

Economics Department

The Role of the Safety Net
and the Labour Market
on Falling Cash Consumption
in Russia: 1994-96
A Quintile-Based Decomposition Analysis

JENI KLUGMAN
and
ALEXANDRE KOLEV

ECO No. 99/41

EUI WORKING PAPERS



WP
330
EUR

EUROPEAN UNIVERSITY INSTITUTE

European University Institute



3 0001 0038 8082 2



EUROPEAN UNIVERSITY INSTITUTE, FLORENCE

ECONOMICS DEPARTMENT

EUI Working Paper ECO No. 99/41

**The Role of the Safety Net and the Labour Market
on Falling Cash Consumption in Russia: 1994-96
A Quintile-Based Decomposition Analysis**

JENI KLUGMAN
and
ALEXANDRE KOLEV

BADIA FIESOLANA, SAN DOMENICO (FI)

All rights reserved.
No part of this paper may be reproduced in any form
without permission of the authors.

© 1999 Jeni Klugman and Alexandre Kolev
Printed in Italy in December 1999
European University Institute
Badia Fiesolana
I – 50016 San Domenico (FI)
Italy

The Role of the Safety Net and the Labour Market on Falling Cash Consumption in Russia: 1994-96

A Quintile-Based Decomposition Analysis*

Jeni Klugman
The World Bank
Washington D.C., USA

Alexandre Kolev
European University Institute
Florence, Italy

WP 330
EUR

November, 1999

Abstract

This paper investigates the rôle of the social safety net and labour market events on the decline in family cash welfare that occurred during the period 1994-1996. Drawing on three cross sections of the Russian Longitudinal Monitoring Survey, we find that the decline in living standards may largely be explained by changes in the labour market. Among these changes, reductions in the returns to the time spent in employment and increasing frequency of wage arrears are most important, more so than increases in unemployment or the fall in real wages among workers who were fully paid. The contribution of falling state transfers to falling living standards is nonetheless substantial. We also find that the sources of the decline in household welfare vary substantially across quintiles.

Key words: Russia, living standards, inequality, welfare programs.

JEL Classification: D31, I32, I38.

*E-mail: jklugman@worldbank.org and kolev@datacomm.iue.it. We would like to thank particularly Frank Cowell, Andrea Ichino, John Micklewright, Ceema Namazie, Kaspar Richter, and Michel Sollogoub for helpful comments and suggestions on this draft. The usual disclaimer applies.





1 Introduction

Several years of high inflation, a serious collapse of economic activity, and late or even non-payment of wages and social transfers are among the characteristics that have dominated Russia in transition. It is scarcely possible to imagine *ex ante* what would have been the welfare - let alone the political - consequences of the economic changes experienced in Russia over the past several years. As the old political regime crumbled, inflation surged and output fell precipitously. This occurred together with the collapse of internal and external trade and a rapid rise in the fiscal deficit. The most critical developments for individuals and households were continuing high inflation until 1995, severely depressed levels of economic activity throughout much of the economy, and sharp declines in real earnings.

As shown in Figure 1, very high consumer price inflation emerged following the liberalisation of prices in early 1992, amounting to some 2,500 percent in 1992, 840 percent in 1993, and then declined substantially to 215 percent in 1994, 131 percent in 1995 and 22 percent in 1996 (Russian Economic Trends). This was reflected in the surging cost of the minimum subsistence basket, which rose from 635 Roubles in January 1992 to 379,000 Roubles in December 1996. The break-up of the centrally planned system together with high inflation and the consequent economic uncertainty have also contributed to a sharp collapse in output. As shown in the same Figure 1, recorded GDP fell by more than 40 percent between 1991 and 1996. This official figure is supported by enterprise level surveys (Commander et al 1995). The scale of the drop places Russia among the worst affected of the formerly planned economies, where reported GDP declines during the same period range from 11 percent in Poland to 57 percent in Lithuania (De Melo et al 1995).

In this context of deep economic crisis, there was a sharp fall in living standards. Several studies have already begun to assess the devastating welfare implications of these changes at the aggregate level (see,

e.g. Braithwaite and Klugman, 1998. Milanovic 1998; Ovcharova 1998; Klugman, 1997; Doyle, 1997; Popkin et al. 1996). Available evidence does consistently point to a large increase in the number of poor: from 11% of the population in 1989 to over 30% in 1995 using official (Goskomstat) figures, and circa 40% using nationally representative data from the Russian Longitudinal Monitoring Survey¹. Whilst most of the earlier studies have focused on the incidence of poverty and characteristics of the poor, little attention has been paid to a formal empirical investigation of the decline in cash consumption among the entire population and variations in the decline at different points in the expenditure distribution.

The aggregate data from Russian Economic Trends reported in Figure 1 show a substantial decline in family consumption since independence. The fall in consumption was particularly dramatic at the early stage of the transition: almost 40 percent in 1992. The trend was reversed in 1993 and 1994, but family consumption declined again by nearly 6 percent in 1995 and remained unchanged in 1996. Turning to the Russian Longitudinal Monitoring Survey provides an even more impressive picture of the fall in living standards. Between 1994 and 1996, the period for which we have available micro data, the ratio of family cash expenditures over the poverty line fell by about 20 percent. The decline in cash welfare was however not spread equally across all households. Among the better-off, as measured by the fourth quintile of the adjusted expenditure distribution, the ratio declined by 19 percent. Among the worst-off, however, in the bottom quintile, the ratio fell by more than 25 percent. This finding, which is consistent with previous studies that looked at inequality (Milanovic, 1998; Fleming and Micklewright, forthcoming), naturally raises questions about the respective roles of public social transfers and labour market events, and how these account for the fall in adjusted cash consumption for families with different welfare position.

¹All figures are relative to the official national poverty line except 1992 Goskomstat (based on the old Soviet social minimum).

In this paper, this question is addressed by quantifying the relative contributions of the erosion of the social safety net and the changing labour situation on the decline in household cash welfare at different quintiles of the expenditure distribution. Given the impossibility of accessing comparable micro data since the beginning of transition, the analysis is unfortunately restricted to the period 1994-1996. As was shown above, however, the decline in family welfare that occurred during this short period is only a small fraction of the overall decline that Russian families have experienced since the beginning of transition. In order to use more information from the expenditure-to-needs ratio, we start by applying quantile regression methods in order to relate, for different quintiles, the expenditure-to-needs ratio to a set of transfer income and labour market variables. The declines in the fitted values of these ratios are then decomposed into changes in social transfers and labour income, and changes in the way these factors have affected expenditures. The decomposition method employed is a technique of growth accounting which is often used in wage discrimination analysis (Blinder 1973; Oaxaca, 1973), and used by Gomulka and Stern (1989) to explain the growth of married women's labour force participation in the UK over time.

This paper is organised as follows: in Section 2, we present the data and some summary statistics concerning family welfare and the potential factors associated with the decline in the welfare ratio. We also introduce the concepts of well being used in the analysis, and the statistical procedure that is followed to decompose changes over time. Section 3 presents the main results. Section 4 concludes.

2 Data, Concepts and Methodology

2.1 Data

The data source exploited for this analysis is the Russian Longitudinal Monitoring Survey (RLMS), rounds V-VII. The relevant dates were

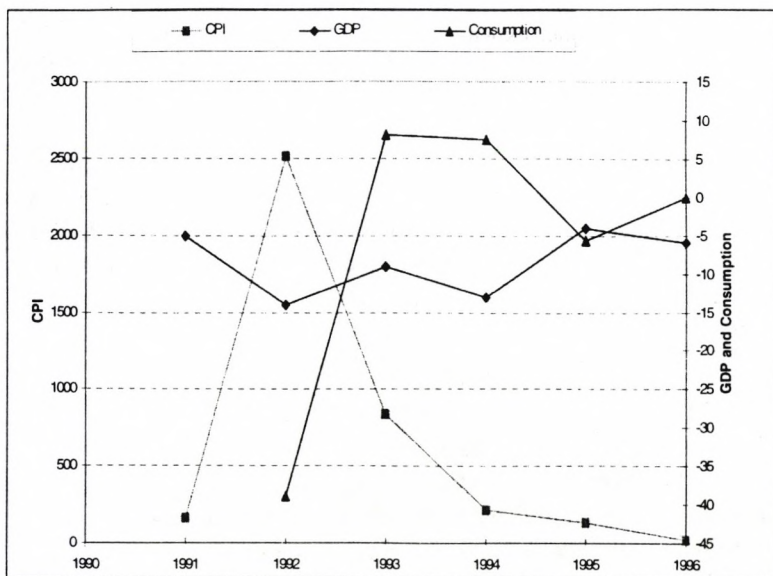


Figure 1: Changes in GDP, Inflation and Consumption: 1991-96 (percentage)

November 1994-January 1995 (round V), October-December 1995 (round VI), and October-December 1996 (round VII). Since several households are followed during the period 1994-96, the RLMS can also be used as a panel. However, for the purpose of this empirical analysis, the three rounds are used as a time-series of cross sections. The RLMS data are intended to be representative of the whole population, and thus the different rounds represent a good opportunity to study poverty over time in Russia. We utilise both information collected on households as well as extensive information at the individual level. For example, expenditures and sources of income refer to those reported at the household level, whilst additional information on the labour force status of household members was derived from individual raw data. The analysis was limited to families headed by an adult and reporting positive expenditures on food. After data cleaning, we were left with a sample size of 3743 household-level observations for round V, 3574 for round VI, and 3525 for round VII.

2.2 Consumption Aggregate

In this analysis, our monetary indicator of household welfare is derived from family cash consumption, as opposed to total expenditures. We are in fact primarily interested in looking at the impact of falling cash income, from the labour market and the safety net, on the capacity for a family to use its revenue to purchase goods and services according to its needs, and this leads us to focus on cash expenditures. Our welfare indicator aggregates the total cash expenditures on food and non-food items of the household in the month preceding the survey. We exclude the imputed expenditures represented by the consumption of home-produced goods (such as food), as well as expenditures on consumer durables and savings.

The relative importance of each of these consumption items is reported in Table 1 by quintile of the log welfare ratio (see definition below).

Cash consumption represents the major component of total expenditures in the RLMS, and its share tends to have increased between 1994 and 1996. The imputed value of home-produced food is another important component of total consumption, in particular among families with low cash expenditures. As shown in Table 1 though, this item has decreased over the period, but this may be the consequence of the fall in the relative prices of home produced goods. In contrast, expenditures on durables and savings represent only a very small fraction of the consumption aggregate.

Focusing on cash expenditures is arguably a narrow dimension of welfare, especially in Russia where the extent of the barter economy is large, and where the actual level of consumption is higher than cash expenditures given the importance of home production. However, there are several reasons for excluding home production and focusing on cash welfare in our case.

