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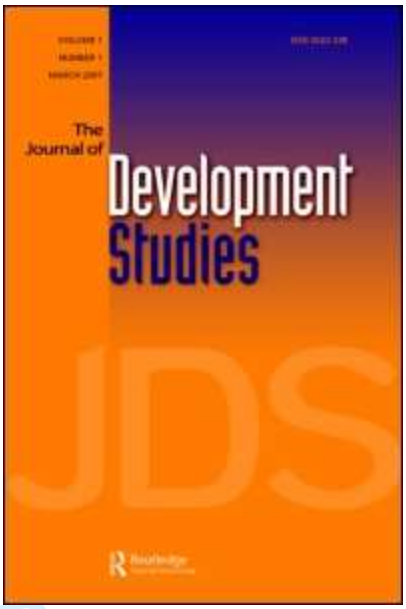

The Poverty Reduction Capacity of Public and Private Transfers in Transition

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Abstract

The transitional economies of the Former Soviet Union (FSU) have enjoyed an extraordinary period of growth and poverty reduction between 2000 and 2007 and this occurred in concomitance with significant increases in private and public transfers to households. The paper assesses the relative importance of these transfers for welfare and poverty in Moldova, the poorest country in Europe. A longitudinal analysis based on panel data reveals that private transfers and social insurance transfers are effective in improving welfare and reducing poverty whereas social assistance transfers have little or no effect. Social insurance and social assistance seem to have swapped roles. Social insurance is most relevant for lifting people out of poverty while social assistance - if anything - has a small role in protecting the non-poor from falling into poverty. We also find that the different types of transfers do not crowd-out each other and that social insurance may in fact reinforce the capacity of private transfers to reduce poverty. Such findings have several policy implications for the near future: a) Poor households in FSU transitional economies remain highly vulnerable to shocks in public and private transfers; b) the 2008-2009 recession is likely to expose this vulnerability and result in a surge in poverty larger than expected and c) the social assistance systems remain in great need of pro-poor reforms and cannot currently provide an adequate protection from economic shocks.

JEL: H5, I3, O1, P2

Keywords: Private Transfers, Social Insurance, Social Assistance, Transitional economies.

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1. Introduction

The first decade of the transition from socialism to capitalism has been very hard for the countries of the Former Soviet Union (FSU). All the fifteen republics that constituted the union experienced a deep recession between 1990 and 1995 with an average fall in GDP of about 40%. As they were starting to recover in 1996 and 1997, Russia defaulted on its debt and unleashed a financial crisis that reached all FSU republics with a subsequent new fall in GDP of several percentage points. Hidden and open unemployment and poverty increased consistently during the decade leading to a severe decline in living standards (World Bank, 2005). Understandably, the populations of these countries have lived the 1990s as a painful experience that overshadowed the initial enthusiasm for reforms.

At the turn of the century, these sentiments translated into political opposition for those governments that managed the reforms. In authoritarian states, where the former communists maintained power throughout the 1990s, political oppositions have been either silenced by different degrees of force (Uzbekistan, Belorussia, Turkmenistan, Kazakhstan, Russia) or emerged in the form of peaceful revolutions (Ukraine, Georgia, Kyrgyzstan). In less authoritarian states, where reforms have been managed by new reformist coalitions, these changes occurred in the form of a resurgence of communist parties (Moldova, Lithuania). Whatever the political process, fifteen years into the transition period the former communists still firmly control most of the political establishments across the FSU, an outcome that very few could anticipate in 1991.

The same economic reforms despised by the populations that suffered the immediate consequences of such reforms and the devaluation of the currencies occurred in the aftermath of the 1998 financial crisis created the pre-conditions for the new growth era that emerged at the turn of the century. All FSU economies enjoyed positive and sustained growth rates between 2000 and 2007 and the post-communist governments that found themselves in power at the beginning of the new millennium benefitted from a favourable economic climate and from growing resources, including

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rising budget revenues. In many countries, growth and increased public spending also led to significant reductions in poverty.

The determinants of the recent growth phase and the success in reducing poverty derive from a combination of factors whose relative importance is still uncertain. Macroeconomic stability contributed to create the preconditions for growth. Enterprise restructuring and the consequent increase in production and productivity played a role, particularly in modern sectors such as finance and banking. And many industrial sectors went through important structural changes that led to better competitiveness. These changes resulted in improved productivity and higher wages but produced very few new jobs to an extent that the 2000-2007 growth period has been labelled by many as the 'jobless growth' period (World Bank, 2005b).

In parallel to the restructuring process, FSU republics also benefitted from a great increase in remittances from abroad, an outcome of the prolonged emigration flows that characterized the 1990s and continued to characterize the poorest of the FSU republics in the new millennium. In some countries, this inflow of fresh cash explained a sizable part of growth. GDP growth, in turn, raised budget revenues and budget spending, particularly in those countries where former communists managed to regain power and adopt a populist agenda.

Nowhere the trends described have been more evident than in Moldova, the country we will focus on. This is the economy that experienced the worst recession on record during the 1990s and is today the poorest country of Europe; it is the transitional country that had the largest migration relative to its population and that today benefits the most from remittances as a share of GDP; and it is one of the countries that expanded very significantly public transfers in terms of coverage and expenditure during the growth phase. In addition and to our advantage, Moldova has a reliable household budget survey containing a panel component and covering the entire growth period.

There are two questions related to the recent growth period in transitional economies that we wish

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to explore with the Moldova case. The first question is about the relative importance of public and private transfers in explaining improvements in welfare and poverty reduction.[i] If private and public transfers had a key role in reducing poverty, the sustainability of poverty reduction is questioned and may explain why poverty reduction has stalled in many countries between 2004 and 2007. Moreover, the most recent 2008-2009 crisis has deeply affected transitional economies and public revenues have collapsed together with public spending. If, during the growth period, poverty reduction largely relied on private and public transfers, we should expect a new surge in poverty in the years to come.

The second question is more subtle but nevertheless relevant. When public transfers increase one should expect a certain crowding-out of private transfers. Private transfers can be driven by selfish (reciprocity) or unselfish motives (charity). In both cases and particularly for those private transfers motivated by charity, an increase in public spending should somehow reduce the need for private transfers. If this is the case, the elasticity of consumption to private transfers may be different for households that receive both types of transfers as compared to households receiving only private transfers. This is a long debated issue in public economics in developed and developing countries (Cox and Jakubson, 1995, Cox et al., 2004) but little explored in transitional economy. The longitudinal model that we will propose should allow us to gain some insights into this issue.

The remainder of the paper is organized as follows. In the next section we briefly review some of the evidence on the role of public and private transfers in transitional economies. In section 3 we describe the case of Moldova. In section 4 we introduce the data set and key variables and in section 5 we provide basic statistics and trends for the main aggregates. In section 6, we assess transitions in and out of transfers and in and out of poverty using different forms of transition matrixes. In section 7, we turn to fixed effects panel equations and provide parametric evidence on the role of transfers for welfare and poverty. Section 8 concludes.

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2. Some evidence on public and private transfers in transition

Evaluations of public transfers worldwide have mainly taken the form of incidence evaluations where household consumption is assessed in the presence and absence of transfers. These types of evaluation are almost unanimous in attributing to public transfers a positive and significant effect on household welfare (Danziger et al., 1981, Weinberg, 1991) but suffer from the fact that behavioural effects are not usually taken into account. That is because public transfers programs are very rarely designed with in-built randomized experiments able to deliver a proper impact evaluation while ex-post evaluations based on survey data are often inadequate to provide a proper counterfactual.

