

Poverty Reduction and Shared Prosperity in Tajikistan

A Diagnostic

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Abstract

Tajikistan was one of the fastest growing countries in the Europe and Central Asia region during the last decade. The economic growth was widely shared by the population and as a result poverty (measured by the national poverty line) declined from 73 percent in 2003 to 47 percent in 2009 accompanied by falling inequality. Consumption growth of the bottom 40 percent of the population—a measure of shared prosperity proposed by the World Bank—was positive, pointing out that the

growth was shared among the less well off. This work presents a diagnostic of shared prosperity and poverty reduction in Tajikistan during 2003–2009. The paper also focuses on quantifying the main drivers of poverty reduction, shared prosperity, and intra-generational mobility (class transitions). Some of the mechanisms of poverty reduction are explored in detail. Finally, main impediments to inter-generational mobility are discussed.

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Poverty Reduction and Shared Prosperity in Tajikistan: A Diagnostic

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All PPP figures used in this paper is based in the 2008 ICP round. All Poverty rates based on the dollar-per-day measures are also based on the PPP conversions factors from the 2008 ICP round. As ICP estimates are revised, they are of five data sources that are used to compute the incidence of poverty using the “dollar a day” poverty line methodology. The use of the 2011 PPPs in the calculation of global or regional poverty estimates requires additional analysis. One issue that warrants consideration is that people who live at or below the poverty line likely have different patterns of consumption than the total population (which is the basis for the PPPs). The representation of price data in rural areas (where many of the poor live), from local markets (where the poor shop) and of poorer quality goods also warrants closer examination. DEC economists engaged in the global poverty calculations will obtain detailed data and metadata from the ICP *Global Office*, regional coordinating agencies, and participating economies in order to assess whether the new PPP estimates can be used for poverty measurement purposes, or whether adjustments will be needed. These data will take some time to acquire and assess and so DEC will not incorporate the new PPPs into the poverty measure calculations immediately. This is consistent with past practice: when the 2005 PPPs were released in 2007, DEC analyzed the PPPs in detail and made additional adjustments before incorporating them into the poverty measures two years later.”

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1. Introduction and analytical framework

1. **Tajikistan is the poorest country in the Europe and Central Asian region with GDP per capita of US\$ 2,247 in PPP terms in 2012.** The country has grown very fast during the 2000s and due to effective mitigating measures, the social impacts of the 2008-2009 world financial crisis were minimized. Poverty rates dropped from 73 percent in 2003 to 47 in 2009 using the national poverty line.¹ Tajikistan's achievement in poverty reduction during 2007-2009 (using the World Bank's Europe and Central Asia (ECA) regional daily poverty line of US\$2.5 PPP 2005) positions it in the top decile of the world performers.² Nevertheless, the level of poverty is still very high. Further poverty reduction along with improvement of living standards are priority goals for the Government of Tajikistan. There is also a growing interest in expanding the middle class in the country (Heleniak, Sulla and Rajabov, 2012). Therefore, the Government needs to understand the analytical underpinnings of poverty reduction and intra-generational mobility in Tajikistan in order to inform the future policy making agenda and sustain the path to poverty reduction.

2. **The World Bank Group has established twin goals to end extreme poverty and to promote shared prosperity.** In particular, the goals consist of the following: (i) to ensure the percentage of people living with less than \$1.25 a day to fall to no more than 3 percent globally by 2030; (ii) to foster income growth of the bottom 40 percent of the population in every country. These goals should be achieved in such a way as to be sustainable over time and across generations. While both goals focus on monetary measures of well-being, they unequivocally imply progress in non-monetary dimensions of welfare, such as education, health, nutrition, and access to essential infrastructure, as well as in enhancing voice and participation of all segments of society in economic, social, and political spheres (World Bank Group, 2013).

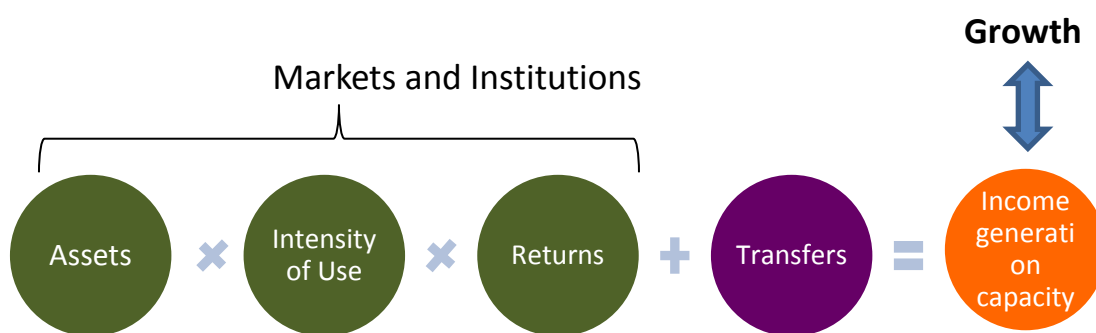
3. **Economic growth is a necessary, but not a sufficient condition for poverty reduction and shared prosperity.** The metaphorical pie should be growing and the most effective way to translate growth into higher incomes is through the generation of more and better jobs based on private sector investment. However, a growing economy is not a sufficient condition for shared prosperity and the incidence of growth is critical as well. One easy way to conceptualize the relationship between growth and equity is by using assets approach as discussed in Attanasio and Szekely (1999). According to the authors, inequality reflects skewed distribution of income earnings assets with human capital being the most important. Expanding this approach, growth incidence can be shown to depend on: (i) distribution of assets (human, capital, land); (ii) intensity of use of these assets; (iii) returns to assets; (iv) public and private transfers (figure 1.1).

¹ 2009 is the last year for official poverty estimates based on microdata. The World Bank currently works closely with the Statistical Agency of Tajikistan (TajStat) and the Ministry of Economic Development and Trade to update the poverty numbers using Household Budget Survey collected and administered by TajStat.

² See Figure A6 for further details. Benchmarking methodology is described in Newman and Azevedo (2013). Computation using Stata Ado benchmark by Minh Cong Nguen and Joao Pedro Azevedo. Source: WDI (2013) downloaded using wbopendata.

4. **The government has an important role in creating an environment conducive to equitable and sustainable growth.** In order for growth to be shared and sustained, an inclusive social contract is needed. An inclusive social contract implies a society where human and productive potential (in form of assets) is maximized regardless of exogenous circumstances such as gender, place of birth, parental background and so forth. This will make possible the progress not only with class transitions, but also in terms of positive change in social status between parents' and children's generation. Government policies can play a crucial role in maximizing human and productive capacity.³ This may include affecting intensity of use of different assets in the short-run and the distribution of assets in the long-run. The channels through which the government can do this are the following: (i) equitable, efficient and sustainable fiscal policy, (ii) fair, transparent institutions and effective provision of public goods, (iii) well-functioning and accessible markets; (iv) comprehensive and efficient risk management.

Figure 1.1: The assets approach to assess income generation capacity



Source: Shared prosperity in ECA.

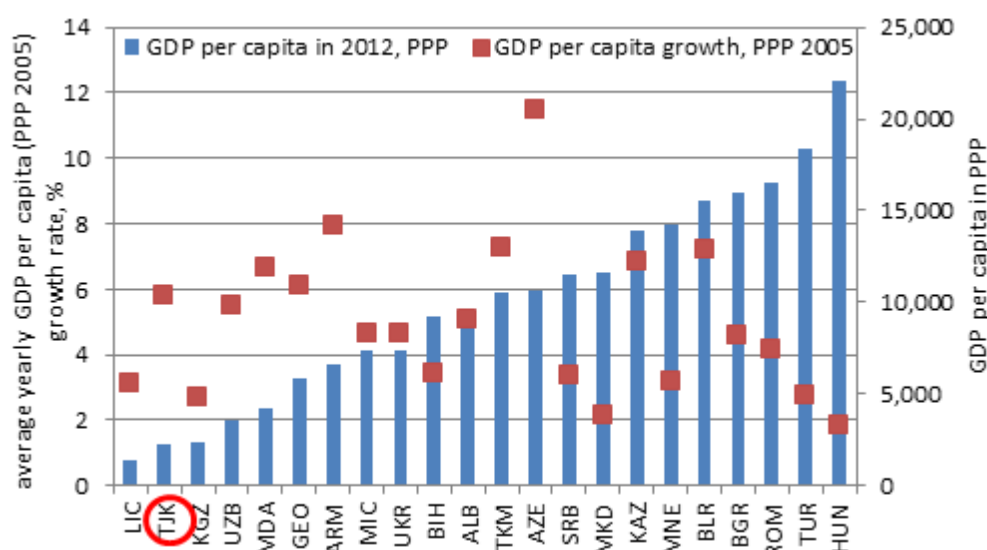
5. This paper analyzes the development of poverty reduction and increased shared prosperity in Tajikistan during the last decade and how these processes contributed to the evolution of the middle class. The report proceeds with the second and third sections which present stylized facts about poverty, shared prosperity and intra-generational mobility in Tajikistan during 2003-2009. The fourth section focuses on explaining performance during the last decade quantifying the drivers of changes in well-being in the country and unpacking some of the mechanisms behind them. The fourth section also contains a subsection discussing potential performance of Tajikistan in poverty reduction after 2009 using information on wages, employment remittances and demographics. The fifth section discusses the prospects of further poverty reduction and shared prosperity.

³See Basu (2013) for a discussion of the role policy interventions may have in achieving the twin goals.

2. Growth, shared prosperity, poverty and inequality

6. **Tajikistan managed to achieve very high rates of economic growth during 2000-2012 performing better than low income countries on average.** GDP per capita (in PPP 2005) was growing on average 6 percent yearly during (figure 2.1). This is quite high compared to the performance of other low income countries (LIC) in the world, which grew on average 3 percent and middle income countries (MIC) which grew on average 5 percent. High rates of growth helped Tajikistan to double its GDP per capita between 2002 and 2012. The financial crisis slowed down the pace of growth in 2009, but it has resumed afterwards.

Figure 2.1: GDP per capita in 2012 and GDP per capita, PPP 2005 annualized growth rates between 2000-2012 in selected countries and group of countries



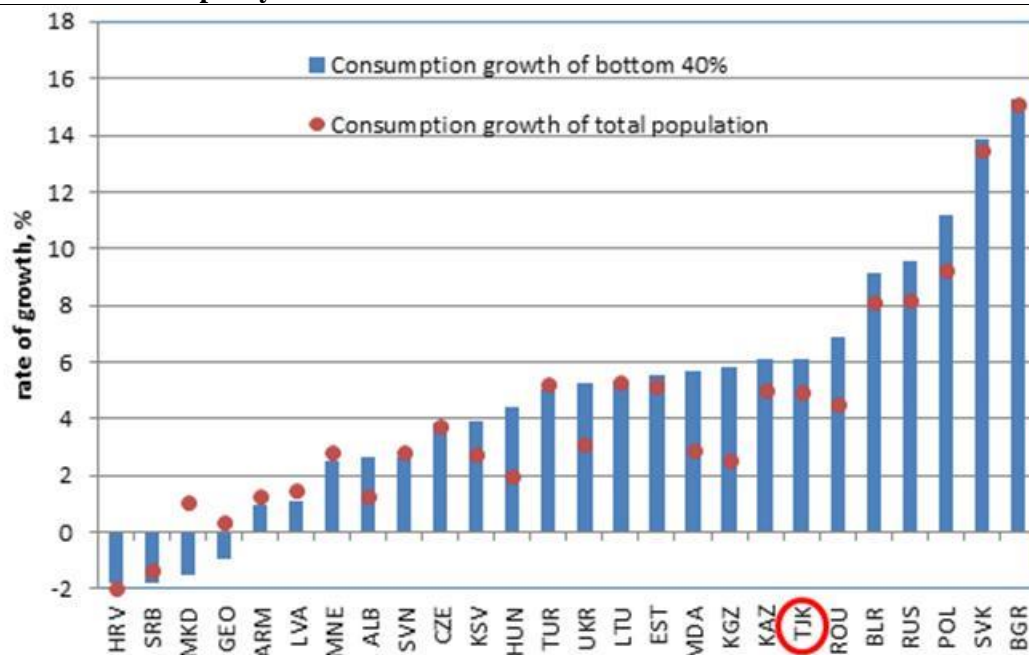
Source: Authors' calculation based on WDI.