First, if we want to recover the impact of changes in cash income on the capacity for a family to use this cash income to purchase goods and services, we need to exclude non-cash consumption such as home produced goods. Another argument for exclusion is that home produced food may be endogenous to low monetary income, if home production is a coping mechanism. In the RLMS, we do find a negative correlation between labour income and home production during the period 1994 to 1996, and a negative correlation between public transfers and home production in 1995 and 1996. Hence over time, the impact of falling cash transfers and labour income on cash expenditures could have been partially offset by an increase in home production. This substitution effect would not appear in the overall level of the welfare indicator if one includes home production. However, it would be wrong to conclude that there is no cause to worry about the decline in cash expenditures if these expenditures were partially compensated by an increase in home production, and ignore the fact that the ability of families to purchase goods and services has declined. For some families, growing food is a regrettable ne-

cessity, and there are some strong negative effects associated with home production, both in terms of forgone leisure and constraints imposed on the consumption choice.

The two other groups of items that we have excluded are consumer durables and savings. Even though these items are a strong signal of ability to purchase goods and services, they make household comparisons difficult. Expenditures on durables are lumpy and some households may have used their savings to buy consumer durables in an earlier period than the month preceding the interview, the interval for which the consumption aggregate is constructed. However, as shown in Table 1, expenditures on consumer durables and savings are relatively low in Russia and their exclusion should not underestimate family cash welfare too much.

Lastly, our definition of cash consumption does not impute either expenditures on subsidised social services nor on owner-occupied housing. The latter omission should not have a dramatic impact, since rental expenditures remain low in mid 1990s at least relative to Western norms². The treatment of social services (health care and education) is possibly more problematic – however, since subsidised services are fairly universally available, welfare comparisons between households should not be affected too much.

²For example, in late 1995, average expenditures on rents and utilities corresponded to less than 4.5% of total expenditures so so the omission of the imputed value of expenditures on owner-occupied housing should not affect welfare comparisons across households too much.

Table 1: Consumption items by quintile of the log welfare ratio (in per cent).

Items	Q20		Q40		Q60		Q80		Q100	
	1994	1996	1994	1996	1994	1996	1994	1996	1994	1996
Cash consumption	66.4	71.7	80.3	87.4	84.9	89.2	85.3	90.4	87.7	88.2
Home production	29.3	25.6	14.7	9.9	10.1	8.0	8.9	5.1	6.8	7.6
Durables	2.0	1.3	2.5	1.7	2.2	1.4	2.5	2.3	2.8	2.3
Savings	2.3	1.4	2.5	1.0	2.8	1.4	3.3	2.2	2.7	1.9
Total	100	100	100	100	100	100	100	100	100	100

Source: RLMS rounds V, VI and VII.

2.3 The Welfare Ratio

In the previous section, we presented the way we constructed a cash consumption aggregate to measure the ability of a family to purchase goods and services. We need however to adjust this consumption aggregate for household needs. An increasingly common practice is to follow the welfare ratio approach and to divide our consumption aggregate by a poverty line specific to each household. The use of the welfare ratio has been recently discussed by Ravallion (1998) and Deaton and Zaidi (1999). One argument for the use of the welfare ratio is that it has a straightforward theoretical link to total expenditure. It also measures well-being on a continuous scale, contrary to the traditional binary poverty measure. This makes distributional analysis easier. The poverty line used to adjust household cash expenditure in order to obtain a measure of family cash welfare is discussed below.

2.4 The Poverty Line

In Russia there is an official national poverty line (referred to as the Minimum Subsistence Income or MSI) that has been in use since 1992. In the present analysis, we used the regional poverty lines that are based on a similar methodology as that used to derive the national threshold, with several important adjustments. First, variation in the level of regional prices and regional inflation is taken into account. Second, the actual composition of the underlying food basket varies according to observed regional consumption patterns³. Third, the different needs of families of varying composition and size are taken into account through the inclusion of both equivalence scales and economies of scale, as explained below.

As noted above, high rates of inflation have characterised much of the period of transition in Russia. Moreover there was significant varia-

³See Popkin et al (1996) for an elaboration of the approach used. Note that the consumption patterns were those of the second lowest income decile, collected by the official Family Budget Survey.

tion in regional rates of inflation (Stewart 1997). This is one argument for standardising household expenditures by regional poverty lines.

The official poverty line accords implicit equivalence scales to different age and gender groups (children under 18, male 18-59, female 18-54, male 60 and above, and female 55 and above). These depend partly on value judgements and the weight attached to the needs of different groups in the population. This has some crucial effects on the results. For example, since it gives less "weight" to the elderly whose minimum subsistence needs are deemed to be lower than those for prime age adults and children, the proportion of the old who are observed with low living standards is obviously affected.

Economies of scale in family consumption arise when the incremental costs of an additional member fall because the costs of the household – such as rent and utilities – can be "shared" among an increased number of members. Whilst the principle is clear, the exact extent of such economies is an empirical question. Prior to the economic reforms and early in the transition in Russia, the extent was arguably limited given the low relative prices of, and hence expenditures on, rent and utilities (see footnote 2 above). As the transition has proceeded there is more of a case for the inclusion of economies of scale. The regional poverty lines constructed as part of the RLMS data set used in this analysis incorporate economies of scale. The calculations underlying these adjustments were based on the so-called Rothbarth approach⁴.

The economies of scale adjustments incorporated in the RLMS data set are such that the poverty line for a family of two is only 0.89 that of an unadjusted threshold obtained as the sum of the regional Minimum Subsistence Income of two adults. This falls with additional family

⁴The Rothbarth approach is based on the estimation of demand functions for so-called adult goods: see Popkin et al (1996) for details of what was done in Russia. It differs from the more conventional method associated with Buhman et al (1986) that has been adopted by the OECD and others.

members, so that the fifth to eighth member of the household "count" for only about 0.7. As we might expect, these adjustments reduce the poverty head count. Specifically, in late 1994, the use of regional poverty lines adjusted for economies of scale reduces the poverty head count by some 15 percentage points below that found using a national poverty line which neglects scale economies. The profile of poverty is also significantly affected, reducing the representation of children and young adults among the poor.

The choice of equivalence scales and economies of scale are inevitably subject to debate. For example, under the RLMS approach the needs of a three-person household comprising a mother and two children would be subject to the same economies of scale adjustment as a two-parent, one-child household. Whether or not this is the most appropriate treatment is a question that we do not investigate here.

Recall however that the choice of a poverty line may not be innocuous. The choice of scaling included in the regional poverty line could affect the correlates of the welfare ratio. Even though decisions about, for instance, regional price adjustment and economies of scale are often subject to discussion, it seems essential to know whether the results are robust to the choice of alternative parameters. For this reason, a sensitivity analysis of key results to different consumption adjustments is performed.

2.5 Summary Statistics

2.5.1 The expenditure-to-needs ratio

The expenditure-to-needs ratio fell by an average of 20 percent between 1994 and 1996, from 3.31 in 1994 to 2.71 in 1995 and 2.64 in 1996. And this is of course only a small fraction of the decline in living standards that has occurred since the beginning of the transition. In other words, average cash household expenditures, as defined above, represented in 1996

only about two and a half times the average poverty threshold. Whereas in 1994 expenditures averaged more than three times the poverty line. However, as shown in Figure 2, the decline in the ratio was not spread equally. At the bottom quintile, the ratio fell by more than 25 percent. At the top quintile, however, the ratio declined somewhat less, by about 19 percent.

The deterioration in household welfare was concentrated between 1994 and 1995, but has continued through to 1996 for the first three quintiles. Among families at the top quintile of the expenditure distribution, however, the decline was reversed after 1995.

The scale and the timing of this deterioration is partly explicable by macroeconomic factors. The level of inflation and the extent of the decline in output have been more limited in 1995 and 1996, compared with 1994. The quarterly inflation rates were still high at 37 percent in November 1994-January 1995 (Round V) but then dropped sharply to 8 percent in October-December 1995 (Round VI) and 3 percent in October-December 1996 (Round VII) (Russian Economic Trends, 1997.2). In turn, the decline in recorded GDP was about 13 percent in 1994, but only 4 percent in 1995, and 5 percent in 1996.

2.5.2 Possible factors associated with falling cash consumption

In order to isolate the respective contributions of the safety net and the labour market to the decline in adjusted family expenditures, we distinguish between the income changes due to changes in public and private transfers, and changes due to labour market events. The definitions of all the variables used in this empirical analysis are presented in Table 2. Given the impossibility at the time of the study of accessing reliable monthly regional price indices for the period 1994-1996, all the income variables are adjusted to June 1992 prices using a national index. The mean values of all the explanatory variables are presented in Table 4. The overall decline in average income broken down by income sources is

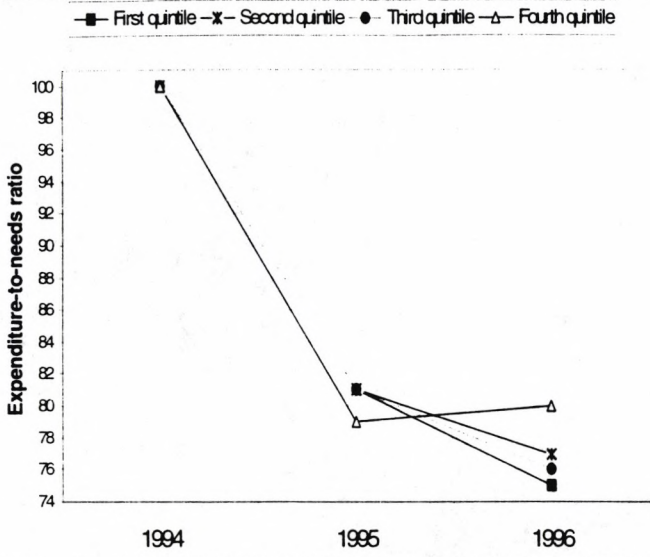


Figure 2: Decline in cash expenditure-to-needs ratio

depicted in Figure 3.

Table 2: Definitions of the variables

Labour market factors:	
Wage fully paid	Sum of all monthly wages in June 1992 prices from main and second jobs received by all household members that do not report wage arrears, divided by the respective monthly hours of work performed in main and second jobs.
Hours	Sum of all hours of work performed in main and second jobs by all household members divided by the number of wage recipients in the family.
Unemployment	Number of unemployed members in the household (ILO definition) divided by the number of members participating in the labour force.
Wage arrears	Number of employed household members reporting no wages in the last month but providing positive hours of work, divided by the number of employed members with positive hours of work.
Labour hoarding	Number of household members officially employed but sent on compulsory unpaid leave divided by the number of officially employed family members.
Social safety net	
Public transfers	Sum of all government transfers received in the household: includes pensions, child benefits, unemployment benefits and other public benefits.
Private transfers	Sum of all transfers received in the household from relatives, friends, and non-governmental organisations.
Other income	
Sales of home produced goods	Sum of all cash revenues from the sale of home produced goods in the household.
Capital income	Household income from rents, property and capital investments.

