the RS. The construction of residential and non-residential buildings was the main segment of the growth of the FDI sector in the FBH, and road infrastructure and non-residential construction in the RS. The source of growth in construction in the FBH is primarily the private sector investments, while in the RS the public sector led the way. Additionally, FDI flows and investments through 2007 were driven by the public sector in RS and by the private sector in FBH (BHAS, 2008).

2.7 Perhaps, one of the strongest reasons for the observed differences in the pace of poverty reduction within the entities is the faster growth of private transfers in the FBH. There are four observations about the nature of transfers within entities that could explain the poverty outcomes. The first is that the fraction of the population receiving pension transfers (domestic and foreign) rose at comparable rates within entities, and in fact slightly more in RS. Nearly all the increase in both entities was due to expansion of domestic pension coverage. For instance in FBH pension recipients rose from 38 percent of the population in 2004 to 45 percent in 2007, while in RS the corresponding increase was from 39 percent in 2004 to 49 percent in 2007 (Table 2.3, Annex). The second observation is that the means-tested transfers, which reaches far fewer people declined much less in FBH than in RS. Additionally, the fraction of the population receiving these transfers rose slightly in FBH, while those in RS declined (Table 2.3,

Annex). Third, remittances to families in FBH (both domestic and international) rose, while they declined in RS. Fourth, the average transfer values increased substantially. Pension values rose by at least 78 percent, while remittances from abroad and within FBH increased by 44 and 23 percent, respectively, but declined in RS. It is important to note that the per capita pension values were already substantially higher in FBH than in the RS. So a large increase (even if it the rate is slightly lower than that in RS) provides much higher absolute increase. In short, an increase in private transfers, less decline in means-tested income transfers and a generous expansion of already high pension levels could explain the observed differences in the rate of poverty reduction within entities.

2.8 The rural poor constitute the largest proportion of poor people in Bosnia and Herzegovina. The 2007 HBS indicates that 70% of poor people reside in rural communities (Table 2.2). Rural poverty declined relatively faster than urban poverty but remained almost twice as high as the urban poverty rate during the period. When considered in light of the other service delivery deficits, the face of poverty becomes essentially a rural phenomenon.

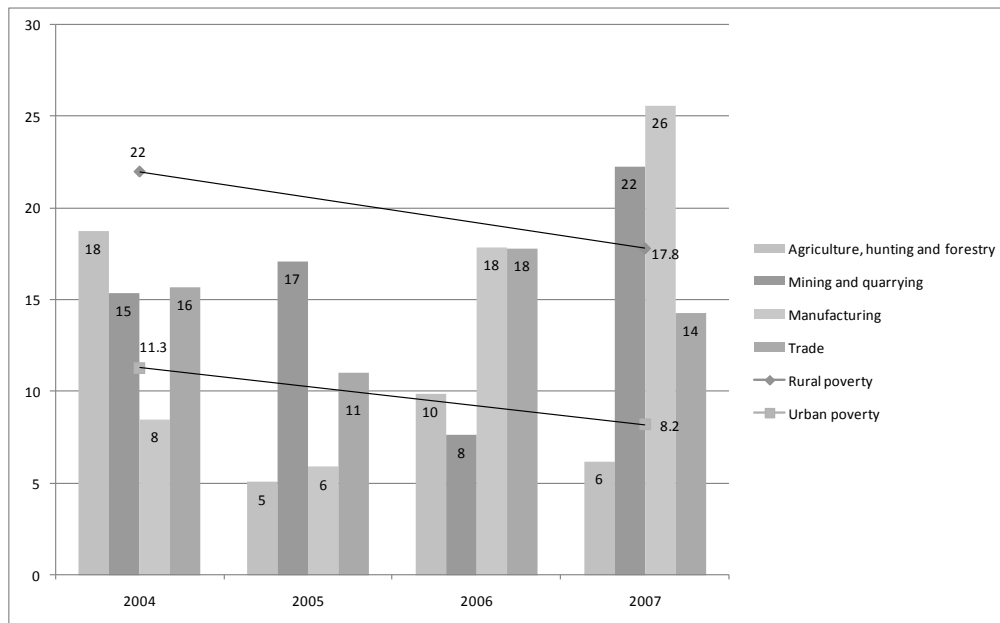
Table 2.2: Poverty Headcount Rate and Distribution of the Poor

	Poverty Headcount Rate			Distribution of the Poor		
	2007	2004	change	2007	2004	Change
Urban	8.2	11.3	-3.1	22.9	25.5	-2.5
Standard Error	0.7	1.2	0.5	1.9	2.5	0.6
Rural	17.8	22.0	-4.2	77.1	74.5	2.5
Standard Error	0.9	1.2	1.4	1.9	2.5	3.1

Source: World Bank staff calculations using the 2007 HBS data. Based on BHAS consumption aggregate and 2001 LSMS Poverty Line of 205 KM/capita/ month in 2007 prices.

2.9 Urban-centered sectoral growth patterns explain some of the rural poverty outcomes. In 2007, growth was strongest in the financial sector (19%), but also robust in manufacturing (14%) and retail trade (10%). The structure of exports improved, shifting from base metals and wood towards higher value-added products in metal processing (mostly car parts), furniture, and other industries. These sectors are centered in urban areas and do not directly help improve the welfare distribution in rural areas. Lastly, the agricultural sector has the highest rate of informal employment. But even in urban areas, there is a huge difference in outcomes between Sarajevo and other urban areas. Between 2004 and 2007, poverty rate in Sarajevo was cut in half. By comparison, the decrease in poverty rates in other urban areas was not that different from the rate of reduction observed in rural areas (see Table 1.4 Annex 2).

Figure 2.4: Poverty Rates and Sectoral Growth



Source: HBS 2004 and 2007. National Accounts, GDP by Production method 2000-2007 2008, current prices, previous year = 100.

B. DEMOGRAPHIC AND SOCIO-ECONOMIC CHARACTERISTICS AND POVERTY

2.10 **There is a strong relation between an individual's educational attainment and poverty.** The poverty rate is highest among household heads with primary (elementary) education or less, and falls steadily as educational attainment rises (Table 2.3) Between 2001 and 2004, estimates drawn from panel data also suggest that, although aggregate poverty has remained steady, poverty has fallen among the most educated individuals (World Bank, 2006). Among those with university education, in particular, poverty is practically non-existent at 0.6%. These results are confirmed even after we account for differences in labor market outcomes, urban or rural residence and other characteristics in a regression analysis (see Annex 2 and section 4. D. for discussion).

Table 2.3: Poverty by Education Level

	Poverty		Distribution of the		Distribution of	
	Headcount Rate		Poor		Population	
	2007	2004	2007	2004	2007	2004
No degree	21.2	24.6	32.4	25.9	20.8	18.2
Elementary	16.7	20.7	36.6	38.9	29.8	32.6
Secondary	9.6	13.9	29.7	33.5	42.1	41.9
Post secondary	3.7	4.4	1.0	1.1	3.6	4.1
University or higher	1.1	3.5	0.3	0.7	3.6	3.2
Total	14.0	17.7	100.0	100.0	100.0	100.0

Source: World Bank staff calculations using HBS 2007 data.

2.11 **Labor market status is a significant correlate of poverty.** Labor force participation, transitions in and out of joblessness, and movements into and out of informal sector employment are all important correlates of poverty. Data from the 2007 HBS suggest that the poverty rate, at 24.3 percent, is highest among those who are unemployed. As for the employed, the poverty rate in 2007 was 13.9 percent. As found in many countries in the rest of Eastern Europe, those with jobs (the working poor) are the biggest contributors to poverty, who made up 40 percent of the poor in 2007 (Table 2.4). Therefore reducing poverty will have to tackle not just job creation but improving the productivity and wages of those already working.

Table 2.4: Poverty by Household Head's Status of Employment

	Poverty Headcount Rate		Distribution of the Poor		Distribution of Population	
	2007	2004	2007	2004	2007	2004
Employment status of the household head						
employee	11.1	16.2	30.2	35.4	38.1	38.9
self-employed	15.9	11.6	15.5	9.1	13.6	13.9
unemployed	20.2	30.5	16.5	19.1	11.5	11.1
retired	13.3	17.3	25.1	28.8	26.4	29.6
student	0.0	0.0	0.0	0.0	0.1	0.1
OLF	17.5	20.9	12.7	7.5	10.2	6.4
Total	14.0	17.7	100.0	100.0	100.0	100.0

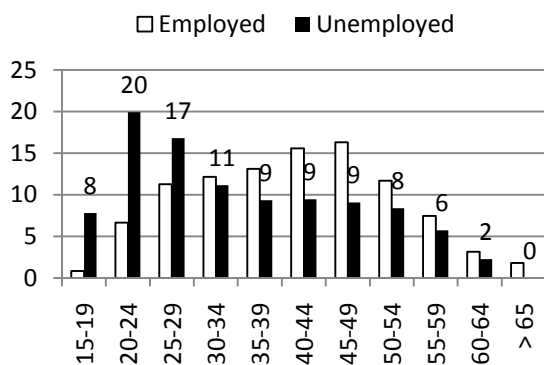
Source: World Bank staff calculations using HBS 2007 data.

Box 2.1: Profile of the Unemployed and the Informally Employed

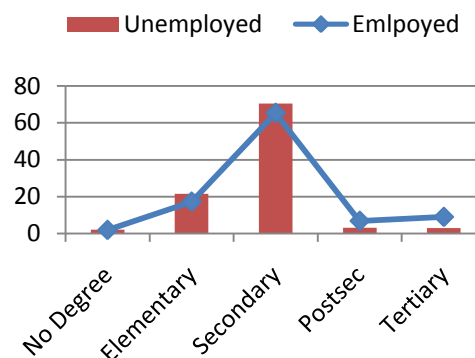
The majority of the unemployed are young (below 29 years of age) while a higher share of the employed have attained tertiary education. Out of the nearly 470, 000 self-reported unemployed from the 2007 HBS dataset, nearly 4 out of 10 are between the ages of 20 and 29. Most of them are in the 20-24 age group but are not attending school. It is unclear if this suggests that these are typical life-cycle issues in the labor market or if the BH labor market is particularly rigid with the absorption of the young. It is most likely a combination of both but this should be explored with a long series of labor market data. Figure 2.5 also shows that about 8 percent of the unemployed are in the 15-19 age group but are not in school. Overall, the average age of the employed is 41 while of the unemployed it is 35. Aside from the tertiary educated, it is surprising that the educational attainment characteristics of the employed and the unemployed are quite similar. Finally, the gender composition of the two groups is different – about 7 in 10 employed people are men while only 5 out of 10 unemployed are male.

Figure 2.5: Age and Educational Characteristics of the Employed and Unemployed

A. Age distribution, 2007



B. Educational attainment distribution, 2007

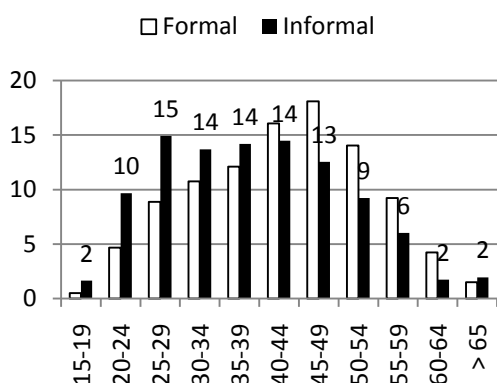


Source: HBS 2007 data.

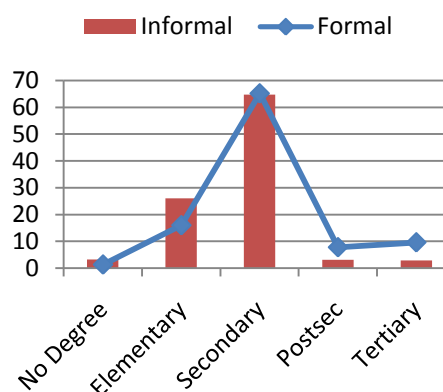
Informality is prevalent in rural areas, however, gender composition is similar to those in the formal economy. According to the 2007 HBS data, about 30 percent of the labor force classified themselves as informally employed, according to the 2007 HBS. About 60 percent of those in the informal economy are based in rural areas compared to a situation where formal sector employees are equally split between urban and rural areas. As many as 68 percent of the informally employed are men while for the formal economy that ratio is 63. Moreover, the educational attainment is higher for the people in the formal sector, especially for post-secondary and tertiary education.

Figure 2.5: Age and Educational Characteristics of the Employed and Unemployed

A. Age distribution, 2007.



B. Educational attainment distribution, 2007



Source: HBS 2007 data.

C. ACCESS TO SERVICES AND MULTIPLE DEPRIVATIONS

2.12 **Secondary and tertiary education coverage, at 75 percent and 33 percent¹¹ respectively, is rather low for the region and worse for vulnerable groups.** Individuals in the top 20% of the distribution have 30% higher enrollment rates for secondary education and this discrepancy has persisted since 2004 (Figure 2.6, Panel B). When a comparison of the enrollment rate in the 15-19 age groups is made, Bosnia fares worse than Kosovo and is on average 25 percent lower than in the EU 8. For tertiary education, the overall increase in enrollment rates from 27 to 33 percent was entirely driven by an increase in the enrollment rates of the top 2 quintiles (Figure 2.7, Panel A). Bosnia ranks a little better than some of its Western Balkans neighbors, namely Albania and Macedonia, but is yet to catch up to the New Member States and Slovenia (Figure 2.7, Panel B).

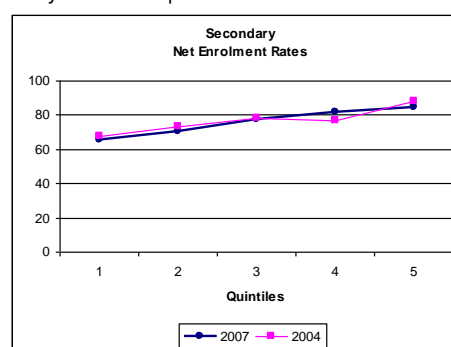
Figure 2.6: Secondary Enrollment Rates

A. Regional comparison

Enrollment rates by age group

Age in years	5-14	15-19	20-29
Bosnia 2004	N.A.	61.9	14.4
Bosnia 2007	N.A.	63.4	17.0
Kosovo	82.3	66.2	9.9
Albania	87	56	13
EU15	100	82	25
EU 8 selected	98	85	20

B. By income quintile



Sources: Enrollment rates by age group: Bosnia – World Bank staff calculations using HBS 2004 and 2007, net rates; Kosovo – WB Poverty Assessment (2007); other countries - Albania PEIR 2006. Serbia and Montenegro – knowledge for Development Database, World Bank. *Notes:* N.A. - Not available from the BH HBS data.

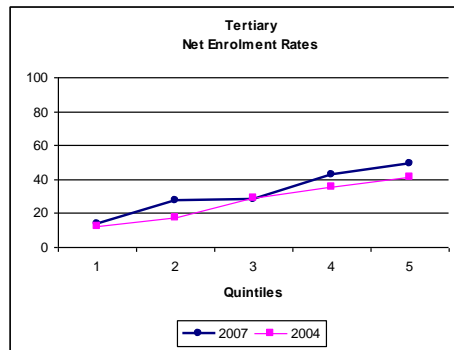
2.13 **The cost of education is the second most prevalent reason for non-continuation of schooling beyond the compulsory level, with the impending risk that this will worsen during the crisis.** The quality of education is relatively low -- approximately two-thirds of secondary school students are enrolled in four year technical schools or three year vocational schools, with rigid and outdated programs, and leave the system ill-prepared for the labor market. Additionally, the current education system, with segregated schools, perpetuates the political division along ethnic lines. The latest PER revealed that the education sector spends significant amounts of money for the output it produces, and that there is scope to consolidate the system. Besides the high public expenditures, the average *private* expenditures are quite high at about 9.48 percent of average per capita consumption, according to the 2007 HBS data. The HBS misses the

¹¹ Net enrollment rates for 16-19 years old.

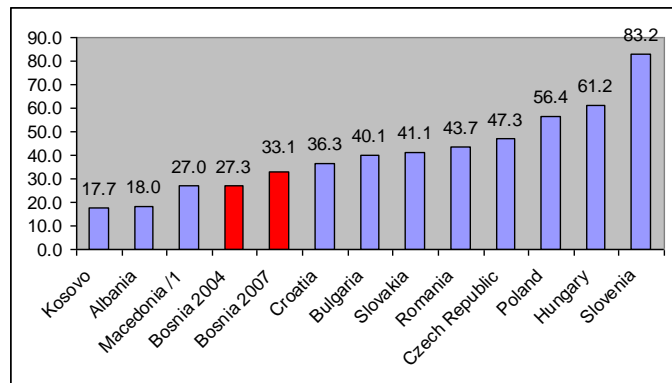
single highest expenditure on education – transportation costs. With the 2001 LSMS data, private education expenditure was estimated to be around 20 percent of the average per capita consumption.

Figure 2.7: Tertiary Enrollment Rates

A. Trends



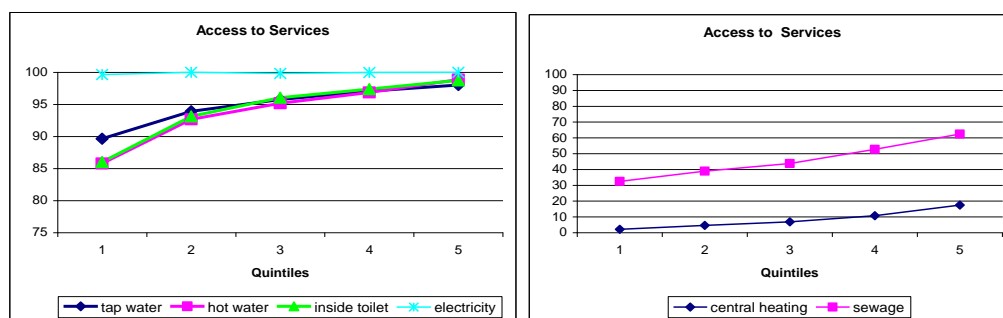
B. International Comparison



Source: World Bank staff calculations using 2007 and 2004 HBS data, Transmonee database (2006) for 19-24 year olds, Macedonia Poverty Assessment 2005, Kosovo Poverty Assessment 2007. Notes: Gross enrollment rates reported.

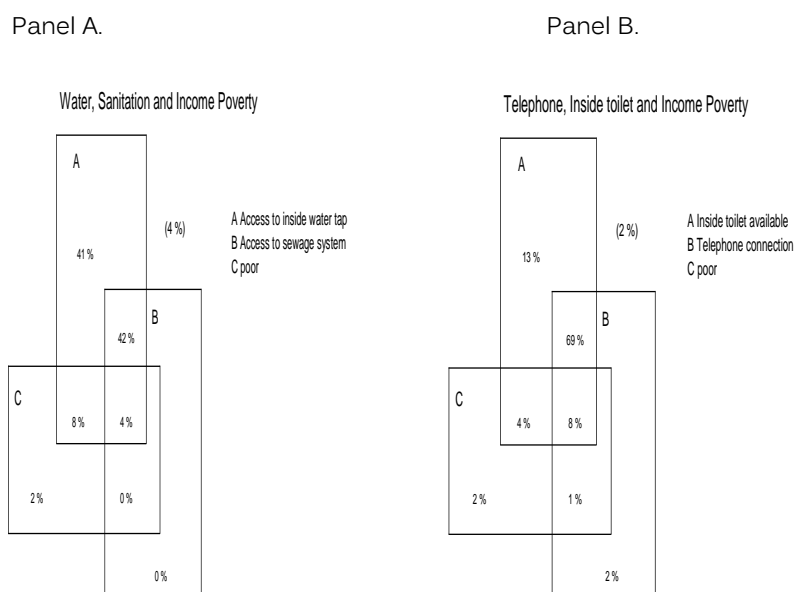
2.14 **Non-income dimensions of welfare show good outcomes but still about 2 percent of the population is deprived on multiple dimensions.** A relatively high proportion of the population report living in dwellings with access to electricity, plumbing and indoor water taps (Figure 2.8). About 2 percent of the population is deprived on multiple dimensions. About 4 percent of the population is poor and have access to both indoor water tap and proper sanitation. That means that the additional 10 percent poor have access to either water tap or sewage but not both. But the most deprived are those who are materially poor and in addition have no access to indoor water and sewage system. Similarly, panel B of Figure 2.9 shows deprivations in access to phone services and access to indoor toilet. By comparison, a recent study showed that only 1 percent of the population in Russia, Georgia and neighboring Romania were deprived on multiple dimensions (World Bank, 2005) while the Kosovo Poverty Assessment (World Bank, 2007) estimated about 9 percent.