Efforts to carry out impact evaluations of social programs multiplied in recent years after the seminal works of Heckman and colleagues (see for example Heckman et al. 2007, 2008)[ii] but this new wave of evaluations tended to focus on specific programs for selected group of beneficiaries where behavioural effects are easier to isolate while impact evaluations of broad social transfers programs remained scarce. A recent review of DFID interventions in the area of social transfers (Davies, 2009) concluded that "*Evidence gathering on the impacts of social transfers has, until recently, not been given adequate attention in the design of DFID supported programmes. Few schemes, either projects or national Government schemes have made any serious attempt to quantify the impacts of social transfers, especially in terms of poverty reduction and economic growth. Social transfer schemes have a tendency to monitor 'process' indicators (inputs and activities) rather than 'impact' indicators (outputs and attributable changes in beneficiary well-being).*" (page X).

Evaluations of public transfers in transitional economies suffer from similar problems with the additional disadvantage that proper data are scarcer and randomized experiments are non-existent. To our knowledge, these evaluations are not numerous, focused mainly on the recession phase of the 1990s and offer a mixed picture on the welfare improving capacity of public transfers.

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Milanovic (2000) looked at social protection transfers in Latvia and found a weak pro-poor role of social protection benefits. Lokshin and Ravallion (2000) analyzed the role of the social safety net in protecting the poor from the 1998 Russian financial crisis and concluded that the social safety net in place was largely insufficient to protect the poor from the Russian crisis. Ravallion et al. (1995) looked at the early years of the transition in Hungary and found that the safety net was able to protect effectively from poverty but did not play an important role in lifting people out of poverty. Van de Walle (2004) followed in the steps of this last paper to test the public safety net in Vietnam and found a very marginal role of the social safety net in protecting people from poverty or promoting an exit from poverty. Okrasa (1999a and 1999b) has looked at social benefits in Poland and found a general positive impact on redistribution, a positive but moderate impact on reducing the poverty spell and a positive impact on exiting poverty with all these effects being different depending on the household prototype considered. Dabalen et al. (2008) have looked at a social assistance program in Albania (*Ndihma Ekonomike*) and tested the poverty implications as compared to the old-age pension program using the pooled 2002 and 2005 living standards surveys. They find a negative impact of the program on poverty and a higher level of discontent with life with program participants as compared to a control group. Using the same data for Albania and a different approach, Mangiavacchi and Verme (2009) found a very similar result with a negative impact on welfare of the *Ndihma Ekonomike* program.

The evaluation of public transfers in transitional economies has also its own peculiarities. Unlike developing countries, transitional economies during the socialist period had already established a complex system of public transfers based on categorical principles which focused mainly on children, disabled and war veterans. These countries were also characterised by low levels of poverty and inequality and good standards in the education and health sectors. The transition toward a market economy and the subsequent recession, unemployment growth and reduction in budget revenues confronted these economies with unprecedented challenges with rising poverty and inequality and falling standards in the provision of public services which transformed the old social protection systems in obsolete institutions. These systems needed to be restructured by

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moving from categorical types of systems to means-tested and poverty oriented systems.

Evaluations of private transfers in transitional economies are also very few and we are not aware of studies that looked at public and private transfers in conjunction. The economic recessions of the 1990s have fostered two major phenomena related to private transfers. One is the expansion of inter-household exchanges as a form of protection from economic shocks and the second is remittances from abroad, consequence of profound and prolonged periods of outmigration. A study on Russia has shown for example how pensions can play an important role in inter-household redistribution in addition to intra-household redistribution (Kuhn and Stillman, 2004). More importantly, remittances from abroad have come to play a major role in the poorest of the transitional economies becoming for some countries one of the major sources of growth (Korovilas, 1999) and contributing significantly in other countries to improvements in household welfare (Nguyen-Viet 2008). These types of transfers continued and increased during the growth phase and complemented government transfers as an important source of household income.

Finally, it is important to stress the difference between private transfers, social insurance and social assistance when it comes to policy. The role of the government in relation to these three types of transfers is clearly different. Private transfers represent an important source of growth for transitional economies and the role of public policies is to encourage such flows while attempting to make these flows more formal and taxable. Effective policies towards private transfers, especially remittances from abroad, should find a balance between these two objectives. The main policy objective for social insurance is to guarantee a sustainable system where revenues are able to cover expenditure in the long-run and where pensions maintain an appropriate value in real terms over time. Instead, the main policy objective of social assistance is to cater for the poor and vulnerable providing an adequate safety net for people in need. From a pure public policy perspective, it is only social assistance that has the mandate to reduce poverty whereas public policies in the areas of private transfers and social insurance can contribute to this objective but they are not primarly designed for such scope. When we evaluate these three types of transfers we

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should keep this consideration in mind.

3. The case of Moldova

Moldova is an extreme example of the transitional 'path' experienced by the countries of the Former Soviet Union (FSU). After the desegregation of the Union in 1991, the country went through a deep recession between 1991 and 1995, two years of stabilization between 1996 and 1997 and a new smaller recession in the aftermath of the 1998 Russian financial crisis. By 1999, the country had lost over 60% of its GDP[iii] as compared to 1990 and poverty stood at 71% of the population (World Bank, 2004). Economic recovery really started only in the year 2000 and the gains since then have been remarkable. Annual growth rates between 2000 and 2007 have been - on average - around 7% and poverty declined rapidly to around 26% of the population by 2004 (Government of Moldova, 2004).

These epochal swings in output and poverty during the first decade of the transition period left little space for addressing institutional issues such as the reform of the social protection system. Both the social insurance and the social assistance systems were in need of reforms as these systems were no longer suitable to address new emerging issues such as unemployment and poverty.

The system of social insurance contributions needed to be entirely reformed because its former structure under socialism was unsustainable. The Soviet Union guaranteed generous old aged pensions to all retirees. These pensions were paid by the state with only nominal contributions on the part of enterprises (which were state property) so that the system could have been described as a Pay-As-You-GO (PAYGO) system with current revenues paying for current expenditures. With the process of transition towards a market economy, some enterprises collapsed, some remained state property, some were privatised and others were created. All types of enterprises continued to be required to pay social insurance contributions but not all enterprises did so or complied only in

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part. This made the system unsustainable and the authorities first started to reform social insurance for the public servants (1995) and then moved on with the reform for other insured persons (1998, 1999). Reforms focused on balancing revenues and expenditures of the newly created pension fund but the system remained in essence PAYGO and the state budget continued to cover the pension fund deficits and this contributed to the maintenance of reasonable pensions.

Social assistance was also in need of reforms able to shift the system from a categorical type to a means-tested type of system. Social assistance benefits under the Soviet Union were typically lower than pensions but still generous, particularly for children and the war veterans. With the transition period, the number of beneficiaries increased while the budget for social assistance was being reduced. This translated in very low levels of transfers per beneficiary making the need for reforms towards a means-tested system – a system able to cater for the poor and avoid dispersing scarce resources on the non-poor - even more urgent. These reforms could not be implemented during the 1990s with the result that pensions contributions remained scarce in the face of generous pension payments while the existing resources for social assistance became diluted across increasing numbers of beneficiaries.

The beginning of the new growth period in 2001 coincided with the re-election of a communist government and the combination of increasing resources and a communist agenda determined a net growth in public spending in all areas including social insurance and social assistance. Despite these positive changes, the social protection system remained largely unchanged with significant reforms being implemented only for pensions. The social assistance system until 2007 continued to include a wealth of categorical benefits mainly targeted at children, the disabled and the war veterans with no means-tests or proxy-means tests in place. In substance, benefits increased and continued to target categories presumed to be vulnerable but not necessarily poor.

The expansion of public transfers initiated by the new government in 2001 has also been accompanied by a remarkable increase in remittances from abroad and inter-household transfers.

