

## DISCUSSION PAPER SERIES

No. 2422

**GOVERNMENT CASH TRANSFERS, HOUSEHOLD  
CONSUMPTION, AND POVERTY ALLEVIATION -  
THE CASE OF RUSSIA**

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*TRANSITION ECONOMICS*



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Discussion Paper No. 2422  
April 2000

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## **ABSTRACT**

### **Government Cash Transfers, Household Consumption, And Poverty Alleviation – The Case Of Russia\***

The Paper develops a new approach to measuring the impact of government cash transfers on poverty alleviation that takes into account endogenous reactions and consumption smoothing of households. We use the methodology to study the impact of changes in government cash benefits on poverty rates in Russia during 1994 to 1998. The methodological contribution is twofold. First, we estimate the propensity to consume from government cash transfers separately for each transfer type and interpret the differences in the coefficients in the light of Friedman's permanent income hypothesis. The propensity to consume is higher from regular than from transitory income sources, and higher for pensions than for child benefits and other income. Second, we propose a new decomposition technique to disentangle the impact of changes in government transfers and changes in the expenditure distribution excluding cash transfers on movements in poverty rates. At least 30% of the rise in poverty between 1994 and 1998 was due to the changes in cash transfer policy. Keeping benefits at the level of 1994, poverty would have been lower by around 20% in 1998.

JEL Classification: D12, H53, H55, I32, I38

Keywords: consumption, child benefits, pensions, poverty, Russia

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\* I thank Ruediger Ahrend, Yury Andrienko, Laura Henderson, Jesko Hentschel and Nadia Ivanova for their support in data collection, Tim Besley, Frank Cowell, Clemens Grafe, Robert Jensen, Albert Motivans, Ceema Namazie, Rainer Nitsche, Lars-Hendrik Roeller, Mark Schaffer, Charles Wyplosz, Ksenia Yudaeva and seminar participants of the Applied Econometrics Workshop at the London School of Economics, of the CEPR Transition Economics Workshop 1999 in Budapest and of the Economics Seminar at the Wissenschaftszentrum Berlin for very helpful comments and discussions. This Paper was first presented at the Phare-ACE Transition Economics Summer Workshop for Young Researchers, organized by CEPR. The research was undertaken with support from the European Union' s Phare ACE Programme (Contract Number: P97-9814-W).

Submitted 18 September 1999

## NON-TECHNICAL SUMMARY

What is the impact of government transfers on household consumption and poverty? The standard approach to answer this question is as follows. We take actual distribution of expenditures and compare it to the distribution obtained when we subtract the amount of government transfers from the observed consumption level. This procedure assumes that government transfers are fully consumed. In this Paper, we argue that this assumption is invalidated for two reasons. Variations in government transfers lead to behavioural reactions of welfare recipients. For example, if the government fails to pay pensions, then pensioners may take on new jobs, receive transfers from their children, or sell off assets in order to keep consumption levels. Furthermore, households smooth consumption over income fluctuations. If income varies widely from one period to the other, then separating income from consumption is essential to keep living standards constant. This Paper develops and applies a new approach for measuring the impact of government cash transfers on poverty alleviation that takes into account both endogenous reactions and consumption smoothing of households. Our analysis proceeds in two steps. First, we run reduced-form regressions of the link between transfer income and current expenditure. We estimate separate coefficients for pensions and child benefits, and interpret the differences in the light of behaviour responses and consumption smoothing. The regressions reveal two robust results. Households consume a higher share of income from permanent than from transitory income sources. In addition, the coefficients on pensions are higher than the estimates for child benefits and other incomes. These results are consistent with Friedman's permanent income hypothesis. Pensions are a more regular form of income than other household receipts and the propensity to consume from regular or permanent income sources is higher than from transitory income sources. In contrast, the evidence on endogenous responses is mixed. In any case, our regressions indicate that it is misleading to contribute deviations in the propensity to consume from unity exclusively to endogenous responses. Second, we propose a new decomposition technique to disentangle the impact of changes in government transfers and changes in the pre-transfer expenditure distribution on movements in poverty rates. By putting all elements of the analysis together, we obtain a more realistic picture of the impact of changes in government transfer policies on poverty compared to the standard approach. The study emphasizes that the effectiveness of government transfer policies depends on their impact on household consumption.

We apply the methodology to investigate the impact of government cash transfers on poverty in Russia during 1994 to 1998. The dramatic changes in living standards and the large changes in government transfers make Russia a rich source for studies of the welfare incidence of government transfers. The results of the analysis highlight the interplay between fiscal and political pressures, cash transfer levels, and poverty rate dynamics during this period of macroeconomic adjustment. The changes in

transfer entitlements and payment arrears during 1994 and 1998 were a reflection of the economic and political dynamics. Pension entitlements fell in 1995 as part of a renewed effort to achieve fiscal consolidation. Political pressures in the run-up to the Presidential elections in Summer 1996 led to increases in cash transfer entitlements. They were unaffordable due to the ongoing decline in tax revenues and the lack of funds resulted in a rise of arrears. The substantial fiscal imbalances across regions led to a strong regional variation in the incidence of arrears both for pensions and child benefits. The rise in inflation after the financial crisis of August 1998, and the failure to index cash transfers for inflation, reduced benefit levels again. This contraction in entitlements allowed the government to limit the incidence of payment arrears without increasing overall budgetary spending. The changes in government transfer policies since 1994 accounted for at least 30% of the increase in poverty. Poverty in 1998 would have been up to one fifth lower if government transfers had remained constant at the 1994 level.

# 1 Introduction

What is the impact of government transfers on household consumption? Standard incidence studies compare the distribution of consumption levels before and after government intervention. Typically, only the post-intervention distribution is observed, while the pre-intervention distribution is approximated. The lack of the relevant counterfactual is overcome by subtracting the amount of government transfers from the observed consumption level. This procedure assumes implicitly that the propensity to consume from cash transfers is equal to unity. In this paper, we argue that this assumption is invalidated for two reasons: endogenous responses and consumption smoothing.<sup>1</sup> Variations in government transfers lead to behavioural reactions of welfare recipients (Cox and Jakubson (1995), Ravallion, de Walle, and Gautam (1995), and Van de Walle (1995)). For example, if the government fails to pay pensions, then pensioners may take on new jobs, receive transfers from their children, or sell off assets in order to keep consumption levels. Furthermore, households smooth consumption over income fluctuations. If income varies widely from one period to the other, then separating income from consumption is essential to keep living standards constant. The development literature emphasises that rural households are exposed to large income risks (Deaton (1997), Paxson (1992), Townsend (1995), and Wolpin (1982)). Returns from agricultural activity are subject to great uncertainty arising from weather conditions, sickness, and price fluctuations. In the context of Russia, arrears in wages and cash transfers constitute additional risks to the vagaries of home and dacha production (Lehmann, Wadsworth, and Acquisti (1998)).<sup>2</sup>

This paper develops and applies a new approach for measuring the impact of government cash transfers on poverty alleviation that takes into account endogenous reactions and consumption smoothing of households.<sup>3</sup> The methodological contribution is twofold. First, household characteristics of benefit recipients, and therefore the scope for endogenous responses, differ for cash transfers. In addition, some cash transfers are more regular sources of income than others, and the propensities to consume should vary according to Friedman's permanent income hypothesis. We estimate the propensity to consume from government cash transfers for each transfer type separately. Building on work by Ravallion, de Walle, and Gautam (1995), we run reduced-form regressions of the link between transfer income and current expenditure without differentiating the structure of the behavioural responses.<sup>4</sup> Following Deaton (1997) and Wolpin (1982),

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<sup>1</sup>There are other reasons that we do not consider in the paper. The propensity to consume may vary over the life cycle of household members, and differ according to the recipient of the cash transfers (Strauss (1995)).

<sup>2</sup>We do not investigate in this paper how households overcome the lack of formal insurance and credit markets that characterises many developing and transition countries (Besley (1995)).

<sup>3</sup>The methodology is applicable also to other dimensions of well-being, such as inequality.

<sup>4</sup>This is a simplification in as far as different behavioural responses have different welfare

we use instrumental variable techniques to separate transitory from permanent income components, and compare the degree of consumption smoothing across types of cash transfers. Our regression estimates confirm that the propensity to consume from transitory income is lower than from permanent income. Furthermore, pensions, as a more regular form of income source than other incomes, have consistently higher coefficients than other incomes. Second, we propose a new decomposition technique to disentangle the impact of changes in government transfers and changes in the pre-transfer expenditure distribution on movements in poverty rates. By putting all elements of the analysis together, we obtain a more realistic picture of the impact of changes in government transfer policies on poverty compared to the standard methodology. The study emphasises that the effectiveness of government transfer policies depends on their impact on household consumption. A well-targeted transfer may still be ineffective in reducing poverty if the propensity to consume is close to zero.

We apply the methodology to investigate the impact of government cash transfers on poverty alleviation in Russia during 1994 to 1998. The dramatic changes in living standards and the occurrence of arrears in government transfer make Russia a rich source for studies of the welfare incidence of government transfers. The analysis is based on household data from the Russian Longitudinal Monitoring Survey (RLMS) and regional data from official sources in Russia. We trace the incidence of payment arrears for pensions and child benefits, account for the factors underlying the changes in cash benefits, estimate the propensities to consume corresponding to the various transfer types, and simulate poverty rates for counterfactual distributions of government transfers. The results of the analysis highlight the interplay between fiscal and political pressures, cash transfer levels, and poverty rate dynamics during this period of macroeconomic adjustment. The need for fiscal consolidation implied cuts in social expenditures, while political demands called for higher social benefits. The outcome was characterised by a combination of increases in benefit entitlements at the cost of greater benefit arrears (especially in fiscally weak regions), contractions in benefit levels due to a lack of indexing of entitlements for inflation, and higher poverty. The changes in government transfer policies since 1994 accounted for at least 30% of the increase in poverty. Poverty in 1998 would have been between 6% to 12% lower without arrears in government cash transfers, and up to one fifth lower without changes in the real level of benefit entitlements since 1994.

The structure of the paper is as follows. The next section gives a brief description of the data sets and introduces the welfare measures used in the analysis. Section 3 looks at the incidence of pension and child benefit arrears, and presents the regression analysis for the propensities to consume from these transfers. Sec-

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implications. For example, a reduction in government transfers could be compensated for by either an increase in labour supply or a reduction in leisure consumption or a boost in private transfers with unchanged consumption of leisure (Ravallion, de Walle, and Gautam (1995) and Browning (1992)).



tion 4 discusses changes in poverty rates and transfer payments, describes the decomposition technique, and presents the results of the decomposition and simulation analysis. The final section concludes.

## 2 Data set and Welfare Measures

The analysis in the paper uses the Russian Longitudinal Monitoring Survey (RLMS).<sup>5</sup> The RLMS is a repeated cross-section household survey. It was designed to measure the effects of the sweeping changes in Russia from the early 1990s on the well-being of individuals and households. The results presented here are based on the four rounds (Round 5 to Round 8) of the second phase of the survey. They were conducted during late autumn of 1994, 1995, 1996, and 1998. Interviewers returned in subsequent rounds to the addresses identified for Round 5. Households were selected using multi-stage sampling. Initially, Russia was divided into 38 strata based on geographical factors and the level of urbanisation. At the second stage, one district, or primary sampling unit (PSU), was selected from each strata using proportional-to-size sampling. In each PSU, urban and rural substrata were identified, and secondary sampling units or clusters were selected using proportional-to-size sampling. Overall, the data set contains 160 clusters. Finally, around ten households were interviewed in each cluster. Reporting periods varied from the last week for parts of the consumption data to one year for some information on subsidiary farming, but consistent estimates for monthly income and expenditures can be constructed.<sup>6</sup> In addition to the household questionnaires, the RLMS also contains a community section containing information about public infrastructure in each of the 160 clusters. The survey design has important implications for the analysis of the data set. First, we use the sampling weights provided by the RLMS to ensure that the estimates are approximately nationally representative. Second, the formulae for calculating standard errors of the welfare measures need to be adjusted for the clustering and stratification in the set-up of the survey design (Howes and Lanjouw (1997)). Third, we can construct a panel of households represented in all three rounds. The panel of households contains 2250 observations with 5579 individuals, which represents a reduction in size compared to the cross-section of about 40%.<sup>7</sup>

Apart from the RLMS, we use regional fiscal and economic data from the Russian Ministry of Finance, State Tax Service, and the national statistical office

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<sup>5</sup>The survey is organised and coordinated by the Carolina Population Centre at the University of North Carolina at Chapel Hill.

<sup>6</sup>Rounds are labelled either by round numbers or years in this paper. The results should however not be interpreted as representative for annual periods.

<sup>7</sup>Comparing welfare statistics for the cross-sections and the panel, we find no evidence that the panel compromises the representativeness of the results. The representativeness of the RLMS is analysed in Heeringa (1997).

Goskomstat. We merge these data sets with the RLMS at the oblast level. The 160 clusters in the RLMS originate from 32 out of the 89 Russian oblasts.