Note: Average yearly growth is calculated using geometric mean.

7. **The benefits of the economic growth were widely shared by the population in Tajikistan.** Figure 2.2 shows the real growth of consumption for all households and for the bottom 40 percent in Tajikistan and selected ECA countries – a measure of shared prosperity proposed by the World Bank. As can be seen, consumption of the bottom 40 percent was growing 6 percent during 2004-2009 indicating that the less affluent were able to benefit from growth.

8. **Real consumption growth contributed to steady poverty reduction in Tajikistan with urban poverty being lower than rural.** Poverty rates, measured by the national poverty lines, dropped from 73 percent in 2003 to 47 percent in 2009 (figure 2.3). Extreme poverty rates, based on the food poverty line, declined even faster from 42 percent in 2003 to 18 percent in 2009. The positive trends in poverty reduction were observed in urban and rural areas, but after 2007 rural poverty reduction slowed down. As a result, the gap in poverty rates between urban and rural areas widened in 2009.

Figure 2.2: Shared Prosperity Indicator for selected ECA countries

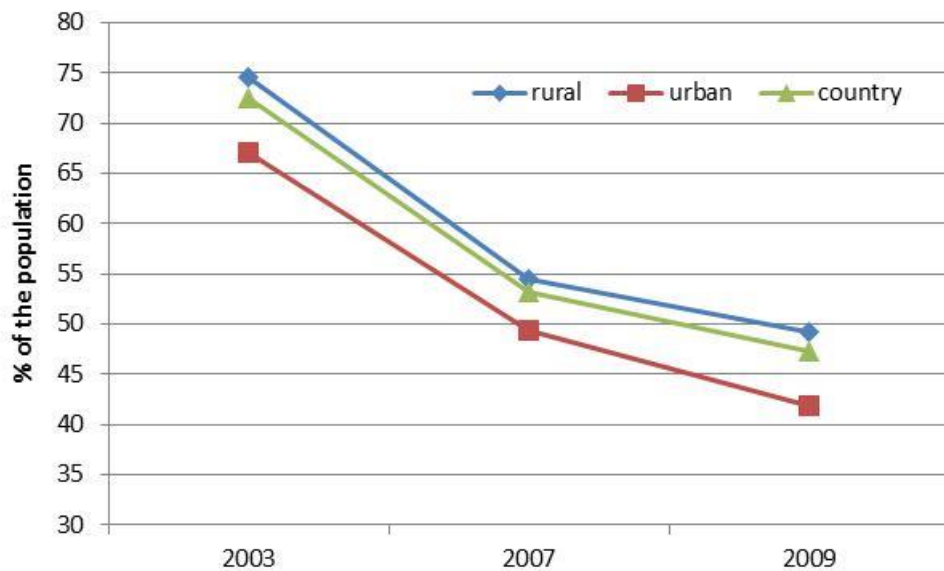


Source: Provisional World Bank data on shared prosperity, as of October 25, 2013.

Note: Welfare aggregate is consumption per capita including health, durables and rent. Geometric mean is used to calculate average growth rate.

9. **Poverty reduction was observed across all regions.** The poorest regions in 2003 were the Gorno-Badakhshan Autonomous Oblast (GBAO) and Khatlon (figure 2.4). However, due to the population size absolute majority of poor people were concentrated in Sogd and Khatlon (figure 2.5). Over the following 6 years, poverty rates dropped substantially in all regions, but Khatlon and GBAO still remain the poorest regions in Tajikistan.

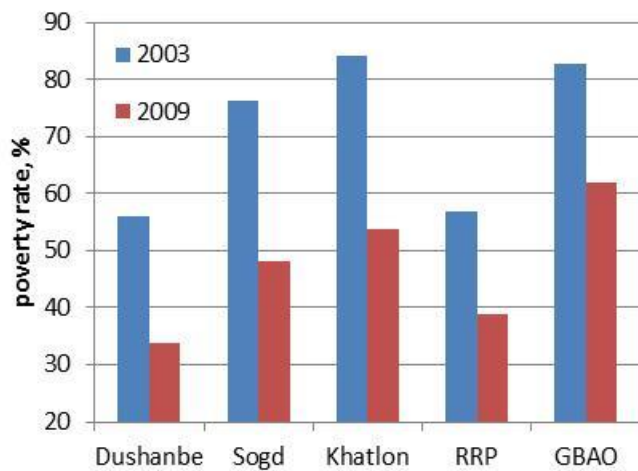
Figure 2.3: Poverty rates by residence, 2003, 2007 and 2009



Source: Authors' calculation based on TLSS.

Notes: Poverty line is 162.1 somoni per month. Welfare aggregates were deflated to be in prices of 2009.

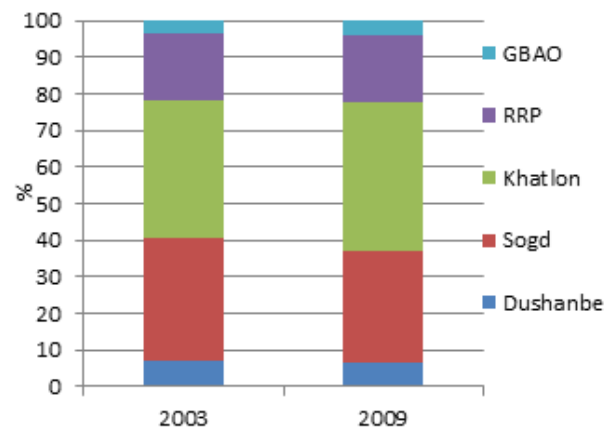
Figure 2.4: Regional poverty rate in 2003, 2007 and 2009



Source: Authors' calculation based on TLSS.

Notes: Poverty line is 162.1 somoni per month. Welfare aggregates were deflated to be in prices of 2009. The most recent poverty rate for Tajikistan based on micro data is for 2009.

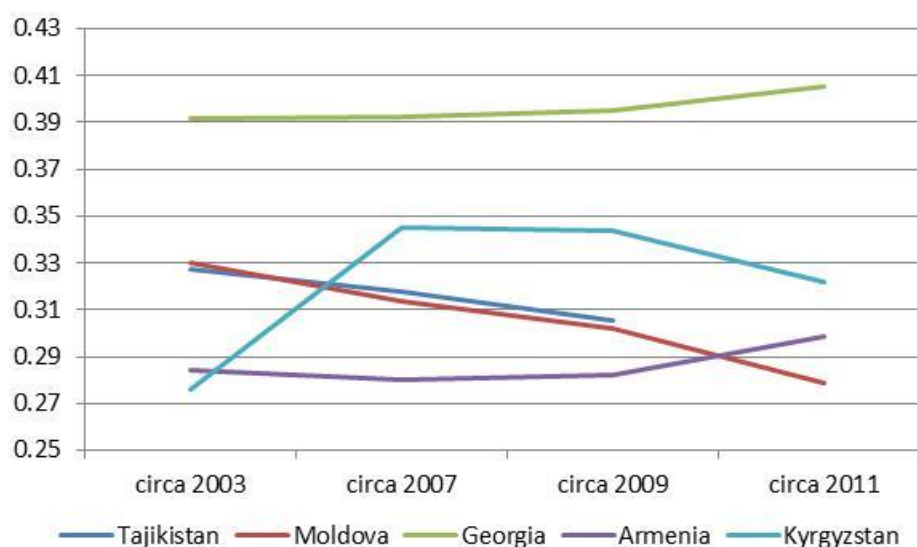
Figure 2.5: Regional structure of poor population, 2003 and 2009



10. **Inequality was not very high in Tajikistan and was falling gradually.** Inequality in consumption per capita, measured by the Gini coefficient, declined in Tajikistan from 0.33 to 0.31 between 2003 and 2009 respectively. Compared to other poor ECA countries, inequality is not high in

Tajikistan. It is on a comparable level with Moldova, and is lower than what is observed in the Kyrgyz Republic and Georgia (figure 2.6).

Figure 2.6: Inequality in selected ECA countries measured by Gini



Source: Authors' calculations based on ECAPOV data. Welfare aggregate is consumption per capita.

3. Intra-generational (class) mobility

11. **Robust economic growth and steady decline in poverty rates led to the emergence of the middle-class in Tajikistan.** As can be seen from table 3.1, the lower middle class, defined as population with monthly consumption between 230 and 294 somoni, increased from 1 percent to 13 percent in 2009. The upper middle class defined as population with consumption higher than 294 somoni followed the same pattern.⁴ People from the middle class have better education (in most cases tertiary) and are more likely to live in the capital or other urban areas. They are highly qualified specialists, senior and mid-level managers and civil servants and they tend to work in industry, trade and transport sectors (Heleniuk, Sulla and Rajabov, 2012).

Table 3.1: The middle class over time in Tajikistan, %

	1999	2003	2007	2009
Poor	93	73	53	47
Vulnerable	6	15	27	27
Middle low	1	6	11	13
Middle high	1	6	9	13
Total	100	100	100	100

Source: Heleniuk, Sulla and Rajabov (2012).

⁴ Alternatively, the lower middle class has probability of less than 30 percent of falling to poverty. The higher middle class has 10 percent probability of falling into poverty.

12. **The growing middle class, however, is the most unstable group and the people who comprise it have non-negligible chances of moving to the vulnerable or poor groups.** Table 3.2 shows a mobility matrix between different classes during 2003-2009 (upper bound). In particular, 39 percent of the poor in 2003 moved to the vulnerable and 13 percent moved to the middle class in 2009. About 24 percent of the vulnerable in 2003 moved to the middle class in 2009. About 16 percent of the middle class fell in to poverty and about 55 percent moved to the vulnerable group. This makes the middle class very unstable contrary to expectations that it comprises the most stable strata of society.

Table 3.2: Mobility matrix, 2003-2009, upper bound

	Origin	Percentage moving to 2009			
	(In 2003)	Poor	Vulnerable	Middle Class	Total
Poor	72	48	39	13	100
Vulnerable	22	29	47	24	100
Middle class	6	16	55	30	100
Total	100	44	41	16	100

Source: Authors' calculations based on ECAPOV data.

Notes: transition matrix is based on synthetic panel for 2003-2009.⁵ Threshold for poor is 162 somoni and for middle class 294 somoni per month. Explanatory variables include year of birth cohort, number of children, education of the head of household, rural/urban and regional dummies, and different interactions between these variables and means are the regional level. Sample: heads of household 25-55 years of age. Welfare aggregate is as used to calculate national poverty rates.

13. **Upward mobility is much stronger in urban areas, while volatility of class transitions is more pronounced in rural areas.** Tables 3.3ab contain mobility matrixes for urban and rural areas. Consistent with higher poverty in rural areas, there are lower chances to be in the middle class for rural residents. Moreover, rural areas are characterized by much higher volatility than urban areas. For example, in urban areas only 7 percent of the middle class fell into poverty in 2009, while in rural areas this ratio is more than 3 times higher. This is consistent with - higher volatility of earnings in rural areas that are strongly dependent on seasonal and climate-dependent agricultural activities.