Figure 2.8: Access to Public Services by Quintiles



Source: World Bank staff calculations using 2007 HBS data.

Figure 2.9: Venn Diagram of Non-income and Income Poverty



Source: Staff calculations using HBS 2007 data with 2001 LSMS poverty line.

D. MULTIVARIATE ANALYSIS

2.15 **The preceding discussion looked at poverty trends and profile of the poor between 2004 and 2007.** There are two reasons to extend the analysis beyond a look at trends and profiles. First, by definition the poverty profile is a simple correlation between an observable characteristic and poverty status. These correlations do not tell us the independent effect of the observable characteristic that is correlated with poverty status. As an example, a high correlation between poverty and primary education, often does not tell us how much of that correlation is due to the fact that those who have only primary education are also likely to be more unemployed or, even if employed, they are likely to receive lower wages. Therefore, there is a need to understand the link between an observable characteristic and poverty status, when the impact of all the other variables has been “netted” out.

2.16 **A multivariate model can help us infer the size of the shortfall that is attributed to a specific characteristic.** In this sub-section, we extend the preceding analysis in this direction. First we estimate a consumption model in order to understand the magnitude of the consumption shortfall for households with specific characteristics. It highlights the variables that explain the observed differences in consumption. The multivariate nature of the model means that we can infer the size of the shortfall that is attributed to the specific variable of interest. Table Annex 2.1 presents the results of the consumption model separately for each year.

2.17 Labor market outcomes and sector of employment are highly correlated with consumption. In 2007, households which worked in manufacturing or mining sectors reported consumption levels that were 5 to 10 percent less compared to consumption of households working in sectors other than agriculture, mining and utilities.. The analysis also shows that a one percent increase in unemployed members in a household is correlated with 22 percent reduction in the household level of expenditure. Thus the impact of the crisis through the effect on employment is expected to be significant and will be simulated in the next section.

2.18 Remittances are associated with 10 percent higher consumption. This indicates how susceptible some households will be to a drop in remittance as a result of the crisis. In 2004, remittances were correlated with 7 percent higher consumption whereas in 2007 this relation has decreased to 4 percent. About 8 percent of the household in the Federation and about 6 percent of those in the Republic received remittances. Having a housing loan is also related with 10 percent higher consumption. This confirms findings in Section 33 regarding the increasing incidence of having a housing loan with increasing quintile.

2.19 Second, the measured link between education and consumption are in line with the results from the poverty profile. To look at the effect of education on consumption, we use the highest education attained in the household rather than the head of the household head because we find that the former explains the condition of the household better. The model uses “no education attained” as the comparison group. The results show that all households whose highest education attained is elementary have at least 10 percent more consumption, while those whose highest education attained is secondary or tertiary have at least 18 and 35 percent more consumption respectively.

2.20 Third, confirming our earlier findings, there are no differences between the Federation and the Republic in consumption levels while urban areas carry a premium of about 4 percent. The Federation and the Republic do not have statistically different levels of consumption. Urban areas, however, are associated with nearly 4 percent higher consumption even after we correct for age and education structure.

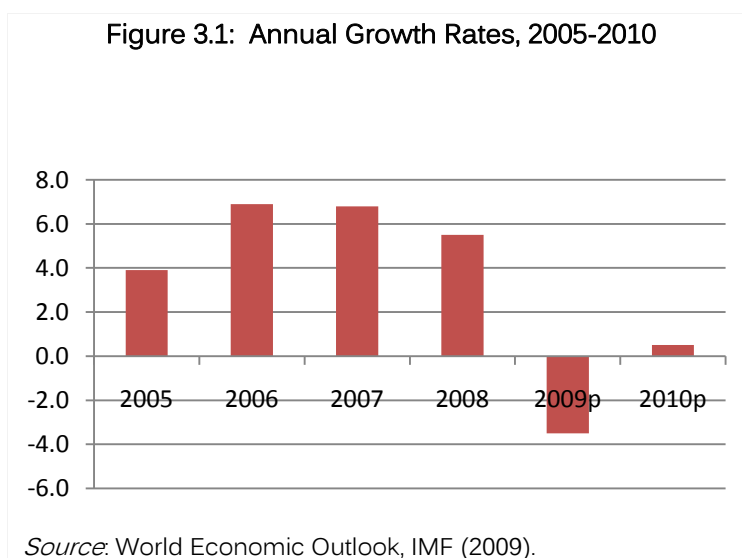
2.21 In this chapter, we analyzed the poverty profile and discussed what correlates explain variation in consumption. We showed that labor outcomes, remittances and having a housing loan are associated with a higher consumption. In the next chapter, we will simulate shocks to these variables and their expected impact on welfare outcomes.

3. UNCERTAINTY AND RISING VULNERABILITY

This section documents the channels through which the global economic crisis is likely to affect the population of BH. It focuses on three channels – employment, remittances and credit – where the greatest stresses are likely to be felt in the context of BH. It shows that unemployment has begun to rise in the early part of 2009, remittances are projected to decline by 4 to 5 percent in 2009 and debt levels had already reached worrying levels for some of the households. It then undertakes a series of simulations of the likely impact of the economic crisis on poverty and indebtedness. It shows that a projected GDP contraction of 3.5-4 percent is likely to lead to a rise in the poverty rate of 2 percentage points and nearly reverse half of the gains achieved before the crisis. Prediction scenarios which focus on simultaneous employment and remittance shocks show about 2 percentage point increase in poverty, similarly to the predicted welfare losses of GDP contraction. Lastly, further simulations show that an additional 3 to 15 percent of households with housing loans will face difficulty servicing their loans as a result of the crisis. This is doubly worse because were BH to stay on its pre-crisis trajectory, poverty levels would have declined, not risen.

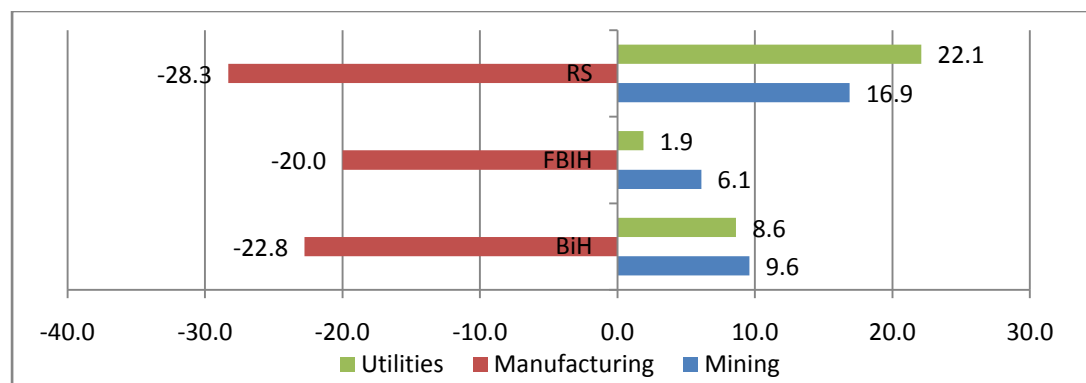
A. MULTIPLE SOURCES OF HOUSEHOLD VULNERABILITY

3.1 **The unfolding financial and economic crisis is expected to hit BH hard.** Output is expected to contract by 3.5 percent in 2009 (Figure 3.1), but the size of the downturn and how long it will last remains uncertain. For Bosnia and Herzegovina, a broader global recovery will help, but the speed of the turnaround will depend on the pace of recovery in its main European trading partners, whose current projections appear even more sluggish than the world average. Even if the output growth turns positive in 2010 – as current projections indicate – the expectation is that it will remain depressed. This will put further pressure on already strained fiscal positions and risks leading to social unrest.



3.2 **The contraction in output has been severe in export intensive sectors.** The Manufacturing sector has borne the brunt of the fallout (Figure 3.2). Output in the sector is expected to decline by more than 20 percent in the first quarter of 2009 compared to the same quarter in 2008. Within BH, Republika Srpska's manufacturing firms are expected to witness a 28 percent decline in output, almost 8 percentage point higher than the decline projected for the Federation. The mining sector has so far avoided a contraction, but the metal sector which exports almost 80 percent of its output, has reported as much as a 50 percent reduction in output in the first quarter of 2009 on account of a slowing global demand and collapse in world commodity prices (Reuters, June 2009). Industrial output in the Federation shrank by 17.7% year on year in January-June, owing to weak demand in BH's export markets. In the RS output grew by 17.1%, following the resumption of work at the Bosanski Brod oil refinery (EIU, 2009).

Figure 3.2: Sector Growth Projections, based on 2009 Performance

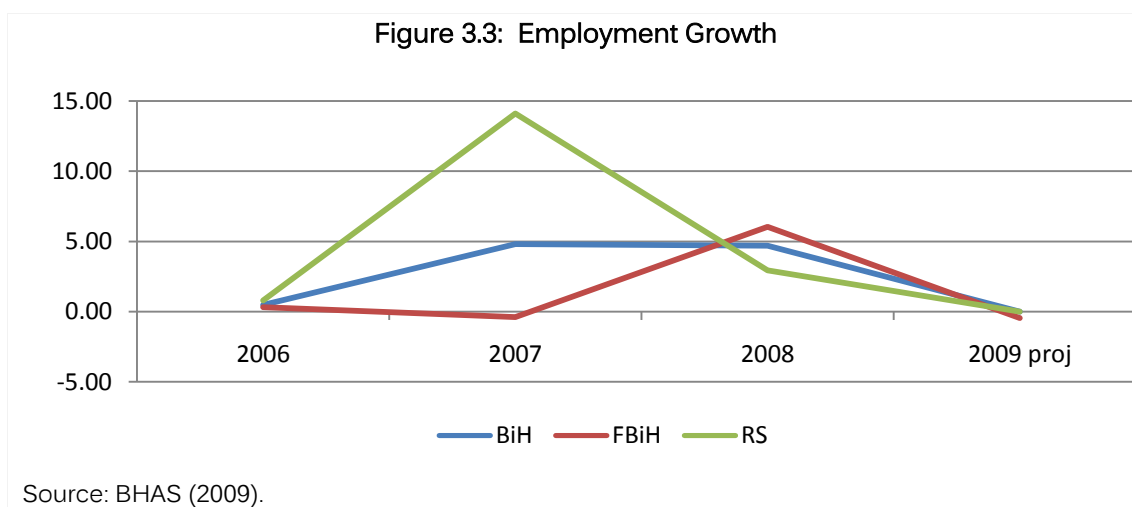


Growth: 1st quarter of 2009 / 1st quarter of 2008 from monthly statistical review of the FBH, April, 2009. RS, March, 2009.

3.3 **On account of these sectoral dislocations, household vulnerabilities are rising.** The depth of the vulnerability depends on a number of issues. The most obvious is the length of the downturn. A longer recession is more likely to lead to more pain. Second, it depends on the nature of the adjustment by firms and workers. As is well-known, firms can adjust primarily through layoffs or wage reductions. However, we do not know if the main form of response by firms in BH is like the reported action of Aluminij Mostar (BH sole Aluminum producer) which delayed layoffs despite operating at 75 capacity (Reuters, June 2009). Equally, the scale of the vulnerability will depend on whether sectoral dislocations will lead to quick movements by the displaced workers to surviving sectors. Finally, vulnerability will depend on the efficacy of protection – public and private – available to the population.

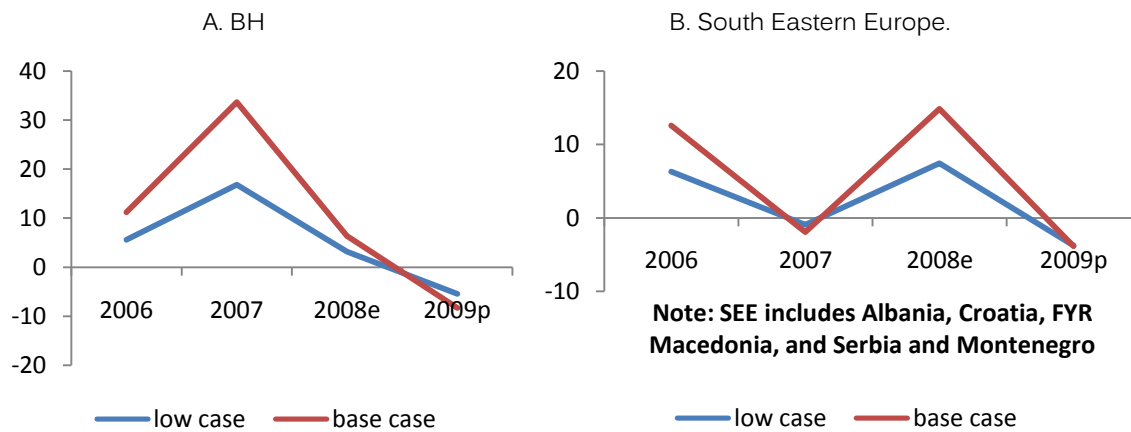
3.4 **The first evidence of rising vulnerability is the increased risk in the labor market.** The unemployment rate in the BH stood at 23 percent in 2008, and is one of the highest in SEE. Although high, this is the lowest recorded rate since 2005. Part of the improvement in the labor market outcomes between 2005 and 2008, is “spurious”,

reflecting updating of unemployment registers and better inspection oversight of unregistered employment. However, there is some part that is attributable to genuine employment growth (Central Bank of Bosnia and Herzegovina, 2008b). But the first quarter of 2009 already shows signs that employment levels have declined - or unemployment levels are rising to levels before 2008 (see Figure 3.3). In particular, two sectors that have contributed the most in employment growth – manufacturing and wholesale and retail – are also two of the hardest hit in the crisis and where job losses are most likely. In addition, due to fiscal pressures, public sector wages will be decreasing, as agreed between the Government and the IMF for a stand-by loan, and currently accepted by the trade unions (EIU, 2009).



3.5 **Some households are also vulnerable to potential reduction in remittances.** By 2005, about 1.5 million people born in BH lived outside the country, mostly in Europe. The remittances they sent constituted on aggregate 17 percent of the national income of BH. The BH-EU migration corridor - especially the BH-Germany/Austria/Switzerland migration corridor - is one of the largest, and accounts for over 50 percent of an estimated 700,000 international migrants from BH to Europe. In 2006, the stock of labor force in Austria, Germany and Switzerland from Bosnia and Herzegovina – that is counting only those in the labor force - stood at 214,000 (OECD, 2006). Therefore, the slowdown in Austria, Germany and Switzerland will affect not just overall growth in BH, but the size of remittances to specific families. However, under current projections, remittances to BH are not expected to decline as badly as some of the Eastern European and Central Asian countries. Instead, they are projected to decline in line with the average for South Eastern European peers. The 2009 projections show a 3 to 5 percent decline compared to the 2008 flows (Figure 3.4).

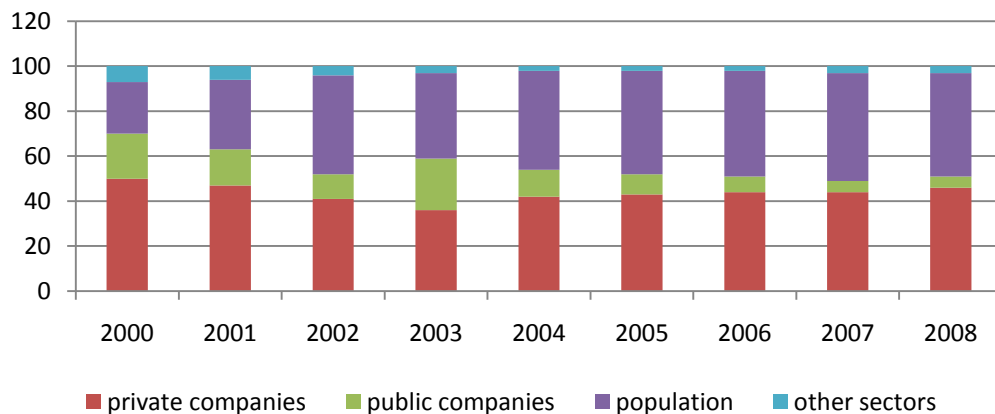
Figure 3.4: Growth in Remittances



Source: World Bank (2009e).

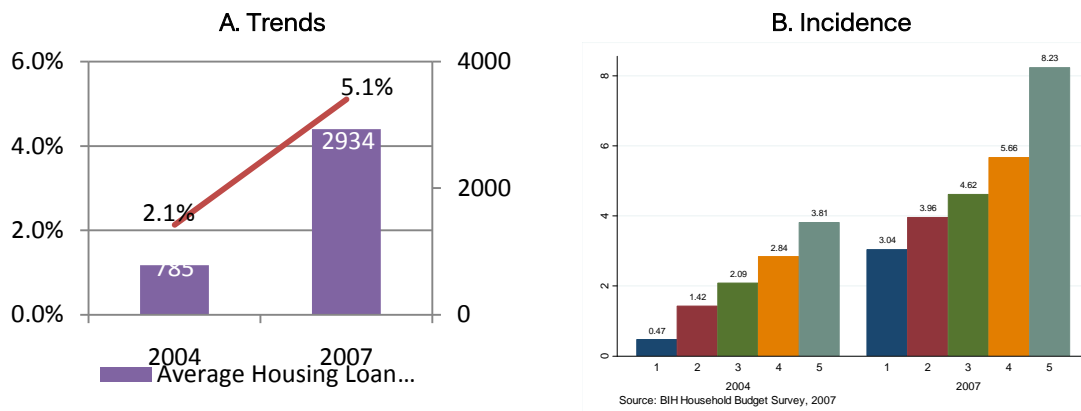
3.6 **An additional source of vulnerability is household indebtedness.** Starting from a low base, claims on households have risen sharply in BH in line with many countries in Central and Eastern Europe. Households with housing debt have risen by more than 2 and a half times in just 3 years. In the same period average housing loan per capita have risen almost four-fold (See Figure 3.5 and Figure 3.6). By 2007, household debt was 27 percent of GDP, and this constituted half of all private sector debt. The rise in household debt may be a response to growing incomes and new opportunities in access to credit that may define a natural phase in the transition process. Moreover, it has brought many benefits that have had a direct impact on household welfare especially through acquisition of durables and more and/or better quality housing.

Figure 3.5: Credit Growth in BH



Source: Kozaric, K.(2009).

Figure 3.6: Trends and Incidence of Household Indebtedness



Source: HBS 2007.

3.7 The main concern with rising debt levels is that it has the potential to threaten household solvency. There are three concerns with household debt in BH. The first is that about 70 percent of the loans are general purpose consumer loans, and an additional 25 percent are housing loans. But most of the long term consumer loans come with variable interest rates. Second, these loans are indexed to foreign currency. Therefore, a rise in interest rates in major loan originating countries forced by the ongoing credit crunch will likely lead to a rise in repayment costs. Third, and finally, for many households pre-crisis levels of indebtedness were already precarious. For instance, by 2007 the average debit card debt was already eating 41 percent of net wages and the median household was carrying balances that had hit the approved ceiling (Central Bank of Bosnia and Herzegovina, 2008). Additionally, almost 40 percent of households used at least 20 percent of their income for debt repayment and as many as 16 percent spend more than 30 percent of income on servicing debt (UniCredit Group, 2009) (see Figure 3.7). Figure 3.7 shows the distribution of households according to what share of income is used for debt repayment. Even more troublesome are the high levels of indebtedness for individuals with no incomes, which in Bosnia stood at 15 percent of all households with debt by the summer of 2008 (see Figure 3.8). The 2007 HBS data suggests 3 percent indebtedness among the poorest quintile (Figure 3.6, B). The mix of variable interest rates and high leverage combined with the historically low saving rates of households in SEE countries, in an unfavorable economic environment, are likely to lead to a deterioration of financial positions of households.