The basic indicator of living standards is the welfare ratio, defined as the ratio of household expenditures and the poverty line. Household expenditures account for both cash and in-kind expenditures, including consumption from own-production. Nominal expenditures are converted into real terms, denominated in June 1992 prices, by using a regionally differentiated price index, based on the consumer price index compiled by Goskomstat. Household expenditures are divided by the number of household members in order to obtain an individual-based welfare measure.<sup>8</sup> The choice of an expenditure rather than income-based welfare measure is common practice in the development literature, especially in the context of the analysis of poverty (Deaton (1997) and Ravallion (1992)). Furthermore, the RLMS is designed to obtain information for just one month of the year, and monthly expenditure is likely to be less variable than monthly income.

The poverty line is the official poverty line of the Russian Federation, calculated in accordance to the recommendations of the World Bank and the World Health Organisation, and adjusted for regional price differences across regions. It was developed by pricing a food basket constructed on the basis of nutritional criteria. Food shares in overall expenditures were separately estimated for each age-gender group.<sup>9</sup> As a result, poverty lines vary according to the demographic composition and regional location of a household. To account for these differences, household expenditures were normalised by the household-specific poverty line.

Following most of the research on poverty measurement Ravallion (1992) and Deaton (1997) three poverty statistics are used in the analysis. They all belong to the class of measures proposed by Foster, Greer, and Thorbecke (1984) and are characterised by the following equation:

$$P_\alpha = (1/n) \sum_{i=1}^q \left( \frac{z - y_i}{z} \right)^\alpha$$

where  $\alpha$  is some non-negative parameter,  $z$  is the poverty line,  $y$  denotes expenditures,  $i$  indexes individuals,  $n$  equals the total number of individuals in the population, and  $q$  is the number of individuals with expenditures below the poverty line. The measure  $P_0 = H$  is called head-count,  $P_1 = PG$  the poverty gap, and  $P_2 = FGT$  the Foster-Greer-Thorbecke measure.  $H$  gives the share

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<sup>8</sup>The conversion assumes an equal dispersion of expenditures across household members irrespective of needs. For example, adults are assigned identical expenditure levels as children. Welfare levels in large households are underestimated in case of economies of scale. However, due to subsidised prices for household utilities, economies of scale are likely to be small in Russia (Lanjouw, Milanovic, and Paternostro (1998)).

<sup>9</sup>The poverty line has an elasticity of 0.8 to household size (Ravallion and Lokshin (1998)). See Klugman and Braithwaite (1995) for more details on the construction of the poverty line.

of the poor in the total population,  $PG$  equals the average expenditure shortfall of the poor relative to the poverty line, and  $FGT$  measures the severity of poverty. The measures are additive in the sense that aggregate poverty equals the population-weighted sum of the poverty levels in the subgroups of the population.

## 3 Consumption and Cash Transfers

### 3.1 Estimation Procedure

This section outlines the estimation strategy for identifying the propensities to consume from government transfers. We want to explain how we deal with a range of practical issues, including the definition of payment arrears, measurement error, sample selection bias, the distinction between transitory and permanent income components, and the choice of the estimators.

We estimate the propensities to consume from government transfers by regressing household current expenditures on government transfers (Ravallion, de Walle, and Gautam (1995)). The key parameter is the coefficient on government transfers. A value of unity implies that a marginal increase in government transfers leads to an equivalent rise in expenditures. The estimate may differ from unity, and may vary both by income source and household type. The propensity to consume depends on whether income is permanent or transitory (Friedman (1957)). Receipts from regular income sources are consumed fully, and one-off incomes are saved. Households smooth over income variations in order to keep consumption constant at the level of permanent income over their lifetime. The life expectancy (or discount rate) of the household affects their spending behaviour. For example, pensions accrue to the pensioner until the end of her lifetime. If the life expectancy of the household is similar to the life expectancy of the pensioners, or the allocation of pension income follows the non-altruistic preferences of the pensioner, pensions come close to a notion of permanent income. In contrast, the planning horizon of a household with children is likely to exceed the period for which the household is entitled to receive child benefits. Hence, the theory predicts that child benefits and consumption are linked less closely than pensions and consumption. In addition, the scope for endogenous reactions to compensate for variations in cash transfers varies across household types. For example, it may be easier for pensioners to take on a new job than for parents in regular employment who have to look after their children.

Recognising these features, we estimate separately the propensity to consume from pensions and from child benefits. The pension regressions refer to the subsamples of households with at least one eligible pensioner, and the regressions for child benefits are based on the subsample of households with children. We investigate the impact of household composition on these estimates by comparing these coefficients with those obtained from households receiving both pensions

and child benefits. We also ask whether the results change if we look at food expenditures rather than at total household expenditures. While the welfare implications of some forms of expenditures may be unclear, it is hard to argue that food expenditures do not increase household welfare, especially in the context of poverty alleviation.

We include standard control variables for household needs and preferences into the regression. For both pensions and child benefits, we control for the number of children by age group, the number of elderly, and age, gender, and educational attainment of the household head. In this basic regression specification, current income excluding cash transfers is omitted as it controls for part of the endogenous response that we want to identify with the coefficient on the cash transfer variable. In subsequent regressions, we add income excluding cash transfers into the set of covariates, and ask whether cash transfers are treated in the same way as other income.<sup>10</sup>

It may seem that measurement error is not a major concern. Pensions and child benefits are supposedly regular monthly payments, which are likely to be reported correctly by the household. However, for the episode under consideration, arrears in payments were widespread. Reported amounts could reflect partial payments or the settling of outstanding arrears. For pensions, we look at aggregate Pension Fund data to establish the dynamics of the pension arrears crisis. We also compare the pension distribution before and after pension arrears became a major problem. For child benefits, we match reported receipts with potential entitlements, calculated from official benefit rules, and actual receipts. We conclude from the analysis that there is little evidence for either partial payment or settling of outstanding arrears.

The issue of sample selection bias refers to the possibility that unobserved household features or community characteristics affect both household expenditures and the likelihood of receiving a cash transfer. In this case, estimates of the propensity to consume for the group of households receiving cash transfers are not unbiased estimates for the group of eligible households as a whole. We investigate two aspects. First, we exclude the possibility that low take-up of cash transfers is a source for sample selection bias for the group of eligible households. Second, we compare observable characteristics of eligible households with regard to arrears status, and identify in probit regressions the factors influencing the incidence of arrears in cash transfers. We include these variables in the regressions for the propensity to consume. Even once we control for these characteristics, we cannot fully exclude the possibility of self-selection of households into arrears status. As a sensitivity check, we compare estimates obtained from the whole sample of eligible households with estimates from the subsample of those who received payments.

Our ultimate objective is to use the estimated propensities to consume to

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<sup>10</sup>This part of the analysis owes much in approach and spirit to Case and Deaton (1998).

obtain counter-factual poverty rates. We want to compare poverty outcomes in different cash transfer regimes. For this purpose, we are interested in the propensities to consume from permanent rather than transitory income flows. The standard procedure is to instrument cash transfers with variables that are correlated with permanent income component but orthogonal to transitory income components. We have two types of instruments. As explained in the last paragraph, we include variables that control for the incidence in payment arrears. We also include household-level variables that proxy for benefit rules. However, we have to be careful not to use variables as instruments that determine household spending directly. Households with payment arrears provide us with a simple test for our specification, as in the characteristics of these families are not collinear with the cash benefits received.

The instrumentation of income without cash benefits entails separate issues (Deaton (1997)). A significant share of income and consumption is accounted for by household or dacha production that is neither sold nor bought in the market. The value for home production is included in both household income and expenditure, and any error in the calculation of this imputed value adds an error component to both the income and expenditure variables. The positively correlated measurement error may overcompensate the standard attenuation bias caused by measurement error in income and lead overall to an upward bias in the estimated propensity to consume. We use income excluding home production as an instrument for other income. In addition, we separate transitory from permanent components of other income using as instruments labour market characteristics of the household head.

We run regressions both in levels and in changes. The level estimators ignore the panel dimension of the data set, but suffer less from certain types of attenuation biases through measurement error than the first-differences estimators. This issue is especially relevant when we want to instrument for changes in cash transfers, as instruments related to non-monetary household characteristics are typically fairly constant across rounds. However, the estimators based on first-differences are more robust to the omission of any time-invariant regressors, even if they are correlated to observable explanatory variables.

## 3.2 Pensions

### 3.2.1 The Pension System

The pension system originates from the Soviet period, when it was part of a comprehensive social insurance programme (Barr (1992)). Expenditures of the Pension Fund amounted to 6.6% of GDP in 1998, which accounts for over three quarters of all social cash transfers (see Table 1).<sup>11</sup> They are financed on a pay-

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<sup>11</sup>The share is higher according to the RLMS, as not all social transfers are covered by the survey.

as-you-go basis by a payroll tax amounting to 29% of employee wages.<sup>12</sup> There are five categories of pensions (old-age, disability, military, loss of provider, and social pensions), but the RLMS distinguishes only between the first four pension types. Federal transfers contribute to military, disability, and social pensions, but finance no more than 10% of the Pension Fund's overall expenditures. The city of Moscow has a special programme that supplements pensions up to a certain threshold. At the end of 1996, the Pension Fund had 38 million beneficiaries (26% of the population), including 29 million Russians above retirement age (55 for women, 60 for men), 3.8 million disability pensioners, and 1.1 million social pensioners. The take-up of pensions amongst the old-age population according to the RLMS is over 95% across the whole period. People above retirement age qualify for normal old-age pensions after 25 years (20 years for women) of employment. Pensions are earnings-related but subject to a low ceiling. They are fixed at 55% of the average wage earned either for the period of the last two years of employment, or for any period of 60 working months in a row. Pensions are no higher than 75% of this average wage, or three times the minimum wage. Minimum pensions and minimum wages are legislated by the Duma, and revised four times a year (Denisova, Gorban, and Yudaeva (1999)).<sup>13</sup>

While the control of the pension system is centralised, both the collection of funds and the payment of pensions is decentralised. Payroll taxes are paid into the transit accounts of the Pension Fund at the local level, then accumulated at the regional level, and redistributed among the regions by the board of the Pension Fund. The Pension Fund transfers the funds to the local or regional social welfare offices, which are under the dual authority of the Ministry of Social Protection and its regional branches. Pensioners collect their pensions at post offices, social welfare offices, or the state-owned savings bank Sberbank, or receive payments through any of the delivery services of these institutions (Kolesnik (1995)).

### 3.2.2 Pension Arrears

The Pension Fund has had repeated difficulties in collecting sufficient revenues to cover pension obligations. The revenue crisis reflects poor compliance and financial difficulties of enterprises, as well as delays in contributions from the Ministry of Finance. Faced with funding shortfalls, the Pension Fund incurred arrears in payments. There is no official information about the rules used to allocate pensions. Yet, the way in which pensions were rationed is important for our estimation strategy. If the administrators in charge of allocating pensions assigned payments randomly, or reduced pensions equally across the board, our estimates of the propensity to consume are consistent even if we do not control for any variables capturing the incidence of arrears. If some groups were paid

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<sup>12</sup>The contribution is split into 28% and 1% between employer and employee.

<sup>13</sup>Since February 1998, pensioners can opt for a new system of pension calculation based on individual coefficients.

before others, and we control for the distinguishing characteristics of this group, our estimates are again representative for the pensioner population as a whole. However, if unobservable characteristics of households and pensioners are important for the incidence of pension arrears, the coefficients are likely to be affected by sample selection bias.

The RLMS contains information about pension receipts in the 30 days preceding the interview. Table 2 displays the share of pensioners who have not been paid over the last month preceding the interview. The shares are consistent with the trends of pension arrears derived from statements of the Pension Fund. The numbers suggest a dramatic rise in pension arrears from about 3% in Round 5 to over one third in Round 7, before arrears dropped back to around 15% in Round 8. There is some variation across pensioner types, but the broad pattern applies to all four categories.

While there are no official data on pension arrears, we can compare the RLMS shares with statements from press releases of the Pension Fund reported in Moscow Times. According to this source, pension arrears stood at R 8 trn in September 1995, and increased from July to December 1996 from R 7 trn to R 14 trn. All arrears were paid off by July 1997,<sup>14</sup> but non-payment resumed again and reached a level of R 30 trn in October 98. Pension arrears remained roughly constant until January 1999, after which they started to fall again. These figures imply that the RLMS does not cover any periods, when pension arrears were paid off. Reported pension payment in the RLMS are unlikely to be inflated by the settlement of outstanding pension arrears.

It may be possible, however, that pensioners received partial rather than full monthly payments. Figure 1 displays kernel density estimates of pension payments for Round 5 to Round 8, excluding those who incurred arrears. Over the period, the density function shifted towards the left, and piled up steeper around the peak of the distribution. The average pension receipts dropped, and the dispersion in payments fell. These features are not a reflection of partial pension payments but mirror the changes in pension entitlements. As shown in Table 1, average pension entitlements in October 1998 were one third below those in October 1994, and the gap between the ceiling and floor for normal retirement pensions was cut from 60% to 7% of the minimum pension level over this period.<sup>15</sup>

On the basis of the preceding discussion, we define pension arrears as non-payment of pensions in the month preceding the interview. Table 2 separates the incidence of pension arrears by geographical characteristics. Rural areas are more affected than urban areas. The variation for the eight geographical regions covered by the RLMS is considerable. At most 5% of pensioners suffered from pension arrears in the Metropolitan area (Moscow and St Petersburg) in any of

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<sup>14</sup>This achievement is confirmed in World Bank documents.