Table 2: Continued

Family structure variables:	
Head's age	Age of household head in years.
Number of children	Number of children of age 17 or below living in the same household.
Number of working age adults	Number of males of age 18-59 and females of age 18-54 living in the same household.
Number of pensioners	Number of males of age 60 and above and female of age 55 and above living in the same household.
Location and regional variables:	
Rural Household	The family lives in a rural settlement.
Moscow and St-Petersburg	The family lives in Moscow or St-Petersburg.
North and North West	The family lives in the North or the North West.
Central and Black Earth	The family lives in the Central or Central Black Earth Region.
Volga-Vaytski and Volga Basin	The family lives in Volga-Vaytski or Volga Basin.
North Caucasian	The family lives in North Caucasian.
Ural	The family lives in the Urals.
Western Siberia	The family lives in Western Siberia.
East Siberia and Far East	The family lives in East Siberia or the Far East.

Labour market events The past several years of economic transition in Russia have been associated with enormous changes in the labour market. Falling output, increasing consumer prices, and tightening firm budget constraints have all contributed to the sharp decline in the level of real wages depicted in Figure 3.

In late 1996, overall labour income represented only about 80 per cent of its 1994 values, even though the sharp fall between 1994 and 1995 was partially reversed in late 1996. In Table 3, we have represented the composition by income of each of the five quintiles of the log welfare ratio in 1994 and 1996. This table shows that labour income represented a higher share of total income for those families with high cash expenditures. However, the relative share of labour income has increased slightly at the bottom of the expenditure distribution. A priori, this overall decline in labour income could reflect a combination of factors, such as reduced time spent working among the employed, increases in both open and hidden forms of unemployment, increased incidence of wage arrears, and falling real wages even among those individuals who were fully paid. Trends with respect to each factor are examined below.

As reported in Table 4, the average among household members of the hourly wage rate for those household members who reported no wage arrears has remained practically unchanged between 1994 and 1996. The initial fall from 29 roubles in 1994 to 25 roubles in 1995 was almost reversed by an increase in late 1996. In other words, workers who were not affected by wage arrears usually experienced a decline in their real wages between 1994 and 1995, but the trend was reversed after that. In Table 5, we have reported the mean value of the labour market variables for different percentiles. This table shows that among the better-off, as measured by those households situated above the 80th percentile, the wage rate has tended to increase while at the bottom of the distribution, the wage rate has declined.

Interestingly, the monthly hours spent in primary and secondary

employment by household members who were supplying positive hours show an increase of the order of 6 percent between 1994 and 1996. This increase is observed at all quintiles. This finding suggests that the main source of the overall decline in labour income is not a reduction in the employment hours of the working family members.

What then can explain the large fall in labour income? We would expect that increased unemployment is likely to have contributed to the observed decline. Unemployment has been shown to be a significant explanatory factor in the profile of Russian poverty (Commander and Yemtsov, 1997). During the two year period under investigation, open unemployment in the sample increased from 7.7 percent of the labour force in 1994 to 9.1 in 1996. At the household level (Table 4), the share of unemployed members among working age adults increased from 7.4 percent in 1994 to 8.6 percent in 1996. But this hides substantial differences across quintiles. As shown in Table 5, the incidence of unemployment is much higher at the bottom of the expenditure distribution. At the same time, the share of household members spent on compulsory unpaid leave, which has been identified as a form of hidden unemployment (Standing, 1997), has remained quite low on average, with higher rates at the bottom of the expenditure distribution.

Although open unemployment has indeed risen, earlier studies and anecdotal evidence (Alfandari & Schaffer, 1996; Lehmann et al. 1998; Desai & Idson, 1997) have concluded that adjustment on the quantity side of the labour market has been limited relative to the scale of output decline. In late 1996, the rise in unemployment was indeed low compared with other European countries in transition (Commander 1996). Wage arrears tend to have been the dominant form of labour market adjustment in Russia.

Payment arrears have in fact become a widespread problem in a number of former Soviet countries, including Russia, Ukraine, Armenia, Georgia and Moldova. The phenomenon has on occasion threatened po-

litical stability, at least according to Western press reports about delays in payment of wages to Russian coal miners, to take the best-known example. In the RLMS, the share of workers in the household reporting the non payment of their wage in the preceding month increased by 60% from 16 percent in 1994 to more than 24 percent in 1996. Again, however, the incidence of wage arrears was much higher at the bottom of the expenditure distribution, suggesting that this factor substantially alters family cash consumption. It is however difficult to measure the real extent of wage arrears and its associated impact on welfare: some workers were actually paid, but not completely, so that the share of individuals reporting the non payment of their wage is only a small fraction of the people affected by wage arrears. Also, though the data provide some information on the overall amount of wage arrears, looking at the impact of this variable on the expenditure-to-needs ratio is misleading. We do find in fact a surprisingly positive correlation between the amount of wage arrears and cash expenditures, but this reflects the fact that people with high contract wages and high expenditure levels are at the same time more likely to report higher amounts of wage arrears.

Public transfers An extensive range of benefits was inherited from the Soviet period and most families continue to receive some public income support. In late 1996, public transfers represented about 30 percent of the income of the poorest (Table 3).

However in the context of deep economic crisis, the government's social policy has failed to stem the rise in poverty. Between 1994 and 1996, the average real value of public social transfers per households dropped by more than 30 percent. At the same time, as shown in Table 3, the relative share of public transfers has decreased quite substantially. But the relative decline in the share of public transfers has not been spread equally across all households: those at the bottom end of the distribution have experienced a higher decline. The fall in public social benefits can be attributed to lagged indexation in the context of high inflation and

arrears in benefit payment, which have become widespread⁵. Between 1994 and 1996, the share of eligible households not receiving government transfers increased sharply: from 3.6 percent to 34 percent for pensions and from 33 percent to 62 percent for child benefits (Richter, 1998). There is typically no indexation of payments of benefits if and when these payments are eventually made. Hence arrears in public transfers can result in significant cuts in the real income of the families affected.

Most of the decline in the value of public benefits took place between 1994 and 1995 (Figure 3). Over the course of 1996, public social transfers declined by a further 9 percent. More so than the sharp deceleration of inflation in 1995 and 1996, this trend can largely be explained by the increase in social spending that took place in the run-up to the Presidential elections in summer 1996. The fall in public expenditures on social benefits was indeed temporarily reversed between 1995 and 1996 (Richter, 1998)⁶.

Private Transfers Private inter-household transfers are an important part of the safety net for households. Assistance from the extended family and friends has always been an important coping mechanism in Russia. Earlier studies have found that private transfers have been large and widespread during the transition (Cox, Esed and Jimenez, 1997). Over the period 1994-1996, the contribution of private transfers to household income was on average about 8 percent. This hides however substantial differences by quintiles. As shown in Table 3, the share of private transfers is higher among the worse-off. In contrast to public support, the share of private transfers in total income has also increased between 1994 and 1996. However, Figure 3 shows that the real value of these transfers fell sharply between 1994 and 1995, and then recovered

⁵Since public transfers are typically calculated on a monthly basis, arrears refer to payments not received in the month due. The payments may be received in a later month, in part or in full, or not at all.

⁶Using data from the Ministry of Finance, Richter (1998) estimates that spending on social benefits fell from 7.6 percent of GDP in 1994 to 6.6 percent in 1995 and rose again to 7.3 percent in 1996.

slightly after 1995. In 1996, private transfers nonetheless remained below their 1994 values.

Other income sources Trends with respect to other income sources that could have contributed to the observed decline in the welfare ratio are presented in Table 4. We can see that capital income has declined substantially over the period while the revenues from the sales of home produced food have tended to increase. The increase in the sales of home produced food could have been the household reaction to falling income. As shown in Table 3, the contribution of capital income to household income was surprisingly quite equally well distributed across households, and so was the share of cash income from the sale of home produced goods.

Demographic factors The last set of variables that could have been associated with a change in the welfare ratio relates to demographic and regional factors. It is not surprising though to notice that the means of the demographic and location variables have remained practically unchanged between 1994 and 1996. Hence, whilst earlier micro analysis has shown that family welfare is significantly correlated with certain demographic and regional variables (Foley, 1997; Klugman and Braithwaite, 1998), it was unlikely, given the short period under investigation, that any observable demographic and regional changes could explain the decline in living standards. It is nonetheless possible, however, that the impact of these demographic and regional factors have changed in a way that would have affected household consumption adjusted for family needs.

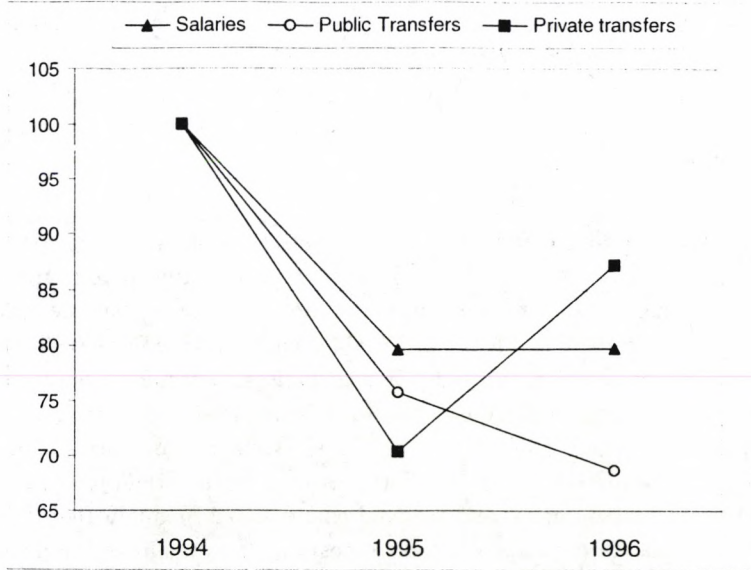


Figure 3: Decline in real income. by source (base=100 in 1994)

Table 3: Income sources by quintiles of the log welfare ratio (in percent)

Items	Q20		Q40		Q60		Q80		Q100	
	1994	1996	1994	1996	1994	1996	1994	1996	1994	1996
Labour income	36.2	41.7	43.2	46.1	47.2	49.7	48.7	46.5	51.5	49.4
Public Transfers	47.2	30.5	40.5	32.2	38.8	31.9	36.2	36.1	31.6	29.6
Private Transfers	10.3	15.6	9.5	13.3	7.4	10.0	7.2	10.9	7.4	9.4
Capital Income	4.5	8.6	6.1	7.2	5.8	7.5	7.5	5.9	8.3	9.3
Sales in cash of home production	1.8	3.6	0.7	1.2	0.8	0.9	0.4	0.6	1.2	2.3
Total	100	100	100	100	100	100	100	100	100	100

Source: *RLMS rounds V, VI and VII.*

2.6 Methodology

The previous section has shown that the decline in the welfare ratio during the period under investigation was not spread equally across the expenditure distribution. The relative importance of income sources and its variation over time also differed substantially across the expenditure distribution. Hence, in order to use more information from the welfare ratio and to assess the importance of changes in social transfers and labour market factors in accounting for the fall in adjusted cash consumption for households with different welfare situations, we wish to specify a model where the parameter may vary according to the segment of the expenditure distribution one is considering. To do that, we first estimate the determinants of the welfare ratio using quantile regression models. This approach is then applied to the original Blinder/Oaxaca decomposition in order to decompose the fall in the welfare ratio at several percentiles into mean changes in the characteristics of the population, and changes in the impact of these characteristics.