Figure 3.7: Share of Household Income Used for Debt Repayments

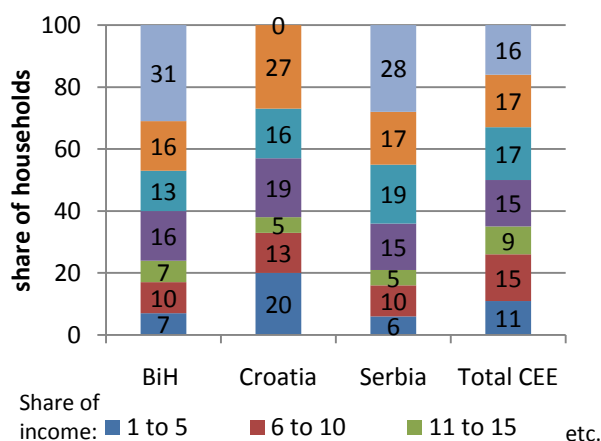
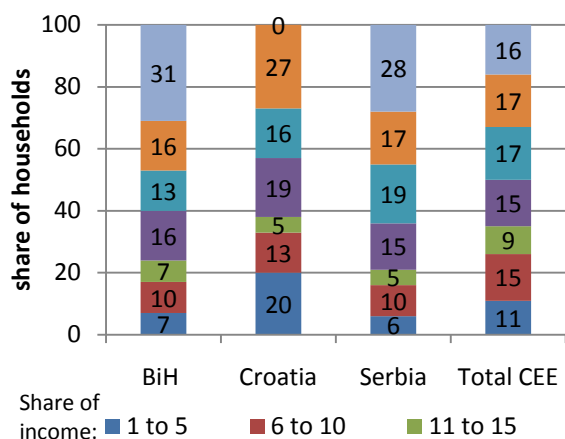
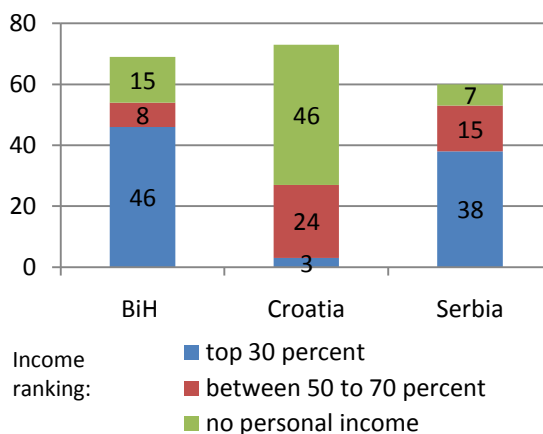


Figure 3.8: Share of Highly Leveraged Individuals (Debt Burden Exceeding 30% of Monthly Income)



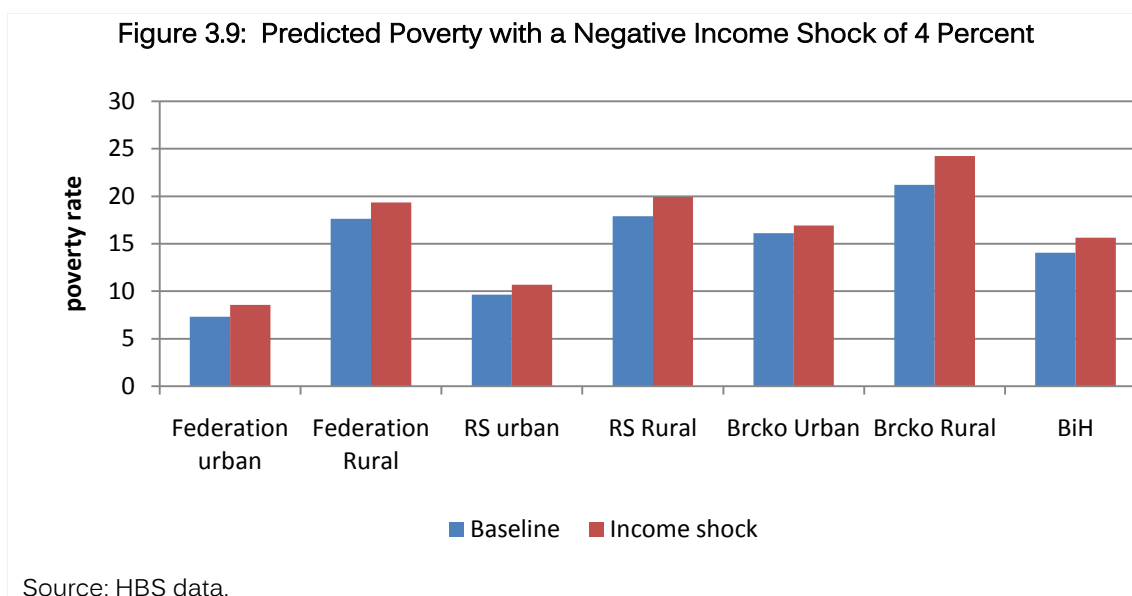
Source: UniCredit Group (2009).

3.8 **The multiple sources of vulnerability have put pressure on household incomes and will likely erode the gains in living conditions.** From the foregoing paragraphs, some workers will become unemployed and lose wages and therefore their livelihoods. Some more may see reduced remittances. Traditional sources of support through family and friends may be strained by the weight of the recession and public finances may be constrained to meet expanded needs. On the other hand prices may come down, thus improving purchasing power. Still, overall, the expectation is an overall net loss in welfare.

3.9 **But estimating the exact impact is not easy.** The multiple ways in which enterprises and households adjust, makes it difficult to keep track of all the feedback loops and impacts on welfare. Although a general equilibrium analysis is desirable, it is also clear that it cannot be built on short notice. Therefore, in this report we estimate welfare losses by forecasting scenarios that are nonetheless plausible in the Bosnian context. These scenarios are predictions of household welfare on account of “what if” questions (with regard to employment shocks, remittances, interest rate hikes).

B. PREDICTED WELFARE LOSSES

3.10 **The predicted GDP decline may lead to a rise in poverty.** This is the starting point and the simplest of the “what if” scenarios. It is built on the assertion that the propensity to consume out of an additional income is essentially 1 – so that an income decline of 3.5 percent translates into a consumption decline of the same magnitude. The assertion is partly supported by some recent regressions of GDP growth and consumption (measured from household surveys) in ECA countries which obtains a coefficient of 1. It is also partly motivated by the observation that for many households who are just above the poverty line, even a small fall in income will likely precipitate a descent into poverty. Additionally, the fact that the losers cannot be directly identified in the household survey forces us to treat everyone the same. Figure 3.9 shows that a 4 percent income shock will lead to a rise in the poverty rate of 2 percentage points. The predicted losses appear higher in rural areas compared to urban areas (except in the Federation), not surprisingly because the consumption levels are lower and poverty levels are already higher in these areas.



3.11 **Alternative scenarios which focus on transmission channels show similar predicted welfare losses.** In one scenario we assume that the main channel through which the economic contraction will be felt is through employment losses. The first quarter employment data in both the Federation and RS show a reversal of trend from a 5 percent employment growth to zero (see Figure 3.3). The thought experiment we conduct assumes an unemployment shock of 5 to 15 percent randomly assigned to already working individuals belonging to households in the Household Budget Survey of 2007: that is, we look at what happens to welfare if 5, 7, 10 or 15 percent of the employed workers lost their jobs. The predictions indicate that a 15 percent unemployment shock would lead up to a 1 percentage point increase in poverty. Lower unemployment shocks naturally imply lower increase in poverty rates.

3.12 **Introducing additional shocks, such as a decline in remittances received, does not lead to a substantial increase in the predicted poverty.** Introducing a shock where 15 percent of workers lose their jobs, equivalent to a 7 percentage ($=0.15 \times 0.60$) point increase in the overall unemployment rate and 15 percent of randomly selected remittance-recipient households losing their remittances simultaneously would imply an increase in poverty by 1 percentage points. However, if we maintain the unemployment shock, but assume that remittances for every remittance-receiving household declines by the predicted fall in remittances (Figure 3.4), which is roughly 4 percent, then predicted poverty increases only by 2 percentage points. In this case, the small decrease in remittances has no impact and the situation is as if only the employment shock happened. This is a peculiar feature of the remittance data in BH and perhaps other countries in the SEE region where remittances are reported as part of sources of income in the Household Budget Survey. As Figure 3.10 shows, BH had the highest share of income (15 percent of GDP) derived from remittances in all of SEE. However, only about 8 percent of households receive remittances, and the remittances received are only 6 percent of consumption (or about half of the share in GDP)¹².

Box 3.1: Predicting Changes in Poverty

We predict poverty changes due to a shock from two different methods:

Method 1: First an unemployment shock is applied to the sub-sample of individuals who already hold a job as observed in the Household Budget Survey of 2007. Then we assume that those who experience the shock lose all their wage income, which translates into a loss in consumption of the same magnitude. A household whose member(s) experiences the shock is considered to be poor if “new” consumption per capita level is less than the LSMS poverty line. The “new” income level is calculated as per capita consumption less per capita income lost due to a loss of employment.

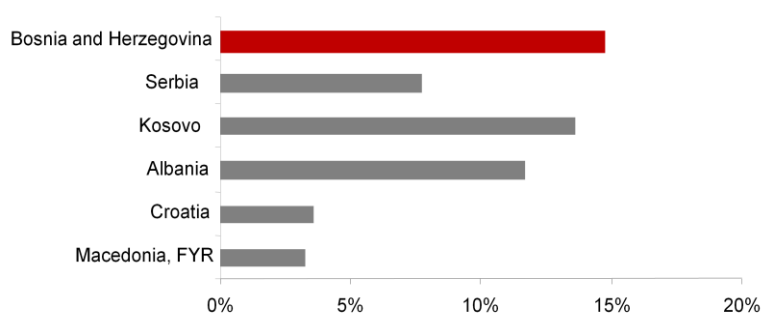
Method 2: With this method, first a consumption distribution is obtained from predicted consumption levels from a regression of per capita consumption on key explanatory variables that determine income levels in the base case (before the shocks are applied). The correlates of consumption include many of the usual candidates and, for the purposes of this exercise, labor market participation status. Then an adjusted poverty line is determined from this distribution using the poverty rate of the population in the labor force. As the poverty rate from the labor force population is about 13 percent, the poverty line becomes the per capita consumption level of the bottom 13 percent of households in the distribution. After the unemployment shock is randomly applied, new predicted consumption levels are estimated using the same regression with a new per capita consumption variable that reflects the loss of income earned from employment for affected households. A household is then considered poor if its new predicted consumption level falls below

¹² Remittances are under-estimated in the HBS by a similar magnitude as the underestimation of income (about 60 percent). One possible reason for this is that the question on remittances is not disaggregated enough to capture in-kind transfers, for instance. Currently, the HBS questionnaire is being revised with a particular focus on the income module (see Annex 3).

the adjusted poverty line. Each of these calculations is repeated 1000 times and a new poverty rate is calculated as an average of the rates calculated from all the 1000 simulations.

Caveat: It is important to beware that though these simulations provide an order of magnitude of the impact of the crisis, they are far from giving the exact size of the impact. This is partly because while multiple shocks appear additive, they do not account for household adjustments on the margin, which could cushion or worsen the impact. It is equally important to remember that while the impact of the crisis may be known, the true counterfactual (which would be another economic structure that would have prevailed in 2009 without the crisis) would not be known. That said, since the true distribution of the shocks and their impact will only be discerned ex-post (e.g. with new data sets and so on), at the time the shocks are occurring it does look as if they are random, hence the choice in these exercises.

Figure 3.10: Remittances as a share of GDP in the Western Balkans



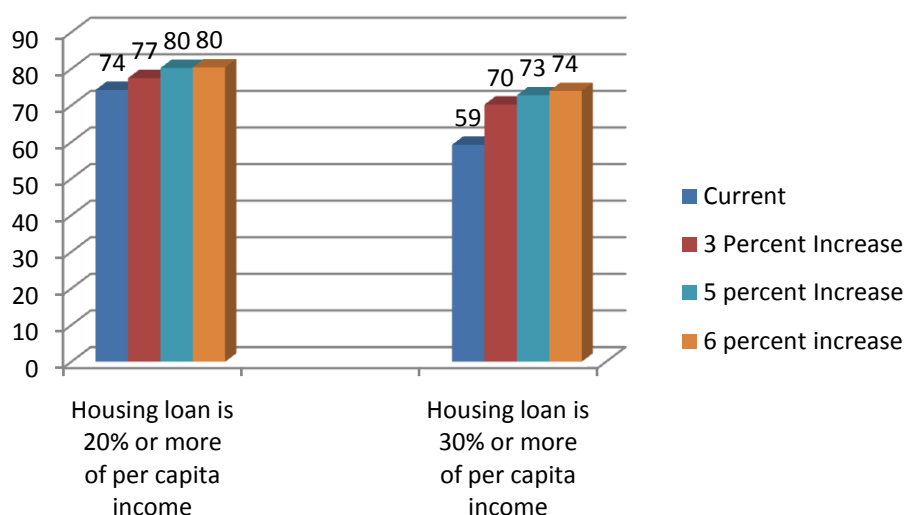
Source: BH: 2008 budget; Serbia: IMF Article IV 2008 est. Other: World Bank, 2006.

3.13 **By contrast, the stress from indebtedness is substantial.** The stress test follows the methodology of the recent regional report on the links between macro-shocks and household responses (World Bank, 2009c). As discussed above, the main concern in BH is indexation of loans to foreign currency, and the prevalence of variable interest rate loans. Indexation becomes a problem when an unexpected rise in the index leads to an unexpected increase in the size of the loan. In the current environment this is likely to happen if the Swiss Francs or Euro (two currencies which most of the loans are indexed to) appreciate substantially against KM. The variable interest becomes a problem when the adjustment happens (upwards) in an adverse economic environment such as the current.

3.14 **The simulations we run show that an additional 3 to 15 percent of households with housing loans will face difficulty servicing their loans as a result of the crisis.** Difficulty of servicing loans is defined as having a housing loan that exceeds 20 or 30 percent of the per capita income of the household. The simulations include a 3, 5 and 6 percent point increase in interest rates. The magnitude of the shock was determined

based on historical 5 year largest change of 3.2 percentage points in long term loans to households from the Central Bank. If we define households as vulnerable to difficulty of servicing their loans at the 20% threshold, the HBS 2007 data suggest that currently about 74 percent of households with housing loans are vulnerable (Figure 3.11). If interest rates increase, the percent of vulnerable households increases by up to 6 percentage points. If the threshold for difficulty servicing debt is set at 30 percent of per capita income, then currently 60 percent of households with loans are vulnerable to defaulting. This ratio increases tremendously if interest rates go up by 3 – 6 percentage points. An additional 15 percent of households with housing loans could face difficulties servicing their loans.

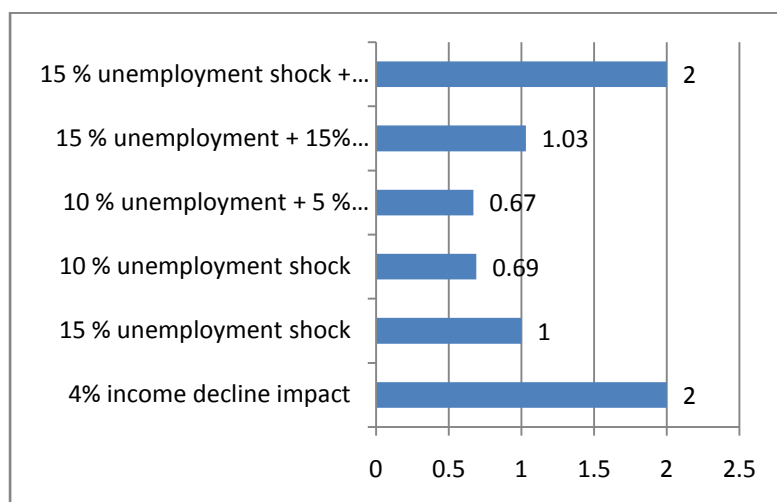
Figure 3.11. Interest Rate Simulations – Percent of Households with Difficulty Servicing Debt



Source: HBS 2007 data.

3.15 It is worth noting that assigning shocks randomly, while convenient, obscures the true distribution of the pain from the downturn. The assumption of random assignment of shocks implies that the downturn is distribution-neutral. This is obvious especially from the simulations that focus on transmission channels, but is less obvious from the prediction based on the simple shock to income (as implied by the fall in GDP). However, economic downturns, even those that are as generalized as the current one, almost always hit certain groups harder than others. For instance, workers in manufacturing may have suffered substantially more job losses than workers in the public sector. Furthermore, among remittance-recipients, households with members in countries such as Spain or UK may have been affected more than those with members in France. Knowledge of the sectors that were affected more helps with modeling (for example, by allowing us to assign proportionately more of the shocks to workers in these sectors) but it does not resolve the issue of identifying which households were actually hit.

Figure 3.12: Simulation Results – Percentage Point of Poverty Increase



Source: HBS 2007.

3.16 **To summarize**, the simulation exercises suggest that expected income shocks will lead to an increase in poverty, reversing at least half of the gains achieved before the crisis (Figure 3.12). This is doubly worse because were BH to stay on the trajectory it was on prior to the onset of the crisis, poverty levels would have declined not risen. Moreover, even among the population that would not necessarily be thrown into poverty, there is substantial anxiety and a feeling of livelihood insecurity. The knowledge that the crisis is unlikely to be distribution-neutral, leads naturally to examining the effectiveness of the social protection system, which under these kinds of circumstances can serve as a first line of defense. In the next chapter we look at the social assistance program – its performance and possible avenues of reform.

4. IMPROVING SOCIAL ASSISTANCE TO PROTECT THE POOR DURING THE CRISIS¹³

Effective social safety nets can be an efficient tool to protect households, especially during a generalized crisis. However, the BH programs as currently designed have several weaknesses, which make them less effective in protecting the poor and vulnerable. First, despite significant fiscal outlays (4 percent of GDP), coverage of non-contributory transfers is low. Second targeting accuracy is fairly weak, with a higher share of benefits going to those in richer quintiles. Third, the poverty impacts of non-contributory social benefits are negligible. Finally, non-targeted programs have reached the limits of the fiscal envelope and are crowding out the targeted ones. A new targeting mechanism is proposed, which when introduced to all non-contributory transfers, could reign in fiscal expenditures while better covering and targeting the poor. The Proxy-Means Targeting (PMT) mechanism suggested could boost targeting accuracy of the programs by up to 40 percent, from the current 17 percent. There are steps that BH could take to transition to a PMT mechanism and create a social safety net that does not impose unbearable burden on public resources and is more efficient at reaching the most vulnerable populations.

4.1 **BH, like many countries in the world, has multiple social protection programs.** These include primarily contributory and non-contributory programs, although negligible complementary labor and social policy programs may exist. Contributory programs, commonly referred to as social insurance programs, include pensions and unemployment insurance, while social policy programs include those designed to meet a social policy goal – for instance access to housing and utility. In this chapter while we shall discuss the distribution and coverage of contributory programs from time to time, our main focus will be on non-contributory programs. Ideally, one would want to use data covering a census of beneficiaries which also collects their income and socio-demographic characteristics.