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There are scattered data on out-migration during the 1990s but one of the peculiarities of Moldova is that emigration increased four folds between 1999 and 2004. By 2004, remittances from abroad accounted for 27% of GDP, an increase of almost 100% from 2000 (IMF, 2006). Interestingly and as in other transitional economies (Verme, 2006), the growth phase has also been characterized by modest job creation. Real wages have increased and contributed to improve household welfare but only few jobs were being created and income from transfers (public and private) increased relatively to income from work making households more reliant on transfers.

The concomitant increase in public and private transfers during a period of sustained growth and little job creation raises several questions on what may have really driven poverty reduction. Do public and private transfers explain improvements in welfare and poverty?

In addressing this question we face a number of critical issues. We are confronted with a retrospective evaluation. There was no design to evaluate transfers *ex-ante* and we cannot rely on a randomized experiment and/or household surveys which were specifically designed for evaluating transfers. We face therefore most of the problems that *ex-post* evaluations share including selection bias, lack of a proper comparison group, unobserved heterogeneity, model endogeneity and measurement error. We do not know what drives the household decision to apply to certain transfers such as social assistance and we do not have any information about those households who applied for benefits but were rejected. Nor we know about the motives and criteria that people working abroad use for deciding about size and beneficiaries of remittances. Several factors that may determine program selection are not observed in our data such as the improper or illegal selection mechanisms used by administrators of public transfers. We cannot always distinguish those variables that determine the household decision from those variables that determine the government decision. For example, having many children may be a factor that induces households to apply for benefits because poor households tend to have many children but is also a categorical criteria used by the government to assign benefits. A proper matching design is also unlikely given that we do not have a parallel survey to extract matches from and that the extraction of matches

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from the survey we use would result in self-selection on observables in addition to self-selection on non-observables. These are not exceptional circumstances for an evaluation of government transfers in transitional economies and explain the scarcity of impact evaluations in these countries.

As it was the case for other studies of public and private transfers in transitional economies, we need to be less ambitious and rely on a combination of tested tools that taken together could provide some useful insights into the relevance of private and public transfers for welfare in Moldova. We propose first a look at trends of the main aggregates and an analysis of the distribution of transfers. We then assess household mobility in and out of transfers and the role of this mobility in explaining changes in poverty using two forms of transition matrixes and the panel component of the survey adopted. These same matrixes will also be used to estimate two indexes proposed by Ravallion e al. (2005) to measure the likelihood of transfers to protect people from poverty and to promote an exit from poverty. Last, we will use a fixed effects panel model to estimate the elasticity of consumption to changes in transfers partly accounting for unobserved heterogeneity and moving closer to an impact type evaluation. This cannot fully account for behavioural effects but it is an improvement on previous evaluations in transitional economies.[iv]

4. Data

The analysis that we propose is based on four rounds of the Moldova Household Budget Survey (MHBS), 2001-2004. The period was chosen because it covers the entire first mandate of the new government elected in 2001 allowing for an assessment of the public spending strategy followed by this particular government. The survey initiated in 1997 with World Bank support, contains a panel component and is administered by the National Bureau of Statistics of Moldova. It covers approximately 6,240 households every year interviewed in monthly blocks of 520 households each. The panel component has an elaborate rotation scheme and a maximum tenure of each household of four years. We are able therefore to follow the same group of households throughout

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the four years' period considered.[v]

The survey is a multi-stage sampling and multi-purpose survey and includes sections on income and consumption. We base the analysis on households rather than individuals because public and private transfers are mostly household based and cannot be attributed with precision to individuals. The National Bureau of Statistics of Moldova considers households as people living together at the same address and sharing the same financial resources. The welfare measure used is household consumption per capita, which is what the World Bank has used for its 2004 poverty assessment of Moldova (World Bank, 2004). Consumption is adjusted with the Consumer Price Index (CPI) for the period 2001-2004 using 2001 as base year. The poverty line is the one adopted by the Government of Moldova in 2001, which was 195 Lei (Government of Moldova, 2004). The poverty line was calculated with a cost of basic needs approach based on a food basket of 2,100 calories/day and an extra amount calculated for non-food items. The Purchasing Power Parity (PPP) equivalent value of the 2001 poverty line was approximately 2.5 USD/Day, which is what the World Bank considers as an appropriate poverty line for transitional economies (World Bank, 2005a).[vi]

Public and private transfers include the following items extracted from the income section of the surveys. Social insurance includes pensions and unemployment benefits although pensions are close to the totality of these transfers. Social assistance includes utilities compensations, child benefits, war-veterans allowances, social allowances, death grants, Chernobyl compensations, care-takers allowances for the disabled, transport compensations for the disabled and material assistance. Social assistance allowances are all categorical allowances. Utilities compensations, child benefits, war-veterans allowances and social allowances account for the greatest part of expenditure. In 2004, these types of benefits amounted to almost 80% of all social assistance benefits.[vii] Private transfers include both inter-household transfers and remittances from abroad. Remittances from abroad are much larger than inter-household transfers in terms of size per transfer but the number of inter-household transfers is much larger than the number of remittances.

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On average and across the population, inter-household transfers represent about 86% of all private transfers. A smaller disaggregation of transfers is possible in principle but the representativeness of the sample data decreases with the increase in disaggregation. The level of disaggregation chosen is the best compromise we could find between within group homogeneity of transfers and sample representativeness of each group.

5. Trends and distribution of benefits

This section provides a first set of insights on transfers that should help to better interpret results in the sections that follow. Between 2001 and 2003 household poverty has sharply declined in Moldova (Table 1, panel A). The headcount ratio estimated at 63% in 2001 was down to 36% in 2003.[viii] The poverty gap ratio more than halved and the severity of poverty ratio in 2003 was a third of its 2001 value. Therefore, not only the number of households under the poverty line has dropped significantly but also the poverty depth and the severity of poverty for those households living below the poverty line have improved. We can also remark that the decline occurred entirely between 2001 and 2003 whereas all the three poverty indexes have increased between 2003 and 2004. It is as if improvements suddenly stalled, a phenomenon that persisted in 2005 and 2006.

If we look at household coverage (Table 1, panel B), wages have expanded with 54% of households receiving at least one wage in 2004 as compared to a figure of 48% in 2001. This does not necessarily mean that employment has increased but simply that the number of households with at least one wage earner has increased. Coverage has also increased for all transfers: From 12% to 15% for personal transfers, from 39% to 41% for social insurance and from 7% to 23% for social assistance.

In terms of value, all types of incomes from work increased in real terms between 2001 and 2003 and decreased in 2004 with the exception of wages, which continued to increase in 2004 (Table 1, panel C). Both public and private transfers also increased very significantly between 2001 and

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2003 and continued to increase in 2004 with the exception of social assistance, which decreases in 2004.

These trends determined a structural change in the sources of household income away from income from work and finance and towards income from public and private transfers (Table 1, panel D). Incomes from work together decreased from 71.5% to 69.4% of total income, income from finance decreased from 13.2% to 9.9% while income from transfers (private and public) increased from 13.7% to 19.1% of total household income.

In essence, wages have increased in coverage and real value. Social insurance and personal transfers have increased marginally in coverage and significantly in real value and social assistance has increased steadily in both coverage and real value. The result of these changes is that household welfare has improved but also that household dependency on transfers has increased between 2001 and 2004 by almost six percentage points.

[Table 1]

The distribution of transfers is biased in favor of the upper consumption quintiles (Table 2). Only about a third of total expenditure on social assistance went to the first two quintiles in 2001 suggesting that those categories identified by the government as vulnerable are not necessarily poor. Targeting of poor households improves between 2001 and 2004 with the first two quintiles receiving almost half of total social assistance in 2004 but this share is still evidence of the fact that categorical targeting failed to reach the majority of the poor. Social insurance in 2001 was more pro-poor than social assistance with around 36% of total expenditure reaching the first two quintiles. However, this share remains approximately the same throughout the period with a small redistribution in favour of the second quintile. Personal transfers are the most pro-rich of the transfers with only 13% of these benefits reaching the first two quintiles in 2001 and this share declining to 8.6% by 2004.