2.6.1 Quantile regression analysis

Having measured family cash welfare by the cash expenditure-to-needs ratio, we now desire a better understanding of its determinants. For this purpose, we specify a set of regressions of the logarithm welfare ratio against a set of variables related to social transfers and labour market activity, with additional controls for other family income, family composition and region. In order to allow different factors to matter in different parts of the welfare ratio distribution, we estimate four quintiles of the expenditure-to-needs ratio, conditional on the values of the independent variables. Quantile regression models are very similar to ordinary regression, but instead of minimising the sum of the squares of the residuals as in OLS, quantile regression models minimise the sum of the absolute residuals. Statistical properties of minimum absolute deviation estimators are reviewed by Koenker and Bassett (1978). Apart from the fact that quantile regression models use more information from the LHS variable and allow the parameter to differ in different parts of the dependent

variable, interest has grown in these models due to the desire to get robust alternatives to the sample mean.

In the minimum absolute value models, the q th regression quantile, $0 < q < 1$, is defined as the solution to the minimization problem:

$$\min_{\beta_j} \left[\sum_j q |y_i - \beta_j x_{ij}| + \sum_j (1 - q) |y_i - \beta_j x_{ij}| \right].$$

This is set up as a linear programming problem and solved via linear programming techniques.

Formally, separate adjusted expenditure functions are estimated at the 20th, 40th, 60th and 80th percentile for a given year and for all households $i = 1, \dots, N$:

$$\ln W_i^q = a^q X_i + u_i \quad (1)$$

where $\ln W^q$ is the q quintile of the natural logarithm of the welfare ratio for the entire sample, X is the vector of explanatory variables, a^q is the vector of coefficients, and u is a random error term with $E(u) = 0$ and $Var(u) = \sigma^2$.

The output of equation 1 may be interpreted in exactly the same way as linear regression output, except that instead of the mean of the dependent variable, we predict the chosen quintile of the log ratio for the entire sample in a given year using the estimated coefficients and the mean characteristics across all households:

$$\ln \widehat{W}^q = \widehat{a}^q \overline{X} \quad (2)$$

where for each year \widehat{a}^q is the quantile or *minimum-absolute* estimate of a^q , \overline{X} are the means across all households of the explanatory variables, and $\ln \widehat{W}^q$ is the fitted value of the q quintile of the log ratio estimated at the mean of the sample characteristics.

The vector of X variables includes social transfers from public and private sources on the one hand, and labour income variables on the other. Rather than having the overall labour income of the family as the explanatory variable, we want to isolate the sources of falling labour market earnings and their impact on the welfare ratio. In particular, we want to distinguish the effect of wage arrears from the decline in wages of those workers who were fully paid. This leads us to include a number of variables that are related to labour market activity, and that are expected to affect overall labour income. The set of labour market variables includes the average hourly wage in the family from first and second jobs for those family members reporting no wage arrears, the monthly hours spent in employment by family members (from first and second jobs) for those individuals receiving some positive wages but not necessarily their full wage, the share of working family members affected by the non-payment of their wage, the share of unemployed members in the family and the share of officially employed family members sent on compulsory unpaid leave. This last aspect is often referred to in the literature as labour hoarding or hidden unemployment.

2.6.2 The decomposition technique

The linear nature of equation 2 allows straightforward decomposition of changes in $\ln \widehat{W}^q$ into changes in the \bar{X} and a^q for several percentiles using the original Blinder/Oaxaca decomposition technique (Blinder, 1973; Oaxaca, 1973). Here, we use this technique in a slightly different way to explain observed changes over time (Gomulka and Stern, 1989). In other words, we wish to assess how much of the fall in household adjusted cash expenditures during the period 1994-96 was due to changes in the observable characteristics of the sample population, and how much can be attributed to changes in the "treatment" of those characteristics.

For each chosen percentile of the expenditure-to-needs ratio, changes in the predicted welfare ratio between periods $t + 1$ and t can then easily be decomposed into changes in the vector of coefficients including the

constant and changes in the mean values of the explanatory variables weighted by their impact at the chosen percentile in period t :

$$\ln \widehat{W}_{t+1}^q - \ln \widehat{W}_t^q = (\widehat{\alpha}_{t+1}^q - \widehat{\alpha}_t^q) \overline{X}_{t+1} - (\overline{X}_{t+1} - \overline{X}_t) \widehat{\alpha}_t^q. \quad (3)$$

The first term on the right hand side represents the changes in the welfare ratio (in log points) at the q th percentile explained by changes in the coefficients between year t and year $t + 1$, evaluated at the means of the sample for period $t + 1$. The second term measures the changes in the ratio explained by changes in the mean values of the explanatory variables holding the coefficients constant at the values estimated for period t and for the chosen percentile q .

We can also look at the impact of changes in a particular variable or a particular coefficient of interest. The vector of the explanatory variables X can be, for example, separated into distinct social transfer SOC and labour market LAB variables. These have the associated coefficients α and β respectively. The changes in the predicted log ratio for a given percentile q between the periods t and $t + 1$ can then be easily rewritten as:

$$\Delta \ln \widehat{W}_t^q = \Delta \widehat{\alpha}^q \overline{SOC}_{t+1} + \widehat{\alpha}^q \Delta \overline{SOC} + \Delta \widehat{\beta}^q \overline{LAB}_{t+1} + \widehat{\beta}^q \Delta \overline{LAB} \quad (4)$$

where Δ indicates the difference between period t and $t + 1$. On the RHS of (4), the first and the third terms measure the effect of a partial change in the coefficient of the social and labour market income variables SOC and LAB respectively. The second and fourth terms, in turn, represent the effect of a partial change in the mean value of these variables.

In Section 3, we implement the above methodology in three broad steps. First, we predict the 20th, 40th, 60th and 80th percentiles of the log ratio using the actual coefficients found for the year 1994, 1995 and 1996, but hold the sample characteristics at their 1996 level. The difference in the predicted values of the log ratio between two periods shows how much of the aggregate change can be attributed to changes in the coefficients of the model (first term in the RHS in (3)). Then, we hold

the coefficients constant at their 1994 level, and predict the log ratio using the sample characteristics for each year. The differences in the predictions tell us how much of the changes can be attributed to changing characteristics of the population, holding the coefficients constant at their 1994 level (second term in the RHS in (3)).

As a separate exercise, we repeat the above two steps for the social transfers and labour market variables, utilising equation (4). This gives us the partial change in the log welfare ratio due to changes in social and labour market income related factors. Note that this technique is merely accounting, in the sense that by definition the aggregate change in the log ratio evaluated at a chosen percentile is equal to the sum of the marginal changes of the characteristics and the marginal changes of the coefficients. However, some of the changes may not be statistically significant, in which case the results should be treated with caution.

3 Results

We have documented the general decline in cash consumption adjusted for family needs and the factors that could have explained this decline. We now go on to estimate the determinants of the welfare ratio, and then evaluate the respective contributions of the erosion of the social safety net and changing labour market events to the fall in the predicted values of the welfare ratio.

3.1 Multivariate Analysis

In order to see whether the impact of public and private income sources on the welfare ratio matters at different parts of the expenditure distribution we start by estimating the natural logarithm of the expenditures-to-needs ratio⁷ for 1994, 1995 and 1996. This is done using quantile

⁷Taking the natural logarithm of the welfare ratio has the advantage of normalising the distribution.

regression analysis. Note, however, that the multivariate analysis is used here as a descriptive device rather than as a model of economic behaviour. To a certain extent, some of the variables that are included in the RHS could be endogenous to low consumption. This makes difficult the interpretation of the correlations in terms of strict causality. More modestly, we wish to isolate the correlation between labour market events and social transfers on the one hand, and the level of adjusted cash expenditure on the other hand. This is how the coefficients of the model should be interpreted.

The set of independent variables follows the considerations in Section 2.5.2 above. Within the category of labour market activity there are several variables, namely the average hourly wage in the family for those employed family members who were fully paid, the monthly hours of work for those with non-zero wages, wage arrears, and unemployment⁸. Reflecting the extent of support for living standards provided by the social safety net, we include all sources of public transfers. Transfers from private sources are also included under the safety net heading. We also include other income sources from capital income and income from the sale of home produced food. Other control variables include demographic controls, (specifically, age of the household head, the number of children, the number of working-age adults and the number of above working-age adults), and region of residence.

Tables 7 to 9 present the results of the quintile regression analysis conducted for the four quintiles. Most of the variables have the expected effect on the welfare ratio, though there are some unexpected results. In the discussion below, we take changes in household welfare to be equivalent to changes in the household's expenditure ratio adjusted for needs. To ease the presentation, some selected coefficients are presented in Table 6 for 1994 and 1996.

Before turning to the results, an assessment of how far the effects of the variables are the same at the different quintiles and how far the changes in the coefficients of the model are statistically significant is required. Using Wald tests, we were able to reject at the 95 percent confidence level the hypothesis that the coefficients were jointly equal at the 20th and 80th percentile in 1994, 1995 and 1996. This indicates that the explanatory variables have a different impact in different parts of the expenditure distribution. We were also able to reject at the 95 percent confidence level the hypothesis that the coefficients were jointly equal between 1994 and 1995, and 1994 and 1996. However, we could

⁸Note that unemployment includes both open (using the ILO definition) and hidden (the share of officially employed family members on compulsory unpaid leave).

not reject the hypothesis that the coefficients of the models were equal between 1995 and 1996. This indicates that a structural break in the data occurred between 1994 and 1995⁹.

Public transfers are associated with a positive and significant impact on household welfare. During the period under consideration, a one thousand rouble (about 7 dollars in June 1992 prices) increase in these transfers is estimated to raise the expenditure ratio by around 5-6 percent at the top quintile, 7-9 percent at the third quintile, 10 percent at the second quintile, and by 10-15 percent at the bottom quintile¹⁰. This suggests that despite the erosion of the inherited safety net and the widespread delays in payment of benefits, public transfers still play an important role overall in protecting household cash welfare. As we see, however, the marginal effects on the welfare ratio are much higher at the bottom of the expenditure distribution. In other words, the welfare ratio seems to depend differently on public transfers depending on which portion of the expenditure distribution we examine.

Note that a different pattern is observed for private transfers. The effect of private transfers on household welfare appears to be positive and significant, but relatively lower for those at the bottom of the distribution. This result, which contrasts with the descriptive analysis presented earlier showing that private transfers represent a larger share of income among the poorest, indicates that private transfers have a stronger impact on the adjusted cash consumption of the richest. The size of the coefficients are also small compared with those for public transfers, aver-

⁹This also counsils against the use of fixed-effect or random-effect models using the panel dimension of the RLMS, given that these models assume that the coefficients are constant over time.