Table 3.3a: Mobility matrix for urban areas, 2003-2009, lower bound

	Origin	Percentage moving to 2011			
	(In 2002)	Poor	Vulnerable	Middle Class	Total
Poor	66	43	41	16	100
Vulnerable	25	25	43	32	100
Middle class	9	7	48	46	100
Total	100	37	42	21	100

Table 3.3b: Mobility matrix for rural areas, 2003-2009, upper bound

	Origin	Percentage moving to 2011			
	(In 2002)	Poor	Vulnerable	Middle Class	Total
Poor	74	51	38	11	100
Vulnerable	21	32	49	19	100
Middle class	5	25	62	13	100

⁵ Brief non-technical explanation of the synthetic panel methodology is provided in box 2 in annex.

Total	100	47	40	13	100
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Source: Authors' calculations based on ECAPOV data.

Notes: transition matrix is based on synthetic panel for 2003-2009. Threshold for poor is 162 somoni and for middle class 294 somoni per month. Explanatory variables include year of birth cohort, number of children, education of the head of household, rural/urban and regional dummies, and different interactions between these variables and means are the regional level. Sample: heads of household 25-55 years of age. Welfare aggregate is as used to calculate national poverty rates.

14. **Consistent welfare improvement is observed across the whole population in spite of the churning in the bottom 40 percent**⁶. From 8 to 49 percent of the population (depending on lower or upper bound) in the bottom 40 shifted upwards to the top 60 in 2009.⁷ From 5 to 33 percent of the top 60 shifted down to bottom 40 in 2009 (tables 3.4ab). In spite of a churning, overall positive mobility prevails as can be clearly seen from figure 3.1. Average consumption of graduates from the top 60 percent of the population in 2003 was still higher than the average consumption of entrants to the top 60 in 2009. Coupled with a very high growth of consumption per capita in households staying in the bottom 40 percent in two years, overall mobility was strongly upward moving.

Table 3.4: Mobility matrix for the bottom 40 and top 60 percent of the population

a) Upper bound				b) Lower bound			
	2009				2009		
2003	Top 60	Bottom 40	Total	2003	Top 60	Bottom 40	Total
Top 60	41	20	60	Top 60	57	3	60
Bottom 40	19	20	40	Bottom 40	3	37	40
Total	60	40	100	Total	60	40	100

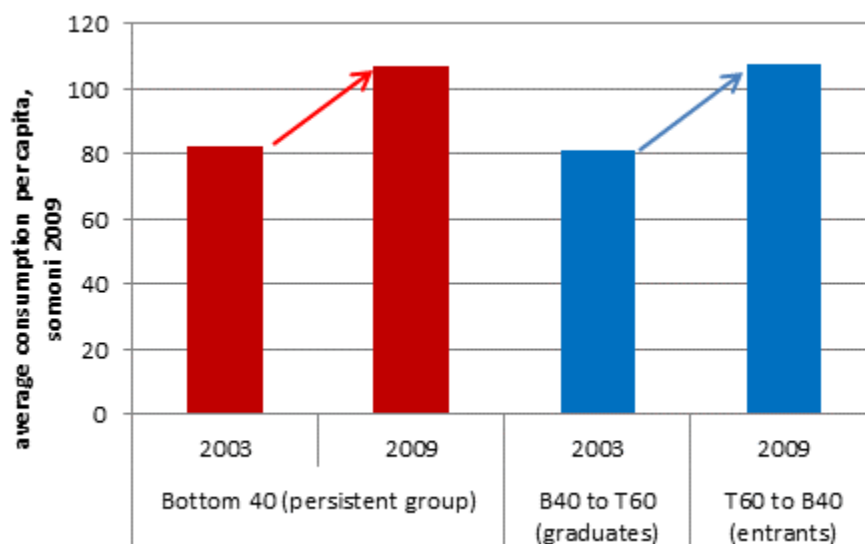
Source: Authors' calculations based on ECAPOV data.

Notes: transition matrix is based on synthetic panel for 2003-2009. Explanatory variables include year of birth cohort, number of children, education of the head of household, rural/urban and regional dummies, and different interactions between these variables and means are the regional level. Sample: heads of household 25-55 years of age. Welfare aggregate is as used to calculate national poverty rates.

⁶ Detailed explanation of churning in the bottom 40 percent is provided in box 1 in annex.

⁷ 48 percent were obtained by dividing 19 by 40 in table 3.4a, 8 percent were obtained by dividing 3 by 40 in table 3.4b.

Figure 3.1: Average consumption per capita in different groups in the bottom 40 percent of the population, upper bound



Source: Authors' calculations based on ECAPOV data.

Notes: transition matrix is based on synthetic panel for 2003-2009. Explanatory variables include year of birth cohort, number of children, education of the head of household, rural/urban and regional dummies, and different interactions between these variables and means are the regional level. Sample: heads of household 25-55 years of age. Welfare aggregate is as used to calculate national poverty rates.

15. **There are some differences between the population in bottom 40 and top 60 in household and individual level characteristics.** As shown in tables A3 and A4, households from the bottom 40 have larger household size and more children. They are more likely to live in rural areas in Khatlon and Sogd regions. Heads of household in the bottom 40 are less educated, but there is no difference in employment status between them and heads of household from the top 60. There were no drastic changes in household or individual characteristics of the population in the bottom 40 and the top 60 during 2003-2009, except a decline in dependency ratios for both groups.

4. Determinants of poverty reduction, inequality and intra-generational mobility

16. This section analyzes the drivers of poverty reduction and intra-generational mobility in order to quantify the contribution of different factors to changes in welfare and inequality. Afterwards, the mechanisms of change in the labor market are explored in detail.

4.1 Drivers of poverty reduction

17. **Labor earnings and remittances were the main driving forces behind poverty reduction during 2003-2009.** Income and consumption poverty had common patterns in Tajikistan (figure A1 in annex). Income poverty decomposition is used in this paper to quantify the role different factors played in poverty reduction. As shown in figure 4.1, total income poverty reduction was about 36 percentage points

during 2003-2009. Labor market gains, namely labor earnings, accounted for 21 percentage points of this total, while creation of new employment opportunities contributed minimally to poverty reduction=. Among other income sources, remittances played a crucial role accounting for 8 percentage points of poverty reduction. These results are not surprising given importance of labor earnings in total income of households and the real growth of labor earnings, pensions and remittances during 2003-2009 (tables A1 and A2). Other factors such as the demographic dividend⁸, pensions and social assistance were also poverty decreasing, but their role was rather minor.

18. **Remittances and labor earnings are more important for the welfare improvement of the middle class, while employment and pensions are more important for the poor/vulnerable and the bottom 40 percent of the population.** Figures 4.3 and 4.4 demonstrate the role each factor plays in welfare changes across different classes and the bottom 40 percent of the population. The middle class benefited more from the labor earnings and remittances in relative terms than the poor/vulnerable and the bottom 40. In contrast, employment and pensions were more important for the poor and the vulnerable as well as for the bottom 40 percent of the population.

19. **Employment played the most important role for inequality reduction, while remittances had a neutral or even a dis-equalizing effect.** Decomposing changes in income per capita Gini shows that all factors, except remittances, were associated with lower inequality (figure 4.2). Interestingly, employment played a minimal role in poverty reduction, but had the strongest equalizing impact which is in line with the higher role of employment in improving the wellbeing of the poor and vulnerable. Remittances had a dis-equalizing effect and this is consistent with their high role in welfare improvement of the middle class. This may be a result of costs international migrants have to incur and which make international migration a difficult option for the poorest households.

Figure 4.1: Income poverty decomposition, 2003-2009

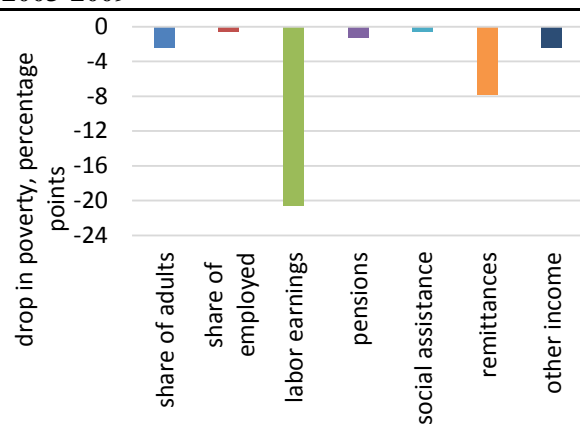
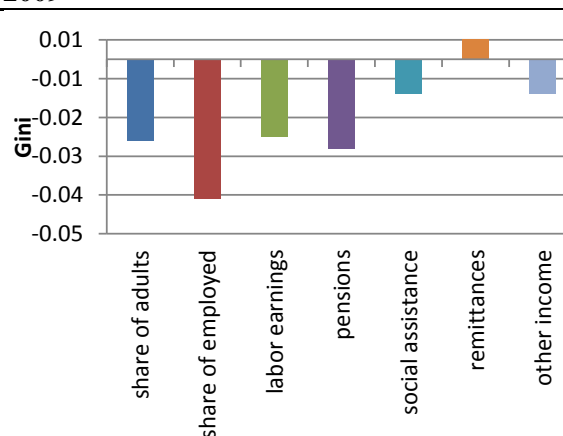


Figure 4.2: Income Gini decomposition, 2003-2009



Source: Authors' calculation based on ECAPOV data.
Notes: Poverty line is 2.5 USD/PPP per day. Welfare aggregate is income per capita.

Source: Authors' calculation based on ECAPOV data.
Notes: Poverty line is 2.5 USD/PPP per day. Welfare aggregate is income per capita.

⁸ Demographic dividend is reflected by the share of adults in income decomposition.

20. **The drivers of poverty reduction differ slightly across urban and rural areas.** Thus, labor market gains were more beneficial for urban rather than rural residents (figure 4.5). In particular, employment did not play any role for poverty reduction in rural areas and the role of labor earnings was higher in urban areas compared to rural ones. In contrast, remittances played a more important role for rural residents. In particular, remittances were responsible for 24 percent of total income poverty reduction in rural areas and only for 18 percent in urban areas.