<sup>15</sup>We also do not find evidence of partial payments of pensions when we study the intra-distributional dynamics using scatter plots of pension receipts in Round 5 compared to any of the others rounds.

the rounds, while the share in the Caucasian area reached 55% in Round 7. These differences in payments over the last months are consistent with the statistics on outstanding pension arrears for Round 8.<sup>16</sup> They ranged from one fifth of a monthly pension in Moscow and St Petersburg to 290% of a monthly pension in Western Siberia. Disaggregating further, there are also a large differences in the incidence of pension arrears at the level of the 38 PSU and the 160 clusters covered by the RLMS.<sup>17</sup> If cluster-effects are not important, we would expect that for each cluster the percentage of pension recipients is equal to the overall average. For Round 7, only about 40% of the observations lie within 39.5% and 91.5%, the band of one standard deviation around 65.5%. The strong correlation of pension arrears within a cluster is also evident at the household level. About 47% of all pensioners live in a two-pensioner household, about the same percentage as single-pensioner households. For two-pensioner households, the probability in Round 7 of receiving a pension conditional on pension receipt by the other pensioner equals 90%. It drops to 17% when the other pensioner incurs arrears.

What accounts for the local and regional variation in arrears? The institutional structure of the pension system suggests that overall funding shortfalls led to local and regional differences in the financing of pensions. Each region uses receipts from payroll taxes first to serve its own pension obligations, and only then transfers any residual sums for redistribution to other localities by the board of the Pension Fund. Table 3 shows the averages of oblast-level variables and community characteristics by pension arrears status. Ideally, we would want to include budgetary data of the Pension Fund by region but we do not have these figures. Instead, we proxy Pension Fund spending with the oblast-level variables tax collection, tax arrears, government expenditure, government expenditure arrears (defined as the short fall of actual spending compared to plan), output (GRP), all of which defined on a per-capita basis, and the number of old-age individuals. We also include three community-level variables linked to the institutional infrastructure of the payment system (indicator variables for welfare office, post office, and bank) to capture some of the variation in pension arrears incidence at the cluster-level. Regions, which paid pensions, had higher tax collection, higher government expenditures, lower shortfall of government spending compared to plan, and higher regional output than regions which had incurred arrears. Pensioners suffering from arrears lived in communities with a worse infrastructure for delivery of pensions than those not in arrears. Remarkably, regions with arrears had fewer persons in retirement age, suggesting that arrears cannot be explained by differences in pension burden across localities.

The discussion so far suggests that the incidence of pension arrears is highly location specific, caused by the variation in the economic, fiscal, and institutional

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<sup>16</sup>This information is only available for Round 8.

<sup>17</sup>The coefficient of variation for pension arrears in Round 7 is 0.40 at the PSU-level, and 0.45 at the cluster-level. The coefficient of variation for the stock of outstanding pension arrears in Round 8 is 0.60 at the PSU- and cluster level.



endowments of clusters and oblasts. If sample selection on observable characteristics is important, we would expect that personal and household characteristics are linked to the incidence of pension arrears. More educated and richer pensioners might be expected to "better work the system" and ensure a more regular payment of pensions than others. Table 4 compares characteristics of pensioners by arrears status. Pensioners incurring arrears are younger and less well educated, live in households with more children, lower expenditures, lower income, and less assets, and are more likely to be found in rural areas than pensioners who received a pension.

The determinants of pension receipts are further examined in Table 5, where we look at the probability of pension receipt among pensioners. The first regression presents probit estimates of the effects on the probability to receive pensions of household income (excluding pensions),<sup>18</sup> demographic composition, age, gender, employment history, educational attainment, and indicator variables for each geographical regions and rounds. Income has the expected sign but is insignificant. The set of educational attainment variables is jointly insignificant. The results are broadly unchanged, when we include the variables listed in Table 3 as proxies for the funding of pension payments.

In the next two columns, we explore the impact of correction for measurement error in income excluding pensions. Column 3 is a linear probability model, and Column 4 a linear probability model in which income excluding pensions is instrumented by labour force characteristics of the household head. The F-statistics on the instruments equals 27. While the coefficients on the variables increase, income still remains insignificant at the 10% level.

The income loss of pensioners from arrears is related to the size of the pension. The next two regressions look for evidence whether the size of the pension matters for pension arrears. We proxy potential pension receipts by actual pension receipts in Round 5, and restrict the sample to those pensioners who did not incur pension arrears in Round 5.<sup>19</sup> We drop the variables educational attainment and employment history to avoid collinearity problems with our proxy for potential pension receipts. As shown in Column 5, the coefficient on Round 5 pension receipts is insignificant and has the wrong sign. Income still remains insignificant at the 10% level.

In the last column, we return to the specification of Column 3, and investigate for Round 8 whether outstanding pension arrears determine the probability of pension receipt. Income and education are insignificant, but, surprisingly, a higher stock of pension arrears in Round 8 reduces the likelihood of pension receipt. One interpretation of this result is that it reflects a highly decentralised payment system, together with large variations in the financial endowments of

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<sup>18</sup>As we reduce income by the full amount of pension payments, we do not address the issue of endogeneity of income.

<sup>19</sup>The correlation coefficients of pension receipts amongst those receiving pensions with Round 5 pension payments is 0.82 in Round 6, 0.72 in Round 7, and 0.71 in Round 8.

pension districts.<sup>20</sup> Alternatively, it may point to sample selection on characteristics we do not control for in our regression. Overall, while we find little evidence that observable characteristics like income excluding pensions or education affect the probability of pension receipt, the last regression suggests that we nevertheless cannot for sure exclude sample selection.

### 3.2.3 Identification

Pensions are an important income source for the group of household with pensions. For the households who received pensions, they varied from 30% of expenditures (75% of the poverty line) in Round 5 to 20% of expenditures (50% of the poverty line) in Round 8. In the estimation of the propensity to consume from pensions, we face an identification problem. If elderly people have differing tastes for household expenditures than working-aged adults, then the number of pensioners should enter the regression in its own right. However, the number of pensioners is an important predictor of pension income, and we would like to use it as instrument for pension receipts.<sup>21</sup>

Table 6 deals with this issue. The first regression shows the simplest case. Household expenditures are regressed on pension income, household size, the number of children, and age, gender, and educational attainment of the household head, and regional dummy variables. The marginal propensity to consume from pension income equals 0.45, and the coefficient is significant at the 1%. The next column adds the number of pensioners by category. The coefficients on these variables are negative, and the F-test indicates that the variables are jointly significant. At face value, these estimates would imply that pensioners tend to spend less than working-age adults. However, the number of pensioners is a good predictor for pension income, and the coefficients may simply be significant because of the collinearity with pension income. Indeed, the propensity to consume jumps to 0.55. This interpretation is supported by the next regression. Column 3 provides a direct test of whether number of pensioners matters directly for household expenditures. It presents the estimates for the sample of pensioners who did not receive any pensions. The significance of the number of pensioners drops, and these variables are now jointly insignificant. The final column displays the choice of variables which we will use in the further regression analysis. We drop the variables for the numbers of pensioners by category from the regression,

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<sup>20</sup>Separating urban from rural areas, we find only in urban areas evidence of a negative correlation between pension arrears and pension receipt. This rural-urban divide may reflect the difference in institutional structure. Pensioners who live in the one village receive payments from the same local Pension Fund office, while cities often contain more than one Pension Fund district.

<sup>21</sup>Case and Deaton (1998) emphasize the identification problem in their analysis of the behavioural impact of social pensions in South Africa. The issue is arguably less a concern in our case, as both the regional variation in pension arrears and the employment history of pensioners provide us with additional good predictors for pension income.

and substitute them by the number of male and female persons of the age 50 or over. With this specification, we exploit the presumption that preferences should not change at the moment a person reaches pension-age.

### 3.2.4 Estimation

Column 1 of Table 7 summarises the key parameter estimates for the basic specification from a range of cross-sectional regressions on the sample of households with persons eligible to receive pensions.<sup>22</sup> In all cases, we regress household expenditure on income variables, while controlling for household size, the number of children by age category, the number of male and female persons of the age 50 or over, and age, gender, and educational attainment of the household head. The regressions vary in two respects. First, the income variables differ. We start off by including only income from pension receipt (rows 1 and 2), and add income excluding pensions in rows 3 to 5. Second, we present the estimates of both OLS and IV regressions. For the regression with pensions and other income as separate explanatory variables, we show the estimates from 3SLS regression. We shall now discuss the results in some detail.

In Row 1, we display again the coefficient on pension income from the basic regression already discussed above. The marginal propensity to consume equals 0.49, and the coefficient is measured significantly. In Row 2, we instrument pension income with the number of pensioners by type, a set of employment history variables of the household head, the average official pension level by oblast, and the set of cluster- and oblast-level variables used in the probit regressions in Section 3.2.2. The coefficient on pensions rises to 0.56, suggesting that the propensity to consume from permanent income components is moderately higher than from transitory income components.

We investigate this result in more detail by including other income into the regression. Other income in pensioner households is likely to be more transitory than pension receipts, and, following the permanent income hypothesis, we would expect a lower propensity to consume from other income. The results of the regression are shown in Row 3. The OLS estimate for pensions equals at 0.53, and the coefficient on other income is 0.52. An F-test fails to reject the equality across the two coefficients. However, in view of the measurement problems and endogeneity issues related to other income, the estimates are likely to be inconsistent. When we instrument other income by other income excluding home production, the coefficient on pensions remains unchanged. The estimate on other income drops by almost one third, and the F-test rejects equality of the two coefficients at the 3% level. The result is confirmed when we instrument for both pensions

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<sup>22</sup>We choose as sample the set of households eligible for pensions, as we focus on the possible sample selection bias resulting from pension arrears. The estimates are very similar if we include also the small number of households with persons in pension age who are not eligible for pensions.

and other income, using the same set of pension instruments as in Row 2, and labour market characteristics of the household head as instruments for income. The 3SLS estimates in Row 5 show that the coefficient for both pensions and income increase. The gap between the coefficients widens and the F-statistic rejects equality. It is interesting to compare the coefficients for pensions in rows 1 and 2 with those in rows 3 and 5. Controlling for income has little impact on the coefficient for pensions for the OLS estimates, but leads to a higher pension estimate in the 3SLS regression. This rise in the pension coefficient is consistent with the view that endogenous responses are important.

Column 2 presents the corresponding results of the fixed-effects regression. The consistency of these estimates is not affected by the omission of time-invariant factors. The differences in the propensities to consume are larger than for the OLS estimates. The estimates on pensions are higher, and those on other income smaller. Once instrumented, the coefficient for pensions is not significantly different from unity, which is consistent with an interpretation that pensions are like permanent income. The F-tests reject equality of the coefficients on pensions and other income in all cases. However, the 3SLS estimate on pensions in Row 5 is now lower than the coefficient in Row 2, in contrast to the pattern from the cross-sectional estimates.

In the last two columns, we investigate whether the main results survive once we restrict attention to the group of households actually receiving transfers. If sample selection is a major issue, we would expect these coefficients to deviate from the estimates obtained from the whole sample of eligible households. We no longer need to control for the regional variation in the probability of pension arrears, so we drop the cluster and oblast-level variables from the set of instruments for pension payments. Columns 3 and 4 of Table 7 display the coefficients on pensions and income variables for the OLS, IV, and 3SLS estimations on the subsample of benefit recipients. The coefficients display the same pattern as the corresponding estimates from Column 1. While the point estimates deviate somewhat, the differences to the estimates from the level regressions are not statistically significant. The F-statistics still reject the equality of the coefficients at the 10% level in Row 4 and Row 5.

### **3.3 Child Benefits**

#### **3.3.1 The System of Child Benefits**

The current system of child benefits was introduced in 1991. Families are eligible for child benefits for each child under the age of 16, or under the age of 18 for students. The size of child benefits is linked to the minimum wage which is determined by the Russian Parliament, the Duma. Child benefits vary depending on age group, and are higher for single parents and families of serving soldiers

(see Table 1).<sup>23</sup> In early 1994, the government moved the financing responsibility from the federal to regional budgets. In early 1998, the delivery of child benefits was transferred from the place of employment to the local social welfare offices.<sup>24</sup> Budget expenditures on monthly child benefit payments varied around 0.7% of GDP between 1994 to 1997. Child benefits are typically paid to the mother but parents have the right to choose the entitled person as long as both parents live with the child. In July 1998, child benefits became means-tested, restricting eligibility to families with average per capita income no more than twice the minimum subsistence level (Klugman and Motivans (1999)).