¹⁰Note that a common mistake is to consider that the percentage effects of dummy variables in semilogarithmic equations correspond to the coefficient of these variables. Hence, as illustrated in an article by Halvorsen and Palmquist (1980), if c is the coefficient of a dummy variable in an equation where the dependent variable is $\log Y$, then the impact of this variable on Y is $\exp(c)-1$, not c . The approximation is good only when c is "small"

aging about one-fourth of the effect of public income support. But this could reflect that private transfers represented in late 1996 about 10 to 15 percent of total income, compared with 30 to 36 percent for public transfers.

Almost all of the labour market variables have the expected sign. Wages that were fully paid and reported hours of work contributed significantly to increase the expenditure-to-needs ratio. In late 1996, a one hundred rouble increase (0.7 dollars) in the average hourly wage is estimated to raise the expenditure ratio by around 50 to 60 percent. The returns to the wages that were fully paid also tend to have increased slightly after 1994. However, the returns to the time spent in employment for those receiving positive wages (but not necessarily fully paid), as captured by the coefficient of the hours of work variable, decreased sharply between 1994 and 1996 at all points in the distribution. A one hundred monthly hours increase in the time spent at work was estimated to increase the expenditure ratio by 10 to 15 percent in 1994, compared with only 5 to 7 percent in 1996. Given that the family hourly wage received by workers who were fully paid is included in the equation (and that the return to this variable has tended to increase), the decline in the returns to the time spent in employment is likely to capture a decline in the wage among workers who were not fully paid. But more so than the incidence of the non-payment of wages in the survey period, which is controlled for in the model, this could pick up the negative cumulative impact of past arrears in wages or an increase in the share of the contract wage that was not paid fully.

As expected, the wage arrears and unemployment variables have a negative impact on the welfare ratio but there are substantial differences across quintiles. Both have a stronger negative and significant impact at the bottom of the expenditure distribution, but they do not seem to affect particularly the expenditures of the richest. At the top quintile, the unemployment variable was not significant in 1995 and 1996 and the wage arrears variable was significant only in late 1996. In other words,

unemployment and wage arrears did not affect particularly the adjusted cash consumption of the richest, but these factors had a strong negative impact at the bottom of the distribution. The size of the negative impact of unemployment has nonetheless tended to decrease over time. In 1994, a one percent increase in the share of unemployed family members among working age adults was estimated to decrease adjusted cash consumption by 21 to 60 percent, compared with 8 to 38 percent two years later. Among possible explanations, this could mean that a growing share of the unemployed has managed to complement their income by joining the informal sector, something that we do not control for in the model¹¹.

The labour hoarding variable has the expected negative sign but it is not always significant except for the worse-off. This is not surprising given that labour hoarding affects a relatively small share of households. But those who are affected are more likely to end up at the bottom of the expenditure distribution. We can also see that the impact of labour hoarding has changed quite substantially over time.

As expected, capital income has a positive and significant impact on the welfare ratio. The correlation between capital income and adjusted expenditures also tends to be higher among the richest. A one thousand rouble increase in capital income was estimated to raise the welfare ratio by 1 percent at the bottom quintile, 2 to 4 percent at the second quintile, 2 to 3 percent at the third quintile, and 3 to 5 percent at the top quintile. What is a priori more surprising is that the correlation between cash income from the sale of home produced food and the welfare ratio tends to be positive and stronger among households situated in the middle two quintiles, but it is negative for those who achieved a very low level of cash consumption.

The household size variables have a negative impact on the welfare

¹¹We do include earnings from second jobs in the model, but other informal wages reported by those who are not employed are not included.

ratio. Since household expenditure has been adjusted for family needs, this points to a lower level of cash welfare among large families. This is consistent with previous studies showing that larger families have generally been more likely to fall into poverty (Klugman, 1997). Again, however, there are significant differences across the quintiles. Whilst the presence of dependants has a strong negative impact on the welfare ratio at all quintiles, the negative impact associated with the number of pensioners living in the household is particularly high among the worse-off. For this group, the negative impact is even higher than that associated with the number of children. Conversely, the negative impact associated with the elderly in the household tends to be smaller among the richest. However, it was impossible to reject the hypothesis that the coefficients on the number of pensioners was the same at the 20th and 80th percentiles. The results also indicate that the coefficient on the variable showing the presence of an elderly person in the household has tended to decrease.

Other control variables such as the location and regional dummies are also statistically significant. This was expected given the large rural-urban and regional differences that characterise the Russian Federation and that could have been underestimated in the regional poverty line. The negative association between adjusted expenditures and the rural dummy is also much higher among the poorest. Compared with urban households, the fact of living in a rural area decreased the welfare ratio by nearly 80 percent at the bottom quintile, compared with about 20 percent at the top quintile. This is a huge effect which points to substantially lower levels of cash consumption in rural areas. The inclusion of home production would of course reduce the gap between urban and rural households, given that home produced food is especially important in rural areas and, as was shown in Table 1, at the bottom of the distribution.

Lastly, the coefficients of the constant, which captures unobserved characteristics in the model, appear strongly significant but tend to have declined substantially during the period. The changes in the coefficients

of the constant were also statistically significant at conventional levels.

But how far are the previous results robust to our choice of the parameters that control for family needs? To address this question, the same regressions were ran using two alternative measures of family welfare. First, we tried to adjust family cash expenditure with a national poverty line that does not incorporate any economies of scale or regional price adjustments. This enabled us to check whether the results were sensitive to our choice of scaling and regional price adjustment. Second, we also tried to regress family cash consumption without any adjustment for family needs to see how far the results were sensitive to the weight attached in the poverty line - regional and national - to the needs of different groups. The previous results were practically unchanged with the use of a national poverty line. We still found significant differences across quintiles regarding the impact of labour market and social safety net variables and both the size and the significance of the coefficients of these variables were similar. Only the impact of the regional dummies differed slightly.

Using cash consumption without any adjustment for family needs, we still found similar results. The size of the coefficients of the labour market and social safety net variables were surprisingly very similar and the impact of these variables varied depending on which portion of the expenditure distribution we examined, like the results for adjusted cash consumption. The main differences concern the impact of the household size variables. Without any adjustment for family needs, the number of adults and children in the household turned out to increase cash consumption, while when we adjust consumption for family needs, we found a negative correlation between household size and family welfare.

3.2 Decomposition Analysis

The foregoing analysis sought to isolate the factors that were significantly correlated with the expenditure to needs ratio. We saw some evidence of variation by quintiles, which makes the use of quantile regression models particularly useful: adjusted cash expenditures among the best-off seem to be determined by different factors from those which affect the worst-off. Building on these results, we now go on to quantify the impact of changes in cash transfers, public and private, versus labour market events on the fall in adjusted cash consumption. In the decomposition framework set out in Section 2.6.2, aggregate changes over time in the predicted log ratio at different quintiles are driven by two forces: changes in the mean values of the explanatory variables weighted by the coefficients associated with the chosen percentile; and changes in the returns to those variables. We now proceed to apply this model to the Russian data.

3.2.1 Components of the decline in the welfare ratio

The overall results are presented graphically in Figures 4 to 7. These show, for each quintile, the actual and the fitted values of the natural logarithm of the expenditure-to-needs ratio. Along the curves represented by the dotted line, there is a decline in the log ratio due to changing sample, whilst the difference between each curve shows the decline in the log ratio due to changing coefficients. These figures clearly show that for the overall period of 1994-1996, the changing impact of the variables in the model are more important than changes in the variables themselves. Hence any attempts to forecast the welfare ratio for either 1995 or 1996 using the 1994 set of coefficients would have performed very poorly since a large part of the decline in the ratio between 1994 and the two subsequent years is associated with changing coefficients.

Figures 4 to 7 also show that the decline in the ratios for different quintiles due to the changing coefficients of the model is much smaller in

the latter part of the period. 1995-1996. This could be explained by the fact that the macroeconomic situation had stabilised somewhat as compared to the differences between 1994 and 1995. This would be reflected, of course, in the extent of the changes in the impact of the observed and unobserved characteristics of the model.

Formally, the contribution of changes in the explanatory variables and changes in the coefficients of these variables towards the decline of the ratio is summarised in Table 10. As we already noticed, the smallest decline in the log welfare ratio is found at the top quintile and the largest at the bottom quintile. Changes in returns to characteristics, including unobserved characteristics through the coefficient on the constant, account for the major part of the decline in the predicted ratio: about 63 percent of the overall decline at the bottom quintile, 66 percent at the second quintile, 73 percent at the third quintile, and 68 percent at the top quintile. Changing characteristics of the sample explain the remaining share of the decline in the log ratio: from 37 percent at the bottom quintile to 31 percent at the top quintile.

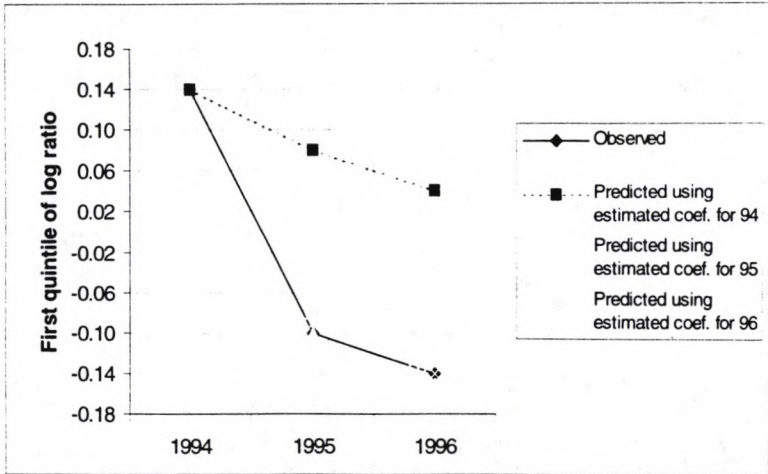


Figure 4: Actual and predicted first quintile of the log welfare ratio

3.2.2 Accounting for the role of the safety net and the labour market

We now turn to the final task of this paper, and quantify the relative contributions of the weakening of the safety net and changes in the labour market towards the fall in family cash welfare between 1994 and 1996. The marginal impact of changes in the mean values and changes in the coefficients of the labour market and social transfer variables are presented in Table 11.

Overall, labour market related factors have played a more important role than those associated with the social safety net. There are nonetheless substantial differences across the quintiles. The largest share of the decline in welfare associated with labour market events is found at the top quintile (-34.5 percent) and the smallest is found at the third quintile (-7.1 percent). The driving forces that have contributed to these outcomes are also very different across quintiles.