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[Table 2]

In Figure 1, we compare the distributions of wages, social assistance, social insurance and personal transfers between 2001 and 2004 using kernel densities.[ix] The distribution of wages has a close to normal shape and centres around the poverty line, which witnesses the very low wage standards existing in Moldova. However, the distribution shifts to the right during the period contributing to improve living standards. The distribution for social assistance is right-skewed with most of these transfers distributed around very low levels rather far from the poverty line. The distribution shifts rightward during the period but in 2004 most observations are still far below the poverty line. For those households who are only recipients of social assistance, crossing the poverty line between 2001 and 2004 would have been very hard despite the improvements. On the contrary, the amounts of pensions and personal transfers are much larger and the shift of the distribution over the years more marked. The distribution of social insurance is also narrow and close to the poverty line. A small shift in the distribution of social insurance can move many households above the poverty line, a phenomenon less likely to happen with personal transfers because of the flatter shape of the distribution.

The incidence that transfers may have on poverty is evidently limited by the pro-rich distribution of both private and public transfers as shown in Table 2. However, based on the distributions plotted in Figure 1, we could argue that the transfers' potential for poverty alleviation is greater for social insurance, personal transfers and social assistance in this order. This is a crucial aspect to understand poverty reduction in Moldova. The poverty reduction capacity of transfers greatly depends on the shape of the distributions of transfers and not just on the densities of transfers on both sides of the poverty line. Moreover, while we should expect private transfers to cumulate with other forms of household income, this is less likely for household recipients of pensions or social assistance given that - on average - the members of these households are more likely to be out of work.

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[Figure 1]

We can also observe from Table 1 and Figure 2 that public transfers do not seem to crowd-out private transfers significantly. Both public and private transfers increase in coverage and in real terms between 2001 and 2004 and the two types of transfers are clearly positively correlated throughout the period. Also both public and private transfers expand as a share of total income, although the expansion of social insurance and social assistance combined is larger than the expansion of private transfers. The relative growth of transfers overall may have displaced other forms of incomes but we do not observe a clear crowding-out effect of public transfers over private transfers.

6. Household mobility and the incidence of transfers on poverty

In this section we restrict the data set to panel observations taking two years at a time and using transition probabilities matrixes to explore household mobility in and out of the different types of transfers and in and out of poverty. By taking only panel observations over periods of two years, we restrict the number of households we can use by just over a third of the total sample. Table A1 in annex provides t-tests comparing means of the balanced (panel) and unbalanced (total) samples for each of the two years within each of the three periods considered. If we take a value of three as a threshold for the t-test significance, we find a significant difference between panel and total samples only for the variable rural and only for the last period 2003-2004. However, this is not a major shortcoming in this section as we do not disaggregate by rural and urban areas.[x]

When used with a poverty dummy, transition probabilities are also a very useful tool to measure the incidence of transfers on poverty and poverty transitions by simply subtracting transition probabilities calculated in the presence of transfers with those calculated in the absence of transfers. We can also use these same matrixes to estimate two measures proposed by Ravallion et al. (1995) and designed to capture the probability of exiting poverty and the probability of not

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falling into poverty.

Let i be our unit of interest - the household - with $i = 1, 2, ... n$; t an indicator of time with $t = 1, 2$; P_i a binary variable that describes whether households participate $(P_i = 1)$ or do not participate $(P_i = 0)$ to the transfer program. We can identify four groups of households according to participation P_i, which we call 'Stayouts' (So), 'Joiners' (J), 'Leavers' (L), and 'Stayins' (Si) as follows:

Group	$P_{i,t=1}$	$P_{i,t=2}$
Stayouts	0	0
Joiners	0	1
Leavers	1	0
Stayins	1	1

Based on two years' panels and on the taxonomy provided above, we can construct two types of transition probabilities matrixes, which we call A and B as follows:

A	$P_{t=2} = 0$	$P_{t=2} = 1$	Tot
$P_{t=1} = 0$	$\frac{So}{So+J+L+\text{Si}}$	$\frac{J}{So+J+L+\text{Si}}$	$\frac{So+J}{So+J+L+\text{Si}}$
$P_{t=1} = 1$	$\frac{L}{So+J+L+\text{Si}}$	$\frac{Si}{So+J+L+\text{Si}}$	$\frac{L+\text{Si}}{So+J+L+\text{Si}}$
Tot	$\frac{So+L}{So+J+L+\text{Si}}$	$\frac{J+\text{Si}}{So+J+L+\text{Si}}$	1

B	$P_{t=2} = 0$	$P_{t=2} = 1$	Tot
$P_{t=1} = 0$	$\frac{So}{So+J}$	$\frac{J}{So+J}$	1

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$P_{t=1}=1$	$\frac{L}{L+\text{Si}}$	$\frac{\text{Si}}{L+\text{Si}}$	1
Tot	$\frac{So+L}{So+J+L+\text{Si}}$	$\frac{J+\text{Si}}{So+J+L+\text{Si}}$	1

Both matrixes are read by row. Matrix A can be used to compare 0->1 transitions (into transfers) and 1->0 transitions (out of transfers) as all cells are 'standardized' to the panel population. Matrix B is a non-efficient estimation of the more common Markov type of transition matrix. It can be used to calculate poverty transitions, the incidence of transfers on poverty and to calculate the PROT and PROM tests proposed by Ravallion et al. (1995). These are simple tests to check on the capacity of transfers to protect the non-poor from falling into poverty (PROT) and to promote the poor moving out of poverty (PROM). To calculate the incidence of transfers on poverty and on poverty transitions, it is sufficient to take the difference between the cells values of matrix B calculated in the presence of transfers and those calculated in the absence of transfers.

The PROT and PROM tests are also easily derived from matrix B. Let $F_t(z)$ be the share of the poor at time t in the presence of social benefits and given a poverty line z and let $G_t(z)$ be the corresponding share in the absence of social benefits. Let also $F(z,z)$ and $G(z,z)$ be the shares of those who stay poor between the time periods considered. The protection ($PROT$) and promotion ($PROM$) tests are defined as:

$$PROT(z) = G_2(z) - G(z,z) - F_2(z) + F(z,z) \qquad [1]$$

$$PROM(z) = F_1(z) - F(z,z) - G_1(z) + G(z,z) \qquad [2]$$

However, given that $F_1(z) = G_1(z)$ by definition (in the pre-benefits period $F(z)$ cannot include benefits) the $PROM$ equation is reduced to:

$$PROM(z) = G(z,z) - F(z,z) \qquad [3]$$

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Positive values of these measures will indicate that social benefits have been able to protect the non-poor from poverty and to promote the poor out of poverty. In the framework of Matrix B described above, $G_2(z)$ and $F_2(z)$ are equal to $\left(\frac{J+\mathrm{Si}}{So+J+L+\mathrm{Si}}\right)$ while $G(z,z)$ and $F(z,z)$ are equal to $\left(\frac{\mathrm{Si}}{L+\mathrm{Si}}\right)$ with G representing the transition probabilities without transfers and F those with transfers.

The transition probabilities for matrix A and B are reported in Table 3a and 3b respectively. There is a significant mobility within all types of transfers with inflows dominating outflows for all transfers and for all time periods considered (Table 3a). This confirms that coverage has been on the increase for all transfers and in all time periods. The largest outflows are shown by personal transfers while the largest inflows are shown by social assistance. As already noted, the social assistance program is the program that has expanded the fastest. Social insurance is the least 'mobile' of the transfers with the lowest inflows and outflows but has also the largest household coverage. Marginal increases in the social insurance program can have large effects on household welfare while social assistance would require much larger marginal changes to have an equivalent impact on households.