4.2 **Instead, we shall make extensive use of household survey data which allow for a credible alternative to analyzing patterns in the distribution of non-contributory transfers.** The 2007 Household Budget Survey (HBS) provides a snapshot of the characteristics of the population through a representative sample at the country level (BH), as well as for each Entity. A sample consisting of 7,468 households were interviewed throughout the year (that is approximately 622 households a month). Survey modules covered consumption, income, and socio-demographic characteristics. The 2007 HBS also included a fairly detailed module on receipt of benefits from social

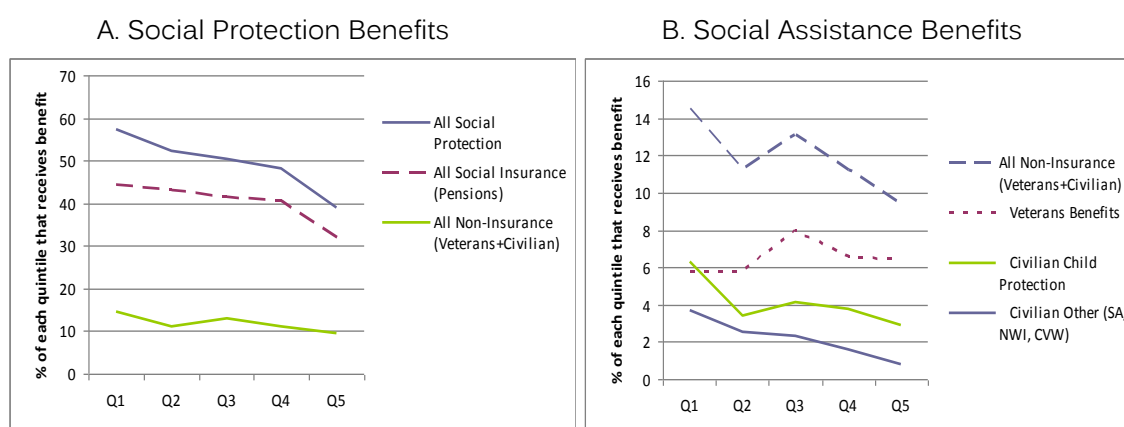
¹³ This section is based on the Bosnia Social Assistance Policy Note (World Bank, 2009b).

protection programs¹⁴. This allows for an alternative analysis of the coverage, targeting accuracy and impacts of these programs. Typically, household survey data offer a credible source for capturing the distribution of benefits across the population quintiles because such surveys are a representative sample of the population. They perform less well at capturing coverage of specific programs because they are not typically designed to be a representative sample of beneficiaries of specific programs.

A. PERFORMANCE OF SOCIAL TRANSFERS AND THEIR IMPACT ON POVERTY

4.3 A substantial fraction of the population of BH receives non-contributory transfers. Overall, 12.4 percent of the population reports receiving benefits from non-contributory social assistance transfers (civilian or veteran-related) in BH as a whole. However, only a small fraction of the poor receive the benefit. The share reporting receipt of such benefits is slightly higher among the poorest quintile (15.1 percent) than the richest (9.7 percent). A much larger share of the population reports receiving social insurance benefits (40 percent), and about half the population reports receiving some type of benefits (contribution-based social insurance and/or non-contributory social transfers), as shown in Figure 4.1. As expected, coverage of veteran-related benefits is higher than civilian benefits, and coverage of veteran-related benefits is highest among the middle and upper quintiles than those in the poorest quintile.

Figure 4.1: Coverage of Social Protection and Social Assistance Benefits in BH, HBS 2007



Source: World Bank staff calculations using HBS 2007 data.

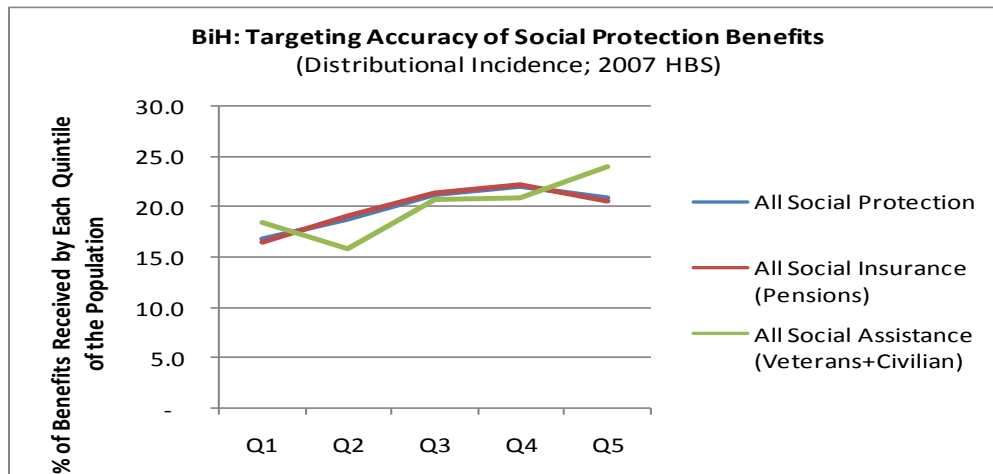
4.4 Targeting accuracy is fairly weak overall, with a higher share of benefits going to those in richer quintiles. Overall, those in the bottom 20 percent receive 16.9 percent of

¹⁴ The module covers most programs, including a variety of contributory social insurance programs (various pensions) and a range of civilian and veterans non-contributory transfers (though two civilian benefits in the FBH were lumped together into a single category: NWI and CVW).

total social protection benefits (similar fractions for social insurance and total social assistance benefits), as shown in

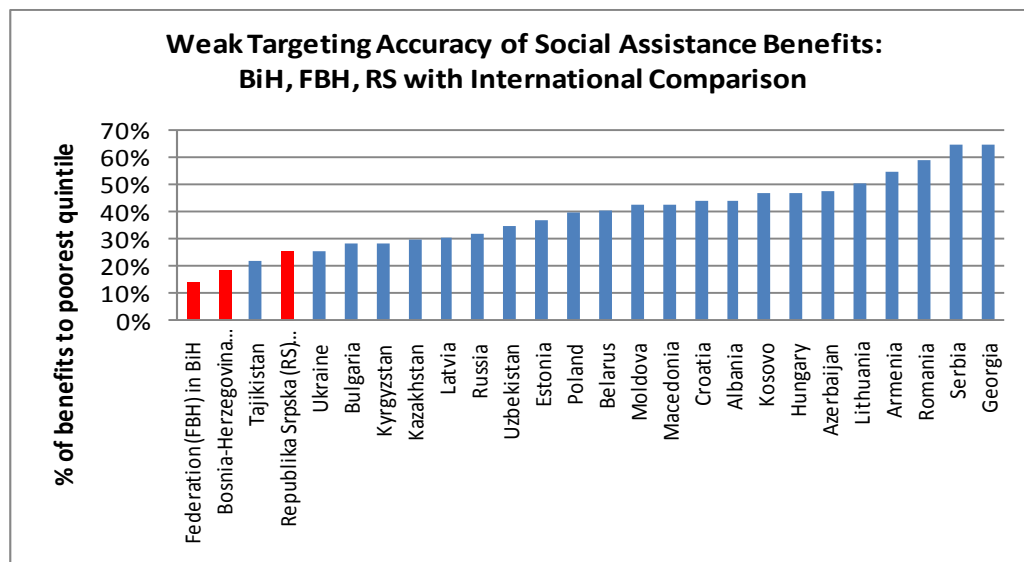
Figure 4.2. The distribution of overall social assistance benefits is slightly progressive in RS, where those in the poorest quintile receive about 25.7 percent of non-contributory social benefits, compared to 14.1 percent for those in the poorest quintile in FBH. However, even this slightly progressive outcome is relatively weak compared to outcomes in many countries in the ECA region (Figure 4.3).

Figure 4.2: Distribution of Social Protection Benefits in BH



Source: World Bank staff calculations using HBS 2007 data.

Figure 4.3: Targeting Accuracy of Social Assistance Benefits - International Comparison



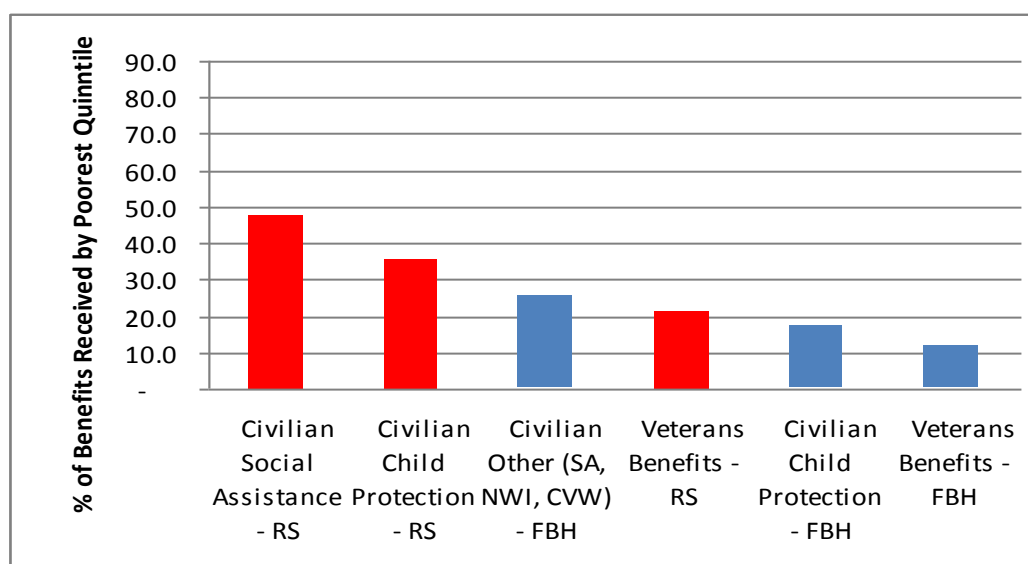
Source: van Nguyen and others (2009) and World Bank staff calculations using HBS 2007 data (for BH).

4.5 Within the sphere of non-contributory social benefits, veteran-related benefits are the most regressive, with 26.7 percent of veteran-related benefits reaching those in the richest quintile of the population, while those in the poorest quintile receive less than

15 percent of these benefits. Civilian child protection allowance (which is means-tested) and other benefits (SA+NWI+CVW) are somewhat better targeted overall, with 25 to 30 percent of such benefits going to the poorest quintile, respectively, though these outcomes are not very good compared with those in other countries (Figure 4.3).

4.6 **Means-tested benefits are better targeted in the Republika Srpska**, where those in the poorest quintile receive 47.7 percent of CSW benefits and 35.4 percent of child protection allowances (Figure 4.4). This performance is reasonable by international standards for poverty-focused programs, though there is certainly room for improvement (some programs in ECA attain targeting accuracy outcomes of 70 to 80 percent—on a par with means-tested programs in the United States and Brazil).

Figure 4.4: Weak Targeting Accuracy of Specific Social Benefits Programs: FBH and RS



Source: World Bank staff calculations using HBS 2007 data.

4.7 **Leakage of funds to the non-poor of both programs in FBH was over 75% while in RS it was over 50%.** Using the observed consumption of the households, we can estimate what percentage of self-reported SA recipients are poor or not. In the country overall, the poorest 10% of the population obtain 23.1% of the CSW funds and only 16.1% of the child allowance. The poorest quintile receives only about 25% of the SA funds disbursed. For RS, the targeting is slightly better at 35 and 47.7 respectively for Child Protection Allowance and CSW benefits, while in FBH these numbers are 17.2 and 25.1 percent.

4.8 **There are overlapping benefits from the plethora of programs.** About 18% of the unemployment benefit recipients also receive one form of an SA program, mostly Military Invalids' and Survivor Benefits or the CSW transfers. Another 10% of the military invalids' and survivor beneficiaries receive also Child Protection Allowance and another 3% receive CSW benefits.

4.9 **The numerous non-targeted programs impose substantial fiscal burden and are not an efficient way of reducing poverty.** The whole country spends, on average, about 4 percent of its GDP on non-contributory social benefits, and this “buys” the country only 1.9 percentage points of reduction in poverty incidence. Indeed, HBS 2007 estimates the poverty headcount rate at about 14 percent of the population¹⁵ *with the transfers* counted in total consumption (incomes). *Without the transfers*, the poverty headcount would increase only slightly to 15.9 percent of the population, and this change is not statistically significant. This is because coverage of the poor is low (about 15 percent of those in the bottom quintile report receiving veteran-related or civilian benefits) and benefits are generally regressive (those in the poorest quintile receive 18 percent of total non-contributory benefits in BH overall).

4.10 **The non-targeted social programs crowd out the targeted ones, which are very limited in scope and impact.** The generosity (the ratio of benefit to household consumption, including benefits) of child protection allowance is only 4.8%, while it is 11% for all CSW benefits, including those that are non-targeted like NWI and CVW. Empirical simulations of an enhanced targeting mechanism for social assistance suggest that the potential improvements over the current income-tested program are substantial. Currently the targeting accuracy, as measured by funds disbursed to poorest 20% of the population, of the BH means-tested programs such as Child Protection Allowance and some of the Centers for Social Work benefits is in the 25 to 30 percent range while the forecasted targeting efficiency of a proxy-means or hybrid-means tested program is above 55 percent. Should this proxy-means or hybrid-means testing procedure be implemented perfectly, empirical predictions with the 2007 HBS data suggests that a substantial improvement in accuracy over the means-tested programs can be achieved.

4.11 **When the poverty-related impact of the non-insurance cash transfers is compared to the poverty-related impact of insurance-based benefits (pensions) there is a stark contrast:** without pensions, poverty would increase to 20.1 percent of the population. This suggests that the SA programs have no sizeable impact to lift the households out of poverty or decrease their poverty gap. These insufficient social assistance benefits only reached 6.3 (for Child Protection Allowance) and 3.7 percent (for all other CSW benefits) of the most vulnerable bottom quintile. This is one of the lowest coverage rates among the EU candidates, the Western Balkans and ECA.

¹⁵ Using the BHAS (2008) poverty line of 386 KM/ month / adult equiv.

B. RATIONALE FOR TARGETING

4.12 A more effective way of reducing poverty would be to adopt new targeting mechanisms for social assistance

4.13 **A. Why Target?** Targeting is a means of increasing program efficiency by increasing the benefit that the poor can receive within a fixed program budget. The motivation for targeting arises from three policy considerations: (a) *objectives* of reducing poverty and protecting the poor; (b) *limited resources* (budget constraints); and (c) *opportunity costs*, or tradeoffs between the number of beneficiaries and the level of transfers (Coady, Grosh, and Hoddinott 2004). Simply put, the rationale for targeting involves concentrating scarce resources on those who need them most.

4.14 **B. Whom to Target?** Whom to target is generally determined by need, that is, economic status (poverty, risks of poverty), but it can also relate to other aspects associated with vulnerability such as age (elderly, children), ethnicity (historically excluded groups of the population), or disability. Policy choices policymakers make in determining whom to target based on measures of need include the following:

- **Narrow vs. broader targeting.** In many countries, targeting based on “need” focuses social assistance resources on a rather narrow definition of “the poor” (as in Brazil, Mexico, and the United States), with higher benefits for the extreme poor and a gradual reduction in benefits as incomes rise. There is some evidence that the political economy of targeting in those countries favors such narrow targeting. In Brazil, for example, evidence suggests that politicians are penalized for perceived “leakages” of benefits to the non-poor and have a higher likelihood of reelection with “stronger” targeting of the poor (de Janvry and others 2006; Lindert and others 2007; Lindert 2008). In other countries, programs are targeted to a broader definition of “lower-income groups,” possibly in part to bring in a broader political basis for support.
- **Chronic vs. transient poor.** Another aspect of “whom to target” involves whether to target the chronic or transient poor. This depends partly on the objectives of the particular safety net program, but is also particularly relevant in times of crisis. Fiscal constraints mean that not all can be served as much as needed, thus giving rise to competing pressures. The logic of a crisis response program is to address the income losses caused by the crisis. However, while the newly poor are often politically vocal, they are not necessarily the poorest (Grosh and others 2009). The chronically poor are likely to become poorer as a result of the crisis and may be most at risk of suffering irreversible losses. These choices of target group also affect the type of targeting mechanism adopted, with “proxy-

means testing” more appropriate for depicting chronic poverty, but less sensitive to changes in economic status (for example, crises).

4.15 **C. How to Target?** A number of mechanisms exist for channeling resources to a particular target group. Some require some sort of assessment of eligibility for each applicant (individuals or families). Others grant eligibility to broad categories of people based on single characteristics such as geographic location (geographic targeting) or demographic category. Needs-based targeting (where the target group is “the poor”) generally adopts applicant screening methods (for individuals or families), but sometimes also combines these with geographic targeting. This review focuses on needs-based targeting via applicant screening methods (for individuals or families). An important aspect of targeting is the need to design program parameters (benefit levels, entry and exit criteria, and so forth) such that they avoid creating opportunities for “masquerading” or changing behaviors to become eligible for benefits or incentives for reducing adult work effort.

4.16 **There are several methods for screening applicants (individuals or families) for eligibility, including:** (a) means-testing (MT), (b) proxy means-testing (PMT), and (c) hybrid means-testing (HMT). The choice among methods generally depends on administrative capacities, degree of formality or “measurability” of incomes, and variation in other observable characteristics associated with “need.” Table 4.1 provides an overview of these measures, the types of data that are collected, and their respective advantages and disadvantages, based on international practice.

4.17 **Currently, BH uses income and asset tests (means-testing or MT) to determine eligibility for the child allowances and social assistance program.** Usually, countries with a large formal sector use verified income and asset-tested programs. This targeting method is found in most Organization for Economic Co-operation and Development (OECD) countries, with notable examples in Australia, France, the U.K., and the United States. The success of the means-tested programs depends on extensive verification of information, which covers two aspects: (a) the identity of the applicant and family/household composition, and (b) the income and assets of the assistance unit. The information submitted by applicants is verified based on documentary evidence (the applicant presents documents and invoices), and via automated computer matches.

4.18 **At the other extreme, countries with a large informal sector use indirect methods of estimating welfare, especially based on a proxy means test (PMT).** PMT-based programs determine eligibility based on a multidimensional index of observable characteristics highly correlated with the welfare (consumption, income) of the household. Typically, these include information about location, housing quality, possession of assets/durables, education, occupation and income of the adults, and a variety of others (disability, health, and so forth). The variables are aggregated into a composite score (index) using weights determined using a regression model. Eligibility

is determined by comparing the score of each household with an eligibility threshold. First developed in Chile, then used extensively in much of Latin America, PMT programs are now spreading to other parts of the world, such as Armenia, Georgia, Indonesia, the Philippines, and Turkey.

4.19 Between these two extremes, there are intermediate solutions that combine the elements of means-tested and PMT programs. We call this intermediate targeting method a hybrid means test (HMT). Under the HMT model, programs assess the welfare of the applicant based on a per capita income indicator that is the sum of verifiable income (from wages and social protection transfers) and the estimated unverifiable income. This model is being developed in some transition economies, notable examples of which are Bulgaria, Kyrgyzstan, and Romania.

4.20 Targeting those “in need” involves not only an assessment of “means” (incomes, proxies, imputed incomes) but also a “threshold” cutoff to distinguish between those who are eligible and those who are not. Such a threshold can be determined empirically—for example, a poverty line estimated using costs of basic food and non-food consumption. Or it can be determined more broadly to allow for inclusion of the near-poor (vulnerable) or lower-middle-income groups, depending on the objectives of the program and the political calculus for acceptability of the reforms/program. Regardless of the level of the threshold for eligibility, the “tools for targeting” should be standard, common, and transparent for all—namely, a consistent measure for estimating “means” (HMT, PMT) and a single registry of applicants.