Figure 4.3: Income poverty decomposition by classes, 2003-2009

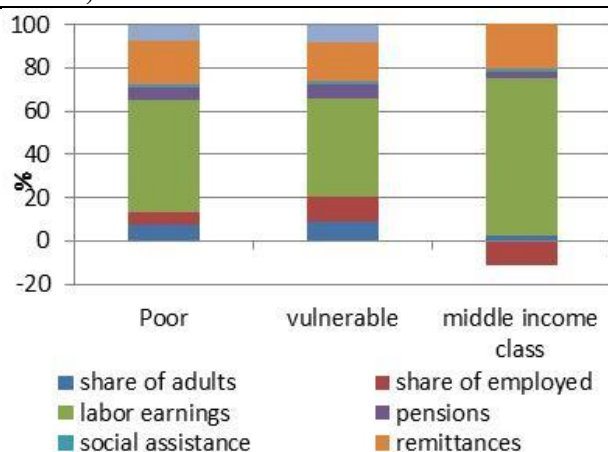
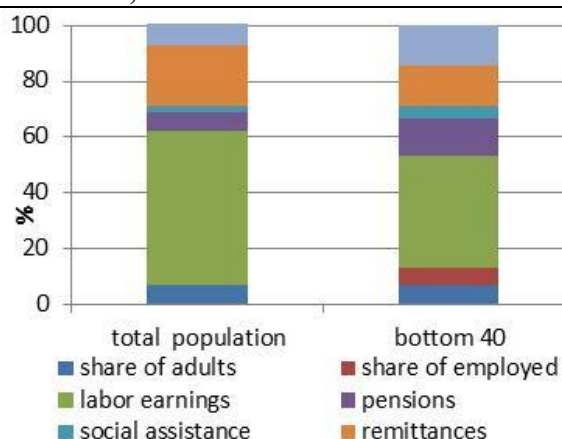


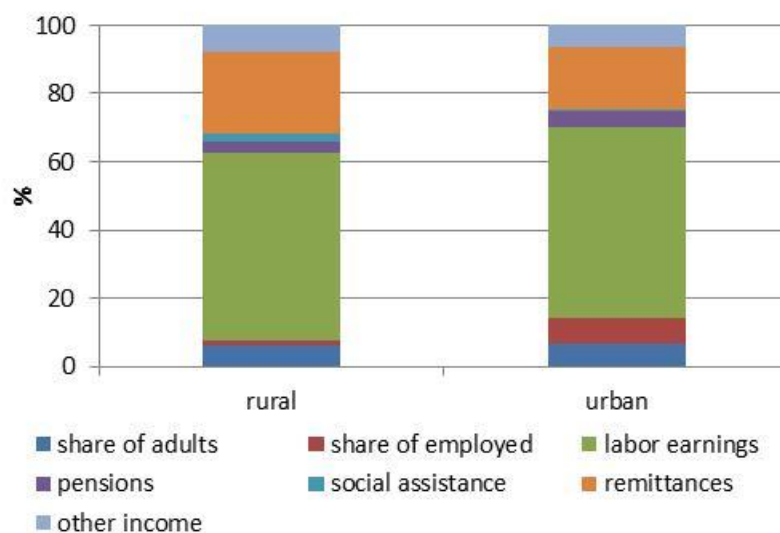
Figure 4.4: Source of income growth for the bottom 40, 2003-2009



Source: Authors' calculation based on ECAPOV data.
Notes: Poverty line is 2.5 USD/PPP per day. Welfare aggregate is income per capita.

Source: Authors' calculation based on ECAPOV data.
Notes: Poverty line is 2.5 USD/PPP per day. Welfare aggregate is income per capita.

Figure 4.5: Income poverty decomposition across residence, 2003-2009



Source: Authors' calculation based on ECAPOV data.
Notes: Poverty line is 2.5 USD/PPP per day. Welfare aggregate is income per capita.

21. **Women's role in poverty reduction was lagging behind men's.** Figures 4.6 show how different factors contributed to poverty reduction across gender. There is a huge gender gap in favor of men in contribution of labor earnings to poverty reduction. However, the gap in labor earnings is reversed in favor of women if inequality is considered (figure 4.7). Namely, female labor earnings were slightly inequality decreasing, while male labor earnings were inequality increasing. This means the poorest women benefited from the increase in labor earnings.

Figure 4.6: Income poverty decomposition by gender, 2003-2009

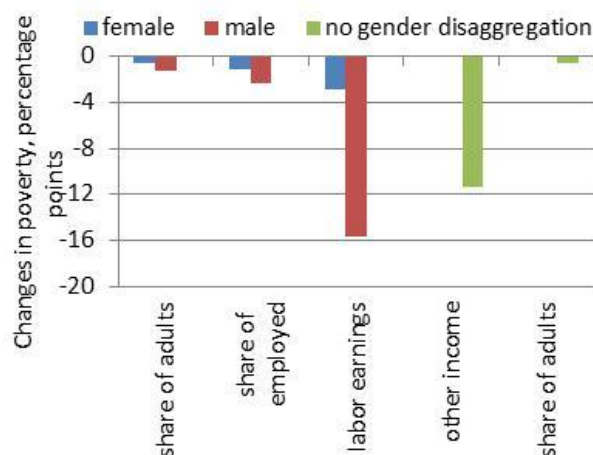
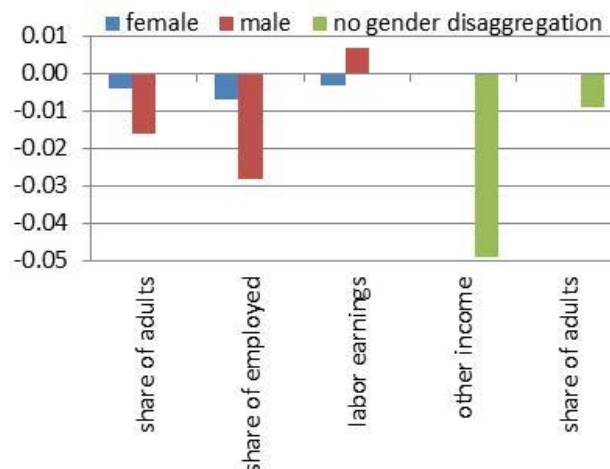


Figure 4.7: Gini decomposition by gender



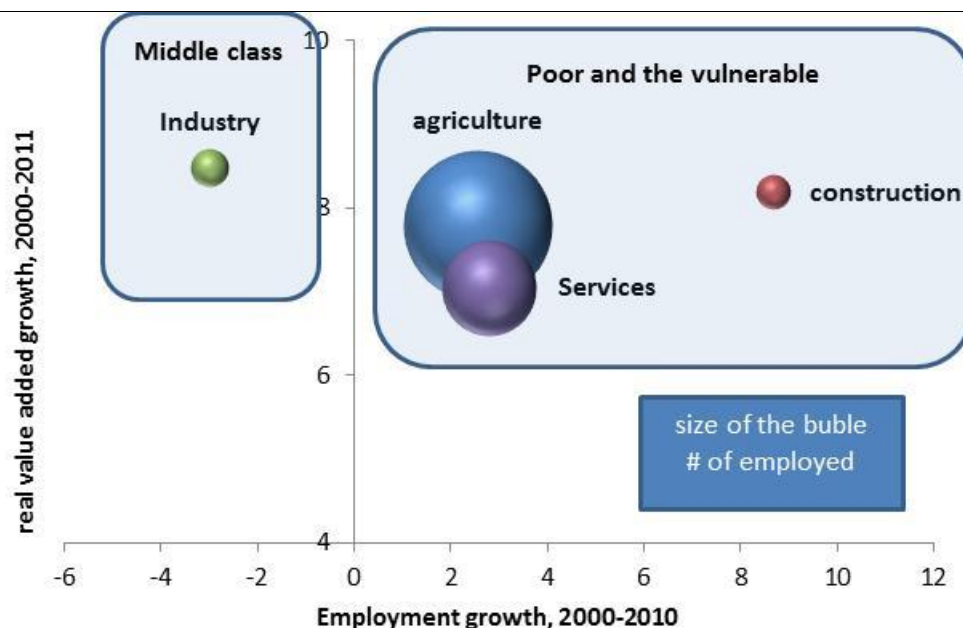
Source: Authors' calculation based on ECAPOV data.

Notes: Poverty line is 2.5 USD/PPP per day. Welfare aggregate is income per capita. Other income includes remittances, pensions, social assistance and other income.

4.2 Mechanisms of poverty reduction in the labor market

22. **Robust economic growth in Tajikistan was observed in all sectors of the economy, but it was not accompanied by comparable employment growth.** As shown in figure 4.8, all economic sectors grew at around 7 percent during the last decade. However, employment growth was not observed in industry and was rather modest in the two largest sectors including agriculture and services. The highest employment growth was observed in the small construction sector, which experienced more than 8 percent employment growth between 2000 and 2010. Modest overall growth in employment could explain its limited contribution to poverty reduction, as shown in the previous section. At the same time, lower employment in industry and higher employment in low-skilled construction and agriculture can potentially explain the reduction in inequality stemming from the employment gains.

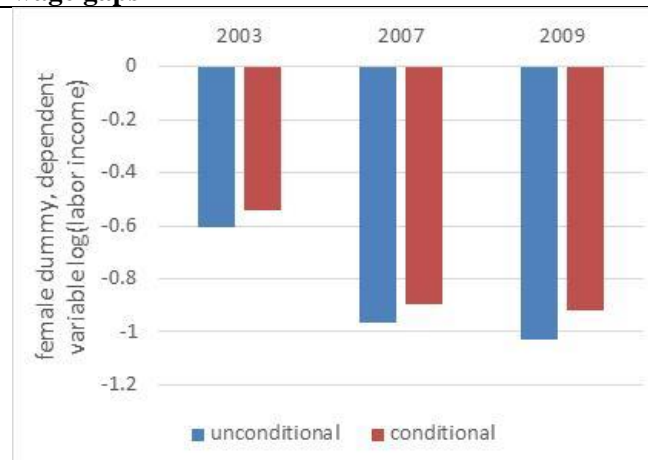
Figure 4.8: Employment creation and economic growth by sectors



Source: Authors' calculation based on the WDI and LDB data.

23. **No improvements were observed in the labor market with regards to wage and employment gender gaps.** As shown in figures 4.9 and 4.10, employment rates were not increasing and the gender gap in favor of men was widening based on the TLSS data. Thus, the unconditional wage gender gap increased from 60 percent in 2003 to 91 percent in 2009. Female workers have lower skills than male workers as well, as measured by education level. In particular, only 10 percent of female workers had tertiary education in 2009, while for men this ratio was twice as high in the same year. On a positive side, there was a slight increase in the supply skills of men. Thus, the share of male workers with tertiary education increased from 19 to 22 percent between 2003-2009 years (figures A2 and A3 in annex).

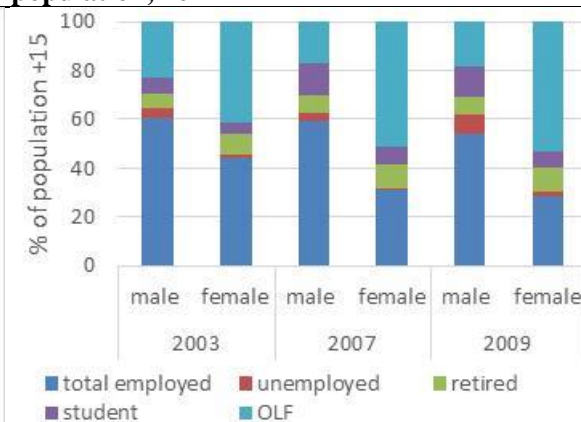
Figure 4.9: Conditional and unconditional gender wage gaps



Source: Authors' calculation based on ECAPOV.

Note: Controls for conditional wage gap includes education and experience dummies. Gender dummy takes 1 for female. All

Figure 4.10: Labor force status in %, population, 16+



Source: Authors' calculation based on ECAPOV.

coefficients are significant at 1% level.

24. **The positive contribution to poverty reduction seems to be mostly associated with increasing returns to experience.** Further analysis of labor earnings, the largest contributing factor to poverty reduction, suggests that improvement comes mostly from higher returns to experience and this trend is especially pronounced for male workers (figures 4.11ab). One of potential explanations of higher returns to experience for men may be related to return migration when migrants use skills developed abroad. In comparison, returns to education increased only slightly across the population, and mostly for female workers with postgraduate education (figure 4.12ab).