[Table 3a]

All types of transfers contribute to reduce poverty (Table 3b). Social insurance is the transfer that contributes the most. In the absence of social insurance the poverty headcount index would have been 11.8% higher in 2002, 13.6% higher in 2003 and 15.6% higher in 2004 (Table 3b, panel A-C). Personal transfers follow in terms of importance reducing poverty by 4% in 2002, 5.9% in 2003 and 5.9% in 2004 (Table 3b, panel A-B). The incidence of social assistance is more marginal but still positive with 1.6% in 2002, 2.1% in 2003 and 2.4% in 2004 (Table 3b, panel A-D).

We can also note that all benefits are able to protect people from poverty and promote an exit from

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poverty in all three periods considered (PROT and PROM tests, bottom of table 3b). Social insurance is the benefit that best contributes to promoting an exit from poverty confirming our speculations based on Figure 1. We have already noted that the shape of the distribution of social insurance was such that the shift to the right between 2001 and 2004 allowed many households to cross the poverty line. On the other hand, the role of social insurance in protecting the non-poor from falling into poverty is very marginal.

Personal transfers provide both promotion out of poverty and protection from poverty but in a limited amount relatively to the other two types of transfers. We saw that, despite the larger amounts of personal transfers, the distribution of these benefits is rather flat and pro-rich, with a limited capacity to move a large number of observations across the poverty line. Instead social assistance, which is theoretically designed to lift people out of poverty, functions best to protect people from poverty. This is probably explained by the very poor targeting of social assistance, which we showed to be strongly bias in favour of the non-poor.

In a sense, it is as if social insurance and social assistance had swapped roles in Moldova with social assistance functioning as an income protection mechanism and social insurance functioning as a poverty alleviation measure. This clearly calls for a major reform of the social assistance system, from a categorical to a means-tested based system able to better target the poor and complement social insurance.

[Table 3b]

7. Parametric estimations

In this section we exploit the four years' longitudinal survey to estimate the elasticities of household consumption to changes in private and public transfers using a fixed effects model. Given our data and the implausibility of a proper matching procedure, we are unlikely to improve

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on self-selection but we can improve on unobserved and time-invariant heterogeneity by exploiting the longitudinal data and using fixed effects. The model is a standard fixed effects model and is described as follows:

$$\ln y_{it} = \alpha + B_{it}\beta + X_{it}\gamma + C_t\delta + \mu_i + \varepsilon_{it} \qquad [4]$$

where y_{it} is household consumption per capita, α_i, β, γ and δ are the parameters, μ is the time-invariant error term, ε is the standard error term and i and t stand respectively for households and time. All equations are estimated with an OLS estimator over the fours years considered (2001-2004) using all available observations, panel and non-panel.[xi] Therefore, the cross-sectional variable is 'households' and the longitudinal variable is 'years'.

B_{it} is a continuous measure of transfers expressed in units of local currency. All monetary variables are expressed in real 2001 terms. We will use private transfers, social insurance transfers and social assistance transfers first jointly and then separately. This will allow us to estimate elasticities of consumption conditional and non-conditional on other transfers and speculate in this way on whether some transfers have a displacement or crowding-out effect on other transfers.

X_{it} is a vector of household characteristics. The data offered limited choice and we focused on the essential characteristics of the head of the household and on the household dependency on working individuals. The characteristics of the head of the household are gender (female), age (below or equal to thirty years old) and education (tertiary education). The dependency ratio was calculated as the share of working individuals in household size. We then split this measure into classes and took households with a dependency rate between three and four and households with a dependency rate higher than four (these are both dummy variables).

C_t is a vector of time-varying country characteristics. We included these variables to capture

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essential changes in labour and economic conditions. We included the territorial employment rate (this is the employment rate calculated for each of the 46 territorial units covered by the survey) and the growth rate (this is the annual GDP growth rate taken from official statistics). Note that while for the territorial employment rate we can count on 184 observations (46 units*4 years), we have only four observations for the growth rate (4 years).

Results are shown in tables 4, 5 and 6. We look first at the full sample with the transfers variables used jointly and separately (Table 4) and later we focus on the poor and extremely poor (Table 5) and on rural and urban households (Table 6).

When the three types of transfers are taken jointly, private transfers and social insurance have both a positive and significant effect on consumption while social assistance has a positive sign but is non significant (Table 4, col. 1). The largest effect is shown by private transfers with a coefficient about four times the size of the social insurance coefficient (note that coefficient are small because the dependent variable is expressed in natural logarithm of consumption). When taken separately, neither private transfers nor social insurance change visibly. Coefficients and significance levels are roughly the same of the joint equation suggesting that these variables are rather orthogonal and have little displacement effect on each other. This is understandable as private transfers are spread across the population while social insurance transfers regard mostly the elderly and, to a minor extent, the unemployed. Social assistance benefits continue to be non significant when taken alone. This is the smallest of the transfers in terms of size and does not seem to have significant consumption elasticity on average and for the population at large.

The control variables are largely as expected for a transitional economy, and somewhat different from developing economies. Female-headed households are more likely to enjoy higher consumption. In developing economies, the opposite tends to be true but in many transitional economies of the Former Soviet Union females have done better than men in facing the transition process and this result is not atypical. Young age also does not appear to be significant in our

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equations whereas youth-headed households tend to be poorer in many developing and industrialized countries. In transitional economies, this is not necessarily the case as many young people have been able to adapt faster to the changed economic conditions and this outweighs the natural increase in income that comes with age.

The rest of the control variables are largely as expected and no different from most other countries. Households headed by tertiary educated people are associated with higher levels of consumption as compared to households headed by lower educated people. Also, with increased household dependency rates, the level of consumption per capita decreases as we should expect. The territorial employment rate is negatively associated with household consumption and the annual growth rate is positively associated. The local and national economic conditions have evidently an important role in determining household consumption levels.

[Table 4]

In Table 5, we report results restricting the sample to poor and extreme poor households.[xii] As we work over a four years' period and with monetary variables expressed in real 2001 terms, we consider poor those households with consumption below the official 2001 poverty line throughout the period (195.6 Lei per capita per month). In other words, if a household exited poverty between 2001 and 2004, its contribution to the estimates is limited to the period of poverty. We are looking therefore at persistent poverty. The extreme poor are defined in the same manner with a poverty line equal to 70% of the official poverty line. This is an arbitrary choice made on the basis of the distribution of poor households (we tried to keep the bottom half of poor households).

Looking at poor households (Table 5, upper panel) we find as before that private transfers and social insurance have a significant and positive association with consumption while social assistance is non significant. As compared to the full sample, elasticities are marginally higher for both private transfers and social insurance. As we should expect, these transfers are more relevant

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in relative terms for the poor than for the full sample.

The difference between joint and separate estimations of transfers is not very large but is larger for private transfers as compared to the estimates on the full sample. The elasticity of private transfers is marginally smaller if we consider this transfer alone suggesting that there is a small association with social insurance transfers. This is likely to regard households located close to the poverty line given what we found in relation to the distribution of private transfers and social insurance. Both these transfers peaked close to the poverty line and households receiving both types of transfers seem to benefit more from private transfers than households who receive only private transfers. This suggests that social insurance has not a crowding-out effect on private transfers (which is consistent with evidence in other countries – Cox et al., 2004) but that, on the contrary, social insurance may reinforce the impact of private transfers on poverty.