Table 4.1: A Spectrum of Targeting Instruments Based on Individual Assessment

	Data	Eligibility Criteria	Advantages/Disadvantages
Means-testing (MT)	<ul style="list-style-type: none"> • Self-reported income and assets collected through interviews. • Verified with certification, public information, cross-checks. 	<ul style="list-style-type: none"> • Income < Threshold Income Cutoff Level. • Sometimes establish a higher cutoff level for program “exit.” 	<ul style="list-style-type: none"> • ADV: Can be very accurate (especially with verification); also, more responsive to transient changes (e.g., in crisis). • DISADV: Administratively demanding; challenging with informality; potential for work disincentives.
Proxy Means-testing (PMT)	<ul style="list-style-type: none"> • Alternative indicators of living standards. • Develop models usually with Household Surveys to identify indicators that are correlated with poverty + scoring formula. • Collect data on indicators through interviews and (usually) home visits. 	<ul style="list-style-type: none"> • Score = $\alpha + \beta X$. • Predicted values can establish weights and eligibility cutoffs (thresholds). 	<ul style="list-style-type: none"> • ADV: Useful in situations with high degrees of informality; less potential for work disincentives; allows capturing multidimensional aspects of poverty (not just income poverty). • DISADV: Administratively demanding; eligibility criteria may need to change regularly as people learn to “game” the system; does not capture changes quickly (less responsive in crisis).
Hybrid Means-testing (HMT)	<ul style="list-style-type: none"> • Combination of the methods above. 	<ul style="list-style-type: none"> • Predict incomes using: <ul style="list-style-type: none"> ○ Easily measured income ○ Imputed incomes (using proxies or other imputation methods) ○ And/or use proxies to validate or cross-check data on reported incomes. • Estimated/predicted income < Threshold Cutoff Level. 	<ul style="list-style-type: none"> • ADV: Can be very accurate; optimizes use of information; possible with informality; fewer work disincentives; objective/verifiable; responsive to changes (e.g., in times of crisis). • DISADV: Administratively demanding.

Source: Lindert (2008).

**C. CONSIDERATIONS AND EXPECTED OUTCOMES
FROM TRANSITIONING TO A PROXY-MEANS TARGETING MECHANISM**

4.21 **The empirical simulations based on the 2007 HBS data suggest that a PMT approach could bring about an improvement but there are three shortcomings of the underlying data that should be emphasized.** As a preamble it is important to note that HBS 2007, while an improvement over HBS 2004, is still not ideal for PMT/HMT simulations. The first shortcoming of the HBS is that, in its current form, it is unable to provide information on a number of indicators on “non-monetary” measures of living standards. Unlike the LSMS, the HBS does not have detailed modules on, for example, access to education or health services, agricultural activities, or labor market activities. The current HBS-based model is therefore unable to capture certain information that was used in previous models on agricultural activities – that is, it is unlike the Bosnia PMT models of Braithwaite (2003) and CEPOS (2006) or the PMT models in Russia (World Bank 2007), or war-related variables, such as Bisogno and Chong (2001) and Braithwaite (2003) (for a review of previous models, see World Bank, 2009b, Annex C).

4.22 **Second, the 2007 HBS resolves only some of the 2004 HBS’s lack of disaggregated information on social assistance benefits received.** For instance, two growing non-insurance and non-income-tested programs, NWI and CVW, are lumped together under one category—Center for Social Works (CSW) benefits—in the HBS questionnaire (see World Bank, 2009b, Annex F for the actual social protection module used in the HBS questionnaire). In 2004, the income module only asked survey respondents whether they receive “other fees and additions,” including unemployment benefits, disability benefits, social and humanitarian benefits, and others. We are now able to better assess the targeting performance of the social assistance system and then compare it with PMT simulations. The 2007 HBS also has an improved capability to monitor living standards, including revisions to the reference periods associated with expenditures on selected goods (including utility expenditures) and an updating of the sampling frame.

4.23 **Third, the income data in the HBS is severely underestimated, which prevents us from simulating an HMT model using the 2007 HBS income data. In order to calibrate an HMT model and predict whether income is a good proxy of consumption, the household survey data should have high-quality income data.** The quality of income data, generally a difficult variable to collect in household surveys, is a function of, first, the level of informality in the economy, and second, how the income question was asked. In BH, the level of informality in the economy is high. In addition, the HBS questionnaire is not detailed enough to capture self-employed and agricultural incomes.

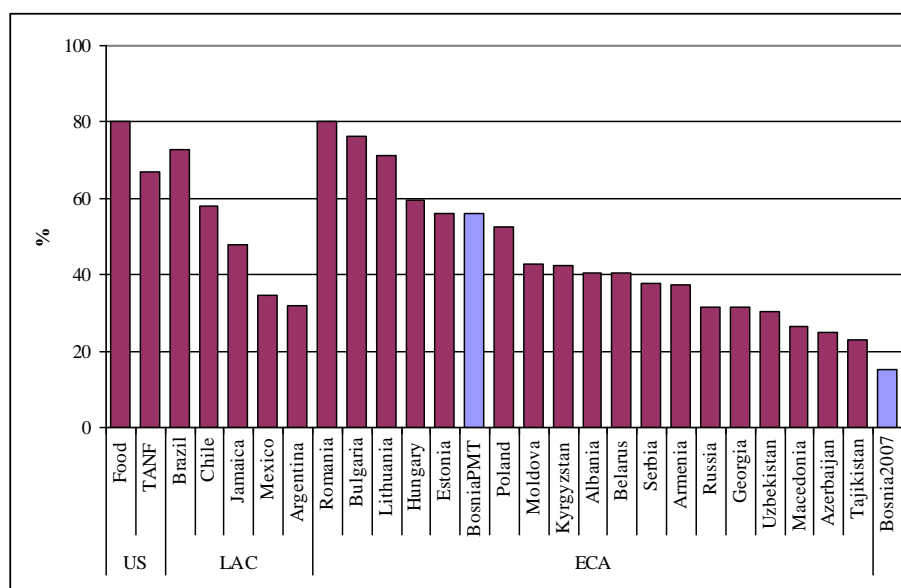
4.24 With these caveats, we still show that any of the PMT model variations (for details of the PMT model, see Annex 1) is a substantial improvement over the current distribution of benefits as found with the 2007 HBS data.

- **For the overall social safety net:** Overall, the distribution of social protection benefits is regressive in BH. Those in the poorest quintile (representing 20 percent of the population) receive less than 17 percent of total social protection benefits (similar for social insurance and total social assistance benefits—
- Figure 4.2);
- **For existing means-tested benefits:** In the RS, those in the poorest quintile receive 48 percent of social assistance benefits and 35 percent of child protection allowances (Figure 4.4). The FBH targeting accuracy is much lower—17 percent for child protection and 25 percent for other social assistance.

4.25 **The distribution of simulated beneficiaries is progressive, or strongly pro-poor, for all the PMT model variations.** After we estimate a PMT model (Annex 1) and run several sensitivity tests and variations (e.g. entity-level models), we consider what will be the outcome of such a mechanism if only the bottom 20 percent of the predicted beneficiaries are covered. Thus we compare actual consumption per capita—and actual poverty status—with the predicted consumption per capita—and predicted poverty status—to see how well the baseline PMT model performs in identifying the poor and non-poor. For the baseline PMT model, 33 percent in 2007 (compared to 36 percent in 2004) of the projected recipients belong to the poorest decile of the population, with another 21.1 percent from the second decile; overall, 55.4 percent of the beneficiaries of the simulated programs belong to the poorest quintile.

4.26 **Furthermore, the simulated PMT model compares favorably in terms of targeting accuracy of the performance of other countries operating means- and proxy-means-tested programs (Figure 4.5).** However, this comparison should be qualified: the targeting accuracy of any programs implemented in BH will depend not only on its design, but also on the quality of implementation (Castaneda and Lindert 2003).

Figure 4.5: Share of Beneficiaries in the Bottom Quintile



Source: HBS 2007 actual and simulated results, and Nguyen and others 2009.

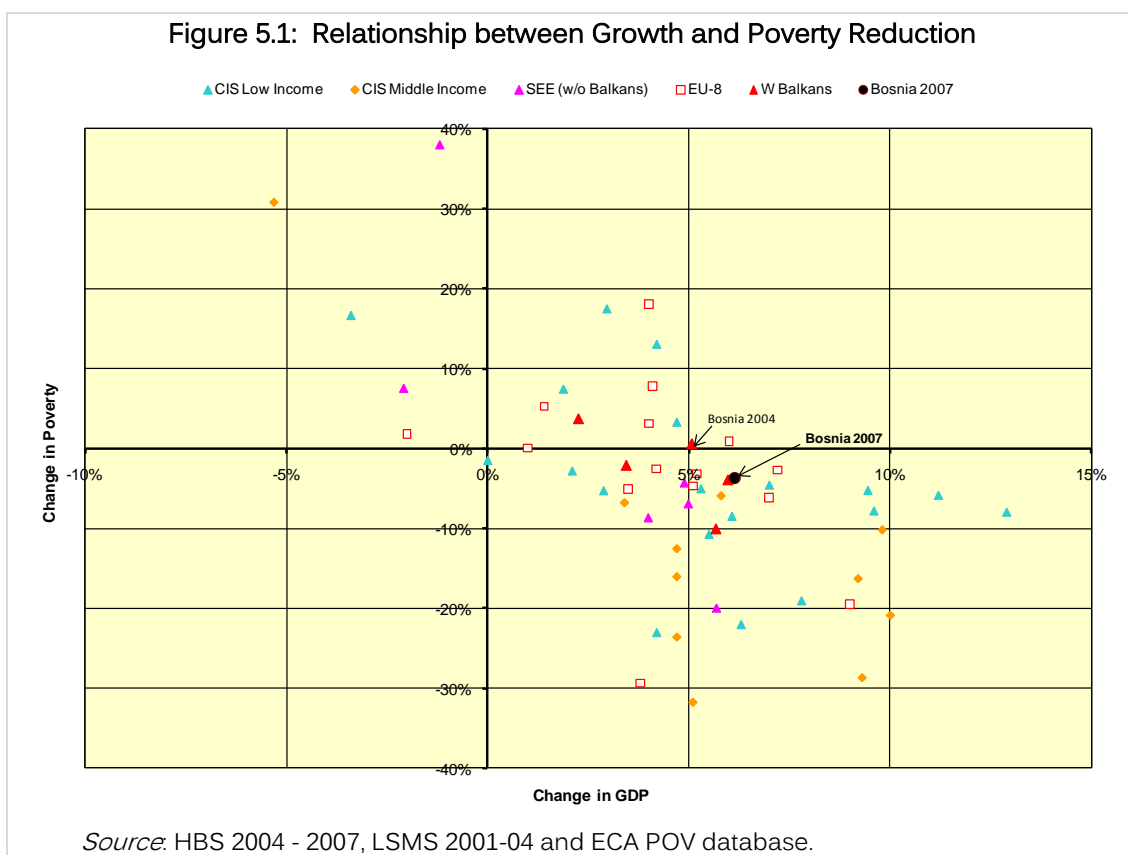
4.27 From a *technical* perspective, developing and introducing improved targeting mechanisms could be done fairly quickly, with a rollout of revised eligibility mechanisms possible over a period of 6 to 12 months. This would involve an assessment of institutional and implementation aspects of existing enrolment criteria and processes in each Entity (Republika Srpska (RS) and the Federation of Bosnia and Herzegovina (FBH) and further diagnostics on proposed mechanisms to reform such criteria and processes. Such tools could be applied on a pilot basis for certain civilian and possibly war veterans' benefits in an initial phase. The tools developed in this paper could provide important inputs to these diagnostics. The results of the proxy-means-testing (PMT) modelling exercise indicate that the targeting accuracy would be substantially improved following reforms that would lead to an introduction of PMT formulas as a means of assessing the applications for some non-insurance benefits.

4.28 From a *political* perspective, policymakers would need to determine the pace at which such reforms could be rolled out, the thresholds for eligibility to be established, and which programs would be selected for targeting based on need. Political decision needs to be reached whether a more gradual approach will be taken or rapid reforms will be introduced as well as the threshold for eligibility -- more narrow focus on the poor versus a broader definition of low-income groups. Such political decisions would need to strike a careful balance between fiscal pressures and political support for such reforms, and should be accompanied by a strong consultative process and communications strategy to improve awareness in BH of the need for such reforms.

5. CONCLUSIONS AND SUGGESTED POLICY

5.1 In the last 10 years BH's economic recovery has been robust, considering its inherited legacies. While its growth has not rivaled some of the high performers among transition countries, it has been steady and was trending higher in the latter half of the 2000s before the current global downturn. Most of this growth was fueled by strong growth in domestic demand, itself financed by rising incomes and credit. An increase in productivity improved the country's global competitiveness, and a favorable global environment which led to a surge in commodity prices and exports also helped.

5.2 This robust growth has improved living standards. Poverty fell in the second half of the 2000s after remaining unchanged in the early part of the decade. We find that consumption growth was similar for all ranks of households (ranked by per capita consumption), but a further disaggregation shows that much of the benefit went to urban areas and the poorer rural residents. Prior to the current downturn, the country's per capita income was comparable to its SEE neighbors. This is a remarkable outcome given the scale of obstacles facing the country: war brand, delayed and incomplete structural reforms, and a difficult policy making environment. In addition, Bosnia seems to have moved on a higher growth-poverty reduction trajectory in the second half of the 2000s, as Figure 5.1 exemplifies.



5.3 **These positive developments are overshadowed by substantial vulnerabilities that could slowdown or reverse future growth.** These vulnerabilities are in the areas of public finances, economic space, and fissures in social cohesion. Failure to make progress in these areas will jeopardize not just future growth but also flexibility in protecting vulnerable households.

5.4 **The global downturn has worsened existing household vulnerabilities.** The economy is expected to contract in 2009 and 2010. This is partly because exports, which have been a source of strength in the past, are dominated by commodities and steel, which have been hit harder in the current global crisis. Labor market risk, measured as the rates of unemployment, is rising, having fallen in recent years. Furthermore, the quality of jobs, which was already a source of dissatisfaction for many citizens, is likely to get worse – that is, informal employment or part-time employment may rise. Falling incomes have also put pressure on household indebtedness and added to the overall feeling of insecurity. As a result poverty is likely to rise. A decrease in income of the magnitude projected for the 2009 contraction (3.5 percent) is expected to lead to a 2 percentage point increase in poverty.

5.5 **Lack of a common economic space is a drag on economic efficiency and amplifies vulnerabilities.** Regulation of economic activities, such as starting a business, registration, and contract enforcement, differs substantially between entities. Structural reforms, for instance, privatization, are conducted in a non-coordinated way. As a result, BH trails its peers in many indices of doing business (World Bank, 2008). The BH enterprises are already endowed with only a small open economy, but the operation of the two entities as separate markets compounds the problems of what is already a difficult business environment. This increases the country's risk profile, diminishes foreign investment and overall competitiveness. It can be argued that to the extent that both entities' enterprises have open access to the larger EU market, firm growth may not be unduly affected. However, lack of a common economic space introduces substantial welfare losses to the extent that factor markets (especially land and labor) cannot be efficiently traded within BH. For instance, poor mobility of workers can undermine better job matches, prevent workers from dealing with shocks, and exacerbate existing entity inequalities.

5.6 **Finally, the un-sustainability of government finances reduces the flexibility to protect the population.** Although the recently concluded Fiscal Council law has brought a measure of harmonization of certain taxes across entities, the size of government has grown rather than declined. The recent expansion of public sector wages in both entities, but more sharply in RS, and untargeted social benefits in FBH pose a real danger to fiscal stability.

5.7 **BH, like many countries in the world, is now focused on ways to weather the consequences of the on-going economic crisis.** But there is no easy solution to

surviving the current downturn. There is widespread acceptance that during major downturns temporary fiscal expansion can be an important tool for protecting the population and prevent them from engaging in inefficient strategies for smoothing consumption, which have negative longer term consequences. However, the current situation of government finances cannot support a broad expansion. Therefore, the reform path must balance the short term management of the crisis whose priority should be to protect the population from major reversals in living standards and the long term whose priority is to return to a sustainable growth path.

5.8 In the short term, better targeted safety nets with sufficient coverage of the vulnerable and adequate generosity should be the priority. In this respect, actions that are needed now to rein in public finances while strengthening social protection and those that would lead to a more sustainable and flexible long term safety net reform strategy appears to converge. The current non-contributory social assistance transfers in BH are unsustainable, inefficient, and inequitable. Briefly, note that

- First, public spending on such transfers is extremely high (4 percent of GDP) and growing. This makes it unsustainable, particularly in the current economic environment and given the uncertainty regarding the future.
- Second, transfers are biased toward rights-based benefits for veterans/survivors and non-war invalids. Although these rights-based transfers reflect the post-conflict situation, and likely serve important political and social stability functions, they are regressive, in that they transfer a higher share of benefits to those in the middle and upper quintiles than those in the poorest quintiles of the population.
- Third, coverage of the poor by non-contributory transfers is quite low, meaning that the poor will receive limited protection with the onslaught of the looming economic crisis. As a result, high spending on social transfers also buys little poverty impact.
- Fourth, high spending on untargeted social transfers also likely crowds out resources for public investment—which will further cripple the governments' abilities to respond to the economic crisis or stimulate economic activity.
- Finally, there is also evidence to suggest that transfers may dampen adult work effort.

5.9 There is no doubt that introducing substantial reforms to these programs is going to prove difficult given the fragile political environment. This would be especially true for any substantive measures to reform the (regressive) veteran-related benefits. Nonetheless, given the fiscal burden that untargeted programs impose, there are likely no alternatives to reform. There are steps which BH could take to reform its programs and systems to strengthen and develop a true social safety net that does not impose

unbearable burden on public resources, and is more efficient at reaching the most vulnerable populations. Specifically, it is recommended that the government consider a three-pronged approach to reform:

- First, the population should be nudged towards supporting the reform. This could include a major publicity campaign that highlights the poorly targeted nature of the programs and why the reform would lead to improving social inclusion. Policymakers would need to determine the pace at which such reforms could be rolled out (rapid reforms versus a more gradual approach), the thresholds for eligibility to be established (more narrow focus on the poor versus a broader definition of low-income groups), and which programs would be selected for targeting based on need. Such political decisions would need to strike a careful balance between fiscal pressures and political support for such reforms. Such an initial step has been found to have been crucial in Chile, Indonesia and Ghana (World Bank, 2009).
- Second, the targeting mechanisms to be introduced must be better and more transparent than what is being replaced. In the context of BH, developing and introducing improved targeting mechanisms could be done fairly quickly, with a rollout of revised eligibility mechanisms possible over a period of 6 to 12 months. The tools developed in this paper could provide important inputs to these diagnostics. The results of the proxy-means-testing (PMT) modeling exercise indicate that the targeting accuracy would be substantially improved following reforms that would lead to an introduction of PMT formulas as a means of assessing the applications for some non-insurance benefits. Such tools could be applied on a pilot basis for certain civilian and possibly war veterans' benefits in an initial phase.
- Third, monitoring and evaluation mechanisms should be put in place in order to learn and adapt the program to the evolving context. This would involve an assessment of institutional and implementation aspects of existing enrollment criteria and processes in each Entity (RS and FBH) and further diagnostics on proposed mechanisms to reform such criteria and processes.

5.10 In the long run, the country would need to return to the pre-crisis or higher growth trajectory. Many of the reforms needed here have been covered in other documents and there is no need to repeat them here. However, it is worth stressing that such growth trajectory is unlikely to be sustained without addressing adequately existing distortions – slow structural reforms and lack of a common economic space – and macro-stability. The latter in turn will call for containing unsustainable expansion of the public sector.

ANNEX 1: NEW PMT MODEL USING THE HBS 2007¹⁶

1. This section calibrates a new PMT model or scoring formula for Bosnia and Herzegovina (HB). It draws on the 2007 Household Budget Survey (HBS) and builds on previous efforts to design a PMT model, including the World Bank 2004 PMT estimation. Means-tested and hybrid-means-tested models are not calibrated based on the HBS data set because of the weak income data.

2. Following the literature, the choice of explanatory variables for PMTs (and the imputed proxy aspects of HMTs) is guided by their statistical association with per capita consumption and its verifiability (that is, that it can be potentially cross-checked against other sources of information, or may be physically inspected or verified by a social worker, or that households are arguably less able or less likely to provide misleading or false information). The exercise starts from a large set of variables, which are then reduced to a much smaller subset using stepwise estimation techniques, that is, a subset of variables selected on the strength of their statistical association with per capita consumption and that together these variables maximize the fitness of the PMT model.