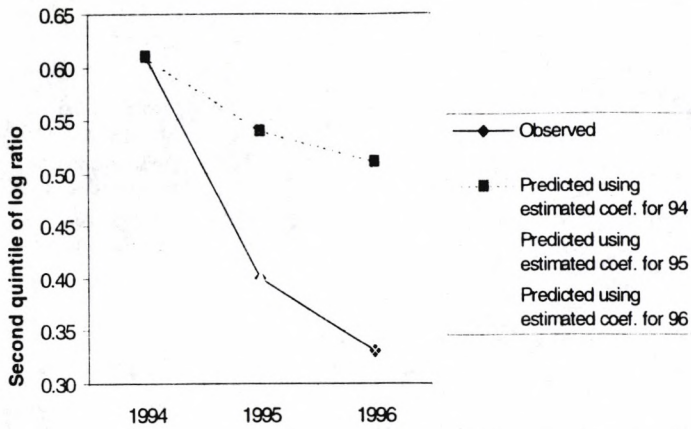


Figure 5: Actual and predicted second quintile of the log welfare ratio

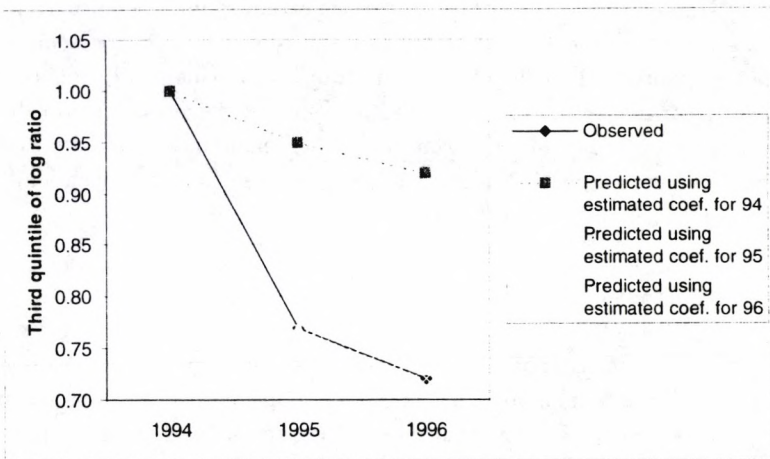


Figure 6: Actual and predicted third quintile of the log welfare ratio

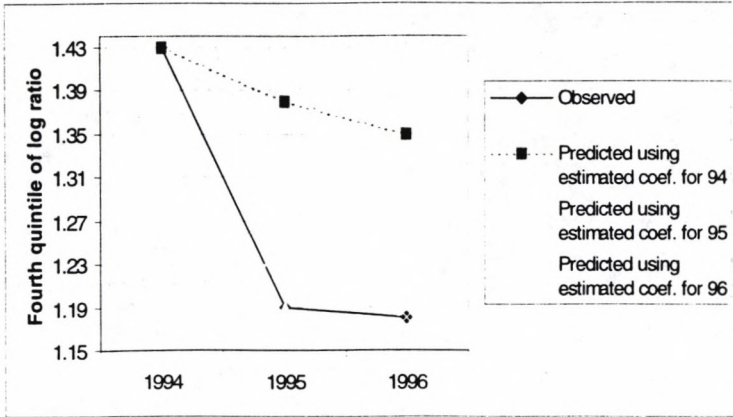


Figure 7: Actual and predicted fourth quintile of the log welfare ratio

Among changes in labour market variables, increasing incidences of wage arrears tend to have played a major role but its impact on falling living standards was much higher at the bottom quintile (-6.6 percent) and second quintile (-4.3 percent) than at the third (-2.2 percent) or the top quintile (-2.8 percent). In other words, the widening incidence of wage arrears has been a more substantial source of the decline in adjusted cash consumption among the worse-off rather than among the better off. This is consistent with findings elsewhere in the former Soviet Union (Klugman, 1998).

Rising unemployment seems to have played a smaller role, and, as shown in Table 4, the change in unemployment evaluated at the mean was not statistically significant. However, like for wage arrears, the poor tend to have suffered more than the rich from increases in unemployment (-1.9 percent at the first quintile and -1.8 percent at the second compared to -1.2 percent at the third quintile and -0.9 percent at the top).

Like for unemployment, the impact of falling wages that were fully

paid was rather small (from -1.2 percent at the bottom quintile to -1.7 percent at higher quintiles). In contrast, we see that the marginal impact on family welfare of an increase in the time spent in employment for those who were receiving some positive wages was much higher (from about 8 percent at the bottom quintile to 14 percent at the top quintile).

There are also substantial differences across quintiles regarding the changing impact of the labour market variables. The marginal impact of the decline in the welfare ratio due to a decrease in the coefficients of the hour variable, which might pick up a decline in the wage among workers who were paid but not fully, was very high among the better-off (-91.4 percent and -67.4 percent at the top and the third quintile respectively), but was much smaller among the poorest (-26.2 percent and -39.9 percent at the bottom and the second quintile). The decline in the return to the time spent in employment was also statistically significant at the standard level, except for the bottom quintile. Conversely, the increase in the return to wages for those who were fully paid, which was statistically significant among the three top quintiles, also contributed more to protecting the welfare position of the better-off, as opposed to the welfare situation of the worse-off. The results show 47.8 percent for the top quintile and 62 percent for the third quintile, compared with 21.8 percent for the second quintile and 3.3 percent for bottom quintile.

Compared with labour market events, the overall contribution of the factors related to public social policy played a smaller role. The marginal impact of falling state transfers was nonetheless substantial: about 13 to 20 percent of the overall decline in the log ratio.

The other element of the safety net, private transfers, plays a smaller role overall. Whilst between 1994 and 1996 these transfers dropped by nearly 13 percent, this accounts for 0.4 to 1.6 percent of the total decline in the welfare ratio.

Having discussed the impact of observed changes in the labour market and falling social benefits on adjusted cash consumption, we need to mention that unobserved changes remain a substantial factor which have affected the welfare ratio. As shown in Table 11, changes in the constant's coefficient play an important role in explaining the decline in cash welfare, especially in the middle two quintiles where the marginal impact represents about 83 to 103 percent of the total decline.

4 Conclusions

This paper has sought to contribute to our understanding of the welfare impact of the erosion of the social safety net and changes in labour market events during transition. Since the beginning of transition, Russia has experienced a sharp decline in living standards, together with a rise in inequalities. Using a decomposition technique to explain changes over time, we were able to isolate the sources of the decline for the sub-period 1994-96, the period when data was available. Despite the acknowledged shortcomings of the decomposition, which is basically accounting and fairly sensitive to the way the socio-economic factors affecting household welfare are defined, the results provide some interesting insights.

First, a large part of the overall fall in living standards between 1994 and 1996 - about two thirds of the overall decline in the log welfare ratio - can be explained by changes in the coefficients of the model. This was especially true in 1994-95, when the macroeconomic context deteriorated more than in 1995-96. This finding, that the effect of observed characteristics on household welfare tends to vary significantly over time, has an important implication for domestic policy makers and international advisers concerned with the formulation of poverty relief programmes in Russia. In particular, it highlights the potential inadequacy of actions and recommendations that are based on profiles of poverty risk factors that are "dated".

Second, changing labour market events dominated among the observed sources of the decline in the welfare ratio. More so than the rise in unemployment or the fall in wages among workers that were fully paid, the reduction in the returns to the time spent in employment and the increase in the share of workers affected by wage arrears have been the most damaging for household welfare. There are nonetheless important differences in the sources of the decline across quintiles. In particular, the rise in unemployment and the increase in wage arrears were much more important in explaining the decline in adjusted cash consumption

at the bottom than at the top of the distribution.

Third, weakening of the state welfare programmes accounted for a substantial part of the decline in the predicted expenditures-to-needs ratio. The contribution of falling state transfers was high in all parts of the distribution. This clearly indicates that the government's failure to adequately protect the level or the regular payment of most benefits in the context of a deep economic crisis had a strong negative impact on family welfare. However, public transfers still played an important role in protecting household cash consumption, especially for the poorest.

Fourth, the decline in private transfers contributed to only a very small change in the overall decline in the welfare ratio over the period. Private transfers, which represented about 8 percent of family income in 1996, have declined less relative to public transfers. It is possible that private transfers have acted as a substitute or cushion for household welfare in the face of declining labour income and public support. In this sense, private transfers could be endogenous (responsive) to household welfare, though this point was not empirically tested here.

References

- [1] **Atkinson A. and Micklewright J. (1992)**: "Economic Transformation in Eastern Europe and the Distribution of Income": Cambridge, U.K.: Cambridge University Press.
- [2] **Benito A. (1997)**: "Wage Premia in Public and Private Sector Labour Markets": mimeo. University of Warwick.
- [3] **Blackaby D.H, Murphy P.D and O'Leary N.C (1998)**: "Public-Private Sector Earnings Differential in the UK: A Decile-Based Decomposition of the QLFS". mimeo.
- [4] **Blinder A. (1973)**: "Wage discrimination: reduced form and structural estimates", *Journal of Human Resources*, vol 8, pp 436-455.
- [5] **Braithwaite J.(1997)**: "Old and New Poor in Russia". Chapter 2 in Klugman (Ed.).
- [6] **Cox, D., Eser Z. and Jimenez E.(1997)**: "Family Safety Nets During Economic Transition". Chapter 9 in Klugman (Ed.).
- [7] **De Melo M., Denizer C. and Gelb A. (1996)**: "From Plan to Market: Patterns of Transition"; *Working Paper Series*. No 1564, World Bank.
- [8] **Doyle, Chris (1996)** : "The Distributional Consequences during the Early Stages of Russia's Transition". *Review of Income and Wealth*, Series 42, Number 4, pp 493-505.
- [9] **Fleming J. and Micklewright J. (Forthcoming)**: "*Income Distribution, Economic Systems and Transition*"; Innocenti Occasional Papers; UNICEF International Child Development Centre, Florence.
- [10] **Foley M. (1997)**: "Poverty in Russia: An Econometric Analysis", Chapter 3 in Klugman (ed).