Figure 4.11: Returns to education in 2003, 2007 and 2009 across gender

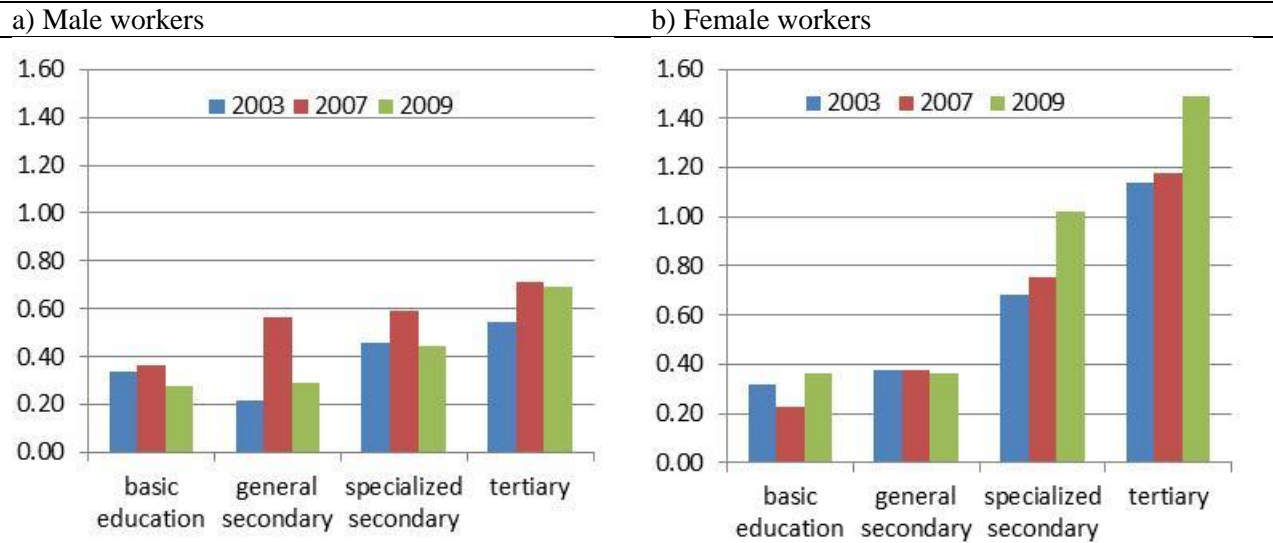
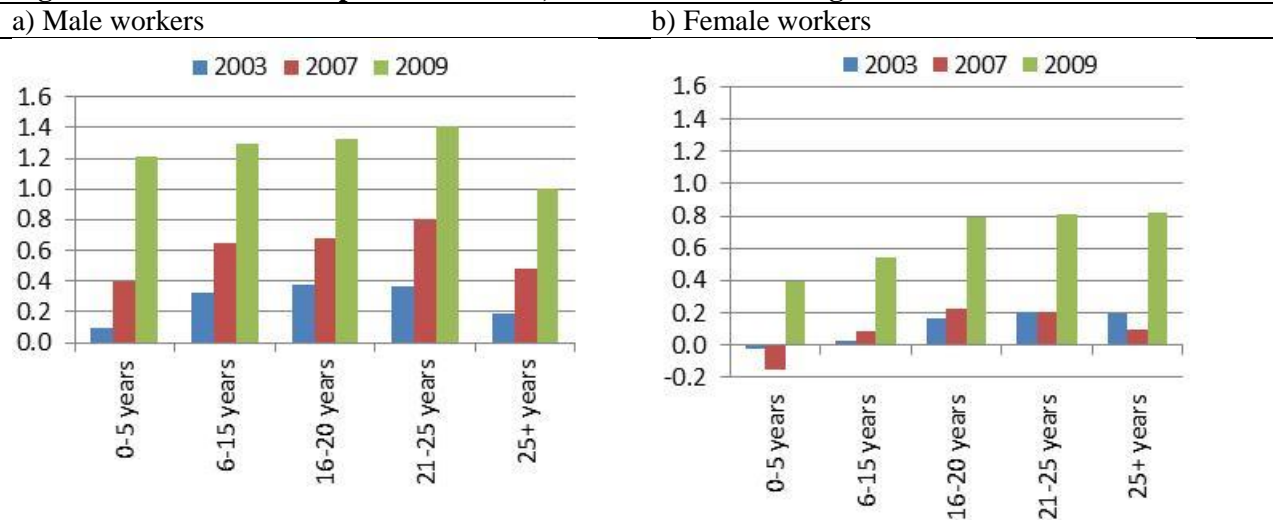


Figure 4.12: Returns to experience in 2003, 2007 and 2009 across gender



Source: Authors' calculation based on ECAPOV.

Note: primary and less is the base category for returns to education. No experience is the base for returns to experience

4.3 Prospects for poverty reduction after 2009

25. We showed in previous sections that high rates of economic growth contributed positively to poverty reduction and shared prosperity in Tajikistan during 2003-2009. Labor earnings and remittances were the main driving forces behind welfare gains during this period. Given that comparable poverty rates are not available from 2009 onwards this section will show changes in real wages, remittances and demographics during 2009-2013 and will discuss how these changes could potentially affect the wellbeing in Tajikistan.

26. **Wages grew in real terms after 2009.** Real wages were growing fast after 2009. Average seasonally adjusted wage for the whole economy doubled during 2009-2013 period (figure 4.13). Minimum wage was also growing during the considered period. In particular, it has increased by three times. However, its size is comparable only to average wages in agricultural sector (figure 4.14). Average wages in other sectors were well above the minimum wage. This may signal that minimum wage was only binding in wage employment in the agricultural sector and not everywhere else (further analysis is needed to better understand the role of minimum wage in low skilled occupations as well as a signal device to the informal sector). As shown in figure 4.16, sharp increase in agricultural wages may be related to a substantial increase in minimum wage in 2012. Overall, the highest wages were observed in the construction sector, followed by manufacturing and services.

Figure 4.13: Monthly real wage index (2009=1) by economic sectors during 2009-2013

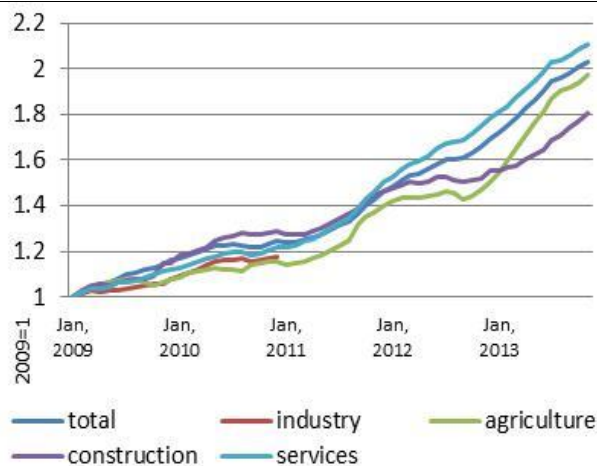
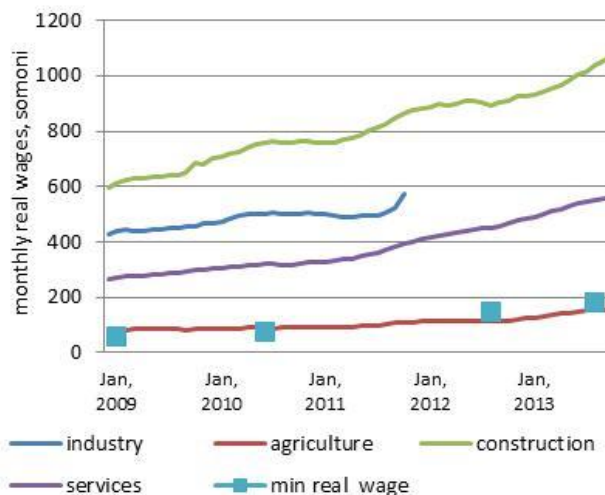


Figure 4.14: Monthly real wages by economic sectors and real minimum wage during 2009-2013



Source: TajStat, authors' calculation.

Notes: Nominal monthly wages by sectors were deflated using CPI and seasonally adjusted using 12 month moving average. Wages for industry are given only for 2009-2010 years.

27. There was an increase in the number of employed population in Tajikistan during 2009-2012 by 73,000. Most of these jobs were created in the largest agricultural sector with lowest, but exponentially

growing average wages. Jobs were also created in other much better paid sectors, such as construction and services sectors. The only sector where employment shrank was industry (table 4.1). The number of economically active population, that includes employed and officially registered unemployed, in November 2013, stood at 2,26 million, of which 97.5% are employed in the economy and 2.5% have the official status of unemployed. While 2.5% reflects the situation only in the registered unemployment market, and is way far from the real situation with unemployment, TajStat staff estimate that the real unemployment is 4-5 times higher than the registered.

Table 4.1: Employment in 2009 and 2012 by economic sectors

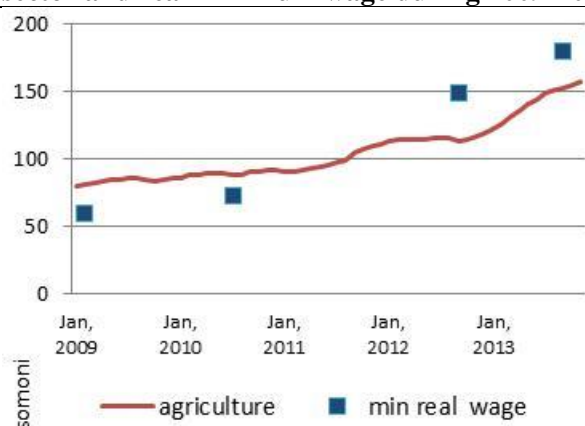
	2009	2012	2009	2012
	Thousand people		%	
Agriculture	1468	1520	66	66
Industry	104	95	5	4
Construction	65	70	3	3
Services	582	607	26	26
Total	2219	2292	100	100

Source: TajStat.

Notes: There was a change in classification of sectors after 2010 so the results should be treated cautiously.

28. **Remittances demonstrated high growth during 2009-2012.** Another important determinant of poverty reduction during 2003-2009, namely remittances, was also growing during 2009-2012. In particular, the share of remittance in GDP grew from 35 percent in 2009 to 52 percent in 2012 (figure 5). This could positively contribute to poverty reduction, but also increase inequality since international migration option is not necessarily accessible to the poorest population.

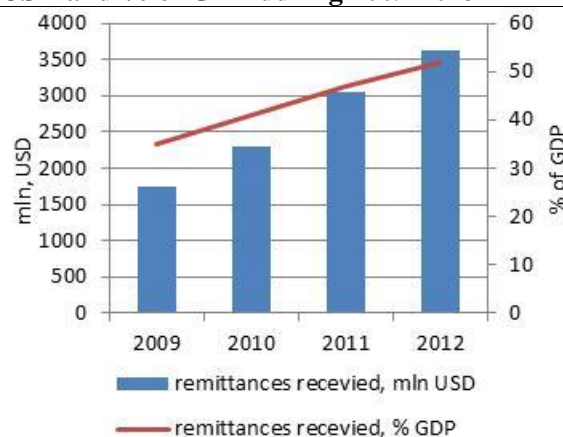
Figure 4.15: Monthly real wages in agricultural sector and real minimum wage during 2009-2013



Source: TajStat, authors' calculation.

Notes: Nominal monthly wage was deflated using CPI and seasonally adjusted using 12 month moving average.