Additional insights can be gathered by focusing on the extreme poor (Table 5, bottom panel). For this group, the only transfers with a significant sign are private transfers, although the significance level is smaller than for the poor or for the full sample. Social insurance is no longer significant while social assistance continues to be non significant. The coefficient for private transfers also increases by a consistent amount as compared to the sample of poor households (about 50%). In essence, with the reduced sample of the extremely poor, we are only able to detect a consistent positive effect for private transfers. Only few of the extremely poor receive private transfers given the distribution of these transfers but, when they receive them, these are fairly large relatively to consumption of this group determining a positive, significant and large effect.

[Table 5]

Next, we turn to rural and urban areas (Table 6). As for the full sample and for both rural and urban areas, we find private transfers and social insurance to be positively and significantly associated with consumption and social assistance to be non-significant. For private transfers, we

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cannot observe relevant differences between the joint and separate estimations and between rural and urban areas. This is remarkable and suggests that remittances derive from people emigrated from both urban and rural areas, that inter-household transfers are intense in both areas and that these two types of transfers together have a similar effect on consumption for rural and urban dwellers.

The situation is different for social insurance. The coefficients for social insurance are less significant for urban areas and they are more than four times larger as compared to rural areas. Urban households should be expected to be richer and show lower income-consumption elasticities. However, social insurance regards for the most part pensions and the elderly. It is likely that the elderly living in urban areas can only count on pensions for consumption while the elderly living in rural areas have other sources of consumption such as self-production and self-consumption and can rely on different forms of intra-household distribution of resources. This could explain the difference between rural and urban households in terms of size of social insurance. The lower significance level observed in urban areas as compared to rural areas is instead most likely to be explained by the smaller sample (7,399 urban households against 10,612 rural households). Despite higher levels of poverty in rural areas as compared to urban areas, social insurance plays the most prominent role for poverty reduction in urban areas.

[Table 6]

8. Conclusion

Moldova has experienced a remarkable recovery after the deep recession of the 1990s and this recovery turned into very significant poverty reduction. The period of output growth and poverty reduction has also been accompanied by a significant surge in public and private transfers. The paper questioned whether these transfers have contributed to improvements in welfare and poverty.

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An overview of basic statistics showed that both public and private transfers expanded in terms of coverage, real value and relative importance across sources of income. This suggested that public transfers did not have a major crowding-out effect on private transfers but that both types of transfers may have contributed to displace other sources of income.

An incidence evaluation based on transition probabilities matrixes showed that all types of transfers have contributed to reduce poverty with private transfers leading the way followed by social insurance and social assistance in this order. We also noted that social insurance and social assistance have somehow swapped roles with social assistance functioning as an income protection mechanism and social insurance functioning as a poverty alleviation measure.

These findings seem to be explained by both the size and the particular distribution of the three types of transfers. Private transfers and social insurance are larger transfers than social assistance and they both peak close to the poverty line. The increase in real terms and coverage of these transfers produced real benefits for the poor. Social assistance transfers are instead much lower in value and peak at very low levels of consumption. Despite the three folds growth in average benefit and coverage, this type of transfer remains marginal in lifting the poor out of poverty.

These findings are confirmed by a series of parametric estimates that provide some additional insights. Private transfers and social insurance show positive and significant effects on consumption with private transfers exhibiting the largest and most significant effects and with these effects being larger for poorer households. In addition, we do not find evidence of displacement or crowding-out effects among the different types of transfers considered. That is because beneficiaries of the different types of transfers do not overlap to a great extent. When private transfers and social insurance do overlap (close to the poverty line) we find that social insurance enhances marginally the capacity of private transfers to reduce poverty. It is also noteworthy that social insurance works best for poverty alleviation in urban areas rather than rural areas.

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Social assistance does not appear to have a very relevant impact on welfare or poverty. This may be due to the lower amounts and coverage of these transfers as compared to private transfers and social insurance transfers. However, it is remarkable that these benefits are not significant when we restrict the analysis to the poor or extreme poor confirming that targeting the poor was not a major objective of the social assistance program.

We can conclude that there is a clear ranking between the three types of transfers considered. Private transfers are the best welfare improving mechanisms while social insurance transfers function best as poverty alleviation measures. Social assistance benefits come last with a small positive role in protecting the non-poor from falling into poverty and a non-significant effect on poverty.

These findings suggest that the gains in welfare and poverty reduction observed between 2001 and 2004 remain very vulnerable to shocks in private and public transfers and that social assistance is in great need of restructuring. These two factors may contribute to explain why poverty reduction has stalled in Moldova between 2004 and 2007, despite continued growth in output. They also suggest that the drop in both private and public transfers may well amplify the impact of the 2008-2009 crisis on poverty beyond the expected impact due to the reduction in employment and wages.

From a purely public policy perspective the options for the government are limited but should focus on turning the social assistance system into a means-tested system and channelling scarce resources to the poor. Addressing poverty issues by increasing pensions is effective due to the particular distribution of pensions but is very costly and results in significant leakage. The still weak system of social insurance contributions does not guarantee sustainability of the pension fund and the government cannot continue to finance the pension fund deficit with general taxation. There is some scope to promote private transfers by simplifying rules and regulations for repatriation of capital but this source of revenue is already very large, mostly untaxed and

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informal. Instead, the government could reduce the number of social assistance benefits, increase the value of these benefits per capita, make these benefits means-tested and target the poor only. In the light of the recent global crisis that greatly affected Moldova, this seems the most sensible action to take.

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[i] See section four for definitions of public and private transfers.
[ii] See also Schultz and Strauss (2008) for a comprehensive review of modern evaluation methods.
[iii] See http://www.cisstat.com/eng/mac-01.htm
[iv] In an earlier version of this paper we attempted a non-experimental impact evaluation constructing a counterfactual based on a matching procedure and using single and double difference estimates. This proved non successful as we were unable to defend the reliability of the matching process, the validity of the counterfactual and ultimately the conditional independence hypothesis. Other methodologies such as discontinuity design were also considered but excluded on the basis of available data.
[v] Signoret, J.E. (2003) provides full details on the panel structure and rotation mechanisms.
[vi] A higher poverty line of 4.3 USD/Day PPP is also used sometimes by the World Bank.
[vii] For a detailed description of public transfers in Moldova see Verme (2007).
[viii] Note that these figures differ from the official poverty rates of Moldova because we focus on households rather than individuals.
[ix] These are obtained with the 'kdensity' command in Stata which, by default, uses the kernel Epanechnikov function. The solid line in the centre of each figure represents the poverty line.
[x] When we will disaggregate by urban and rural areas further in the paper we will use all observations, panel and non, and this comment on the balanced and unbalanced sample does not apply.
[xi] Note that this choice is more efficient than focusing on panel observations only. Keeping only panel observations would reduce the sample to little more than 800 observations and would compromise the representativeness of the sample. Instead, when keeping all observations, the longitudinal model implicitly distinguishes between panel and non-panel observations.
[xii] For simplicity of exposition, in the next tables we omit results for the control variables. Some of the coefficients of the control variables lose in significance levels as we work with smaller samples but the signs of the relations do not change.