- [11] **Gardes, F (1998)** : "A comparison of consumption models estimated on American and Polish panel and pseudo-panel data". mimeo, Université de Paris 1 - LAMIA-TEAM.
- [12] **Gomulka J. and Stern N. (1989)**: "The Employment of Married Women in the United Kingdom 1970-83": *Economica*. No 57.
- [13] **Halvorsen R. and Palmquist R. (1980)** : "The Interpretation of Dummy Variables in Semilogarithmic Equations": *American Economic Review*. Vol 70. No 3. pp 474-5.
- [14] **John C., Murphy K., and Pierce B. (1993)** : "Wage inequality and the rise in returns to skill": *Journal of Political Economy*. Vol 101, No 3. pp 410-442.
- [15] **Koenker R, and Bassett G. (1978)** : "Regression quantiles". *Econometrica*. Vol 46. pp 33-50.
- [16] **Klugman J.) (1998)**: "Wages in Transition: the case of Uzbekistan" Ph.D. thesis, Australian National University, DEcember 1998.
- [17] **Klugman J. (Ed.) (1997)**: "Poverty in Russia. Public Policy and Private Responses"; Economic Development Institute, The World Bank. Washington DC.
- [18] **Klugman J. and Braithwaite J.(1998)** : "Poverty in Russia: An Overview". *World Bank Research Observer*. Vol. 13. no. 1. February.
- [19] **Kolev A. (1996)**: "Poverty in Russia: What Can We Learn from Round VI of the RLMS?"; The World Bank; mimeo.
- [20] **Lanjouw P. and Ravallion M. (1996)** : "Poverty and Household Size"; *The Economic Journal*, No 105.
- [21] **Lehman H., Wadsworth J., and Acquisti A.(1998)** : "Crime and Punishment: Job insecurity and wage arrears in the Russian Federation"; *Trinity Economic Paper Series*, No 98/6.

- [22] **Milanovic B. (1998)** : "Explaining the growth in inequality during the transition"; *World Bank Policy Research working Paper*. No 1935.
- [23] **Mozhina M. and Prokofieva L.(1997)** : "Living Standard of Families in Russia"; Institute for Socio Economic Studies of the Population. Russian Academy of Sciences. Moscow: mimeo.
- [24] **Oaxaca R (1973)** : "Male-Female wage differentials in urban labour markets"; *International Economic Review*. N° 14. pp 693-709.
- [25] **Ovcharova L. (1997)** : "Bednost: gde porog"; *Voprosi Ekonomiki*: No 7. Moscow.
- [26] **Popkin, B., A. Baturin, M. Mozhina and T. Mroz (1996)** : "The Russian Federation Subsistence Income Level: The development of regional food baskets and other methodological improvements"; University of North Carolina. Chapel Hill: mimeo.
- [27] **Ravallion M. (1992)** : "Poverty Comparisons"; *Living Standards Measurement Survey Study*; World Bank: Washington DC.
- [28] **Ravallion M. (1996)** : "Issues in Measuring and Modelling Poverty"; *The Economic Journal*: No 106.
- [29] **Richter, K. (1998)**: "Cash Transfers and Poverty Alleviation in Russia, 1994-96"; London School of Economics: mimeo.
- [30] **Standing G. (1996)** : "Russian Unemployment and Enterprise Restructuring: Reviving Dead Souls"; Basingstocke: Macmillan.
- [31] **Stewart, K (1998)**: "Decentralisation and regional equity in Russia: Three essays on intergovernmental transfers and the financing of education"; PhD dissertation, European University Institute, Florence.
- [32] **Stoker, T.M (1985)** : "Aggregation, structural change, and cross-section estimation"; *Journal of the American Statistical Association*; Vol 80.

- [33] **Tchernina, Natalia (1996)**: "Economic Transition and Social Exclusion in Russia": *United Nations Development Programme Research Series*; No 108: International Institute for Labour Studies: Geneva.

Table 4: Mean (Standard Deviations) of the explanatory variables: 1994-1996

	1994	1995	1996
Labour market factors:			
Total monthly labour income:	3881 (6344)	3089 (4959)	3094* (5659)
Hourly wages fully paid(> 0)	29.8 (36.3)	25.1 (31.3)	29.2 (38.6)
Av. monthly hours of family members(> 0)	170 (86)	180 (94)	189 (99)
Av. family members unemployed	0.074 (0.213)	0.074 (0.212)	0.086 (0.230)
Av. family members reporting wage arrears	0.159 (0.313)	0.181 (0.326)	0.244* (0.369)
Av. family members sent on compulsory unpaid leave	0.005 (0.063)	0.003 (0.050)	0.004 (0.063)
Social Safety Net Income:			
Public transfers	1410 (1567)	1068 (1210)	969* (1414)
Private transfers	637 (3095)	449 (1980)	556 (2899)
Other income:			
Sales of home produced food	72 (656)	80 (754)	109 973)
Capital income	921 (5997)	674 (6077)	540* (3877)
Family structure variables:			
Head's age (years)	46.5 (15.7)	47.1 (15.8)	46.7 (16.1)
Number of children	0.75 (0.94)	0.74 (0.94)	0.72 (0.92)
Number of working age adults	1.48 (1.08)	1.47 (1.10)	1.48 (1.10)
Number of pensioners	0.61 (0.75)	0.62 (0.75)	0.62 (0.75)
Location and regional variables:			
Rural Household	0.24 (0.42)	0.25 (0.43)	0.26 (0.43)
Moscow and St-Petersburg	0.10 (0.29)	0.09 (0.28)	0.08 (0.26)
North and North West	0.07 (0.25)	0.07 (0.25)	0.07 (0.25)
Central and Central Black Earth	0.20 (0.39)	0.19 (0.39)	0.20 (0.40)
Volga-Vaytski and Volga Basin	0.18 (0.38)	0.18 (0.38)	0.18 (0.38)
North Caucasian	0.11 (0.32)	0.12 (0.32)	0.12 (0.32)
Ural	0.14 (0.35)	0.15 (0.35)	0.15 (0.35)
Western Siberia	0.10 (0.29)	0.10 (0.29)	0.10 (0.29)
East Siberia and Far East	0.10 (0.29)	0.10 (0.30)	0.10 (0.29)

Source: RLMS Rounds V, VI and VII. Note: The monetary variables are in June 1992 roubles per month. * Mean value in 1994 is significantly different than mean value in 1994 at the 95 percent confidence level.

Table 5: Mean of labour market variables by quintiles of the welfare ratio

Explanatory variables	1994					1996				
	Q20	Q40	Q60	Q80	Q100	Q20	Q40	Q60	Q80	Q100
Hourly wages fully paid(> 0)	16.9	25.9	28.4	30.3	41.3	14.1	18.9	27.0	30.5	42.5
Av. monthly hours(> 0)	175	167	167	165	178	209	193	186	177	184
Av. members unemployed	0.129	0.082	0.068	0.046	0.050	0.124	0.086	0.083	0.074	0.065
Av. members with wage arrears	0.240	0.173	0.162	0.114	0.117	0.398	0.245	0.195	0.209	0.176
Av. members on unpaid leave	0.007	0.008	0.007	0.002	0.001	0.005	0.010	0.004	0.002	0.001

Sources: *RLMS rounds V and VII.*

Table 6: Selected coefficients for 1994 and 1996

Explanatory variables	1994				1996			
	Q20	Q40	Q60	Q80	Q20	Q40	Q60	Q80
Wage fully paid	0.005	0.006	0.005	0.005	0.005	0.008	0.009	0.008
Hours/ 10^2	0.113	0.108	0.127	0.149	0.075	0.066	0.056	0.050
Unemployment	-0.609	-0.430	-0.284	-0.212	-0.338	-0.363	-0.225	-0.084
Wage arrears	-0.308	-0.145	-0.073	-0.239	-0.377	-0.260	-0.182	-0.130
Labour hoarding	-1.130	0.122	-0.119	-0.395	-0.377	-0.279	-0.519	-0.442
Public transfers/ 10^3	0.098	0.092	0.075	0.059	0.128	0.108	0.074	0.054
Private transfers/ 10^3	0.015	0.020	0.024	0.040	0.012	0.019	0.024	0.029
Sales of home produced food/ 10^3	-0.015	0.047	0.072	0.073	-0.080	0.055	0.060	0.039
Capital income/ 10^3	0.012	0.019	0.029	0.032	0.017	0.040	0.046	0.052
Constant	0.310	0.761	1.080	1.460	0.272	0.594	0.873	1.416

Table 7: Quantile regression estimates of the log welfare ratio: 1994

Explanatory variables	Q20		Q40		Q60		Q80	
	Coef.	t-ratio	Coef.	t-ratio	Coef.	t-ratio	Coef.	t-ratio
Labour market factors:								
Wage fully paid	0.005	4.4	0.006	9.6	0.005	10.4	0.005	9.8
Hours/10 ²	0.113	4.2	0.108	7.0	0.127	8.4	0.149	8.2
Unemployment	-0.609	-4.7	-0.430	-5.5	-0.284	-3.7	-0.212	-2.3
Wage arrears	-0.308	-3.6	-0.145	-2.7	-0.073	-1.4	-0.239	-1.4
Labour hoarding	-1.130	-3.0	0.122	0.5	-0.119	-0.4	-0.395	-1.4
Social safety net:								
Public transfers/10 ³	0.098	4.0	0.092	6.6	0.075	5.6	0.059	3.6
Private transfers/10 ³	0.015	2.7	0.020	3.9	0.024	5.8	0.040	9.3
Other income:								
Sales of home produced food/10 ³	-0.015	-0.4	0.047	2.4	0.072	3.4	0.073	2.9
Capital income/10 ³	0.012	2.4	0.019	7.3	0.029	13.8	0.032	16.0
Family structure variables:								
Head's age	-0.001	-0.7	-0.000	-0.2	-0.000	-0.4	-0.000	-0.3
Number of children	-0.116	-3.9	-0.125	-7.0	-0.132	-7.6	-0.106	-5.0
Number of working age adults	-0.061	-1.9	-0.113	-5.9	-0.122	-6.3	-0.147	-6.1
Number of pensioners	-0.162	-2.7	-0.176	-5.1	0.153	-4.6	-0.134	-3.2
Location variables:								
Rural Household Region dummies	-0.596 yes(7)	-9.5	-0.398 yes(7)	-11.1	-0.306 yes(7)	-8.8	-0.194 yes(7)	-4.6
Constant	0.310	2.0	0.761	8.4	1.080	12.3	1.460	13.8
Pseudo R-squared	0.1046		0.0873		0.0808		0.0883	

Sources: RLMS Round V. Sample size: N=3743.

© The Author(s). European University Institute.

Digitised version produced by the EUI Library in 2020. Available Open Access on Cadmus, European University Institute Research Repository.