### 3.3.2 Child Benefit Arrears

The difficulties of the government to collect revenues caused grave funding problems for child benefits. According to regional budgetary data from 1996, actual spending on child benefits fell 28% short of plan. The RLMS provides information about the eligibility status for child benefits of families with children, and the amounts eligible families received as child benefits in the 30 days preceding the interview. Analogous to our analysis of pensions, we define arrears of child benefits as non-payment of child benefits over the last month. Amongst the families who received child benefits, the reported payments match closely to the amounts calculated on the basis of eligibility and benefit rules. The overall gap between reported and calculated payments as a percentage of reported payments is close to zero in all rounds. Reported payments tend to be higher for families with children under the age of 1.5 years, possibly due to the inclusion of other official cash transfers, like maternity benefits or parental leave benefits.<sup>25</sup>

Child benefit arrears affected already one third of eligible families in 1994, and the share increased in each round to reach 80% in Round 8 (see Table 8). The rise in child benefit arrears in Round 8 could be due to families wrongly believing they are still entitled to benefits, while in fact they lost eligibility after the introduction of means testing. This may explain why the take-up of age-qualified families remained unchanged at about 95% compared to Round 7. Three arguments point against this interpretation. First, some families lost eligibility due to the new rules. About 5% of the families eligible for child benefits in Round 7 stated that they are no longer eligible for child benefits in Round 8, even though they still had children below the age of 16. Their median wage income was about 115% above the one for families who claim they still are eligible. Second, the cut-off applied for the means-testing is relatively high. In Round 8, only the top 20% wage earners had incomes from primary and secondary job holdings in excess

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<sup>23</sup>Child benefits are not adjusted for regional price differences.

<sup>24</sup>Unemployed eligible parents were even before 1998 paid by the local social protection office.

<sup>25</sup>In 1998, maternity benefits and payments for parental leave accounted for 10% of the spending on public cash transfer programmes to families with children according to budget plan (Kuprianova (1998)).

of twice the official minimum subsistence level. Third, as discussed below, child benefit arrears are highest in the poorest regions with the lowest wage levels.

We determine the pattern of arrears in child benefits? In contrast to the pension system, child benefits are financed at the regional level without any redistribution of resources at the federal level.<sup>26</sup> The variation in child benefit arrears at the local level grew from round to round (see Table 8).<sup>27</sup> By Round 8, no more than 15% of eligible families received child benefits anywhere outside Moscow and St Petersburg. Regions differ widely in fiscal resources, and the large variation in child benefit arrears across regions mirrors these fiscal inequalities even stronger as in the case of pensions (see Table 9). At the oblast-level, we expect arrears to be determined by the gap in planned and actual spending on child benefits. While we have data on actual spending on child benefits, we lack information on child benefit by plan. We proxy this variable with per-capita federal transfers, regional output (GRP), and the number of children. Finally, we include an indicator variable for welfare offices. Unsurprisingly, child benefit arrears were lower in regions with higher spending on family support, higher federal transfers, higher GRP, and with welfare offices. The incidence of arrears is lower in regions with more children.

Until 1998, child benefits were paid at the place of work of the eligible persons. However, many enterprises incurred wage arrears during that period. Hence, it is likely that enterprises which failed to pay wages to their employees also failed to pay out child benefits. Table 10 shows that this was indeed the case. In Round 7, the probability to receive child benefits for families with married working mothers, who received wages, was three times as high as for married working mothers, who failed to receive wages. Interestingly, the gap narrowed substantially in Round 8, when child benefits were generally paid at the local social welfare office. As also shown in Table 10, there is no relationship between the number of children and the probability to receive child benefit arrears. In fact, families with more than two children were less likely to receive child benefits in Round 6 and Round 7 than families with less than two children. The pattern changes for Round 8, possibly as a result of means testing.

Table 11 provides summary statistics for household characteristics, separating families by the status of child benefit arrears. Households not receiving child benefits were more likely to live in rural areas, spent less and have lower income than households that were paid. There are no systematic differences in characteristics of the household head.

We examine the determinants of child benefit receipts closer in Table 12. Column 1 shows the probit estimates of the receipt of child benefits for eligible households on household income excluding child benefits, household composition,

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<sup>26</sup>Most regions obtain transfers from the centre but the system fails to reduce fiscal imbalances across regions (Grafe and Richter (1999)).

<sup>27</sup>The coefficient of variation across PSUs grew from 0.21 in Round 5 to 1.1 in Round 8. The coefficient of variation across clusters rose from 0.28 in Round 5 to 1.3 in Round 8.

and age, gender, marital status, and educational attainment of the household head, and indicator variables for each round. Income is significant at the 1% level, and the educational variables are jointly significant at the 10% level. When we control for regional spending variations on child benefits using the five variables listed in Table 9, and add indicator variables of whether other household members incurred wage arrears, both income and education become insignificant.

The next regression adds potential child benefits as explanatory variable, calculated according to the nation-wide benefit rules. It is significant at the 10% but has a negative sign, and income and education remain insignificant. Columns 4 and 5 look at the impact of correcting for measurement error in household income. We use the same instruments for income as in the corresponding regression for pension receipts. Income and education are still insignificant. Column 6 includes an indicator variable for arrears in previous rounds. It is highly significant, and negative. Again, income and education remain insignificant at the 10% level. The conclusion of this analysis mirrors the results from the investigation of pension arrears. There is little evidence that observable characteristics like income or education matter for the receipt of child benefits, but the correlation of past and current arrears of child benefits could indicate that some families are better at collecting child benefits than others.

### 3.3.3 Identification

The estimation of the propensity to consume from child benefits is less straightforward than for pensions. First of all, child benefits are a much smaller part of household income than pensions. Even if we consider only families with children that did not incur arrears, they represented at their peak in Round 7 just 15% of expenditures and 7% of the poverty line. The largest part of the variation in household expenditures is due to variations in other income components or changes in tastes and needs, rather than fluctuations in child benefits. Second, the identification problem that we encountered already for pensions, is again present, and even more difficult to deal with. Child benefits are a direct function of the number of children in a household. In contrast to pensions, they are fully formula driven, and do not depend on any personal characteristics of household members. Yet, at the same time, the number of children has a direct influence on the expenditure pattern of the household. In effect, we do not have adequate instruments for child benefits, as the number of children has to be included directly in the regression.

The identification problem is illustrated by the following regressions. Table 13 shows OLS regression for eligible families of household expenditures on child benefits and the set of covariates used in the Probit regressions of Table 12. In Column 1, we do not include the number of children by age-group in the regression. The coefficient on child benefits equals 0.33, and is measured imprecisely. In the next regression, we include the numbers of children by age group. The

estimate for child benefits increases to 0.61, and is significant at the 10% level. The included children variables are individually and jointly significant, as shown by the t- and F-statistics, and have negative coefficients. Are the children variables simply significant due to their collinearity with child benefits, or has the presence of children a different impact on household expenditures than the presence of adults? In Column 3, we restrict the sample to households with children that incurred arrears in child benefits. Again, the numbers of children are individually and jointly significant. Unsurprisingly, we conclude that we need to control directly for the number of children in a household. Column 4 presents our basic specification. As child benefits are included as regressor, we do not use the age-group categories that enter the benefit rules. Instead, we choose different age groups and exploit that child benefits do not vary between boys and girls. We include the numbers of boys and girls under the age of four, and the numbers of male and female children between the age of 4 and 21 in the specification.

### 3.3.4 Estimation

The coefficients for the income variables for the basic specification are shown in Column 1 of Table 14. We follow the same procedure as for pensions, but do not instrument for child benefits.<sup>28</sup> In the regressions, we control for the numbers of children by age category and gender, the numbers of male and female persons at the age 50 or over, and age, gender, and educational attainment of the household head.

The coefficient on child benefits in the basic specification equals 0.68, estimated significantly at the 3% level. Once we add income excluding child benefits, the estimate drops to 0.29, and the coefficient on other income equals 0.44. The t-statistics indicate that only the estimate for other income is measured significantly. An F-test cannot reject the equality of the two estimates. Instrumenting other income by other income excluding household production reduces the gap between the estimates further. The point estimate for child benefits drops by over one half once we include other income, but the estimates are too imprecise to interpret this as evidence for income-generating responses in reaction to changes in benefit receipts. The next column presents the results of the corresponding fixed-effect regressions. The coefficients drop compared to the level estimators, and the t-statistics tend to be lower. Again, we cannot reject the equality of the coefficients on child benefits and other income. The most likely explanation for the lower estimates is the presence of measurement errors in the income variables. If the true level of income changes slowly from one round to the next, and the measurement errors are relatively uncorrelated across rounds, then differencing worsens the attenuation bias from reporting errors.

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<sup>28</sup>Matching the approach for pensions, we restrict attention on eligible families. The qualitative results are unchanged if non-eligible households with children are included.



In columns 3 and 4, we drop all households which incurred arrears in child benefits. The estimates from the level regressions are fairly similar, while the fixed-effects coefficients on child benefits become negative. The problem of measurement error for child benefits is likely to be especially acute, as we do not include households which switched from payment to non-payment of pensions.

### 3.4 Sensitivity Analysis

The regressions in sections 3.2.4 and 3.3.4 suggest three regularities. First, the analysis confirms that the propensity to consume from transitory income components is higher than from permanent income components. This distinction is especially relevant in Russia, where households were exposed to large income variations. Second, the estimate for pensions is higher than for other forms of income received by pensioner households. Third, we do not find any evidence for a different propensity to consume from child benefits than from other income in households with children.

The higher coefficient on pensions seems surprising in view of the substantial incidence of pension arrears. However, pensions were still a more regular source of receipts than other incomes. Both wages and child benefits were subject to even greater and more persistent payment problems than pensions. The average incidence of wage arrears according to the RLMS between 1994 and 1998 is 25%, and in all rounds at least one fifth of the work force incurs wage arrears. Furthermore, over 50% of households with pensioners are one-generational, and less than one quarter are multi-generational. As the discount rate of households with pensioners is likely to be higher than the discount rate of households with children, pensions are closer to a notion of permanent income for pension households than a similar income source in households with children. Finally, the coefficient on pensions is generally less than unity, even when we instrument in order to capture the regular part in the pension payments. In this section, we investigate the robustness of some of these results. We address the issue of lacking instruments for child benefits, consider the impact of changes in household types, and look at food expenditures only.

In our regressions on child benefits, we did not instrument for child benefits due to identification problems. In Table 15, we impose that the propensity to consume is identical for both cash transfers and other incomes, and instrument for total income using the full set of instruments for cash benefits and other income. We only show the coefficients from the regressions on the samples of eligible households. Row 1 gives the simple OLS estimate for levels and first-differences, and Row 2 shows the coefficient using income excluding home production as instrument. The estimates are similar to the coefficients on other income of the corresponding regressions in Table 7 and Table 14, as other income represents the main part of household income. Row 3 presents the estimate from the full instrumentation of total income. The pattern is unchanged. Pensioner households

have a larger propensity to consume than families with children due to the higher share of pension income.

The regression analysis linked cash transfers to household expenditures. Yet, spending may have different welfare implications depending on which items are purchased. As a simple check, we ask whether the differences in spending propensities still survive if we consider food expenditures only. The estimates are shown in rows 4 to 6. The gap in the propensities to consume across the two household types are even larger than before.

Until now, we have compared estimates on income sources across different household types. If the variables on household composition included in our regressions do not fully capture the effects of differences in household types, then the estimates may partly reflect the variation in household composition across household types. We can hold household composition constant if we consider only households that are both eligible for pensions and child benefits. Table 16 shows the OLS estimates of the propensities to consume for this subsample. The point estimate on pensions is at least twice as large as the one for child benefits, and up to twice as large for other income, while the coefficients for child benefits and other income are fairly close. However, the coefficients on child benefits are measured with a large standard error, and the F-statistics cannot reject the equality of the estimates for pensions and child benefits. The estimates for spending on food expenditures display the same pattern, and once again the differences in the coefficients are larger.

## 4 Poverty Impact of Changes in Cash Transfers

### 4.1 Decomposition Technique

#### 4.1.1 Methodology

Poverty increased sharply since 1994. The statistics in the first four columns of Table 17 display a dramatic worsening over the five-year period, with poverty rising between 70% to 80%. In this section, we want to quantify precisely the impact of the changes in cash transfers had on poverty. We develop a new decomposition technique in order to identify the impact of changes in separate expenditure components on poverty. For the current analysis, we want to attribute the change in the welfare ratio into two components: the change due to variations in government cash transfers ( $T$ ), and the change due to variations in expenditures excluding government cash transfers ( $E$ ).  $T$  is defined as the ratio of cash transfers to the poverty line, and  $E$  as the ratio of expenditures excluding cash transfers to the poverty line. The distribution of expenditures excluding cash transfers is calculated using the the propensities to consume calculated for pensions and child benefits. We assume that the household composition remains unchanged over the period.