3. Our variables can be broadly classified under one of the following categories:

- **Household demographic and socioeconomic characteristics**, such as the number of members, their ages, the number of dependents, gender of the head of household, and the educational attainment of household members. It also includes labor market activities, such as the employment status, occupation, and sector of employment of the head of household, the number of employed members of the household, and the occupational status of the spouse. Of these characteristics, labor market activities may be the most difficult to verify, given the existence of a large informal sector.
- **Housing characteristics**, such as the availability of certain facilities (water, sanitation system, phones, and so forth), the types of appliances used, the manner by which heat is supplied, the year the dwelling was constructed, the number of rooms, construction type (multifamily, individual, other), whether owned or rented, and so forth.
- **Ownership of selected durable goods**, such as ownership of vehicles, telecommunications equipment, or selected appliances. This can be potentially assessed against administrative data, such as data on vehicle registration, or by visual inspection.

¹⁶ Based on World Bank (2009b).

- **Location**, such as a household's entity of residence or whether the household lives in a rural or urban area.
- **The affordability of selected expenditures**, such as utility (water, heat, electricity, gas) expenditures, which in principle can be verified by the respective utility company.
- **Selected income sources**, such as whether the household receives pension income. Pension receipt and/or the level of pension income should be easily verifiable with the administrative records of the Pension Fund.

4. Table Annex 1.1 presents the results of the stepwise regression analysis. The final model consists of 25 variables, derived from an initial set of about 50 variables. For the dummy variables representing the entity of residence, the omitted category is Brcko.¹⁷ The indicators of heating source are in relation to "other" sources of heat. Every variable is significant at the 1 percent level. A positive coefficient indicates that a household or dwelling characteristic is associated with higher per capita consumption; a negative coefficient, conversely, indicates that a characteristic is associated with lower per capita consumption.

5. The signs of the coefficients make intuitive sense or are consistent with existing analyses of poverty in BH, though the PMT model should not be interpreted in any causal sense.¹⁸ For example, the 2003 Poverty Assessment and the 2005 Poverty Update suggested that poverty is lower (and thus per capita consumption is higher) among female-headed households¹⁹ and among those with relatively more educated heads of households and that poverty rises with the number of household members. These patterns are confirmed by the regression results in Table Annex 1.1. In addition, the ownership of selected durable goods (cars, appliances, and so forth) is, as expected, positively associated with per capita consumption. Housing characteristics also have the expected signs: the use of firewood and coal stoves, typically associated with poorer families in remote areas, is negatively associated with per capita consumption.

¹⁷ Brcko District is an autonomous region, which, though part of the country, is separate from the two Entities that comprise BH.

¹⁸ The coefficient estimates of the PMT model should not be interpreted in any *causal* sense, that is, that possessing a certain characteristic *leads* to higher poverty. Nor should we expect that the coefficients estimates and their signs would be necessarily consistent with our prior expectations, given the likelihood of co-linearity or the strong statistical association between independent variables. A coefficient estimate with an unexpected sign (for example, car ownership associated with *lower* predicted per capita consumption) may, in fact, serve a useful practical purpose. That is, it can be an important deterrent against any attempt to provide false information to the scoring formula or to the system.

¹⁹ This phenomenon runs counter to the experience of other countries and is not well understood, even in BH, based on our consultations with our counterparts. Nonetheless, this statistical pattern holds up across various BH household surveys: the 2001 LSMS, the 2004 LSMS, and the 2004 HBS. They are also consistent with some recently published analysis of gender and poverty in BH (Smajic and Ermacora 2007).

6. The R^2 of the baseline model is equal to [0.488], compared with the [0.496] of the 2004 model.²⁰ This measure of the model's goodness-of-fit is an improvement over previous BH PMT models. The model in Braithwaite (2003), for example, yielded an $R^2 = 0.35$, while Bisogno and Chong (2001) obtained an $R^2 = 0.32$ in their best model.²¹ This is also broadly comparable to or higher than the R^2 in the older PMT literature covering other countries. For example, the models for Latin American countries in Grosh and Baker (1995) yielded R^2 values up to, at best, 0.41; Grosh and Glinskaya (1997) obtained $R^2 = 0.2$ in Armenia; and the final model for Egypt in Ahmed and Bouis (2002) yielded $R^2 = 0.43$.

7. However, the baseline PMT model for BH does not perform as well as a few recent PMT models calibrated in some countries in the ECA and in other regions. For example, the PMT model for the Targeted Social Assistance program in Georgia had an $R^2 = 0.62$. The one calibrated for the Republic of Kalmykia in the Russian Federation has an $R^2 = 0.59$. Similarly, the PMT models considered in Sri Lanka obtained R^2 values up to 0.59 (Narayan and Yoshida 2005).

8. *Entity-level models.* Considering the vastly differing results in program performance between the entities, we calibrate a PMT model for FBH and RS separately as a sensitivity check. The estimated regression for each entity remains basically unchanged from the national model without gaining any further precision (Table Annex 1.2). The R^2 stays at .5 for each entity. The current programs' distribution of beneficiaries (percent of beneficiaries who constitute the poorest 20 percent of the population) in the RS is 39.4 percent for child protection and 46 percent for all other social assistance, and in the FBH it is 20.8 percent and 31 percent, respectively. Under the simulated PMT for each entity, the predicted distribution of beneficiaries is 57 percent and 54.31 percent²² in FBH and RS, respectively, which is the same level as the predicted performance of the national model of 55.4 percent.

²⁰ In statistics, the coefficient of determination, R^2 , is used in the context of statistical models whose main purpose is the prediction of future outcomes on the basis of other related information. It is the proportion of variability in a data set that is accounted for by the statistical model. It provides a measure of how well future outcomes are likely to be predicted by the model. In regression, the R^2 coefficient of determination is a statistical measure of how well the regression line approximates the real data points. An R^2 of 1.0 indicates that the regression line perfectly fits the data.

²¹ The R^2 in CEPOS (2006) is not reported.

²² Percent of predicted recipients that are in the bottom 20th percentile of the Entities' distributions.

Table Annex 1.1: Baseline Model

Stepwise Regression Results						
(Dependent variable: natural log of per capita consumption)						
	2004 Baseline	2004	2004	2007	2007	
	All HH	Poorest 50%	Poorest 40%	Baseline All HH	Poorest 50%	40%
Household Characteristics						
# of household members	-0.23*** -39.99	-0.11*** -19.75	-0.10*** -17.74	-0.17*** -26.51	-0.10*** -14.96	-0.08*** -14.21
# of children under 14				0.10*** -10.06	0.06*** -6.91	0.05*** -6.73
# of children, 14-24				0.03*** -2.94	0.02*** -2.61	
# of elderly 65+	0.03*** -2.66					
Household head with postgrad education	0.14*** -5.43			0.13*** -5.8	0.09*** -3.06	0.08*** -2.6
Household with female head	0.09*** -5.84					
# of employed members	0.08*** -8.49	0.06*** -7.51	0.06*** -6.43	0.09*** -11.6	0.06*** -7.66	0.05 -6.31
Housing Characteristics (dummy variables)						
Hot water	0.10*** -4.92					
Central heating	-0.10*** -2.92	-0.24*** -4.91	-0.26*** -6.42			
Self-provided heating		-0.18*** -3.73	-0.20*** -4.93			
Single equipment heating		-0.21*** -4.99	-0.23*** -8.71	-0.07*** -4.67		
Garage	0.06*** -3.98					
Balcony	0.05*** -3.65	0.04*** -2.98				
Garden	0.07*** -4.2			0.05*** -3.81	0.06*** -5.17	0.05*** -4.16
Kitchen		0.04*** -2.82	0.05*** -3.01			
Attic				-0.04*** -2.96		
Ownership of Durables (dummy variables)						
Video recorder	0.07*** -4.58					
Car	0.23*** -15.12	0.16*** -11.8	0.14*** -10.46	0.26*** -20.42	0.12*** -10.45	0.10*** -7.84
Refrigerator	0.10*** -2.92	0.10*** -3.6	0.09*** -2.98		0.09*** -2.64	0.09*** -2.77
Computer	0.13*** -6.53			0.08*** -5.17		
Phone	0.05***		0.05***	0.12***	0.11***	0.11***

	-3.04		-3.22	-8.3	-8.19	-8.39
Dish washer	0.21***			0.15***		
	-7.39			-8.15		
Vacuum cleaner	0.07***			0.07***		0.07***
	-3.88			-3.18		-3.9
Firewood & coal stove	-0.11***					
	-4.17					
Sewing machine	0.10***	0.07***	0.05***	0.07***	0.07***	0.05***
	-6.17	-4.4	-2.79	-4.86	-5.24	-3.68
Mobile phone	0.15***	0.08***	0.07***	0.19***	0.11***	0.11***
	-10.46	-6.01	-4.75	-13.99	-8.19	-8.09
Washer		0.06***	0.07***	0.12***	0.08***	
		-3.76	-4.34	-6.45	-5.39	
Hi-Fi systems				0.19***		
				-5.05		
Satellite dish				0.06***		
				-3.92		
Electric & gas cookers				0.10***	0.08***	0.08***
				-5.09	-4.01	-3.9
Secondary home	0.21***	0.14***				
	-6.87	-3.09				
Location (dummy variable)						
Republika Srpska	-0.11***	-0.08***	-0.11***			0.04***
	-4.56	-2.96	-4.06			-2.94
FBH	-0.13***	-0.11***	-0.14***			
	-6.38	-4.35	-5.34			
Affordability of selected expenditures						
Log of utility expenditures	0.20***	0.11***	0.09***	0.09***	0.31***	0.21***
	-20.16	-11.4	-9.46	-29.12	-20.37	-18.67
Income Source (dummy variable)						
Receives pension income	0.04***	0.07***	0.06***	0.05***	0.05***	0.04***
	-3.06	-5.16	-4.54	-4.69	-4.81	-4.14
Constant	5.22***	5.25***	5.27***	4.63***	4.71***	4.62***
	-85.72	-86.5	-108.92	-78.56	-77.16	-71.64
Observations	7220	3173	2486	7440	3686	2950
R-squared	0.5	0.3	0.29	0.5	0.34	0.33
Robust t statistics in parentheses						
*Significant at 10%;						
** Significant at 5%;						
***Significant at 1%						

Table Annex 1.2: Entity-Level Models

Stepwise Regression Results by Entity			
(Dependent variable: Natural log of per-adult-equivalent consumption)			
	FBH	RS	Total BH
Household Characteristics			
Number of household members	-0.27*** [0.01]	-0.26*** [0.01]	-0.27*** [0.01]
Number of children under 14	0.05*** [0.01]	0.05*** [0.02]	0.05*** [0.01]
Number of children, 14–24	0.06*** [0.01]	0.05*** [0.02]	0.05*** [0.01]
Head of household: female	0.10*** [0.02]		0.08*** [0.02]
Head of household: has post grad education	0.17*** [0.03]	0.12*** [0.04]	0.14*** [0.02]
Head of household: employed		-0.07*** [0.02]	-0.04*** [0.02]
Number of employed members	0.09*** [0.01]	0.07*** [0.01]	0.08*** [0.01]
Housing Characteristics (dummy variables)			
Dwelling has sanitary connection	0.22*** [0.05]		0.11*** [0.03]
Dwelling has central heating	-0.14*** [0.03]		-0.08*** [0.03]
Dwelling uses single equipment heating		-0.21*** [0.04]	-0.08*** [0.02]
Dwelling has a heating source	0.10*** [0.02]	-0.09*** [0.03]	
Indoor toilet and bathroom	0.10*** [0.02]		0.09*** [0.02]
Dwelling has a garage			0.03*** [0.01]
Dwelling has a balcony	0.09*** [0.02]	0.06*** [0.02]	0.06*** [0.01]
Multifamily residential building		-0.08*** [0.03]	
Age of the dwelling	0.00*** [0.00]		0.00*** [0.00]
Secondary home	0.20*** [0.03]	0.28*** [0.07]	0.22*** [0.03]
Ownership of Durables (dummy variables)			
Phone	0.09*** [0.02]	0.13*** [0.02]	0.10*** [0.01]
Washer	0.15*** [0.03]	0.17*** [0.03]	0.12*** [0.02]
Vacuum cleaner			0.07*** [0.02]

Satellite dish			0.05*** [0.02]
Sewing machine	0.09*** [0.02]		0.07*** [0.01]
Computer		0.10*** [0.03]	0.06*** [0.02]
Car	0.26*** [0.02]	0.28*** [0.02]	0.25*** [0.01]
Electric and gas cookers		0.15*** [0.03]	0.09*** [0.02]
Firewood and coal stove	-0.08*** [0.03]		-0.07*** [0.02]
Dishwasher	0.20*** [0.02]	0.17*** [0.04]	0.18*** [0.02]
Video recorder	0.09*** [0.02]		0.07*** [0.01]
HI-FI systems		0.07*** [0.02]	
Mobile phone	0.09*** [0.02]	0.13*** [0.02]	0.11*** [0.02]
Affordability of Selected Expenditures			
Log of utility expenses	0.20*** [0.01]	0.16*** [0.01]	0.18*** [0.01]
Income Source (dummy variable)			
Receives pension income	0.06*** [0.02]		0.04*** [0.01]
Constant	5.09*** [0.07]	5.55*** [0.08]	5.28*** [0.05]
Observations	4491	2602	7435
R-squared	0.52	0.5	0.51
Robust standard errors in brackets			
* Significant at 10%; ** Significant at 5%;			
*** Significant at 1%			

ANNEX 2: STATISTICAL TABLES AND FIGURES

Table Annex 2.1: Multivariate Consumption Regression

Dependent Variable: Log Consumption Per Capita	2004	2007
Labor Force Characteristics		
Percent of unemployed people in Household	-0.17*** [0.03]	-0.22*** [0.03]
Sector of Employment Dummy variables:		
Manufacturing	-0.06*** [0.02]	-0.05** [0.02]
Construction	0.05** [0.02]	-0.01 [0.02]
Utilities	0.04 [0.04]	0.01 [0.03]
Mining	-0.12** [0.06]	-0.10** [0.04]
Agriculture	0.10*** [0.03]	0.00 [0.02]
Indebtedness		
Housing Loan per capita (KM)	0.16*** [0.00]	0.08*** [0.00]
Other sources of income		
Remittances (In country and from abroad) per capita (KM)	0.07*** [0.00]	0.04*** [0.00]
Social Allowances per capita (KM)	0.06** [0.00]	-0.07 [0.00]
Demographic and HH head characteristics:		
Age of Head of Household	0.00*** [0.00]	0.00** [0.00]
Head of Household: female	0.04** [0.02]	0.06*** [0.02]
Dependency Ratio	-0.05*** [0.01]	-0.06*** [0.01]
Number of students in household	-0.01 [0.02]	0.00 [0.01]
Household size	-0.41*** [0.02]	-0.38*** [0.02]
Household size squared	0.03*** [0.00]	0.02*** [0.00]
Elementary School attained	0.11*** [0.03]	0.10*** [0.03]
Secondary School attained	0.15*** [0.04]	0.18*** [0.03]
Post-Secondary Education attained	0.25*** [0.04]	0.28*** [0.04]

University Education or higher attained	0.30*** [0.05]	0.35*** [0.04]
Regional and area dummy		
Urban	-0.04 [0.02]	0.04** [0.02]
Republika Srpska	0.02 [0.01]	-0.01 [0.01]
Brcko	0.13*** [0.02]	-0.08** [0.04]
Housing and Asset Characteristics		
Phone	0.13*** [0.02]	0.14*** [0.02]
Washer	0.15*** [0.02]	0.22*** [0.02]
Dish washer	0.28*** [0.03]	0.25*** [0.02]
Mobile phone	0.24*** [0.02]	0.22*** [0.02]
Secondary home	0.27*** [0.04]	0.29*** [0.03]
Computer	0.21*** [0.02]	0.13*** [0.02]
Car	0.32*** [0.02]	0.32*** [0.01]
Dwelling has sanitary connection	0.08*** [0.03]	0.13*** [0.03]
Constant	8.61*** [0.08]	8.48*** [0.07]
Observations	6269	6458
R-squared	0.466	0.487

Robust standard errors in brackets

*** p<0.01, ** p<0.05, * p<0.1

Note:

^v These coefficients were multiplied by 1000

Source: World Bank staff calculations from HBS 2004 and 2007.

Note: calculations obtained using ADePT SP module. All Pensions denotes all pensions received by the household, including War Veteran's pensions, War Disability pensions, Survivor pensions, Old-age pensions, Work-related Disability pensions and pensions from abroad. Pensions - domestic include all pensions listed above except pensions from abroad.

Table Annex 2.2: Social Protection Outcomes, BH 2004-2007, by Entity

Coverage	Federation of BH		Republika Srpska		Federation of BH				Republika Srpska			
					Urban		Rural		Urban		Rural	
	2004	2007	2004	2007	2004	2007	2004	2007	2004	2007	2004	2007
Social Protection												
All Pensions	37.6	44.8	39.4	49.6	37.9	44.6	37.5	45.0	39.7	49.2	39.2	49.8
Pensions - Domestic	33.5	42.5	34.5	48.1	36.4	43.8	31.3	41.5	36.2	48.7	33.5	47.7
Other Income Support	6.8	7.9	9.7	8.0	7.1	8.0	6.6	7.7	8.3	5.2	10.5	9.5
Remittances												
Remittances from abroad	6.5	7.9	6.1	5.7	5.5	4.8	7.2	10.1	5.2	4.4	6.7	6.3
Remittances from in-country	5.9	5.5	8.7	5.1	6.8	4.9	5.3	5.9	7.6	4.3	9.3	5.6
Distribution of Beneficiaries												
Social Protection												
All Pensions	61.1	62.2	37.1	36.3	42.7	41.0	57.3	59.0	35.7	34.5	64.3	65.5
Pensions - Domestic	61.4	61.7	36.8	36.8	46.1	42.5	53.9	57.5	37.2	35.3	62.8	64.7
Other Income Support	52.4	59.4	43.2	31.9	44.1	42.2	55.9	57.8	30.3	22.8	69.7	77.2
Remittances												
Remittances from abroad	63.2	69.9	34.8	26.4	36.0	25.1	64.0	74.9	29.7	27.3	70.3	72.7
Remittances from in-country	53.5	65.0	45.6	32.1	48.6	36.8	51.4	63.2	31.1	29.1	68.9	70.9
Generosity												
Social Protection												
All Pensions	63.6	64.3	52.8	62.7	56.8	56.1	71.5	73.9	52.1	61.7	53.3	63.3
Pensions - Domestic	48.5	59.0	38.6	57.7	48.0	55.0	49.2	64.2	41.2	60.5	36.6	55.9
Other Income Support	44.2	21.7	35.8	21.9	39.5	19.6	49.2	23.9	32.4	17.5	37.7	24.0
Remittances												
Remittances from abroad	77.8	89.2	70.1	69.5	55.9	42.0	95.4	121.3	40.5	61.5	83.6	72.9
Remittances from in-country	24.3	32.8	25.2	29.2	26.5	35.8	21.3	29.8	24.5	32.2	25.5	27.5

Source: World Bank staff calculations from HBS 2004 and 2007. **Notes:** calculations obtained using ADePT SP module. All Pensions denotes all pensions received by the household, including War Veteran's pensions, War Disability pensions, Survivor pensions, Old-age pensions, Work-related Disability pensions and pensions from abroad. Pensions - domestic include all pensions listed above except pensions from abroad.

Coverage: Program coverage is the proportion of the population in each group that receives the transfer. Specifically, coverage is: (Number of individuals in the group who live in a household where at least one member receives the transfer)/(Number of individuals in the group). This calculation uses the following expansion factor: (Household expansion factor * Household size).

Distribution of Beneficiaries: Beneficiaries' incidence is the proportion of beneficiaries in each group. Specifically, beneficiaries' incidence is: (Number of individuals in the group who live in a household where at least one member receives the transfer)/(Total number of direct and indirect beneficiaries). The same expansion factor as for program coverage is used.

Generosity: Mean value of the share transfer amount received by all beneficiaries in a group as a share of total welfare aggregate of the beneficiaries in that group. Generosity is calculated setting as expansion factor the household expansion factor multiplied by the household size. Generosity expressed in LCU.