Figure 4.16: Remittances received in mln. USD and % of GDP during 2009-2013

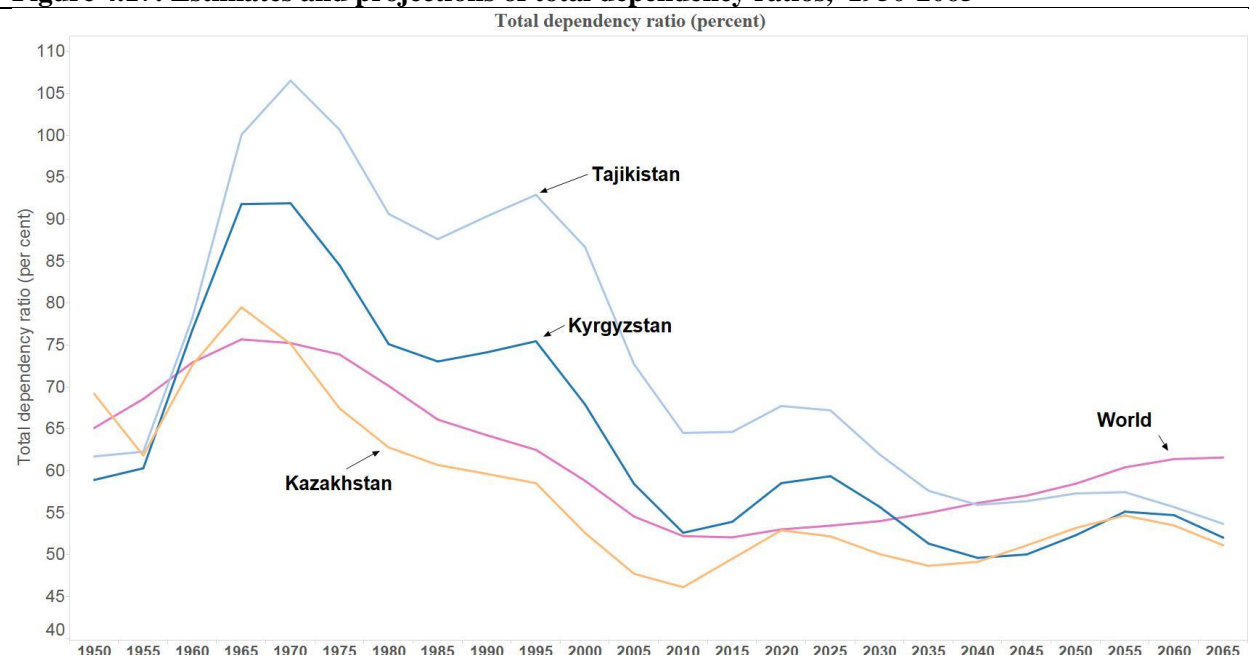


Source: WDI.

29. **Benefits from the demographics will not be available next 15 years.** As was shown in figure 4.1, increasing share of adult population contributed to poverty reduction during 2003-2009. This is consistent with a declining dependency ratio during 1995-2010 in figure 4.17. However, the situation

becomes different after 2012 and the dependency ratio will be growing till 2025. Therefore, positive impact of demographics on poverty reduction is not expected at least until 2025.

Figure 4.17: Estimates and projections of total dependency ratios, 1950-2065



Source: United Nations, Department of Economic and Social Affairs, Population Division (2013): World Population Prospects: The 2012 Revision. New York.

Note: The total dependency ratio is the ratio of the sum of the population aged 0-19 and that aged 65+ to the population aged 20-64.

30. Overall, increase in real wages, stability in the labor market accompanied by the fast growth of incoming remittances may signal about further improvement of wellbeing in Tajikistan during 2009-2013 years, but next section discusses the issues Tajikistan may face to ensure further poverty reduction.

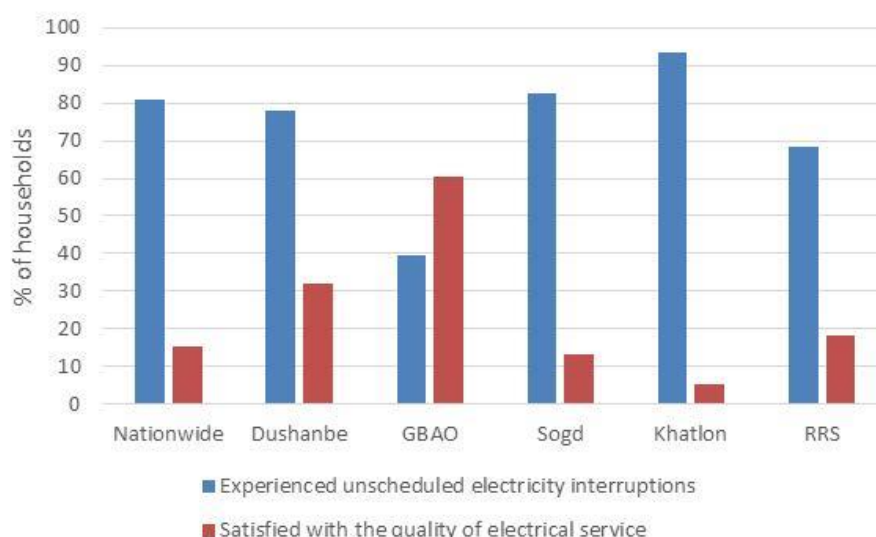
5. Going forward

31. Poverty reduction performance in Tajikistan from 2007 to 2009 was better than 90 percent of all observed poverty changes in the world. However, the question is how sustainable were the previous achievements and whether there is potential for the society and economy to continue such strong inclusive economic growth. As has been described in the analytical framework, there are four channels through which growth and equity reinforce each other: i) equitable, efficient and sustainable fiscal policy, (ii) fair, transparent institutions and effective provision of public goods, (iii) well-functioning and accessible markets, and (iv) comprehensive and efficient risk management. This section briefly discusses the issues Tajikistan may face in trying to sustain inclusive growth in light of these four channels, starting from overall macroeconomic vulnerability.

32. **One important concern with regards to the prospects of economic growth in Tajikistan is related to the vulnerability of its economy to external shocks.** On the exports side, vulnerability stems from a strong reliance of the economy on few commodity exports: namely, cotton and aluminum. Changes in external demand and price shocks may have an adverse impact on external and internal balances in Tajikistan. According to the World Bank (DCC, 2012), the elasticity of total merchandise export in Tajikistan with respect to foreign GDP is around 0.9 with the highest elasticity estimated in respect to Russian growth of GDP. However, the Russian economy itself depends very much on changes in hydrocarbon prices. Besides high reliance for export on the demand from the Russian economy, the absolute majority of migrants work in the Russian Federation and economic slowdown in this country will immediately translate into lower remittances, and as a result, lower domestic demand and government revenues. On the imports side, risks come from high dependence on fuel and food prices. Thus, higher world prices on wheat may adversely affect the population. The poor can be particularly affected due to higher share of food products in their consumption basket.

33. **Quality of public services is far from satisfactory.** According to the survey of 2,000 households (DCC, 2012), about 80 percent of households in Tajikistan experienced unscheduled electricity outages in 2011 and the overall level of satisfaction was about 16 percent (figure 5.1). Satisfaction with other public services is also very low. Only 22.5 percent of households were satisfied with the quality of education services. The same picture is observed with regards to ambulatory care and inpatient hospital services: respectively, only 16 and 19 percent were satisfied in 2011. According to the most recent public expenditure review in Tajikistan (World Bank, 2013b), capital expenditures in Tajikistan are two times higher than the average for low and lower middle-income countries. At the same time, public expenditures on health remain one of the lowest in the region. Therefore, it would be beneficial to find a balance between capital and core social spending. Improving education and health outcomes may also come from improving efficiency of public expenditures by looking for new financing models and optimizing the existing delivery system.

Figure 5.1: Quality of electricity services in Tajikistan, 2011



Source: DCC, 2012.

34. **Besides quality of public services, equal opportunities to access them remain distant in Tajikistan.** The degree of economic mobility and overall ability of the population to benefit from the economic growth depend crucially on the equality of opportunity in the society. According to Abras, Cuesta and Tiwari (forthcoming), sharp inequities exist with regards to the enrollment in educational institutions by the oblast of residence, parental education and the household's overall economic standing. The authors also point to sharp inequality of opportunities related to a healthy start in life, and household infrastructure and amenities that ensure a stable, safe and stimulating childhood.

35. **Well-functioning and accessible markets remain a challenge in Tajikistan.** As an illustrating example of existing problems with access to markets in Tajikistan, one may consider access to financial resources. As shown in figures 5.2 and 5.3, access to financial services measured by access to bank accounts and loans is extremely low in Tajikistan, compared to the averages in ECA and low income countries. Only 3 percent of the population in Tajikistan has an account in formal financial institutions compared to 45 percent in the ECA region. With regards to access to loans, the difference is not so large, but still only 5 percent of the population in Tajikistan received loans in the last year, compared to 8 percent in ECA and 11 percent in low income countries. In addition to limited access to financial resources, there are regional disparities in access to financial services in Tajikistan. Access to banking accounts is six times higher in urban areas compared to rural areas.

Figure 5.2: Access to financial institutions in Tajikistan, ECA and low-income countries, % of population +15

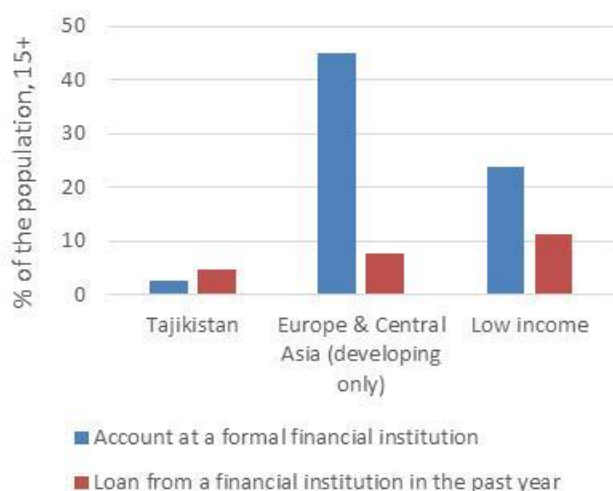
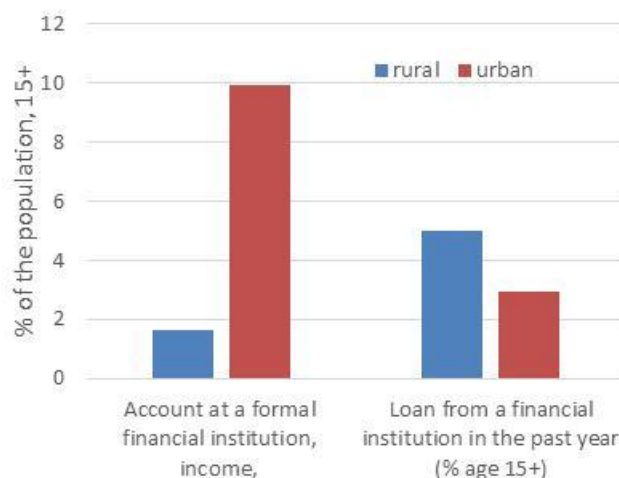


Figure 5.3: Access to financial services in Tajikistan across urban and rural areas, % of population +15



Source: FINDEX

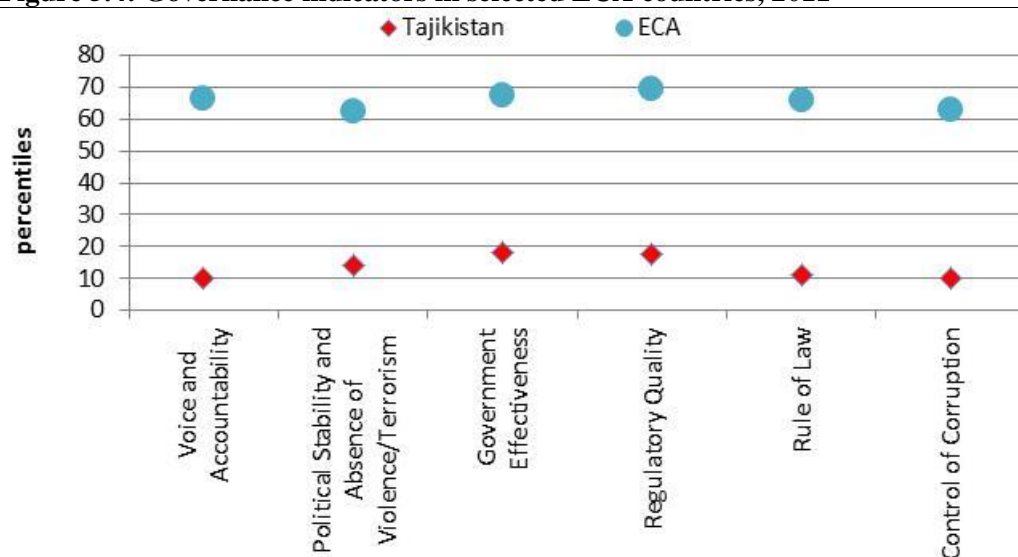
36. **Women are at disadvantaged position to success in the labor market** Analysis of the drivers of poverty reduction demonstrated a gender gap in favor of men. According to Sattar et al. (2013), women are disproportionally present in the low paid informal agricultural sector and have much lower enrollment levels in tertiary education. Female entrepreneurs are very rare and face more constraints in access to

land, finance and networks than male entrepreneurs. Improving women's capacity to exercise agency and narrowing the gender gap in human capital endowments and economic opportunities seems to be crucial for achieving inclusive growth.