Let poverty be measured by a function of the type

$$P_t = P(\mu_t, D_t) \quad (1)$$

where  $\mu_t$  is the mean level of the welfare ratio, and  $D_t$  is the mean normalised distribution function of the welfare ratio at date  $t$ .<sup>29</sup> Then

$$D_t = D_t^E + D_t^T$$

and

$$\mu_t = \mu_t^E + \mu_t^T$$

where superscripts  $E$  and  $T$  are defined as above. Using  $t$  as reference period, the change in poverty rates between date  $t$  and  $t+1$  can be decomposed into the following components:

$$P_{t+1} - P_t = \underbrace{P_{t+1}^T - P_t}_{T\text{-Effect}} + \underbrace{P_{t+1}^E - P_t}_{E\text{-Effect}} + \underbrace{P_{t+1} - P_{t+1}^T - P_{t+1}^E + P_t}_{\text{Residual effect}} \quad (2)$$

where

$$P_{t+1}^T = P(\mu_t^E + \mu_{t+1}^T, D_t^E + D_{t+1}^T)$$

and

$$P_{t+1}^E = P(\mu_{t+1}^E + \mu_t^T, D_{t+1}^E + D_t^T).$$

The  $T$ -effect is defined as the change in poverty rates due to the change in transfers ( $\mu_{t+1}^T \neq \mu_t^T, D_{t+1}^T \neq D_t^T, \mu_{t+1}^E = \mu_t^E, D_{t+1}^E = D_t^E$ ), and the  $E$ -effect equals the change in poverty due to the change in expenditures excluding cash transfers ( $\mu_{t+1}^T = \mu_t^T, D_{t+1}^T = D_t^T, \mu_{t+1}^E \neq \mu_t^E, D_{t+1}^E \neq D_t^E$ ). The residual measures the change in poverty not accounted for by those two effects. It is in general unequal to zero since poverty measures are not additively separable into expenditure components. Consider a pensioner household with expenditures of 10 Rubles above the poverty line, and assume an uniform propensity to consume of unity. If pensions drop by less than 10 Rubles, and nothing else changes, then the poverty indices remain unaffected. Equally, if other income falls less by 10 Rubles, then poverty remains the same under the ceteris paribus condition. However, a joint reduction in pensions and other income causes poverty to increase. The residual effect is larger for poverty indices that are more sensitive to distribution of expenditures among the poor, as the separate and joint impacts of changes in expenditure components differ more. The residual has a natural interpretation, as it equals the effect of a change in the reference date on the decomposition.<sup>30</sup>

<sup>29</sup>Equation 1 indicates that the decomposition applies only to poverty measures which can be fully characterised in terms of the mean level of the welfare ratio, and the mean normalised distribution function. The three members of the FGT class of poverty measures used in the analysis satisfy this condition.

<sup>30</sup>For example, the  $T$ -effect with reference period  $t+1$  is  $P_{t+1} - P(\mu_{t+1}^E + \mu_t^T, D_{t+1}^E + D_t^T) = P_{t+1} - P_{t+1}^E$ , or the sum of the  $T$ - and residual effects with reference period  $t$ .

We may also be interested in quantifying the relative contribution of growth and redistribution effects of changes in government transfers to the changes in poverty rates. Following Ravallion and Datt (1991), the decomposition for transfers is defined as<sup>31</sup>

$$P_{t+1}^T - P_t = \underbrace{P_{t+1}^{TG} - P_t}_{\text{Transfer growth effect}} + \underbrace{P_{t+1}^{TR} - P_t}_{\text{Transfer redistribution effect}} + \underbrace{P_{t+1}^T - P_{t+1}^{TG} - P_{t+1}^{TR} + P_t}_{\text{Transfer residual effect}} \quad (3)$$

where

$$P_{t+1}^{TG} = P(\mu_t^E + \mu_{t+1}^T, D_t)$$

and

$$P_{t+1}^{TR} = P(\mu_t, D_t^E + D_{t+1}^T).$$

Taking  $t$  as reference date, the transfer growth (redistribution) effect equals the change in  $P_t$  due to the change  $\mu_{t+1}^T - \mu_t^T$  ( $D_{t+1}^T - D_t^T$ ) while keeping  $\mu_t^E$  and  $D_t$  ( $D_t^E$  and  $\mu_t$ ) constant. The transfer residual measures the change in poverty not accounted for by growth and redistribution components. It is unequal to zero whenever the changes in poverty due to changes in  $\mu_t$  depend on the shape of the distribution function, and vice versa. In contrast to the residual effect in Equation 2, the transfer residual is not equal to changes in growth and redistribution effects due to the switching of reference periods.<sup>32</sup> Therefore, the decomposition in growth and redistribution effects needs to be calculated separately for each relevant reference period.

The poverty rates for the decompositions are calculated using constructed distributions of welfare ratios for the panel of households represented in all three rounds. For example, the poverty rate  $P_7^{TR} = P(\mu_5, D_5^E + D_7^T)$  is based on the welfare ratio obtained by dividing transfers in Round 7 by their mean, multiplying them with the mean transfer level in Round 5, and adding to them pre-government transfer expenditures from Round 5.

#### 4.1.2 Results

What is the contribution of the changes in the government transfers to the rise in poverty rates across the four rounds? We present the results for both the level and fixed effect estimates of the propensities to consume. Our regressions suggests that these sets of coefficients cover the range of possible propensities to consume from cash transfers.<sup>33</sup> We use as propensities to consume from pensions

<sup>31</sup>The decomposition for pre-government transfer expenditures  $E$  is determined accordingly.

<sup>32</sup>For example, the transfer growth effect with reference period  $t + 1$  equals  $P_{t+1} - P(\mu_t^T + \mu_{t+1}^E, D_{t+1})$ , which is unequal to the sum of transfer growth and transfer residual effects with reference period  $t$   $P_{t+1}^T - P_{t+1}^{TR}$ .

<sup>33</sup>We therefore do not distinguish further the propensities to consume separately for different household types.

the instrumental variables estimates for the case without other income (0.56 for OLS and 0.89 for fixed effects from Table 7). We do not have any corresponding estimates for child benefits, as we could not instrument child benefits. As we have not found any evidence that the propensity to consume from child benefits deviates from the propensity to consume from other income, we take as coefficients the instrumental variables estimates from the regressions on total income (0.47 for OLS and 0.33 for fixed effects from Table 15). These coefficients assume implicitly that variations in child benefits do not lead to any endogenous responses affecting other income. In any case, they are consistent with the range of OLS estimates in Row 1 of Table 14. We shall also use these coefficients as propensities to consume from the other government cash transfers (unemployment benefits, apartment benefits, and fuel benefits).

The decomposition results for the changes from Round 5 to Round 8 are shown in tables 18 and 19. We present the results for the subgroup of households with a constant number of pensioners and children across the rounds. The changes in government transfers increase poverty according to all poverty statistics, regardless of whether we use the OLS or fixed-effect estimates. The quantitative effects vary by poverty statistic and reference period, but at least 30% of the rise in poverty was due to the changes in cash transfer policy. The transfer growth effect raises poverty unambiguously, and the transfer redistribution effect leads to higher poverty in most cases.<sup>34</sup>

## 4.2 Counterfactual poverty rates

In the last section, the changes in poverty rates were decomposed into changes in cash transfers and expenditures without cash transfers. The analysis allowed for joined changes in the  $T$ - and  $E$ -elements of household expenditures. In this section, we estimate the impact of changes in government transfers on poverty taking the actual expenditure distribution excluding transfers as given. More formally, we compare the actual poverty rate  $P_t$  with the counterfactual poverty rate

$$\tilde{P}_t = P(\mu_t^E + \tilde{\mu}^T, D_t^E + \tilde{D}^T)$$

where  $\tilde{\mu}^T$  and  $\tilde{D}^T$  are simulated distributions of cash transfers. We used the fixed-effects estimates for the calculations in the Table 17. We consider two simulations. First, we ask what the poverty rates would have been without arrears in government cash transfers. For households with pensions arrears, we assign pension receipts equal to the predicted value of pension payments from the instrumental variable regressions for pensions from Table 7. We replace child benefit arrears by the payments due according to the benefit rules. This simulation picks

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<sup>34</sup>If we take the average of the changes for the two reference periods, the redistribution effects for the poverty gap and the FGT measure are both positive.

up the impact of the changes in entitlement levels for cash benefits. Second, we assume that the government transfer distribution from Round 5 remains unchanged. While this scenario implies constant budgetary spending compared to Round 5, the policy change is more radical and more costly than in the first simulation, as we keep entitlement levels constant. To be consistent with the decomposition analysis, we present the results for the subgroup of households with constant numbers of pensioners and children.

Spending on pensions and child benefits accounts for almost 90% of all expenditures on social cash transfers, and pensions only represent about three quarters (see Table 1). As benefit levels are not indexed to price rises, both pensions and child benefits drop in real value during periods of inflation unless they are increased by the Russian parliament, the Duma. Legislated benefit increases fell short of price rises in 1995 and 1997/8, leading to contractions in entitlement levels. The exception was 1996, when benefit levels were increased by more than inflation in the run-up of the Presidential election. However, the fiscal situation remained difficult, and the lack of funds caused a surge in payment arrears. The logic was reversed for 1997/8. As the real value of benefits was eroded by inflation, the government managed to reduce payment arrears without increasing the spending on these items.

The actual and simulated poverty rates are displayed in columns 5 to 15 of Table 17. The arrears crisis peaked in Round 7. Poverty would have been reduced between 15% to 25% if the government had fulfilled its obligation to pay pensions and child benefits, as shown in Simulation 1. Due to the reduction in the incidence of arrears in Round 8, paying cash transfers in 1998 would have lowered poverty in 1998 by no more than 6% to 12%. In Round 8, the arrears crisis had become a crisis of low benefit levels. According to Simulation 2, keeping benefits at the level of Round 5, poverty would have been lower by around 20%.

## 5 Conclusion

This paper develops and applies a new approach for measuring the impact of government cash transfers on poverty alleviation that takes into account endogenous reactions and consumption smoothing of households. We use this approach to study changes in government cash transfer policies in Russia during 1994 and 1998. The main findings are as follows.

1. Standard incidence studies, which ignore endogenous responses and consumption smoothing, are likely to be misleading. Government transfers need to be assessed not only with regard to their targeting efficiency but also with respect to their impact on household consumption. Our regression results show that the propensities to consume vary between income sources and are typically less than unity. The coefficients increase when we

instrument for income sources, implying that the propensities to consume are higher for permanent than for transitory income components. This distinction is especially important in the context of Russia, where households were exposed to large exogenous income shocks.

2. The evidence on endogenous responses is mixed. The cross-sectional regressions for pensions suggest that the marginal propensity to consume increases once we control for other income. This pattern is consistent with the view that pensioner households substitute shortfalls in pensions with other sources of income. However, the result does not hold for the fixed-effect regressions, while the coefficients on child benefits are not measured precisely. A thorough analysis of the separate channels of endogenous responses (labour supply, savings, private transfers) is necessary to provide firm evidence on the relevance of behavioural reactions. In any case, our regressions indicate that it is misleading to contribute deviations in the estimated propensities to consume from unity in regressions exclusively to endogenous responses.
3. Across income sources, the estimates for pensions are higher than those for child benefits and other incomes. This result is confirmed when we look at food expenditures only, and analyse the propensities to consume for households that receive both pensions and child benefits. Pensions are a regular form of income, and were less subject to arrears than wages and child benefits. The coefficient on pensions is consistently less than unity. Once instrumented, the estimate on pensions in the fixed-effect estimations is no longer statistically different from unity. This result is consistent with an interpretation that the regular part of pension payments are close to a notion of permanent income.
4. We develop a new decomposition technique in order to quantify the impact of changes in government cash transfer policies on poverty. A part of the change in household expenditures is attributed to the changes in cash transfers using our estimates for the propensities to consume. The quantitative effects vary by poverty statistic and reference period, but at least 30% of the rise in poverty between Round 5 and Round 8 was due to the changes in cash transfer policy. The transfer growth effect raises poverty unambiguously, and the transfer redistribution effect leads to higher poverty in most cases. According to the simulation analysis, poverty would have been reduced between 15% to 25% in Round 7, and between 6% to 12% in Round 8 if the government had fulfilled its obligations to pay pensions and child benefits. Keeping benefits at the level of Round 5, poverty would have been lower by around 20% in Round 8.
5. The changes in transfer entitlements and payment arrears during 1994 and

1998 were a reflection of the economic and political dynamics. Pension entitlements fell in 1995 as part of a renewed effort to achieve fiscal consolidation. Political pressures in the run-up of the Presidential elections in Summer 1996 led to increases in cash transfer entitlements. They were unaffordable due to the ongoing decline in tax revenues, and the lack of funds resulted in a rise of arrears. The substantial fiscal imbalances across regions led to a strong regional variation in the incidence of arrears both for pensions and child benefits. The rise in inflation after the financial crisis of August 1998, and the failure to index cash transfers for inflation, reduced benefit levels again. This contraction in entitlements allowed the government to limit the incidence of payment arrears without increasing overall budgetary spending.