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Table 1 - Household Poverty and Income

	2001	2002	2003	2004
A. Poverty				
Headcount ratio %	63.01	49.11	35.97	37.59
Poverty gap ratio %	24.47	16.72	10.34	11.08
Severity of poverty ratio %	12.29	7.60	4.15	4.57
B. Coverage (Population=1)				
Wages	0.48	0.52	0.55	0.54
Personal transfers	0.12	0.13	0.14	0.15
Social insurance	0.39	0.41	0.42	0.41
Social assistance	0.07	0.16	0.21	0.23
C. Average income per month per capita (Lei, real terms)				
Income from work	***118.0***	***150.8***	***181.2***	***190.1***
wages	91.2	113.1	134.1	150.6
agriculture	17.3	26.7	29.0	23.2
self-employment	4.7	5.2	7.9	7.8
sales	2.3	2.2	3.7	2.6
services	2.6	3.7	6.4	5.8
Income from transfers	***22.7***	***31.1***	***41.1***	***52.4***
personal transfers	25.2	37.7	43.3	49.4
social insurance	20.3	25.8	34.6	46.0
social assistance	2.4	5.3	6.6	6.3
Income from finance	***21.8***	***23.9***	***28.6***	***27.1***
finance	21.1	23.6	26.9	25.9
property	0.6	0.4	1.7	1.2
Other incomes	***2.6***	***3.9***	***4.0***	***4.3***
Total incomes	**165.1**	**209.7**	**255.0**	**273.8**
D. Structure of average income per month per capita (Lei, real terms)				
Income from work	***71.5***	***71.9***	***71.1***	***69.4***
wages	55.2	53.9	52.6	55.0
agriculture	10.5	12.7	11.4	8.5
self-employment	2.8	2.5	3.1	2.9
sales	1.4	1.1	1.4	1.0
services	1.5	1.8	2.5	2.1
Income from transfers	***13.7***	***14.8***	***16.1***	***19.1***
personal transfers	15.3	18.0	17.0	18.1
social insurance	12.3	12.3	13.6	16.8
social assistance	1.4	2.5	2.6	2.3
Income from finance	***13.2***	***11.4***	***11.2***	***9.9***
finance	12.8	11.2	10.5	9.5
property	0.4	0.2	0.7	0.4
Other incomes	***1.6***	***1.8***	***1.6***	***1.6***
Total incomes	***100.0***	***100.0***	***100.0***	***100.0***

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Table 2 - Distribution of Consumption and Transfers by Consumption Quintiles

	2001	2002	2003	2004
Consumption				
1	9.0	10.1	11.0	10.2
2	13.6	13.5	14.8	13.6
3	16.6	16.7	17.2	17.1
4	21.1	21.5	20.6	21.0
5	39.8	38.3	36.5	38.1
Total	100.0	100.0	100.0	100.0
Social Assistance				
1	17.5	17.1	20.5	23.7
2	17.1	18.7	20.1	23.2
3	24.3	18.7	20.9	22.4
4	14.0	21.6	19.5	18.6
5	27.1	23.9	19.0	12.1
Total	100.0	100.0	100.0	100.0
Social Insurance				
1	16.9	15.5	18.4	16.8
2	19.2	20.6	22.0	21.0
3	21.7	23.0	20.8	23.0
4	22.1	21.1	20.6	21.6
5	20.0	19.8	18.2	17.6
Total	100.0	100.0	100.0	100.0
Personal Transfers				
1	4.8	4.2	5.3	3.9
2	8.2	8.0	8.7	4.7
3	10.4	10.3	15.3	10.4
4	20.7	14.7	17.2	19.0
5	55.9	62.8	53.5	62.0
Total	100.0	100.0	100.0	100.0

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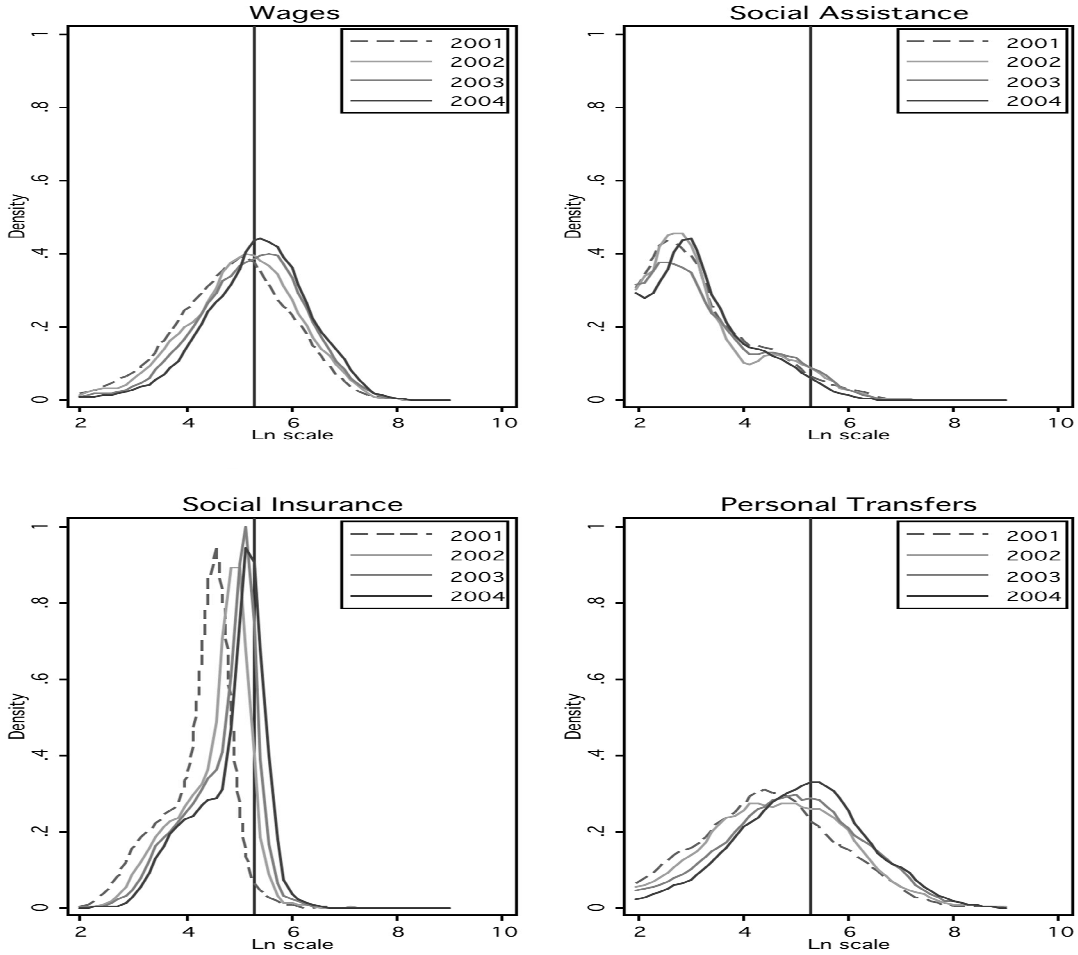
Figure 1 – Distribution of Wages and Transfers (ln., per capita)



Note: The vertical solid line represents the poverty line (ln scale).