37. **Tajikistan is one of the most vulnerable countries in ECA to climate change.** The country is often affected by droughts, floods and soil erosion. About 1,800 deaths were caused by natural disasters during the last 20 years, which is the highest in ECA region. These types of shock are particularly devastating to the agricultural sector and households depending on it. According to DCC (2012), a 10 percent decrease in agricultural income would result in a 7 percent increase in poverty. The problem is exacerbated by a limited technical capacity of the country to forecast and react to natural disasters. Sustainable economic growth will be difficult to achieve without establishing a system of natural disaster risk planning and risk mitigation strategies.

38. **Finally, Tajikistan continues to face significant governance challenges.** World Governance Indicators stresses several areas for improvement. Control of corruption, rule of law and voice and accountability require particular attention as showing the worst performance. As shown in figure 5.4, Tajikistan is far below ECA averages in all dimensions of governance indicators. Globally, Tajikistan is in the second to last decile for performance on all indicators, meaning that 80 percent of countries in the world have better performance in terms of governance indicators.

Figure 5.4: Governance indicators in selected ECA countries, 2011



Source: Kaufmann, Aart and Massimo (2010). World Governance Indicators, 2012.

39. **Summing up, Tajikistan did well during 2003-2009 in terms of poverty reduction and the promotion of shared prosperity.** Steady consumption growth contributed positively to the emergence of the middle class. The middle however, has high levels of churning, especially in rural areas. Labor earnings and remittances were two main factors behind the rapid observed poverty reduction, while employment did not play any significant role. Unpacking changes in the labor market shows that

increasing returns to experience was the key factor behind the poverty reducing effect of labor earnings. In terms of inequality, however, employment was the most equalizing factor, while remittances were inequality enhancing. Looking forward, sustaining inclusive growth will require Tajikistan to address the following challenges: (i) high vulnerability to macroeconomic shocks and climate change, (ii) poor quality of public services and unequal access to them, (iii) lack of well-functioning and easily accessible markets.

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World Governance Indicators. <http://info.worldbank.org/governance/wgi/index.aspx#home>

7. Annex

Table A.1: Shares of different income components in total income across years, %

	2003	2007	2009
Labor earnings	65.1	74.6	61.2
Pensions	12.7	11.8	8.1
Social assistance	3.1	1.0	2.5
Remittances	11.0	8.7	17.0
Other income	8.0	3.9	11.1

Source: Authors' calculations based on ECAPOV data.

Table A.2: Growth rate of different income components, share of adults and share of employed across quartiles during 2003-2009, %

Quartiles	Share of adults	Share of employed (non-zero labor earnings)	Labor earnings	Pensions	Social assistance	Remittances	Other income
bottom	11	90	1277	381	857	1244	1463
II	10	3	522	451	491	898	906
III	12	-1	439	428	322	848	715
top	9	0	332	221	170	951	415

Source: Authors' calculations based on ECAPOV data.

Notes: Quartiles are constructed based on income per capita. Income components are USD/PPP 2005 prices.

Table A.3: Profile of population in the bottom 40 percent for selected years

	Bottom 40			Top 60		
	2003	2007	2009	2003	2007	2009
Residence						
urban	26.5	27.8	23.6	31.6	25.3	28.2
rural	73.5	72.2	76.5	68.4	74.7	71.8
Oblast						
Dushanbe	5.2	10.4	6.5	12.3	8.7	11.4
Sogd	32.4	44.4	26.7	31.4	19.9	31.3
Khatlon	44.8	21.9	44.3	24.4	44.9	30.2
RRP	13.7	21.3	19.6	29.7	22.8	24.2
GBAO	4.0	2.0	2.9	2.9	0.0	0.0
Education (16+)						
none/<1-4	6.6	6.7	7.8	6.0	6.6	5.3
incomplete 5-12	18.6	23.0	21.3	16.5	19.9	17.6
gen sec	55.0	50.6	52.3	49.3	48.3	52.0
spec sec	6.9	9.1	8.6	11.2	12.3	11.2
tertiary	4.5	6.4	6.1	10.5	10.4	11.6
missing	8.4	4.2	3.8	6.4	2.5	2.4
Labor force status (16+)						
employee	31.8	19.6	17.2	30.4	25.0	18.3

self-employed	19.0	21.4	22.7	22.9	21.1	22.6
unemployed	2.5	1.8	5.4	2.3	2.0	4.2
retired	7.2	10.1	8.5	7.6	8.1	8.9
student	4.1	8.1	8.6	6.2	10.9	10.1
OLF	35.4	39.1	37.6	30.5	32.8	35.9

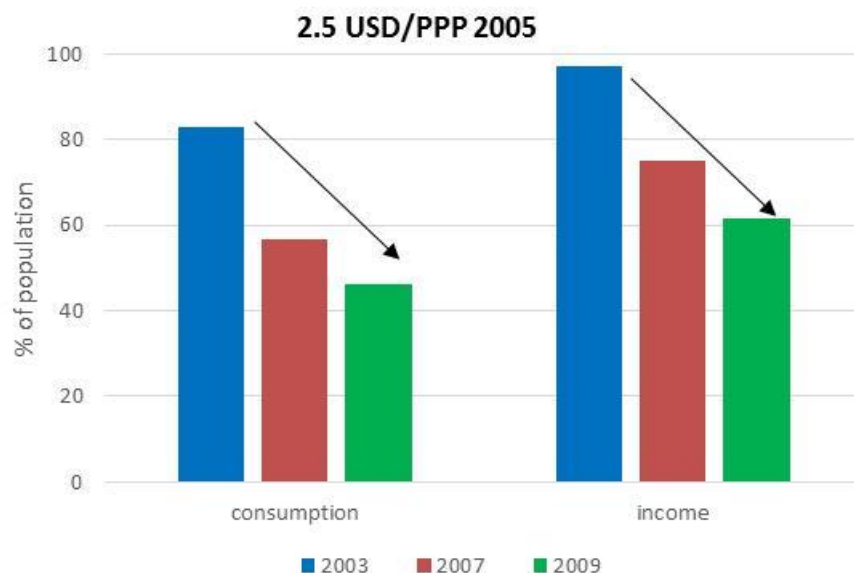
Source: Authors' calculations based on ECAPOV data.

Table A.4: Profile of households in the bottom 40 percent for selected years

	Bottom 40			Top 60		
	2003	2007	2009	2003	2007	2009
Number of children in HH						
0-1	12.5	17.9	14.1	26.0	30.6	32.7
2	18.7	19.8	18.6	21.9	22.3	26.7
3	20.1	23.4	21.2	20.7	21.5	17.6
4	19.5	19.0	21.3	14.3	13.0	11.9
5+	29.3	19.8	24.9	17.2	12.6	11.2
Dependency ratio	0.45	0.43	0.41	0.41	0.37	0.35
Size of the household						
1	0.2	0.1	0.0	0.8	0.6	0.6
2	0.4	0.6	0.2	2.2	1.6	1.7
3	1.2	1.8	0.6	4.3	4.2	4.2
4	3.2	4.6	2.2	9.1	8.4	7.4
5+	95.0	92.9	97.0	83.7	85.3	86.1
HH education						
incomplete 5-12	14.2	16.3	16.2	10.1	11.3	11.3
gen sec	48.9	42.6	40.0	37.0	33.9	34.6
spec sec	14.2	19.6	20.4	20.3	26.9	25.0
tertiary	11.6	13.8	12.6	22.1	20.4	22.5
none/<1-4	11.1	7.8	10.8	10.6	7.6	6.6
HH labor force status						
employee	44.0	29.3	28.2	45.3	37.9	29.6
self-employed	17.4	27.8	27.2	19.9	29.5	32.4
unemployed	2.7	1.7	3.1	2.3	2.0	4.5
retired	18.4	24.7	28.7	16.9	18.5	21.7
student	0.3	0.6	0.0	0.3	0.6	0.0
OLF	17.2	15.9	12.9	15.3	11.6	11.9

Source: Authors' calculations based on ECAPOV data.

Figure A1: Consumption and income poverty, %



Source: Authors' calculation based on ECAPOV data.

Notes: Poverty line is 2.5 USD/PPP per day. Welfare aggregate is consumption and income per capita.

Figure A2: Education of male workers across years, %

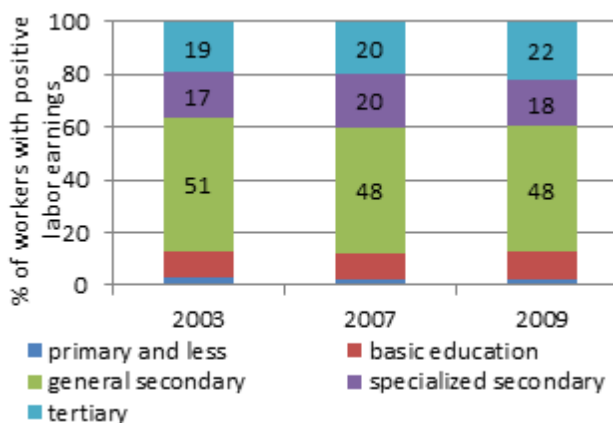
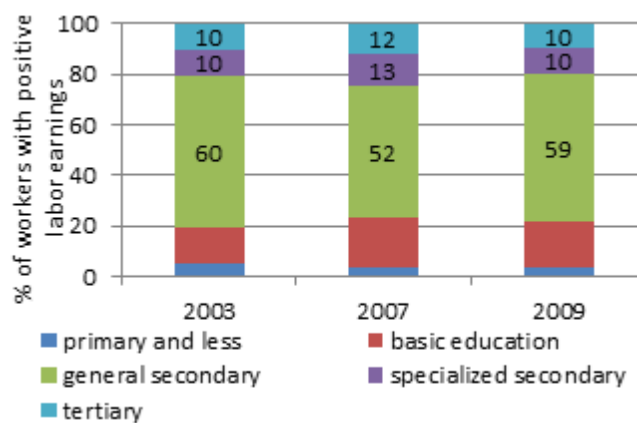


Figure A3: Education of female workers across years, %



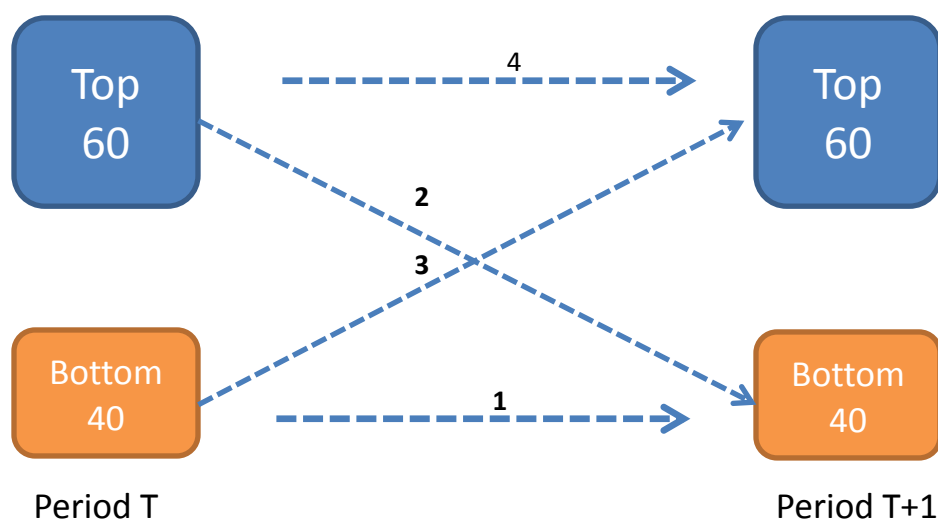
Source: Authors' calculation based on ECAPOV data.