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**Table 1**  
***Social Cash Transfers, 1994 – 1998***

	1994	1995	1996	1997	1998
<b>Budgetary Spending</b>					
<i>As Percentage of GDP</i>					
Overall cash transfers	7.6	6.8	7.6	8.6	8.8
Social transfers	1.6	1.4	1.9	1.9	2.2
Child Benefits	0.7	0.6	0.7	0.7	na
Pensions	6.0	5.4	5.7	6.7	6.6
<i>As Percentage of 1994</i>					
Overall cash transfers	100	76	79	92	87
Social transfers	100	78	98	101	96
Child Benefits	100	81	86	82	na
Pensions	100	76	74	89	85
<b>Pension Entitlement Rules (Ruble)</b>					
Average Pension Entitlements	1572	1342	1522	1446	1071
Minimum Pension	840	636	1046	927	622
Retirement Pension Ceiling	1067	1000	1085	1057	665
<b>Child Benefit Entitlement Rules (Ruble)</b>					
<i>Standard</i>					
Up to 1.5 years	356	333	723	705	444
1.5 to 6 years	249	233	253	247	155
6 to 16 years	213	233	253	247	155
<i>For Families of Serving Soldiers and Families Exempted from Alimony</i>					
1.5 to 6 years	373	350	380	370	233
6 to 16 years	320	350	380	370	233
<i>For Single Parents</i>					
1.5 to 6 years	373	350	380	493	311
6 to 16 years	320	350	380	493	311

Source: Goskomstat.

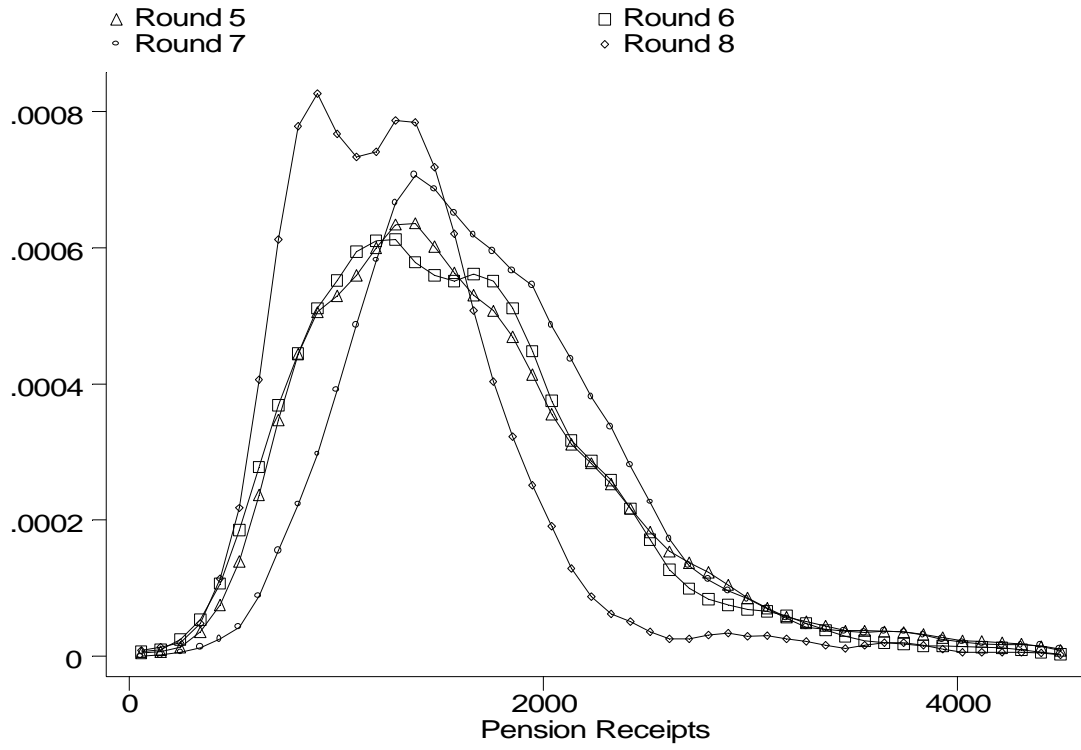
Notes: The figures for pensions and child benefit entitlements refer to October of each year. Child benefits for students are paid until the age of 18 rather than 16.

**Table 2**  
**Regional Incidence of Pension Arrears**

		Receipt % of Entitlement				Stock of Arrears # of Months	
		R5	R6	R7	R8	R8	
<b>Overall</b>		%	97	91	66	85	2.2
		SE	0	1	3	1	0.1
<b>Settlement Type</b>							
	Urban	%	97	93	75	87	1.8
		SE	0	1	5	2	0.2
	Suburban Settlement	%	97	92	69	87	2.6
		SE	2	3	10	4	0.2
	Rural	%	95	86	46	79	2.8
		SE	1	2	3	2	0.1
<b>Geographical Regions</b>							
	Metropolitan	%	97	95	96	97	0.2
		SE	1	3	1	3	0.1
	Northern and North Western	%	99	94	72	87	1.2
		SE	0	3	8	5	0.3
	Central and Central Black-Earth	%	97	91	71	83	2.4
		SE	1	2	5	3	0.2
	Volga-Vaytski and Volga Basin	%	96	92	63	89	2.5
		SE	2	2	9	3	0.3
	North Caucasian	%	95	87	45	75	2.6
		SE	1	3	7	5	0.5
	Ural	%	97	92	69	90	2.8
		SE	1	3	11	2	0.2
	Western Siberian	%	97	80	55	76	2.9
		SE	1	6	5	3	0.3
	Eastern Siberian and Far Eastern	%	97	99	70	86	0.7
		SE	1	1	6	4	0.3

**Figure 1**

*Kernel Density Estimates of Pension Payments excluding Pension Arrears*



**Table 3**  
***Pension Receipt by Local Characteristics***

		<b>Arrears</b>	<b>No Arrears</b>
<b><i>Oblast-Level Characteristics</i></b>			
<b>Tax Collection</b>	<i>Ruble</i>	11839	18388
	<i>SE</i>	678	1097
<b>Tax Arrears</b>	<i>Ruble</i>	3793	4357
	<i>SE</i>	329	487
<b>Government Expenditures</b>	<i>Ruble</i>	11461	15779
	<i>SE</i>	477	714
<b>Government Expenditure Arrears</b>	<i>Ruble</i>	3896	2398
	<i>SE</i>	444	321
<b>Gross Regional Product</b>	<i>Ruble</i>	57696	77498
	<i>SE</i>	2848	3358
<b>Old-age Population</b>	<i>000</i>	517	630
	<i>SE</i>	25	35
<b><i>Cluster-Level Characteristics</i></b>			
<b>Welfare Office</b>	<i>%</i>	59	75
	<i>SE</i>	5	3
<b>Post Office</b>	<i>%</i>	90	92
	<i>SE</i>	2	2
<b>Bank</b>	<i>%</i>	86	89
	<i>SE</i>	3	2

**Table 4**  
*Personal and Household Characteristics by Pension Arrears Status*

		No Arrears	Arrears
<b>Houshold Members</b>	#	2.5	2.8
	SE	0.1	0.1
<b>Children</b>	#	0.3	0.4
	SE	0.0	0.0
<b>Pensioners</b>	#	1.6	1.6
	SE	0.0	0.0
<b>Urban Settlement</b>	mean	1.6	2.0
	SE	0.1	0.1
<b>Expenditure</b>	R	8842	7664
	SE	577	455
<b>Income</b>	R	7438	4315
	SE	469	327
<b>Assets</b>	#	3.4	3.3
	SE	0.0	0.1
<b>Male</b>	%	30.8	29.6
	SE	0.9	1.5
<b>Age</b>	months	752.9	740.9
	SE	3.6	6.1
<b>Secondary Education?</b>	%	43.9	40.0
	SE	1.6	2.2
<b>Grade Completed in Secondary School</b>	mean	7.2	7.0
	SE	0.1	0.2
<b>Studied after School?</b>	%	55.5	49.9
	SE	1.7	2.6
<i><b>If Studied after School:</b></i>			
<b>Vocational Diploma?</b>	%	33.7	32.7
	SE	1.4	2.8
<b>Profess-Tech Diploma w/o Secondary Degree?</b>	%	11.8	10.9
	SE	0.9	1.6
<b>Profess-Tech Diploma with Secondary Degree?</b>	%	10.0	11.5
	SE	0.8	1.4
<b>Technical-Medical Diploma?</b>	%	33.0	31.7
	SE	1.0	2.7
<b>University Diploma?</b>	%	22.0	19.0
	SE	2.0	2.0
<b>Graduate Studies?</b>	%	0.4	0.8
	SE	0.0	0.1
<b>Ever worked?</b>	%	75.9	74.9
	SE	1.2	1.6
<i><b>If Ever Worked:</b></i>			
<b>Year last worked</b>	%	8619	8686
	SE	30	41
<b>Years worked</b>	%	3619	3574
	SE	28	39
<b>Occupational Code for 1991</b>	mean	2281	2559
	SE	95	159
<b>Occupational Code for 1985</b>	mean	4061	4404
	SE	129	184

**Table 5**  
***Determinants of the Probability to Receive Pensions***

		<b>Probit</b>	<b>Probit</b>	<b>OLS</b>	<b>IV</b>	<b>Probit</b>	<b>Probit</b>	<b>Probit</b>
		(1)	(2)	(3)	(4)	(5)	(6)	(7)
<b>Income Excluding Pension</b>	<i>Coef</i>	5E-06	2E-06	7E-07	0.015	2E-06	6E-06	9E-06
	<i>t-stats</i>	0.82	0.47	0.72	1.35	0.41	1.10	1.03
<b>Pension in Round 5</b>	<i>Coef</i>						-6E-05	
	<i>t-stats</i>						-1.44	
<b>Pension Arrears in Months</b>	<i>Coef</i>							-0.310
	<i>t-stats</i>							-6.60
<b><i>F-TESTS (Stats/Signif)</i></b>								
<b>Education</b>		1.2/.29	0.57/.75	0.32/.93	9.7/.00			2.3/.05
<b>Pensioner type</b>		1.7/.17	9.0/.00	1.8/.16	17.5/.00	8.7/.00	8.6/.00	1.6/.18
<b>Cluster and Oblast level variables</b>			2.5/.07	14/.00	29.2/.00	2.5/.06	0.9/.44	2.8/.00
<b>Income IV</b>					26.5/.00			
<b>Number of Observations</b>		6512	6512	6512	6512	6512	4225	1844

Notes: The dependent variable is an indicator variable for pension receipt. The sample is restricted to individuals eligible for pensions. All regressions include indicator variables for pensioner type, rounds, and geographical regions, and the variables household size, numbers of children by age group, the numbers of pensioners by type, and age, gender, and the occupational code for 1985 and 1991 of the pensioner. The education variables in columns 1 to 4, and Column 7 are grade level completed in secondary school, vocational diploma, professional-technical diploma without secondary degree, professional-technical diploma with secondary degree, university diploma, and graduate diploma. The cluster- and oblast-level variables in columns 2 to 7 are the nine variables listed in Table 3. Income excluding pensions is instrumented in Column 4 on indicators for whether the household head participates in the labour force, has a job, has wage arrears, and on the occupational code for the primary and secondary jobs of the household head.



**Table 6**  
*OLS Regressions on Household Expenditures*

	Coef (1)	t	Coef (2)	t	Coef (3)	t	Coef (4)	t
<b>Pensions</b>	0.45	6.0	0.55	8.8			0.49	7.4
<b>Household Size</b>	1644	11.2	1751	10.8	1845	4.6	1808	10.8
<b>Number of Children 0 - 1.5</b>	-306	-0.4	-472	-0.6	29	0.0	-595	-0.7
<b>Number of Children 1.6 - 6</b>	-1444	-3.2	-1606	-3.5	-1317	-1.3	-1669	-3.6
<b>Number of Children 6 - 16</b>	-788	-3.3	-924	-3.5	-1204	-1.9	-1066	-3.9
<b>Number of Old-Age Pensioners</b>			-674	-3.1	-936	-2.0		
<b>Number of Disability Pensioners</b>			-752	-2.3	-1490	-1.5		
<b>Number of Loss of Provider Pensioners</b>			-727	-2.0	-586	-0.6		
<b>Number of Military Pensioners</b>			-255	-0.6	-941	-0.8		
<b>Number of Males 50+</b>							-212	-0.8
<b>Number of Females 50+</b>							-709	-3.0
<b>HH: Age</b>	-1.6	-2.3	-1	-1.8	0	0.2	-1	-1.5
<b>HH: Male</b>	1051	4.3	1164	4.4	1921	2.9	950	3.1
<b>HH: Grade completed in Secondary School</b>	75	1.7	61	1.4	141	1.3	67	1.6
<b>HH: Vocational Diploma</b>	461	2.2	451	2.2	207	0.4	469	2.2
<b>HH: Profess-Tech Diploma w/o Secondary Degree</b>	146	0.4	141	0.4	71	0.1	143	0.4
<b>HH: Profess-Tech Diploma with Secondary Degree</b>	310	1.2	282	1.1	-233	-0.3	264	1.0
<b>HH: University Diploma</b>	1578	5.9	1560	5.9	2902	3.6	1561	5.9
<b>HH: Graduate Diploma</b>	559	0.4	545	0.4	-1359	-0.6	523	0.4
<b>F-statistics for Number of Pensioners (Stat/Signif)</b>			4.4/.00		1.0/.4			
<b>F-statistics for Number of Male &amp; Females 50+ (Stat/Signif)</b>							4.5/.01	
<b>Number of Observations</b>	5065		5065		752		5065	

Notes: The dependent variable is household expenditures. The sample is restricted to households eligible for pensions. All regressions include indicator variables for geographical regions and rounds. HH refers to household head.