Table Annex 2.3: Social Protection by Quintile, BH 2004-2007

	2004					2007				
	Q1	Q2	Q3	Q4	Q5	Q1	Q2	Q3	Q4	Q5
Coverage										
<i>Social Protection</i>										
All Pensions	36.1	35.0	35.7	37.5	46.9	48.6	45.1	39.8	43.5	54.3
Pensions - Domestic	32.9	31.0	31.7	32.4	41.2	46.0	43.2	38.3	42.3	51.1
Other Income Support	11.5	8.0	6.9	7.7	6.3	14.7	10.8	7.4	5.9	3.7
<i>Remittances</i>										
Remittances from abroad	6.2	6.2	5.7	6.1	7.6	8.8	6.9	6.8	7.3	6.6
Remittances from in-country	6.4	5.2	4.2	7.1	11.5	4.7	2.9	4.7	5.9	8.7
Distribution of Beneficiaries										
<i>Social Protection</i>										
All Pensions	18.9	18.3	18.7	19.6	24.5	21.0	19.5	17.2	18.8	23.5
Pensions - Domestic	19.4	18.3	18.7	19.1	24.4	20.8	19.6	17.3	19.2	23.1
Other Income Support	28.4	19.9	17.1	18.9	15.7	34.5	25.4	17.4	13.9	8.7
<i>Remittances</i>										
Remittances from abroad	19.6	19.5	18.0	19.1	23.8	24.3	19.0	18.6	20.0	18.1
Remittances from in-country	18.6	15.1	12.1	20.7	33.6	17.6	10.9	17.4	21.8	32.3
Generosity										
<i>Social Protection</i>										
All Pensions	128.4	98.8	85.1	73.4	42.7	151.8	107.4	82.3	72.7	46.7
Pensions - Domestic	100.8	71.9	67.5	55.5	31.4	133.6	97.2	77.6	67.8	42.5
Other Income Support	80.1	69.0	48.3	39.7	26.5	51.7	30.7	22.0	15.9	13.9
<i>Remittances</i>										
Remittances from abroad	254.0	144.4	172.0	71.6	39.3	195.2	193.9	170.5	78.2	41.4
Remittances from in-country	82.5	42.7	37.9	32.1	19.2	77.8	71.0	47.7	44.8	23.9

Source: World Bank staff calculations from HBS 2004 and 2007. **Notes:** calculations obtained using ADePT SP module. All Pensions denotes all pensions received by the household, including War Veteran's pensions, War Disability pensions, Survivor pensions, Old-age pensions, Work-related Disability pensions and pensions from abroad. Pensions - domestic include all pensions listed above except pensions from abroad.

Coverage: Program coverage is the proportion of the population in each group that receives the transfer. Specifically, coverage is: (Number of individuals in the group who live in a household where at least one member receives the transfer)/(Number of individuals in the group). This calculation uses the following expansion factor: (Household expansion factor * Household size).

Distribution of Beneficiaries: Beneficiaries' incidence is the proportion of beneficiaries in each group. Specifically, beneficiaries' incidence is: (Number of individuals in the group who live in a household where at least one member receives the transfer)/(Total number of direct and indirect beneficiaries). The same expansion factor as for program coverage is used.

Generosity: Mean value of the share transfer amount received by all beneficiaries in a group as a share of total welfare aggregate of the beneficiaries in that group. Generosity is calculated setting as expansion factor the household expansion factor multiplied by the household size. Generosity expressed in LCU.

Table Annex 2.4: Average Transfer Value, Per Capita, BH 2004-2007

Average Transfer Value	National - Urban		National - Rural		Sarajevo		Other Urban		Rural	
	2004	2007	2004	2007	2004	2007	2004	2007	2004	2007
<i>Social Protection</i>										
All Pensions	512.6	699.3	411.5	569.6	655.6	847.7	476.7	651.9	411.5	569.6
Pensions - Domestic	395.4	674.0	231.5	453.0	542.4	840.0	358.5	620.9	231.5	453.0
Other Income Support	47.7	24.2	48.1	22.5	84.0	48.1	38.6	16.5	48.1	22.5
<i>Remittances</i>										
Remittances from abroad	62.5	67.2	111.2	154.5	69.8	40.3	60.6	75.7	111.2	154.5
Remittances from in-country	52.8	58.6	36.7	39.5	108.4	66.4	38.8	56.1	36.7	39.5

Average Transfer Value	Federation of BH				Republika Srpska							
	Federation of BH		Republika Srpska		Urban		Rural		Urban		Rural	
	2004	2007	2004	2007	2004	2007	2004	2007	2004	2007	2004	2007
<i>Social Protection</i>												
All Pensions	472.4	642.4	416.8	587.5	536.0	735.9	425.5	576.8	465.6	633.8	390.0	562.9
Pensions - Domestic	318.8	557.4	258.2	515.1	427.7	709.9	238.5	450.3	328.2	609.3	219.9	464.9
Other Income Support	44.8	23.2	51.4	16.2	48.6	26.0	42.0	21.2	45.8	12.2	54.4	18.3
<i>Remittances</i>												
Remittances from abroad	96.1	136.5	87.8	81.9	72.2	63.0	113.7	188.0	44.8	61.9	111.4	92.6
Remittances from in-country	40.3	49.0	48.8	41.0	58.9	63.8	26.6	38.6	42.2	45.8	52.4	38.5

Note: Table entries are the average per capita transfer received by all households in a group. It does include households that did not receive transfers. Averages are in LCUs.

Table Annex 2.5: Average Transfer Values, Per Capita, BH 2004-2007

Average Transfer Value	2004					2007				
	Q1	Q2	Q3	Q4	Q5	Q1	Q2	Q3	Q4	Q5
<i>Social Protection</i>										
All Pensions	175.6	247.1	335.6	491.5	1,008.9	309.8	377.8	405.1	625.1	1,383.8
Pensions - Domestic	124.2	159.1	236.6	320.9	643.4	257.5	326.8	367.6	567.0	1,178.5
Other Income Support	36.0	40.5	35.9	53.6	73.8	28.3	26.3	19.9	18.5	22.6
<i>Remittances</i>										
Remittances from abroad	62.2	65.0	106.7	73.8	151.1	71.9	106.6	143.5	110.9	168.6
Remittances from in-country	19.2	16.5	17.6	39.9	122.4	13.0	16.6	27.9	50.9	126.6

Note: Table entries are the average per capita transfer received by all households in a group. It does include households that did not receive transfers. Averages are in LCUs.

Table Annex 2.6: Public and Private Transfers, BH 2004-2007 (in million KM)

	National			Urban			Rural		
	2004	2007	Change	2004	2007	Change	2004	2007	Change
Public Transfers									
Pensions, all	1,585	2,139	34.9%	717	944	31.6%	867	1,195	37.7%
Pensions, Domestic	1,041	1,860	78.6%	553	910	64.4%	488	950	94.7%
Other Income Support, all	168	80	-52.6%	67	33	-51.2%	101	47	-53.6%
Private Transfers									
Remittances, all	473	577	21.9%	161	170	5.3%	312	407	30.5%
Remittances, from abroad	322	415	28.8%	87	91	3.7%	234	324	38.2%
Remittances, from within country	151	162	7.1%	74	79	7.1%	77	83	7.1%

	Federation of BH			Republika Srpska		
	2004	2007	Change	2004	2007	Change
Public Transfers						
Pensions, all	1,028	1,422	38.3%	527	685	30.1%
Pensions, Domestic	694	1,234	77.8%	326	601	84.1%
Other Income Support, all	97	51	-47.3%	65	19	-71.0%
Private Transfers						
Remittances, all	297	411	38.3%	173	143	-17.0%
Remittances, from abroad	209	302	44.4%	111	96	-14.0%
Remittances, from within country	88	108	23.6%	62	48	-22.4%

	Federation of BH						Republika Srpska					
	Urban			Rural			Urban			Rural		
	2004	2007	Change	2004	2007	Change	2004	2007	Change	2004	2007	Change
Public Transfers												
Pensions, all	495	672	35.7%	533	750	40.8%	208	257	23.4%	318	428	34.4%
Pensions, Domestic	395	648	64.1%	299	586	96.1%	147	247	68.3%	180	354	97.0%
Other Income Support, all	45	24	-47.1%	53	28	-47.5%	20	5	-75.9%	44	14	-68.7%
Private Transfers												
Remittances, all	121	116	-4.5%	176	295	67.7%	39	44	12.2%	134	100	-25.5%
Remittances, from abroad	67	58	-13.8%	142	245	71.7%	20	25	25.4%	91	70	-22.6%
Remittances, from within country	54	58	7.0%	33	50	50.9%	19	19	-1.7%	43	29	-31.6%

Source: World Bank staff calculations from HBS 2004 and 2007.

Table Annex 2.7: Inequality Indices, BH 2004 – 2007

Year	Generalized Entropy			Gini
	GE(0)	GE(1)	GE(2)	
2004	0.2012	0.2096	0.2794	0.3465
2007	0.1859	0.1876	0.2326	0.3334

Subgroup	Gini		GE(0)		GE(1)		GE(2)	
	2004	2007	2004	2007	2004	2007	2004	2007
Urban	0.3382	0.3284	0.1915	0.1805	0.1987	0.1813	0.2600	0.2223
<i>Sarajevo</i>	0.3300	0.3140	0.1809	0.1678	0.1819	0.1687	0.2180	0.2077
<i>Other Urban</i>	0.3378	0.3243	0.1914	0.1745	0.2008	0.1752	0.2698	0.2120
Rural	0.3418	0.3180	0.1955	0.1691	0.2053	0.1696	0.2766	0.2047
Federation of BH	0.3550	0.3373	0.2130	0.1911	0.2194	0.1914	0.2924	0.2367
<i>Urban</i>	0.3383	0.3274	0.1923	0.1821	0.1979	0.1809	0.2566	0.2217
<i>Rural</i>	0.3551	0.3226	0.2126	0.1733	0.2224	0.1733	0.3055	0.2080
Republika Srpska	0.3334	0.3211	0.1834	0.1721	0.1952	0.1755	0.2600	0.2170
<i>Urban</i>	0.3424	0.3231	0.1950	0.1698	0.2066	0.1745	0.2776	0.2124
<i>Rural</i>	0.3217	0.3078	0.1700	0.1604	0.1799	0.1616	0.2328	0.1974

Table Annex 2.8: Static Inequality Decomposition, Generalized Entropy

Static Decomposition:

2004

Subgroup	Within-Group Inequality			Between-Group Inequality		
	GE(0)	GE(1)	GE(2)	GE(0)	GE(1)	GE(2)
Urban	0.1939	0.2023	0.2720	0.0072	0.0073	0.0074
Entity	0.2009	0.2094	0.2792	0.0002	0.0002	0.0002
Region	0.1931	0.2013	0.2708	0.0081	0.0083	0.0086

2007

Subgroup	Within-Group Inequality			Between-Group Inequality		
	GE(0)	GE(1)	GE(2)	GE(0)	GE(1)	GE(2)
Urban	0.1736	0.1751	0.2198	0.0123	0.0125	0.0127
Entity	0.1844	0.1861	0.2311	0.0015	0.0014	0.0014
Region	0.1706	0.1713	0.2151	0.0153	0.0162	0.0174

Note: subgroup urban refers to urban and rural; subgroup entity refers to FBH, Republika Srpska, and Brcko District; subgroup region refers to Sarajevo, other urban and rural

Table Annex 2.9: Static Inequality Decomposition, Entity Level, BH 2004-2007.

Static Decomposition:

2004

Urban-Rural	Within-Group Inequality			Between-Group Inequality		
	GE(0)	GE(1)	GE(2)	GE(0)	GE(1)	GE(2)
Federation of BH	0.2040	0.2103	0.2833	0.0090	0.0090	0.0091
Republika Srpska	0.1788	0.1906	0.2553	0.0046	0.0046	0.0047

2007

Urban-Rural	Within-Group Inequality			Between-Group Inequality		
	GE(0)	GE(1)	GE(2)	GE(0)	GE(1)	GE(2)
Federation of BH	0.1769	0.1771	0.2222	0.0141	0.0143	0.0145
Republika Srpska	0.1637	0.1669	0.2082	0.0084	0.0086	0.0088

Table Annex 2.10: Dynamic Inequality Decomposition Method

The change in GE(0) from 2004 to 2007 can be approximated by the sum of the following components:

1) Pure Inequality Effect - impact of changes within group inequality

$$\sum_{j=1}^k \bar{f}_j \Delta GE(0)_j$$

where j represents each subgroup i.e Urban, Rural, etc; and f is the population share

2) Allocation Effect (part 1) - impact of changes in population shares on within-group inequality

$$\sum_{j=1}^k \overline{GE(0)_j} \Delta f_j$$

3) Allocation Effect (part 2) - impact of changes in population shares on between-group inequality

$$\sum_{j=1}^k (\bar{\lambda}_j - \ln \bar{\lambda}_j) \Delta f_j$$

where λ is the mean income of the subgroup relative to overall income, e.g $\mu(y_j)/\mu(y)$

4) Income Effect - the contribution to $\Delta GE(0)$ attributable to relative changes in the subgroup mean incomes

$$\sum_{j=1}^k (\bar{v}_j - \bar{f}_j) \Delta \ln(\mu(y_j))$$

where v_j is the income share of each subgroup

In all the equations, Δ is a difference operator representing the difference between 2007 and 2004 values of each variable, e.g $\lambda_{rural, 2007} - \lambda_{rural, 2004}$

Also, the overbar represents a simple average between the 2007 and 2004 values of each variable, e.g $(\lambda_{rural, 2007} + \lambda_{rural, 2004})/2$

Source: Mookherjee and Shorrocks, 1982.

Table Annex 2.11: Dynamic Inequality Decomposition, 2004-2007

Dynamic Decomposition:

$\Delta GE(0)$ - Actual						-0.0153
Subgroup	Inequality effect	Allocation Effect 1	Allocation Effect 2	Income Effect	$\Delta GE(0)$ - Estimate	
urban	-0.0203	0.0000	0.0000	0.0051	-0.0153	
entity	-0.0170	0.0005	0.0000	0.0012	-0.0153	
region	-0.0223	-0.0001	0.0009	0.0064	-0.0152	

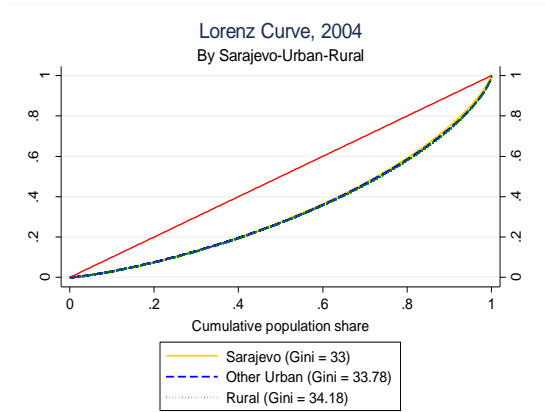
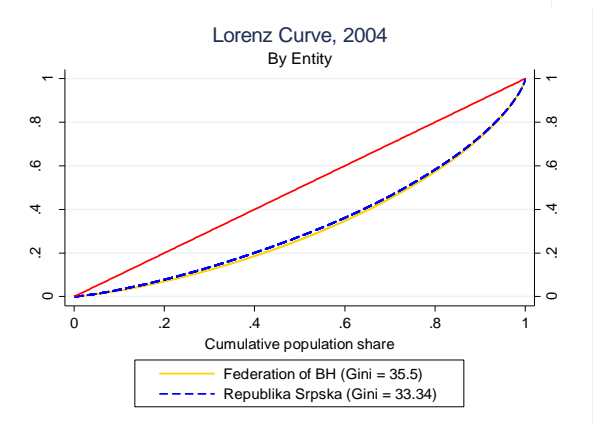
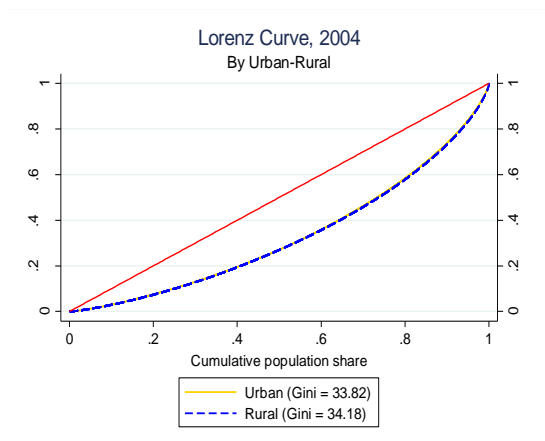
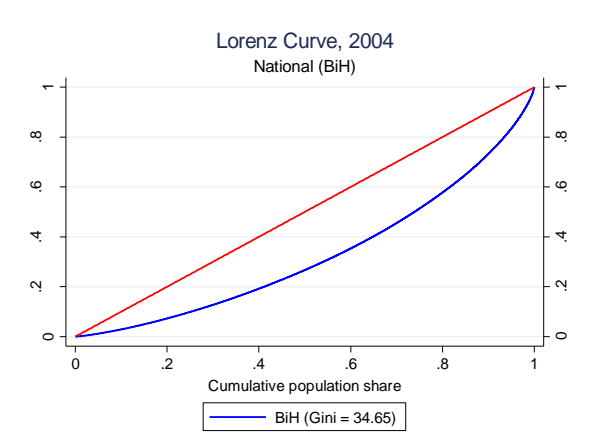
Note: subgroup urban refers to urban and rural; subgroup entity refers to FBH, Republika Srpska, and Brcko District; subgroup region refers to Sarajevo, other urban and rural

Table Annex 2.12: Dynamic Inequality Decomposition, Entity level, BH 2004-2007

Dynamic Decomposition:

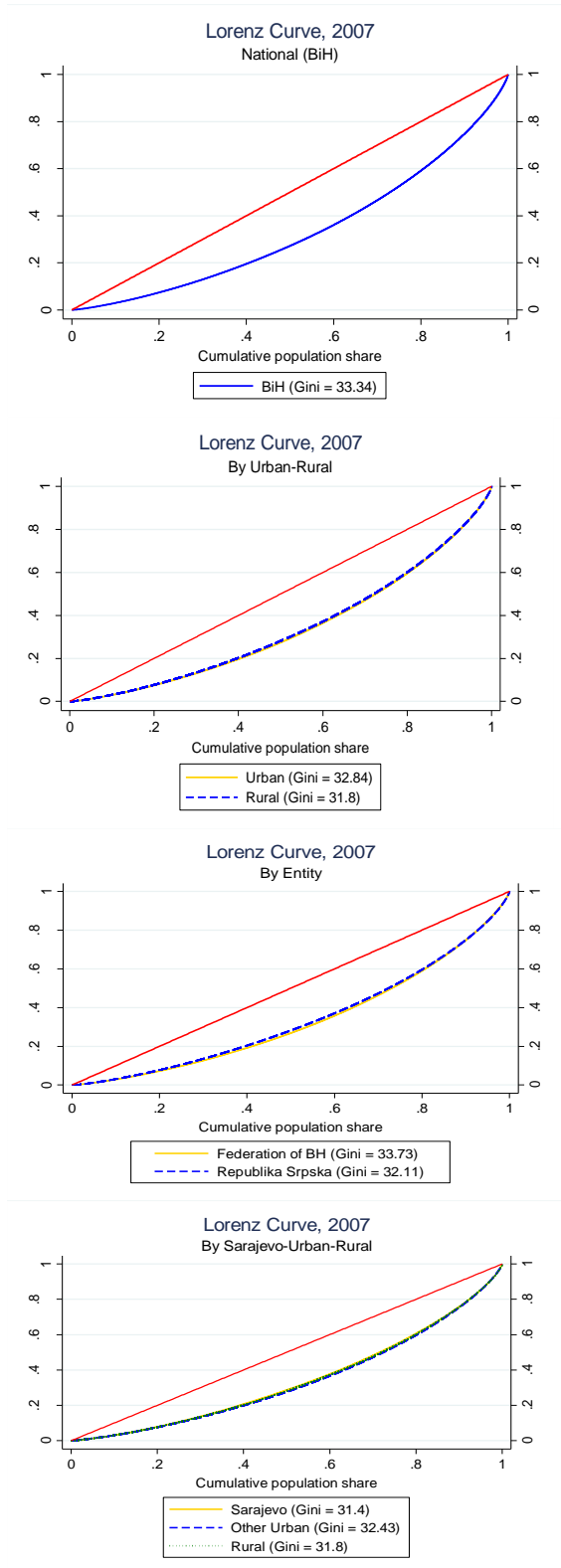
$\Delta GE(0)$ - Actual						
Federation of BH						-0.0219
Republika Srpska						-0.0113
Urban-Rural	Inequality effect	Allocation Effect 1	Allocation Effect 2	Income Effect	$\Delta GE(0)$ - Estimate	
Federation of BH	-0.0271	0.0001	-0.0001	0.0052	-0.0219	
Republika Srpska	-0.0150	-0.0001	0.0000	0.0039	-0.0113	