Box 1. Churning in the bottom 40 percent of the population

The shared prosperity indicator, which measures consumption per capita growth of the bottom 40 percent of the population, is an anonymous indicator. In other words, there is no guarantee to observe the same individuals in the bottom 40 percent of the population across years. In particular, several potential scenarios may occur. First, individuals can be the same in the bottom 40 percent in two periods [(1) in Figure A.4]. Second, individuals from the bottom 40 percent in the first period can move to the top 60 percent in the second period (graduates) [(2) in Figure A.4]. Third, individuals from the top 60 percent of the population in period one can move to the bottom 40 percent in the period two (entrants) [(3) in Figure A.4]. The fourth scenario, in which the population in the top 60 percent is the same across periods, is not relevant to this analysis of the bottom 40 percent [(4) in Figure A.4]. The overall impact of churning will depend on the magnitude of these movements.

There are several options to see the described scenarios. The first option is to track the mobility of people using panel data. This will allow tracking the same people over a particular period. The second option is to use a synthetic panel approach based on repeated cross-sectional data. This provides an opportunity to predict the consumption of households in the first period using information about their consumption in the second period and permanent household characteristics. In this paper, the second approach is used.

Figure A4: Churning in the bottom 40 percent of the population



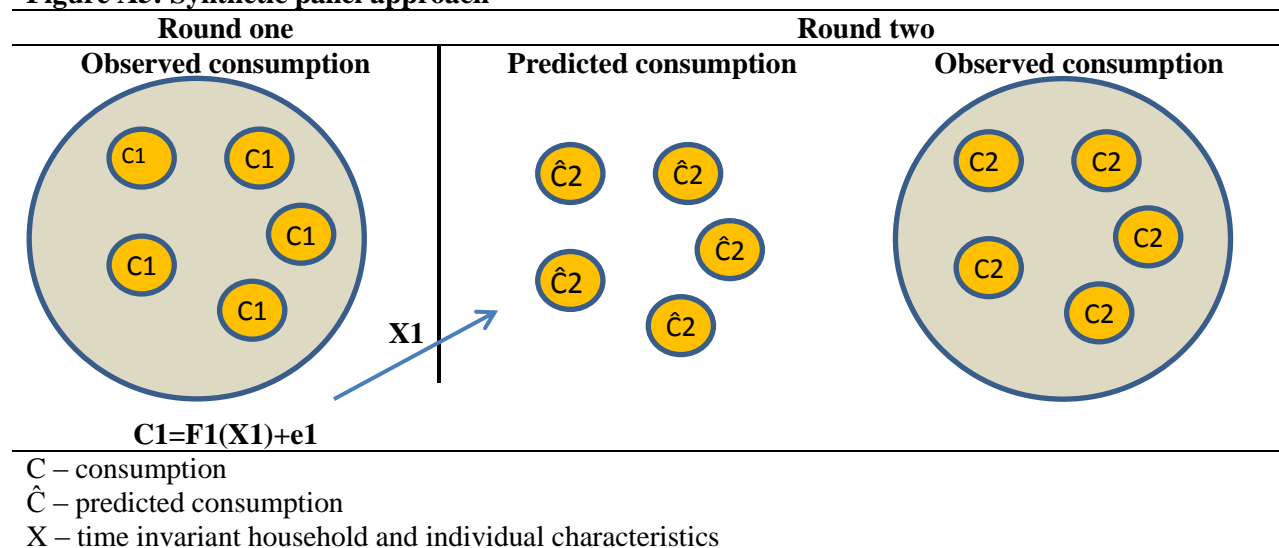
Source: Authors' drawing.

Box 2. Synthetic panel methodology

The issue of economic mobility has gained relevance in academic and wider policy discussion over the last years. Data requirements to analyze this issue are not trivial, though. A proper study requires household-level information for at least two periods, not only for income or consumption, but also for other variables that can affect changes in income or consumption. Unfortunately, the availability of panel surveys that contain this type of information is quite limited, and even when existent, many times they suffer from high attrition rates and relatively short survey periods.

The synthetic panel methodology overcomes these shortcomings and builds on an imputation methodology to predict consumption in the second period using two different rounds of data. It relies on time-invariant individual and household characteristics (Figure A5). Consumption in each period is modeled as the sum of two components: a first one associated with time-invariant characteristics ($F(X)$), and a second one capturing non-observable factors (e). To create the predicted consumption in the first round for the households from the second round, we generate a new component based on how their time-invariant characteristics are associated with consumption, but in the first round. Adding up this new component to the non-observable factors we obtain the predicted consumption in round one. With these two welfare aggregates we construct transition matrices to analyze economic mobility between rounds.

Figure A5: Synthetic panel approach

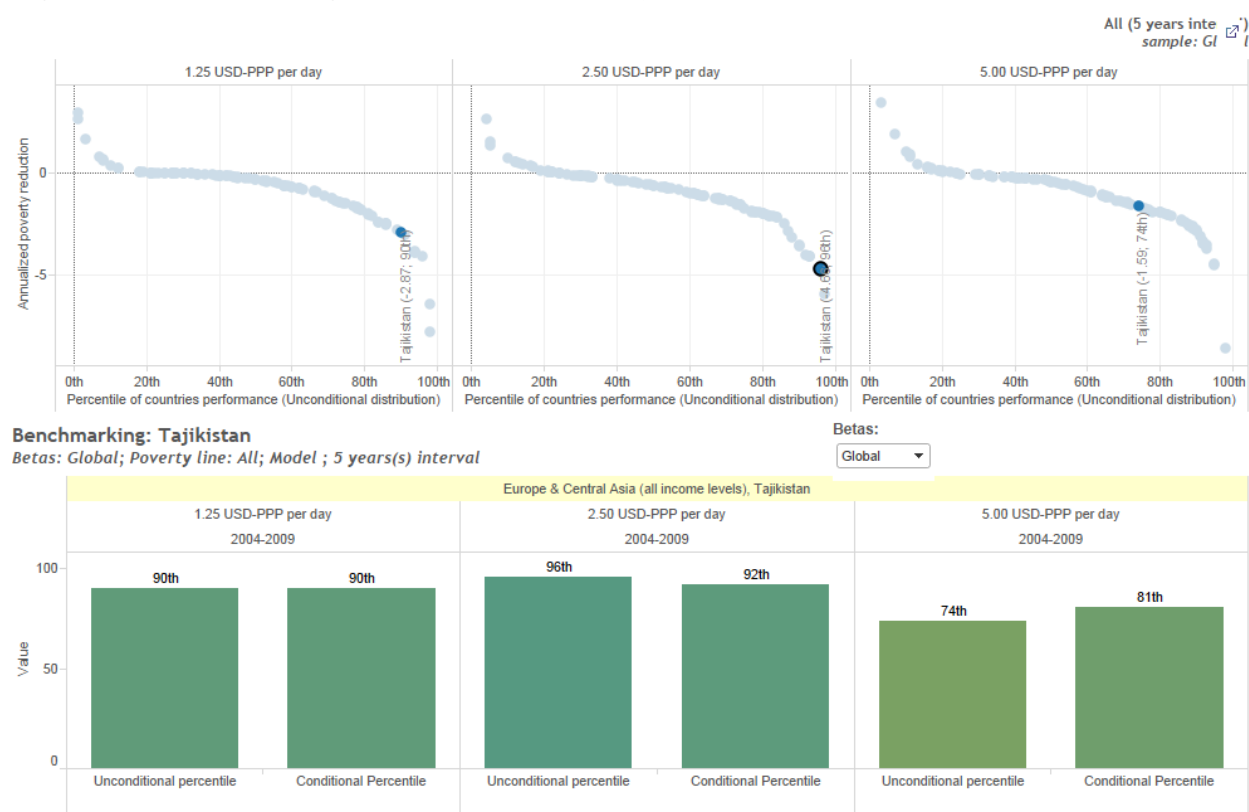


Depending on the assumptions made about the non-observable characteristics, the method generates a high and a low mobility scenario. For the low mobility scenario, non-observable characteristics do not change in time, whereas for the high mobility scenario they change between rounds. In intuitive terms, low mobility implies that if a shock affects consumption in the first period, it continues to do so in the second one, and in the same direction. High mobility implies that there is no relationship between shocks in time. True mobility should be found within these two boundaries.

The quality of the imputation improves as time-invariant characteristics capture more variation in consumption. Notwithstanding this limitation, synthetic panels allow the use of existing data in a novel way to better understand economic mobility and its determinants.

Source: Adopted by Atamanov, A., Cancho, C. and Meyer, M. from Lanjouw, Louto and McKenzie (2011)

Figure A6: Benchmarking Performance on Poverty Reduction in Tajikistan (2004-2009)



Note: Conditional variables: FGT0, GDP per capita, landlock, fragility, global growth rate, country growth rate. Benchmarking methodology as described by Newman, John L., João Pedro Azevedo (2013) "Setting reasonable performance targets for public service delivery," Policy Research Working Paper Series 6385, The World Bank (<http://ideas.repec.org/p/wbk/wbrwps/6385.html>). Computation using Stata ADO benchmark by Minh Cong Nguyen and Joao Pedro Azevedo. Data: ECAPOV data was used to the ECA numbers for all other regions POVCALNET estimates extracted from WDI as of March 3rd 2014. Computation and visualization produced by Joao Pedro Azevedo and Minh Nguyen (ECA Team for Statistical Development).

Table A.5: Construction of income aggregates

ECAPOV harmonized data is use as a basis for construction income aggregates used in this paper. The main difference between income aggregate in this paper and the ECAPOV data stems from the definition of remittances. Remittances in this paper are defined differently between 2003 and 2007/2009 years given the changes in questionnaires.

In 2003 remittances include the transfers households received from donors residing outside of Tajikistan both in cash and in-kind forms (module 7a, questions 8 and 11).

In 2007 and 2009 years migration module was expanded and remittances are defined as a sum of transfers from donors living outside of Tajikistan both in cash and in-kind (module 8a, questions 8 and 12), remittances from family members living abroad (module 2c, question 19), and finally as 70 percent of returned migrant net income while he/she was being abroad (module 2b, question 12).

Other income components include labor earnings, pensions, social assistance, and other income.

Labor earnings include wages and self-employment income.

Pensions include old age, disability, social and survivor pensions.

Social assistance includes allowances, benefits to Chernobyl victims and Afghan war participants, illness benefits etc.

Other income include child benefits, unemployment benefits, property income (income from renting property, income from selling assets and property), income from gambling, and interest rates.