**Table 7**  
*Estimates of the Propensity to Consume from Pensions and Other Income*

			Level		First-Differences		Level		First-Differences	
			<i>Penions&gt;=0</i>		<i>Penions&gt;=0</i>		<i>Pensions&gt;0</i>		<i>Pensions&gt;0</i>	
			<i>Coef</i>	<i>t</i>	<i>Coef</i>	<i>t</i>	<i>Coef</i>	<i>t</i>	<i>Coef</i>	<i>t</i>
			(1)		(2)		(3)		(4)	
<b>Pensions</b>	(1)	<i>OLS</i>	0.49	7.4	0.63	7.8	0.48	4.2	0.52	3.8
	(2)	<i>IV</i>	0.56	4.4	0.89	5.5	0.49	2.8	0.91	4.1
<b>Pensions/Other Income</b>	(3)	<i>OLS</i>	.53/.52	10.0/19.5	.58/.40	7.8/13.1	.61/.52	6.9/17.6	.53/.40	4.1/11.4
	(4)	<i>IVCash</i>	.52/.36	9.5/12.5	.60/.21	7.9/8.2	.57/.37	6.2/11.6	.53/.22	4.0/7.3
	(5)	<i>3SLS</i>	.74/.52	7.8/11.7	.83/.34	8.9/6.9	.71/.56	6.3/10.9	.83/.48	6.6/8.7
<b>F-Tests/Ch2-Tests on Equality of Pension and Other Income Coefficients (Stat/Signif)</b>										
	(3)	<i>OLS</i>	0.1/.83		4.6/.00		0.7/.40		0.9/.34	
	(4)	<i>IVCash</i>	5.4/.02		18.8/.00		3.6/.06		4.8/.00	
	(5)	<i>3SLS</i>	5.3/.02		20.4/.00		6.4/.00		6.0/.00	
<b>F-Tests/Ch2-Tests on Significance of Instruments for Pensions and Other Income (Stat/Signif)</b>										
	(2)	<i>Pension</i>	121/.00		54/.00		156/.00		116/.00	
	(4)	<i>Inccash</i>	8750/.00		2716/.00		7814/.00		4199/.00	
	(5)	<i>Pension</i>	3103/.00		2117/.00		1893/.00		2750/.00	
	(5)	<i>Income</i>	266/.00		258/.00		269/.00		258/.00	
<b>Number of Observations</b>			5065		4905		4313		4115	

Notes: The dependent variable is household expenditures. The sample in the first two columns is restricted to all households eligible for pensions, and the in last two columns to all households which received pensions payments. The estimates in columns 1 and 3 are for level regressions, and the coefficients in columns 2 and 4 for regressions in first-differences. All regressions contain the variables used in the regression of Column 4 in Table 6. In Row 2, pensions are instrumented on an indicator variables for whether the head has ever worked, the year of the head's last employment, the head's occupational code for 1985 and 1991, the numbers of pensioners by type, the nine cluster- and oblast-level variables listed in Table 3, and the average level of pension entitlements by oblast. In Row 4, other income is instrumented on other income excluding home production ("Inccash"). In Row 5, pensions are instrumented on the same variables as in Row 2. Other income is instrumented on indicators for whether the household head participates in the labour force, has a job, has wage arrears, and on the occupational code for the primary and secondary jobs of the household head.

**Table 8**  
***Regional Incidence of Child Benefit Arrears***

		Transfer Receipt as % of Entitlement				
		Round 5	Round 6	Round 7	Round 8	
<b>Overall</b>		%	66	55	38	20
		SE	2	2	3	2
<b>Settlement Type</b>						
	Urban	%	66	62	44	23
		SE	3	3	4	3
	Suburban Settlement	%	73	51	47	15
		SE	7	8	3	7
	Rural	%	64	40	21	15
		SE	3	3	3	3
<b>Geographical Regions</b>						
	Metropolitan	%	71	67	76	84
		SE	2	2	5	1
	Northern and North Western	%	50	39	34	7
		SE	6	8	9	2
	Central and Central Black-Earth	%	75	71	51	20
		SE	7	6	11	5
	Volga-Vaytski and Volga Basin	%	72	53	39	7
		SE	5	6	4	2
	North Caucasian	%	65	52	29	20
		SE	3	4	4	7
	Ural	%	64	61	31	17
		SE	4	3	7	4
	Western Siberian	%	64	44	40	12
		SE	4	9	6	3
	Eastern Siberian and Far Eastern	%	59	42	12	15
		SE	4	4	2	4

**Table 9**  
*Child Benefit Receipt by Local Characteristics*

		<b>Arrears</b>	<b>No Arrears</b>
<b>Support for Families with Children</b>	<i>Ruble</i>	403	586
	<i>SE</i>	15	26
<b>Federal transfers</b>	<i>Ruble</i>	1554	1983
	<i>SE</i>	90	113
<b>Gross Regional Product</b>	<i>Ruble</i>	68769	82662
	<i>SE</i>	4023	4154
<b>Population under the age of 16</b>	<i>000</i>	520	620
	<i>SE</i>	20	32
<b>Welfare Office</b>	<i>%</i>	69	79
	<i>SE</i>	4	3

**Table 10**  
*Child Benefit Arrears - Wage Arrears and Number of Children*

		<b>Transfer Receipt as % of Entitlement</b>			
		<b>Round 5</b>	<b>Round 6</b>	<b>Round 7</b>	<b>Round 8</b>
<b>Married Couples with Working Mothers</b>					
No Wage Arrears	<i>%</i>	70	61	44	20
	<i>SE</i>	3	3	4	4
	<i>share</i>	45	43	43	40
Wage Arrears	<i>%</i>	48	25	15	12
	<i>SE</i>	5	4	3	3
	<i>share</i>	7	9	14	10
<b>Number of Children</b>					
1	<i>%</i>	57	49	35	17
	<i>SE</i>	2	3	3	2
2	<i>%</i>	60	50	36	17
	<i>SE</i>	3	2	3	3
>2	<i>%</i>	69	48	29	26
	<i>SE</i>	4	5	6	6

**Table 11**  
***Household Characteristics by Child Benefit Arrears Status***

		<b>No Arrears</b>	<b>Arrears</b>
<b>Houshold Members</b>	#	4.3	4.3
	SE	0.1	0.1
<b>Children under 1.5 years</b>	#	0.1	0.1
	SE	0.0	0.0
<b>Children 1.5 to 6 years</b>	#	0.5	0.5
	SE	0.0	0.0
<b>Children 6 to 16 years</b>	#	1.6	1.6
	SE	0.0	0.0
<b>Pensioners</b>	#	0.4	0.4
	SE	0.0	0.0
<b>Settlement typ</b>	mean	1.6	1.9
	SE	0.1	0.1
<b>Expenditure</b>	R	11443	10898
	SE	544	642
<b>Income</b>	R	9065	8016
	SE	398	443
<b>Assets</b>	#	3.9	4.0
	SE	0.1	0.1
<b>HH: Male</b>	%	88.0	89.8
	SE	0.0	0.0
<b>HH: Age</b>	months	459	460
	SE	4	4
<b>HH: Married?</b>	%	88.0	87.0
	SE	1.0	1.0
<b>HH: High School?</b>	%	84.0	82.0
	SE	1.5	1.5
<b>HH: Gradre?</b>	mean	9.5	9.5
	SE	0.0	0.0
<b>HH: Studied after School?</b>	%	86.0	88.0
	SE	1.3	1.1
	<b><i>If Studied after School:</i></b>		
<b>HH: Vocational Diploma?</b>	%	35.2	37.8
	SE	2.2	2.3
<b>HH: Profess-Tech Diploma w/o Secondary Degree?</b>	%	13.5	13.4
	SE	1.0	1.1
<b>HH: Profess-Tech Diploma with Secondary Degree?</b>	%	26.1	24.8
	SE	1.7	1.4
<b>HH: Technical-Medical Diploma?</b>	%	24.0	23.0
	SE	2.0	2.0
<b>HH: University Diploma?</b>	%	20.0	18.0
	SE	2.2	1.7
<b>HH: Graduate Diploma?</b>	%	0.5	0.5
	SE	0.3	0.2
<b>HH: Labour Force?</b>	%	93.0	92.0
	SE	0.6	0.8
	<b><i>If in Labour Force:</i></b>		
<b>HH: Has Job?</b>	%	94.0	93.0
	SE	0.7	0.8

**Table 12**  
*Determinants of the Probability to Receive Child Benefits*

		<b>Probit</b>	<b>Probit</b>	<b>Probit</b>	<b>OLS</b>	<b>IV</b>	<b>Probit</b>
		(1)	(2)	(3)	(4)	(5)	(6)
<b>Income Excluding Child Benefits</b>	<i>Coef</i>	1E-05	5E-06	4E-06	2E-06	4E-06	6E-06
	<i>t-stats</i>	3.2	1.4	1.4	1.6	1.0	1.6
<b>Potential Child Benefits</b>	<i>Coef</i>			-1E-06			
	<i>t-stats</i>			-1.7			
<b>Previous Rounds Child Benefit Arrears</b>	<i>Coef</i>						-0.37
	<i>t-stats</i>						-6.1
<b><i>F-TESTS (Stat/Signif)</i></b>							
<b>Education</b>		1.9/.08	1.5/.18	1.5/.18	1.4/.24	1.3/.26	0.94/.47
<b>Cluster and Oblast level variables</b>			12.6/.00	12.7/.00	16.1/.00	12.5/.00	9.8/.00
<b>Income IV</b>						39.1/.00	
<b>Numbers of Pensioners</b>			4.4/.00		1.0/.4		
<b>Numbers of Male 50+ and Females 50+</b>							4.5/.01
<b>Number of Observations</b>		3427	3427	3427	3427	3427	2538

Notes: The dependent variable is child benefit receipt. The sample is restricted to households eligible for child benefits. All regressions include indicator variables for rounds and geographical regions, and the variables household size, numbers of children by age group, and numbers of old-age males and females. The education variables in columns 1 to 4, and Column 6 refer to the household head and are grade level completed in secondary school, vocational diploma, professional-technical diploma without secondary degree, professional-technical diploma with secondary degree, university diploma, and graduate diploma. The cluster- and oblast-level variables in columns 2 to 6 are the variables listed in Table 9. Column 2 to Column 6 also contain the head's spouse employment status and wage arrears status. Income excluding pensions is instrumented in Column 4 on indicators for whether the household head participates in the labour force, has a job, has wage arrears, and on the occupational code for the primary and secondary jobs of the household head.

**Table 13**  
*OLS Regression of Household Expenditures on Child Benefits*

	Coef (1)	t	Coef (2)	t	Coef (3)	t	Coef (4)	t
<b>Child Benefits</b>	0.45	1.5	0.74	2.5			0.68	2.3
<b>Household Size</b>	1053	5.1	1899	6.9	1892	6.0	2160	6.9
<b>Number of Children 0 - 1.5</b>			-1204	-2.1	-234	-0.3		
<b>Number of Children 1.6 - 6</b>			-1699	-4.0	-1406	-2.8		
<b>Number of Children 6 - 16</b>			-1574	-5.5	-1226	-3.6		
<b>Number of Boys 0 - 4</b>							-2029	-3.5
<b>Number of Girls 0 - 4</b>							-1647	-3.0
<b>Number of Male Children 4 - 21</b>							-1302	-3.4
<b>Number of Female Children 4 - 21</b>							-1701	-4.8
<b>Number of Males 50+</b>	559	1.0	-94	-0.2	52	0.1	-265	-0.5
<b>Number of Females 50+</b>	21	0.1	-777	-2.0	-895	-1.7	-1031	-2.3
<b>HH: Age</b>	4	2.5	2	1.5	1	0.5	3.0	1.9
<b>HH: Male</b>	2185	5.0	1447	3.2	1715	3.5	1298	2.6
<b>HH: Grade completed in Secondary School</b>	393	3.3	380	3.1	335	2.3	348	2.8
<b>HH: Vocational Diploma</b>	431	1.2	460	1.3	547	1.2	413	1.1
<b>HH: Profess-Tech Diploma w/o Secondary Degree</b>	-153	-0.3	-82.2	-0.2	62	0.1	-63	-0.1
<b>HH: Profess-Tech Diploma with Secondary Degree</b>	-554	-1.5	-462	-1.3	-175	-0.4	-584	-1.6
<b>HH: University Diploma</b>	1975	5.6	2070	5.7	2378	4.5	1973	5.7
<b>HH: Graduate Diploma</b>	2612	1.3	2879	1.4	4457	1.5	2638	1.2
<b>F-statistics for Numbers of Children 0 - 16 (Stat/Sign)</b>				10.2/.00		5.1/.00		
<b>F-statistics for Numbers of Boys &amp; Girls 0 - 4, 4 - 21 (Stat/Sign)</b>							6.1/.00	
<b>Number of Observations</b>	3414		3414		1554		3414	

Notes: The dependent variable is household expenditures. The sample is restricted to households eligible for child benefits. All regressions include indicator variables for geographical regions and rounds. HH refers to household head.