Figure Annex 2.1: Lorenz Curves (2004)



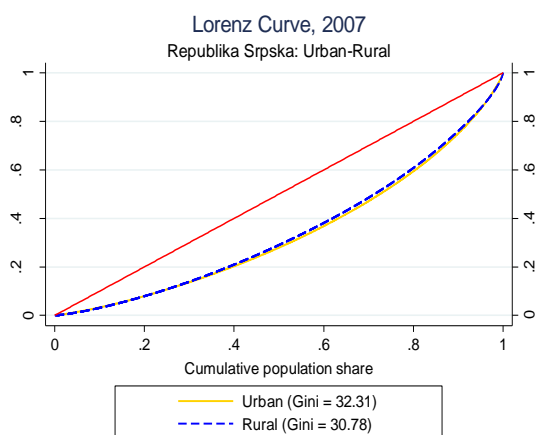
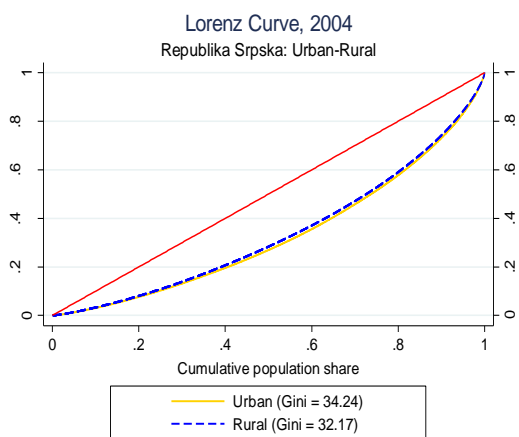
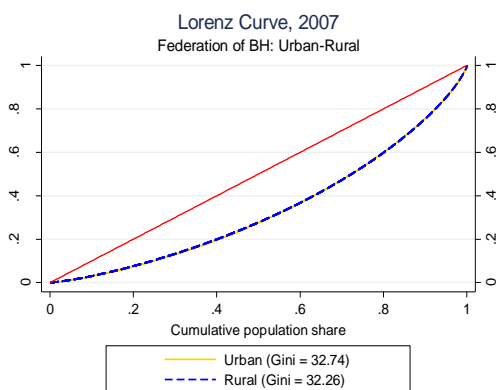
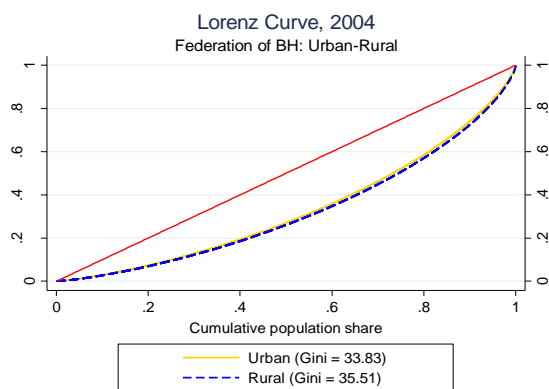
Source: Bosnia and Herzegovina Household Budget Survey, 2004.

Figure Annex 2.2: Lorenz Curves (2007)



Source: Bosnia and Herzegovina Household Budget Survey, 2007.

Figure Annex 2.3: Lorenz Curves by Entity



Source: Bosnia and Herzegovina Household Budget Survey, 2004 and 2007.

ANNEX 3: RECOMMENDATIONS FOR THE HOUSEHOLD BUDGET SURVEY QUESTIONNAIRE DESIGN

1. The World Bank poverty analysis is integrally connected to capacity building with the BH Agency of Statistics (BHAS) and relevant policy units such as the Directorate for Economic Planning (DEP). As part of the Western Balkans programmatic poverty program, the Bosnia work focuses on (a) establishing high-quality household survey systems, consisting of a core set, implemented at predictable cycles, and with sufficient information for policy making and assessment of living conditions; (b) undertaking regular and credible client-driven poverty diagnostics, to support evidence-based policy making and (c) filling clearly identifiable knowledge gaps through new analytic work.

2. In collaboration with DFID, the Western Balkans Poverty Team is assisting the development of an Extended Household Budget Survey to be implemented in 2010 in Bosnia. An Expert Group for the measurement of poverty in the West Balkans has recently completed its work and concluded that in the short to mid-term the best way ahead in West Balkans countries to increase the scope of their poverty data (in various dimensions) in line with their existing surveys is to add a "poverty module" to existing surveys. A draft poverty module has been developed by the Expert Group and BH has shown interest to add this module to their 2010 Household Budget Survey. This Extended Household Budget Survey would allow BH to provide indicators for monitoring the Millennium Development Goals, as well as to respond to the requirements that will arise from the signing of the SAA and for the preparation of the National Development Strategy and Strategy for Social Inclusion.

3. Based on the analysis of poverty in this report, three recommendations were made to the EHBS Working Group. An Extended HBS working group with 3 representatives from each of the three Statistical Institutes was established in order to incorporate policy-relevant information needed across all sectors of public service. Three recommendations were presented to the working group for consideration (1) introduction of program-level questions in the Social Protection module; (2) expand questions on school enrollment to all age groups; (3) break down income information to the individual level. All these recommendations were incorporated into the three draft modules that were piloted in November 2009.

1. Social Protection Module – Introduce program-level questions

4. It is important that the HBS reflects the latest social protection laws and programs. This will allow for monitoring of the performance of social protection and its ability to reach and help the poorer sections of the population.

5. The main improvement suggested is to disaggregate some of the current categories by the name of each specific benefit. This will help respondents answer better the questions and will make possible the analysis of each individual program. In particular, it is suggested to replace 6.8 Benefits received from Center for Social Work with each individual benefit that could be obtained from these centers. Having the current broad category, which overlaps with the current 6.7 and 6.9, is very confusing to respondents and limiting in terms of analysis (See Table Annex 3.1).

Table Annex 3.1: Proposed new HBS 2010 Social Protection Module

Proposed HBS code	HBS names in Bosnian	Suggested Translation
6.1	Boračke penzije (PIO)	Veterans' Pensions
6.2	Ratne invalidnine	Military Invalids' Benefits
6.3	Porodične penzije/ invalidnine (Boračke)	Survivor Dependent Benefits
6.4	Porodične penzije (PIO)	Family survivor pension
6.5	Starosne penzije (PIO)	Old-age pensions
6.6	Invalidske penzije (PIO)	Work disability pension
6.7	Penzije iz inostranstva	Pensions from abroad
6.8	Dodaci (za napredovanje u poslu, privremeni i trajni)	Supplements/ Bonuses (for good performance at work, permanent, temporary)
6.9	Dječiji dodaci (uključujući porodijske naknade i dopuste i dječije pakete)	Child Protection Allowance
6.10	Naknada za neratne invalide	Non-War Invalids' Benefit (NWI) – Disability Benefits
6.11	Naknada za civilne žrtve rata	Civilian Victims of War (CVW)
6.12	Naknade za nezaposlene (a) civilne (b) za demobilisane borce	Unemployment Benefits (a) civilian (b) demobilized soldiers
6.13	Socijalna pomoć (a) trajna (b) privremena	Social Assistance (a) permanent (b) one off

2. Education – Add current enrollment question for all age groups and transport to expense categories.

6. First, the current questionnaire establishes educational attainment (highest level achieved) but not enrollment. While attainment reflects the investment a household has made already, current enrollment is related to current investment. In the crisis environment, it will be particularly important to monitor whether households across all quintiles continue to make this most important human capital investment. While the enrollment rate can be established from official sources, only the HBS can make the connection between welfare status and enrollment. Including a question (or incorporating it into other questions) for enrollment for primary and secondary school (currently there's a question on enrollment for those 15 years and older), will allow for the following crucial results, which are not available from any other data source in Bosnia:

- -Enrollment rates by welfare distributions -- Do poorer kids have the same access to education?
- -Enrollment rates and remittances -- Are remittances keeping kids in school?
- -Enrollment and household demographics -- Are bigger households more constrained in sending kids to school? Are we opening opportunities for families where the adults have limited schooling?

7. Second, the average private expenditures are estimated at 9.48 percent of average per capita consumption with the 2007 HBS data. The HBS misses the single highest expenditure on education – transportation costs. With the 2001 LSMS data, private education expenditure was estimated to be around 20 percent of the average per capita consumption. Adding it will provide for monitoring of private costs related to education that households incur.

3. Income – Introduce individual level income information and address income underreporting

8. First, currently income cannot be mapped to an individual member of the household but only to the household as a whole. The current questions are:

Does the household have income? Yes=1; No=2	If YES, how many members of the household have income?	Net amount in KM – total for household
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9. Providing income by individual will likely increase the precision of income reporting as well as allow for important relationships between income and other individual characteristics (e.g. education) to be established.

10. Second, income reported in the 2007 HBS data is greatly underestimated as compared to the reported consumption, which is the best approximation of the theoretical concept of “permanent income.” We looked at the following aspects of income in order to determine if the income data was underreported:

- non-response by quintile and income source
- median and means by quintile and by income source
- income source by type of profession, sector of employment, type of contract.

11. The most telling indicator seems to be the ratio of income to consumption – if we think of consumption as a reflection of the true welfare of the household and want to estimate if income is under-reported.

12. We found that public sector employees and permanent contract employees tend to have a higher total income-to-consumption ratio (Table F1). Public sector incomes are more regular and more easily verifiable and thus more easily recalled and

reported to the HBS enumerator. Some other results remain unclear. For instance, the ratio of salary income for private sector employees is slightly higher than public sector which could reflect better wages, not necessarily better income reporting to the HBS enumerators. Overall, the quality of the income data is poor.

Table Annex 3.2.: Income/Consumption Ratio in the 2007 HBS data	
<i>Quintile</i>	
1	0.43
2	0.36
3	0.33
4	0.31
5	0.27
<i>Professional Status</i>	
employer	0.35
self-employed	0.27
employee	0.34
unpaid worker	0.27
apprentice	0.19
other	0.28
<i>Type of Work Contract or Activity</i>	
permanent	0.35
temporary with contract	0.30
temporary no contract	0.30
payment	0.27
seasonal	0.26
na	0.27
<i>Sector</i>	
public sector	0.34
private sector	0.32
mixed ownership	0.34
NGO	0.35
Total	0.33

13. Looking at the household response rates to a yes/no question of 'does your household receive income/pension/benefit' also points out the poor quality of income data. Over 90% of households report not receiving any income during the last 12 months from the following sources: income from own company, property income, and remittances (Table F2). Only 56% of households report receiving salaries at local employers in the last 12 months. On average, less than 10% of all households report receiving social insurance or social protection transfers such as war veteran's pensions, war disability pensions, work related disability pensions, pensions from abroad, child benefits, benefits from the Centre for social work, allowances and unemployment benefits.

**Table Annex 3.3: Percent of Households Reporting NO to Receiving
Income/Pension/Benefit**

Income from (full and part-time) employment:	
Salaries of employees at local employers	44%
Meal allowance and transport to and from the work at local employers	84%
Salaries of the employees at foreign employers (international employers)	98%
Allowance for living in other town and fees for management board members	100%
Other income from employment (leave pay, bonuses, severance)	94%
Income from own company, craft, agricultural holdings	67%
Property income:	
Interest from savings and dividends	100%
Rents from renting land	100%
Rents from renting residential premises	99%
Rents from renting business premises, garages, etc	100%
Rents from renting equipment, cattle, etc	100%
Remittances and receipts from abroad (except pensions)	94%
Receipts in cash from relatives, friends etc., in country	95%
Pension and social transfers:	
War veterans pensions	99%
War disability pensions	92%
Survivor pensions	87%
Old-age pensions	77%
Work related disability pensions	90%
Pensions from abroad	97%
Child benefits	94%
Benefits received from the Centre for Social Work	98%
Allowances (temporary and permanent)	100%
Unemployment benefits	100%

Source: Authors' calculations using the 2007 HBS data.

4. Introduce questions on vulnerable status (refugee/displaced/Roma) to the questionnaire

14. The HBS questionnaire currently does not collect data on the Roma and the displaced and refugees. Knowing the status of these groups can help policy-makers better target resources and assistance towards these groups. Special attention should be paid to how the questions are asked so as to truly identify these groups. In addition, a booster survey for these groups is needed. In the past LSMS rounds, these groups were not covered adequately by the LSMS sample. These groups were either too small or did not fall into the household sample frame. Qualitative data or additional targeted sampling of people in these groups will be needed to assess their situation adequately.

REFERENCES

- Ahmed, Akhter U., and Howarth E. Bouis. 2002. "Weighing What's Practical: Proxy Means Tests for Targeting Food Subsidies in Egypt." *Food Policy* 27(5-6):519-40, October-December.
- Bisogno, Marcelo, and Alberto Chong. 2001. "Foreign Aid and Poverty in Bosnia and Herzegovina: Targeting Simulations and Policy Implications." *European Economic Review* 45(4-6):1020-30, May.
- Braithwaite, Jeanine, 2003, "A scoring formula for Bosnia and Herzegovina," unpublished note (Washington: The World Bank).
- BHAS, 2008. "Gross Domestic Product by Production Approach: 2000-2007". Thematic Bulletin 10: Sarajevo, BH.
- BHAS, 2008. "Labor Force Survey: 2008". Bosnia and Herzegovina Agency for Statistics: Sarajevo, BH
- BHAS, 2009. "Persons in Paid Employment, 2009." First Releas. BHAS: Sarajevo, BH.
- Castañeda, Tarsicio, and Kathy Lindert. 2003. "Designing and Implementing Household Targeting Systems: Lessons from Latin American and the United States." Washington, D.C.: World Bank.
- Center for Policy Studies (CEPOS). 2006. "How to Distribute Monetary Benefits Targeted for Alleviation of the Effects of Introduction of VAT on the Most Vulnerable Population Categories." Center for Policy Studies (CEPOS) Working Paper. Sarajevo.
- Central Bank of Bosnia and Herzegovina. 2008. "Financial Stability Report 2007". Sarajevo, July, 2008.
- Central Bank of Bosnia and Herzegovina. 2008b. "Economic trends in BH – Annual Report 2008", Sarajevo.
- Coady, Grosh and Hoddinott, 2004. "Targeting Outcomes Redux." *World Bank Research Observer, Vol. 19, No. 1, pp. 61-85, Spring 2004.*

Datt, Gaurav & Martin Ravallion, 2002. "Is India's Economic Growth Leaving the Poor Behind?," *Journal of Economic Perspectives*, American Economic Association, vol. 16(3), pages 89-108, Summer.

de Janvry, Alain, Frederico Finan, Elisabeth Sadoulet, and Renos Vakis. 2006. "Can Conditionnal Cash Transfers Serve as Safety Nets in Keeping Children at School and from Working when Exposed to Shocks?" *Journal of Development Economics* 79(2):349–73.

EIU (Economist Intelligence Unit), 2009. "Bosnia and Herzegovina Country Report," August 2009. EIU: London.

Global Purchasing Power Parities and Real Expenditures: 2005 International Comparison Program. World Bank (2008), www.worldbank.org/data/icp

Grosh, Margaret, and E. Glinskaya, Proxy Means Testing and Social Assistance in Armenia. , World Bank, Washington, DC.

Grosh, Margaret, Ariel Fiszbein, Norbert Schady, Francisco H. G. Ferreira, Niall Keleher, Pedro Olinto, and Emmanuel Skoufias. 2009. "Conditional Cash Transfers: Reducing Present and Future Poverty." World Bank Policy Research Report 47603. Washington, D.C.

Grosh, Margaret E., and Judy L. Baker. 1995. "Proxy Means Tests for Targeting Social Programs." World Bank LSMS Working Paper No. 118. Washington, D.C.

International Comparison Program. 2009. "Global Purchasing Power Parities and Real Expenditures: 2005 International Comparison Program." <http://www.worldbank.org/data/icp>

IMF. 2009. *World Economic Outlook: Crisis and Recovery*. Washington D.C.

IMF. 2009b. *Bosnia and Herzegovina: Request for Stand-By Arrangement—Staff Report; Staff Statement; Press Release on the Executive Board Discussion; and Statement by the Executive Director for Bosnia and Herzegovina*. July 2009. IMF

Country Report No. 09/226. Washington, D.C.
<http://www.imf.org/external/pubs/ft/scr/2009/cr09226.pdf>

Kozaric, K. 2009. "Influence of the Global Financial Crisis on Bosnia and Herzegovina," Special Research Topics. Central Bank of Bosnia and Herzegovina. Sarajevo, BH.

Lindert, Kathy and others. 2007. "The Nuts and Bolts of Brazil's Bolsa Familia Program: Implementing Conditional Cash Transfers in a Decentralized Context. World Bank Working Paper Number 39853. Washington, D.C.

Lindert, Kathy. 2008. "Jobs for Brazil's Poor: Social Protection Programs and Labor Supply Impacts on the Poor in Brazil." Washington, D.C.: World Bank.

Narayan, Ambar, and Nobuo Yoshida. 2005. "Proxy Means Test for Targeting Welfare Benefits in Sri Lanka." World Bank Report No. SASPR-7. Washington, D.C.

Nguyen, Trang Van, Ramyasundaran and Emil Tesliuc, 2009. "The Redistributive Impact of Social Protection Systems in Europe and Central Asia." Work in Progress.

OECD. 2006. Stock of Foreign Labor by Nationality, from the website:
http://www.oecd.org/document/52/0,3343,en_2649_39023663_42274676_1_1_1_1,00.html

Reuters, 2009. "Bosnia metal producers seek gov't aid to survive, " June 2009. Downloaded from <http://in.reuters.com/article/rbssIndustryMaterialsUtilitiesNews/idINL321630620090603?pageNumber=3&virtualBrandChannel=0>

World Bank, 2005. Poverty in Eastern Europe and Central Asia. Washington, D.C.

World Bank, 2006. Global Economic Prospects: Economic Implications of Remittances and Migration. Washington, D.C.

World Bank, 2006b. *Growth, Poverty and Inequality: Bosnia and Herzegovina 2001-2004*. World Bank: Washington DC.

World Bank, 2007, "Implementing A Hybrid Means-Test to Identify the Poorest in Kalmykia: A Review Based on the Household Budget Survey 2006," unpublished note (Washington: The World Bank).

World Bank, 2007. Kosovo Poverty Assessment: Accelerating Inclusive Growth to Reduce Widespread Poverty. Washington, D.C.

World Bank. 2008. Doing Business Report. Washington D.C.

World Bank, 2009. Global Economic Prospects: Commodities at the Crossroads. Washington, D.C.

World Bank, 2009b. *Social Assistance Transfers in Bosnia and Herzegovina: Moving Toward a More Sustainable and Better-Targeted Safety Net*. Policy Note. Washington, D.C.

World Bank, 2009c. *Macro Risks, Micro Responses: Macroeconomic Shocks and Household Welfare In Europe and Central Asia*. Draft. Washington, D.C.

World Bank, 2009d. *Bosnia and Herzegovina: Business Development Update*. No 07/09. World Bank: Sarajevo.

World Bank, 2009e. *Remittance Brief*. DEC PROSPECTS March 2009. World Bank: Washington DC.



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