Table 3a - Transition Probabilities 2001-2004

	2001-2002			2002-2003			2003-2004		
	0	**1**	**Total**	**0**	**1**	**Total**	**0**	**1**	**Total**
A. Personal Transfers									
0	82.4	6.9	89.3	80.0	8.3	88.3	78.2	8.1	86.3
1	6.6	4.1	10.7	6.7	5.0	11.7	7.2	6.4	13.7
Total	89.0	11.0	100.0	86.7	13.3	100.0	85.5	14.5	100.0
B. Social Insurance									
0	55.8	5.0	60.9	54.4	3.4	57.8	54.0	3.6	57.5
1	2.6	36.5	39.1	2.9	39.3	42.2	2.4	40.0	42.5
Total	58.4	41.6	100.0	57.3	42.7	100.0	56.4	43.6	100.0
C. Social Assistance									
0	81.7	11.4	93.1	76.2	9.5	85.7	72.6	7.5	80.1
1	2.4	4.5	6.9	4.5	9.8	14.3	4.4	15.6	19.9
Total	84.2	15.8	100.0	80.7	19.3	100.0	77.0	23.0	100.0

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Table 3b - Transition Probabilities 2001-2004

	2001-2002			2002-2003			2003-2004		
	0	**1**	**Total**	**0**	**1**	**Total**	**0**	**1**	**Total**
A. Poverty									
0	74.67	25.33	100	79.71	20.29	100	77.7	22.3	100
1	37.46	62.54	100	43.86	56.14	100	33.48	66.52	100
Total	50.84	49.16	100	61.04	38.96	100	61.97	38.03	100
B. Poverty without personal transfers									
0	71.11	28.89	100	74.88	25.12	100	72.35	27.65	100
1	34.86	65.14	100	39.67	60.33	100	33.03	66.97	100
Total	46.8	53.2	100	55.16	44.84	100	56.05	43.95	100
C. Poverty without social insurance									
0	68.13	31.87	100	74.68	25.32	100	70.26	29.74	100
1	27.32	72.68	100	31.79	68.21	100	21.8	78.2	100
Total	39.02	60.98	100	47.46	52.54	100	46.37	53.63	100
D. Poverty without social assistance									
0	72.43	27.57	100	78.18	21.82	100	76.29	23.71	100
1	36.46	63.54	100	42.43	57.57	100	31.87	68.13	100
Total	49.24	50.76	100	58.9	41.1	100	59.55	40.45	100
A-B. Incidence of personal transfers									
0	-3.6	3.6	0.0	-4.8	4.8	0.0	-5.4	5.4	0.0
1	-2.6	2.6	0.0	-4.2	4.2	0.0	-0.4	0.5	0.0
Total	**-4.0**	4.0	0.0	**-5.9**	5.9	0.0	**-5.9**	5.9	0.0
A-C. Incidence of social insurance									
0	-6.5	6.5	0.0	-5.0	5.0	0.0	-7.4	7.4	0.0
1	-10.1	10.1	0.0	-12.1	12.1	0.0	-11.7	11.7	0.0
Total	**-11.8**	11.8	0.0	**-13.6**	13.6	0.0	**-15.6**	15.6	0.0
A-D. Incidence of social assistance									
0	-2.2	2.2	0.0	-1.5	1.5	0.0	-1.4	1.4	0.0
1	-1.0	1.0	0.0	-1.4	1.4	0.0	-1.6	1.6	0.0
Total	**-1.6**	1.6	0.0	**-2.1**	2.1	0.0	**-2.4**	2.4	0.0
		PROM	**PROT**		**PROM**	**PROT**		**PROM**	**PROT**
Personal transfers		2.6	1.4		4.2	1.7		0.5	5.5
Social insurance		10.1	0.6		12.1	0.7		11.7	0.8
Social assistance		1.0	14.0		1.4	17.9		1.6	29.3

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Table 4 - Consumption equations - full sample

	1	2	3	4
Private Transfers	0.000433***	0.000434***		
	-0.00005	-0.00005		
Social Insurance	0.00102***		0.00104***	
	-0.000297		-0.000305	
Social Assistance	0.000313			0.000376
	-0.000303			-0.000256
Head-female	0.0538**	0.0572**	0.0746***	0.0753***
	-0.0259	-0.0261	-0.0265	-0.0266
Head-30 y.o. or less	0.0319	0.0259	0.0481	0.0399
	-0.0426	-0.0427	-0.0444	-0.0443
Head-tertiary education	0.119**	0.122**	0.118**	0.122**
	-0.05	-0.0501	-0.0522	-0.0526
Household dependency rate (3-4)	-0.166***	-0.167***	-0.156***	-0.160***
	-0.0283	-0.0283	-0.0288	-0.029
Household dependency rate (5+)	-0.142***	-0.116**	-0.118**	-0.0936*
	-0.0483	-0.0482	-0.0488	-0.0486
Territorial employment rate	-0.0971**	-0.126***	-0.0925*	-0.121**
	-0.0481	-0.0475	-0.0487	-0.0482
GDP growth	3.281***	3.517***	3.345***	3.557***
	-0.182	-0.169	-0.184	-0.172
Constant	1.927***	1.732***	1.856***	1.686***
	-0.193	-0.184	-0.195	-0.187
Observations	24597	24597	24597	24597
R-squared	0.131	0.125	0.108	0.103

Robust standard errors below coefficients, *** p<0.01, ** p<0.05, * p<0.1.
Dep. Var.: Ln Household Consumption per Capita.

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Table 5 - Consumption equations, poor and extreme poor

	1	2	3	4
Poor				
Private Transfers	0.000506**	0.000482**		
	-0.000199	-0.0002		
Social Insurance	0.00131***		0.00129***	
	-0.000373		-0.000374	
Social Assistance	0.000293			0.000252
	-0.00051			-0.000507
Observations	9967	9967	9967	9967
R-squared	0.111	0.105	0.108	0.102
Extreme Poor				
Private Transfers	0.000771**	0.000745**		
	-0.000377	-0.000373		
Social Insurance	0.000457		0.000428	
	-0.000561		-0.00056	
Social Assistance	-0.000831			-0.000793
	-0.00078			-0.000791
Observations	5027	5027	5027	5027
R-squared	0.117	0.115	0.113	0.113

Robust standard errors below coefficients, *** p<0.01, ** p<0.05, * p<0.1.
Control variables omitted.
Dep. Var.: Ln Household Consumption per Capita.

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Table 6 - Consumption equations, rural and urban areas

	1	2	3	4
Rural				
Private Transfers	0.000421***	0.000422***		
	-0.00006	-0.00006		
Social Insurance	0.00152***		0.00157***	
	-0.000323		-0.000328	
Social Assistance	0.000341			0.00036
	-0.00022			-0.000224
Observations	10612	10612	10612	10612
R-squared	0.129	0.123	0.108	0.102
Urban				
Private Transfers	0.000453***	0.000452***		
	-0.00008	-0.00008		
Social Insurance	0.000673**		0.000693**	
	-0.000322		-0.000333	
Social Assistance	0.00037			0.000481
	-0.00068			-0.000565
Observations	7399	7399	7399	7399
R-squared	0.154	0.149	0.127	0.123

Robust standard errors below coefficients, *** p<0.01, ** p<0.05, * p<0.1.
Control variables omitted.
Dep. Var.: Ln Household Consumption per Capita.

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Table A1 - T-Tests for Means, Balanced (Panel) Vs. Unbalanced (Total) Samples

	2001-2002		2002-2003		2003-2004	
Var.	**Year 1**	**Year 2**	**Year 1**	**Year 2**	**Year 1**	**Year 2**
Poverty headcount	-0.53	1.13	-2.05	-2.42	-0.75	-1.11
Consumption	0.75	-1.07	2.80	2.80	0.94	1.38
Private Transfers	1.40	0.20	1.00	1.34	-0.12	0.46
Social Insurance	0.35	-1.17	0.77	0.53	-0.50	-0.81
Social Assistance	0.14	-1.44	-0.31	1.02	1.22	-1.33
Head-female	0.22	0.52	1.50	0.77	0.31	0.37
Head-30 y.o. or less	0.75	1.97	2.01	0.77	-0.32	1.61
Head-tertiary education	0.66	0.41	2.16	1.41	1.90	1.60
HH dependency rate (3-4)	1.97	0.57	0.45	0.78	0.46	0.88
HH dependency rate (5+)	0.54	0.08	0.55	-0.51	0.03	0.46
Territorial empl. rate	-1.21	-0.85	-0.80	-0.04	-0.30	-0.30
Rural	-2.17	-1.85	-2.64	-2.45	-3.38	-3.44
Panel observations	*2469*	*2469*	*1716*	*1716*	*2404*	*2404*
Total observations	*6217*	*6159*	*6159*	*6123*	*6123*	*6121*

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