**Table 14**  
*Estimates of the Propensity to Consume from Child Benefits and Other Income*

		Level <i>Child Bens</i> ≥0 (1)		First-Differences <i>Child Bens</i> ≥0 (2)		Level <i>Child Bens</i> >0 (3)		First-Differences <i>Child Bens</i> >0 (4)	
		<i>Coef</i>	<i>t</i>	<i>Coef</i>	<i>t</i>	<i>Coef</i>	<i>t</i>	<i>Coef</i>	<i>t</i>
<b>Child Benefits</b>	(1) OLS	0.68	2.3	0.38	1.7	0.49	1.1	-0.46	-1
<b>Child Benefits/Other Income</b>	(2) OLS	.29/.44	1.2/15.4	.23/.29	1.2/9.3	.17/.44	.42/13.5	-.56/.25	-1.3/7.1
	(3) <i>IVCash</i>	.35/.38	1.4/12.3	.29/.18	1.4/5.5	.18/.43	.5/11.8	-.53/.18	-1.2/4.7
<b>F-Tests on Equality of Child Benefits and Other Income Coefficients (Stat/Signif)</b>									
	(2) OLS	0.3/.58		0.2/.63		0.5/.51		3.5/.07	
	(3) <i>IVCash</i>	0.0/.92		0.0/.91		0.4/.53		2.6/.11	
<b>F-Tests/Ch2-Tests on Significance of Instruments for Other Income (Stat/Signif)</b>									
	(3) <i>Inccash</i>	11652/.00		5534/.00		9506/.00		5466/.00	
<b>Number of Observations</b>		3414		3304		1554		1196	

Notes: The dependent variable is household expenditures. The sample in the first two columns is restricted to all households eligible for child benefits, and in last two columns to all households which received child benefit payments. The estimates in columns 1 and 3 are for level regressions, and the coefficients in columns 2 and 4 for regressions in first-differences. All regressions contain the variables used in the regression of Column 4 in Table 13. In Row 3, other income is instrumented on other income excluding home production (“*Inccash*”).



**Table 15**  
*OLS Estimates of the Propensity to Consume from Total Income*

		Level				First-Differences				
		<i>Pensions</i> >=0		<i>Child Bens</i> >=0		<i>Pensions</i> >=0		<i>Child Bens</i> >=0		
		<i>Coef</i>	<i>t</i>	<i>Coef</i>	<i>t</i>	<i>Coef</i>	<i>t</i>	<i>Coef</i>	<i>t</i>	
		(1)		(2)		(3)		(4)		
<b>Household Expenditures</b>	(1)	<i>OLS</i>	0.52	20.9	0.44	15.9	0.41	14.7	0.29	9.5
	(2)	<i>IVCash</i>	0.37	14.5	0.37	12.6	0.26	11.5	0.18	5.7
	(3)	<i>IV</i>	0.55	10.4	0.47	8.9	0.47	7.6	0.33	5.8
<b>Food Expenditures</b>	(4)	<i>OLS</i>	0.42	17	0.28	12.8	0.35	12.9	0.22	9.4
	(5)	<i>IVCash</i>	0.22	11.1	0.18	9.7	0.17	8.9	0.09	5.5
	(6)	<i>IV</i>	0.51	10.4	0.31	6.3	0.49	8.9	0.29	5.1
<b>F-Tests on Significance of Instruments for total income (Stat/Signif)</b>										
	(2)	(5)	<i>Inccash</i>	7909/.00		11747/.00		2956/.00		4788.8
	(3)	(6)	<i>Income</i>	12.5/.00		21.8		17.2/.00		20.5/.00
<b>Number of Observations</b>			5065		3414		4313		1196	

Notes: The dependent variable in rows 1 to 3 is household expenditures, and in rows 4 to 6 food expenditures. The estimates in columns 1 and 2 are for level regressions, and the coefficients in columns 3 and 4 for regressions in first-differences. The sample in the first and third columns is restricted to all households eligible for pensions, and in the second and fourth columns to all households eligible for child benefits. The regressions in columns 1 and 3 contain the variables used in the regression of Column 4 in Table 6, and total income is instrumented in Row 2 and Row 5 on income excluding pensions and home production (“Inccash”), and in Row 3 and Row 6 on the instruments for pensions and other income of the 3SLS regression in Row 5 of Table 7. The regression in columns 2 and 4 contain the variables used in the regression of Column 4 in Table 13, and total income is instrumented in Row 2 and Row 5 on income excluding child benefits and home production (“Inccash”), and in Row 3 and Row 6 on indicators for whether the household head participates in the labour force, has a job, and has wage arrears, on the occupational code for the primary and secondary jobs of the household head, and on the amount of child benefits calculated according to the benefit rules.

**Table 16**

***Estimates of the Propensity to Consume for Households Receiving both Pensions and Child Benefits***

			<i>Coef</i>	<i>t</i>
<b>Household Expenditures</b>				
Pensions/Child Benefits/Other Income	(1)	<i>OLS</i>	.81/.41/.54	4.6/1.1/11.9
	(2)	<i>IVCash</i>	.86/.38/.43	5.0/1.0/7.1
<b>Food Expenditures</b>				
Pensions/Child Benefits/Other Income	(3)	<i>OLS</i>	.65/.21/.38	4.7/.6/9.6
	(4)	<i>IVCash</i>	.74/.17/.21	5.1/.5/4.7
<b>Household Expenditures: F-statistics on equality of coefficients (Stat/Signif)</b>				
Pensions/Child Benefits	(1)	<i>OLS</i>	0.9/.34	
	(2)	<i>IVCash</i>	1.4/.24	
Pensions/Other Income	(1)	<i>OLS</i>	2.3/.13	
	(2)	<i>IVCash</i>	3.2/.08	
Child Benefits/Other Income	(1)	<i>OLS</i>	0.1/.72	
	(2)	<i>IVCash</i>	0.3/.60	
<b>Food Expenditures: F-statistics on equality of coefficients (Stat/Signif)</b>				
Pensions/Child Benefits	(3)	<i>OLS</i>	1.3/.25	
	(4)	<i>IVCash</i>	2.4/.13	
Pensions/Other Income	(3)	<i>OLS</i>	6.1/.02	
	(4)	<i>IVCash</i>	11.3/.00	
Child Benefits/Other Income	(3)	<i>OLS</i>	0.0/.90	
	(4)	<i>IVCash</i>	0.0/.90	
<b>F-statistics on Instrument (Stat/Signif)</b>	(2)	<i>Inccash</i>	1831/.00	
<b>Number of Observations</b>	1049			

Notes: The dependent variable in Row 1 and Row 2 is household expenditures, and in Row 3 and Row 4 food expenditures. The estimates in rows 1 and 3 are for OLS regressions, and in rows 2 and 4 for instrumental variables regressions, where income excluding pensions and child benefits is instrumented on income excluding pensions, child benefits, and home production. The sample is restricted to all households eligible for both pensions and child benefits. All regressions contain the variables used in the regression of Column 4 in Table 13.

**Table 17**  
*Actual and Simulated Poverty Rates*

		<b>ACTUAL</b>				<b>ACTUAL</b>				<b>SIM 1 (% ACTUAL)</b>				<b>SIM 2 (% ACTUAL)</b>			
		<i>Total Sample</i>				<i>Restricted Sample</i>				<i>Restricted Sample</i>				<i>Restricted Sample</i>			
		<i>R5</i>	<i>R6</i>	<i>R7</i>	<i>R8</i>	<i>R5</i>	<i>R6</i>	<i>R7</i>	<i>R8</i>	<i>R5</i>	<i>R6</i>	<i>R7</i>	<i>R8</i>	<i>R6</i>	<i>R7</i>	<i>R8</i>	
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	
<b>Head-Count</b>	<i>tot</i>	11.0	15.9	17.4	19.1	11.7	15.4	19.1	19.2	99	95	86	94	89	84	80	
	<i>SE</i>	0.6	1.1	1.3	1.3	1.1	1.3	1.5	1.8								
<b>Poverty Gap</b>	<i>tot</i>	3.3	4.7	5.7	6.0	3.1	4.1	6.5	6.0	97	92	80	90	86	84	78	
	<i>SE</i>	0.2	0.3	0.5	0.5	0.3	0.5	0.7	0.7								
<b>FTG, a=2</b>	<i>tot</i>	1.5	2.1	2.8	2.7	1.3	1.7	3.3	2.7	96	91	76	88	85	83	78	
	<i>SE</i>	0.2	0.3	0.5	0.5	0.2	0.3	0.5	0.4								

Notes: The restricted sample consists of households with unchanged eligibility status across the rounds. The simulations assume a propensity to consume of 0.89 for pensions and 0.33 from other cash transfers. Simulation 1 assumes no arrears in government cash transfers. Simulation 2 holds government cash transfers constant at the level of Round 5.

**Table 18**  
*Decomposition of changes in Poverty from Round 5 to Round 8*  
*Propensity to Consume: Pensions 0.56 and Other Cash Transfers 0.47*

	Reference Round 5		Reference Round 8	
	<i>abs</i>	%	<i>abs</i>	%
<b>Head-count</b>				
<i>Actual</i>	7.5		7.5	
<i>Changes in transfers</i>	2.3	31	3.9	52
Growth	2.0	27	2.5	34
Redistribution	0.2	3	0.8	10
Rest	0.1	1	0.6	8
<i>Changes in expenditures</i>	3.6	48	5.2	69
Growth	3.1	41	3.8	51
Redistribution	0.5	6	1.2	16
Rest	0.1	1	0.2	3
<i>Residual</i>	1.6	21	-1.6	-21
<b>Poverty gap</b>				
<i>Actual</i>	2.9		2.9	
<i>Changes in transfers</i>	1.9	64	1.3	46
Growth	1.5	50	1.2	42
Redistribution	0.8	26	0.1	4
Rest	-0.4	-13	0.0	-1
<i>Changes in expenditures</i>	1.6	54	1.1	36
Growth	1.1	36	1.6	55
Redistribution	0.3	10	-0.2	-8
Rest	0.2	7	-0.3	-11
<i>Residual</i>	-0.5	-18	0.5	18
<b>FGT</b>				
<i>Actual</i>	1.4		1.4	
<i>Changes in transfers</i>	1.9	136	0.6	41
Growth	1.1	80	0.6	45
Redistribution	1.1	76	-0.2	-15
Rest	-0.3	-20	0.2	11
<i>Changes in expenditures</i>	0.8	59	-0.5	-36
Growth	0.4	32	0.7	50
Redistribution	0.3	21	-0.9	-66
Rest	0.1	6	-0.3	-20
<i>Residual</i>	-1.3	-95	1.3	95

**Table 19**  
***Decomposition of changes in Poverty from Round 5 to Round 8***  
***Propensity to Consume: Pensions 0.89 and Other Cash Transfers 0.33***

	Reference R5		Reference R8	
	<i>abs</i>	%	<i>abs</i>	%
<b>Head-count</b>				
<i>Actual</i>	7.5		7.5	
<i>Changes in transfers</i>	3.5	47	4.1	55
Growth	3.2	43	4.0	54
Redistribution	0.6	8	0.7	10
Rest	-0.3	-4	-0.7	-9
<i>Changes in expenditures</i>	3.4	45	4.0	53
Growth	1.9	25	2.8	37
Redistribution	0.8	11	0.5	6
Rest	0.7	10	0.7	10
<i>Residual</i>	0.6	8	-0.6	-8
<b>Poverty gap</b>				
<i>Actual</i>	2.9		2.9	
<i>Changes in transfers</i>	3.4	117	1.4	47
Growth	2.6	88	1.5	50
Redistribution	1.5	51	-0.1	-4
Rest	-0.7	-23	0.0	1
<i>Changes in expenditures</i>	1.5	53	-0.5	-17
Growth	0.7	26	1.2	43
Redistribution	0.5	17	-1.3	-44
Rest	0.3	10	-0.5	-15
<i>Residual</i>	-2.0	-69	2.0	69
<b>FGT</b>				
<i>Actual</i>	1.4		1.4	
<i>Changes in transfers</i>	4.5	324	0.6	40
Growth	2.3	167	0.7	51
Redistribution	2.7	192	-0.6	-41
Rest	-0.5	-34	0.4	30
<i>Changes in expenditures</i>	0.8	60	-3.1	-224
Growth	0.3	21	0.5	35
Redistribution	0.4	31	-2.8	-204
Rest	0.1	7	-0.8	-56
<i>Residual</i>	-3.9	-284	3.9	284