Table 8: Quantile regression estimates of the log welfare ratio: 1995

Explanatory variables	Q20		Q40		Q60		Q80	
	Coef.	t-ratio	Coef.	t-ratio	Coef.	t-ratio	Coef.	t-ratio
Labour market factors:								
Wage fully paid	0.006	4.5	0.008	11.5	0.009	13.2	0.009	12.2
Hours/10 ²	0.075	3.0	0.073	5.1	0.068	4.3	0.074	3.8
Unemployment	-0.411	-3.3	-0.393	-5.2	-0.222	-2.6	-0.115	-1.1
Wage arrears	-0.407	-5.2	-0.299	-6.0	-0.299	-3.0	-0.091	-1.2
Labour hoarding	-0.655	-1.7	-0.463	-1.4	-0.730	-2.1	-0.249	-0.5
Social safety net:								
Public transfers/10 ³	0.150	5.5	0.114	6.9	0.075	4.0	0.054	2.3
Private transfers/10 ³	0.047	4.0	0.039	5.9	0.039	4.8	0.033	3.0
Other income:								
Sales of home produced food/10 ³	-0.032	-1.0	0.043	2.3	0.060	2.8	0.020	0.7
Capital income/10 ³	0.017	3.0	0.023	9.9	0.034	15.6	0.038	18.6
Family structure variables:								
Head's age	-0.000	-0.3	0.003	2.7	0.002	1.7	-0.003	-2.1
Number of children	-0.100	-3.5	-0.115	-6.7	-0.139	-7.1	-0.145	-6.1
Number of working age adults	-0.071	-2.4	-0.101	-5.6	-0.132	-6.1	-0.159	-5.7
Number of pensioners	-0.149	-2.8	-0.144	-4.6	0.084	-2.3	-0.120	-2.6
Location variables:								
Rural Household	-0.543	-9.6	-0.312	-9.1	-0.197	-4.9	-0.180	-3.6
Region dummies	yes(7)		yes(7)		yes(7)		yes(7)	
Constant	0.327	2.2	0.527	6.0	0.971	9.6	1.380	11.2
Pseudo R-squared	0.1117		0.0964		0.0941		0.1043	

Sources: RLMS Round VI. Sample size: N=3574.

Table 9: Quantile regression estimates of the log welfare ratio: 1996

Explanatory variables	Q20		Q40		Q60		Q80	
	Coef.	t-ratio	Coef.	t-ratio	Coef.	t-ratio	Coef.	t-ratio
Labour market factors:								
Wage fully paid	0.005	4.6	0.008	11.1	0.009	16.8	0.008	12.5
Hours/10 ²	0.075	3.9	0.066	4.1	0.056	4.2	0.050	2.8
Unemployment	-0.388	-4.1	-0.363	-4.5	-0.225	-3.2	-0.084	-0.9
Wage arrears	-0.377	-7.2	-0.260	-5.2	-0.182	-4.1	-0.130	-2.1
Labour hoarding	-0.377	-1.6	-0.279	-1.0	-0.519	-2.1	-0.442	-2.2
Social safety net:								
Public transfers/10 ³	0.128	7.6	0.108	8.0	0.074	6.4	0.054	3.3
Private transfers/10 ³	0.012	2.7	0.019	3.2	0.024	5.4	0.029	5.7
Other income:								
Sales of home produced food/10 ³	-0.080	-5.4	0.055	3.8	0.060	2.8	0.039	2.4
Capital income/10 ³	0.017	2.5	0.040	9.0	0.046	14.7	0.052	16.4
Family structure variables:								
Head's age	0.000	0.5	-0.001	1.3	0.003	3.1	0.003	2.0
Number of children	-0.131	-5.7	-0.138	-6.8	-0.128	-7.2	-0.145	-6.0
Number of working age adults	-0.063	-2.6	-0.100	-4.9	-0.123	-6.7	-0.145	-5.8
Number of pensioners	-0.134	-3.7	-0.140	-4.5	0.125	-4.6	-0.099	-2.6
Location variables:								
Rural Household	-0.602	-13.1	-0.426	-10.8	-0.386	-11.2	-0.237	-5.1
Region dummies	yes(7)		yes(7)		yes(7)		yes(7)	
Constant	0.272	2.2	0.594	5.8	0.873	9.8	1.416	11.9
Pseudo R-squared	0.1351		0.0964		0.1107		0.1043	

Sources: RLMS Round VII. Sample size: N=3525.

Table 10: Decomposition of the predicted log welfare ratio between 1994 and 1996 by quintiles

Quintile	Difference in log ratio	Percentage due to changes in characteristics	Percentage due to changes in coefficients
Q20	0.2916	37.2	62.8
Q40	0.2742	34.3	65.7
Q60	0.2722	26.8	73.2
Q80	0.2446	31.5	68.5

Source: RLMS rounds V, VI and VII. Note: Changes in characteristics are evaluated using the coefficients estimated for 1994. Changes in coefficients are evaluated holding the sample characteristics constant at their 1996 values.

Table 11: Marginal impact of selected variables and coefficients on the changes in log adjusted consumption between 1994 and 1996 (as a percentage of the overall decline)

	First Quintile	Second Quintile	Third Quintile	Fourth Quintile
Labour market events	-26.5	-25.6	-7.1	-34.5
Changes in characteristics	-2.0	2.1	6.7	8.4
Full wage	-1.2	-1.8	-1.7	-1.7
Wage arrears	-6.6	-4.3	-2.2	-2.8
Unemployment	-1.9	-1.8	-1.2	-0.9
Hours	7.7	10.0	11.8	13.8
Labour hoarding	0.0	0.0	0.0	0.0
Changes in coefficients	-24.5*	-27.7**	-13.8**	-42.9**
Full wage	3.3	21.8*	62.0	47.8**
Wage arrears	-7.7	-10.2	-9.7*	-3.1
Unemployment	5.4	2.2	1.9	4.1
Hours	-26.2	-39.9**	-67.4**	-91.4**
Labour hoarding	0.7*	-0.6	0.0	-0.3
Social safety net	-6.1	-13.8	-17.9	-20.0
Changes in characteristics	-16.5	-21.2	-17.5	-14.6
Public transfers	-16.1	-20.3	-16.6	-13.0
Private transfers	-0.4	-0.9	-0.9	-1.6
Changes in coefficients	10.4	7.4	-0.4	-5.4
Public transfers	10.7	7.6	-0.3	-2.4
Private transfers	-0.3	-0.2	-0.1	-3.0
Changes in the constant	16.5	82.7	103.0	21.9

Source: RLMS rounds V, VI and VII. Note: **(***)** Changes in the coefficient or the set of coefficients are significantly different from zero at the 90 (95) percent level respectively.



EUI WORKING PAPERS

EUI Working Papers are published and distributed by the
European University Institute, Florence

Copies can be obtained free of charge
– depending on the availability of stocks – from:

The Publications Officer
European University Institute
Badia Fiesolana
I-50016 San Domenico di Fiesole (FI)
Italy

Please use order form overleaf

Publications of the European University Institute

To The Publications Officer
 European University Institute
 Badia Fiesolana
 I-50016 San Domenico di Fiesole (FI) – Italy
 Telefax No: +39/055/4685 636
 e-mail: publish@datacomm.iue.it
 <http://www.iue.it>

From Name

 Address

- Please send me a list of EUI Working Papers
- Please send me a list of EUI book publications
- Please send me the EUI brochure Academic Year 2000/01

Please send me the following EUI Working Paper(s):

No, Author

Title:

No, Author

Title:

No, Author

Title:

No, Author

Title:

Date

Signature



Working Papers of the Department of Economics
Published since 1998

ECO No. 98/1

Bauke VISSER
Binary Decision Structures and the
Required Detail of Information

ECO No. 98/2

Michael ARTIS/Massimiliano
MARCELLINO
Fiscal Solvency and Fiscal Forecasting in
Europe

ECO No. 98/3

Giampiero M. GALLO/Barbara PACINI
Early News is Good News: The Effects
of Market Opening on Market Volatility

ECO No. 98/4

Michael J. ARTIS/Zenon G.
KONTOLEMIS
Inflation Targeting and the European
Central Bank

ECO No. 98/5

Alexandre KOLEV
The Distribution of Enterprise Benefits in
Russia and their Impact on Individuals'
Well-Being

ECO No. 98/6

Kitty STEWART
Financing Education at the Local Level: A
Study of the Russian Region of
Novgorod

ECO No. 98/7

Anna PETTINI/Louis PHILIPS
A Redistributive Approach to Price and
Quality Discrimination

ECO No. 98/8

Aldo RUSTICHINI/Andrea
ICHINO/Daniele CHECCHI
More Equal but Less Mobile? Education
Financing and Intergenerational Mobility
in Italy and in the US

ECO No. 98/9

Andrea ICHINO/Pietro ICHINO
Discrimination or Individual Effort?
Regional Productivity Differentials in a
Large Italian Firm

ECO No. 98/10

Andrea ICHINO/Rudolf WINTER-
EBMER
The Long-Run Educational Cost of World
War II. An Example of Local Average
Treatment Effect Estimation

ECO No. 98/11

Luca FLABBI/Andrea ICHINO
Productivity, Seniority and Wages. New
Evidence from Personnel Data

ECO No. 98/12

Jian-Ming ZHOU
Is Nominal Public but *De Facto* Private
Land Ownership Appropriate? A
Comparative Study among Cambodia,
Laos, Vietnam; Japan, Taiwan Province
of China, South Korea; China, Myanmar;
and North Korea

ECO No. 98/13

Anna PETTINI
Consumers' Tastes and the Optimal Price
Gap

ECO No. 98/14

Christian DUSTMANN/Najma
RAJAH/Arthur VAN SOEST
School Quality, Exam Performance, and
Career Choice

ECO No. 98/15

Ramon MARIMON/Juan Pablo
NICOLINI/Pedro TELES
Electronic Money: Sustaining Low
Inflation?

ECO No. 98/16

Michael ARTIS/Marion KOHLER/
Jacques MÉLITZ
Trade and the Number of OCA's in the
World

ECO No. 98/17

Nuala O'DONNELL
Why Did Earnings Inequality Increase in
Ireland: 1987-1994?

ECO No. 98/18

Luis A. GIL-ALANA
Fractional Integration in the Purchasing
Power Parity

*out of print

ECO No. 98/19
Luis A. GIL-ALANA
Multivariate Tests of Fractionally
Integrated Hypotheses

ECO No. 98/20
Luis A. GIL-ALANA/
P.M. ROBINSON
Testing of Seasonal Fractional Integration
in U.K. and Japanese Consumption and
Income

ECO No. 98/21
Luis A. GIL-ALANA
Nelson and Plosser Revisited: Evidence
from Fractional ARIMA Models

ECO No. 98/22
Alexander GÜMBEL
Herding in Delegated Portfolio
Management: When is Comparative
Performance Information Desirable?

ECO No. 98/23
Giuseppe BERTOLA
Microeconomic Perspectives on
Aggregate Labor Markets

ECO No. 98/24
Anindya BANERJEE/Stepana
LAZAROVA/Giovanni URGA
Bootstrapping Sequential Tests for
Multiple Structural Breaks

ECO No. 98/25
Anindya BANERJEE/Giovanni URGA
Sequential Methods for Detecting
Structural Breaks in Cointegrated
Systems

ECO No. 98/26
Anindya BANERJEE/Lynne
COCKERELL/Bill RUSSELL
An I(2) Analysis of Inflation and the
Markup

ECO No. 98/27
Alan BEGGS/
Anindya BANERJEE
Simultaneous Versus Sequential Move
Structures in Principal-Agent Models

ECO No. 98/28
Michael EHRMANN
Will EMU Generate Asymmetry?
Comparing Monetary Policy
Transmission Across European Countries

ECO No. 98/29
Pierpaolo BATTIGALLI/Marciano
SINISCALCHI
Hierarchies of Conditional Beliefs and
Interactive Epistemology in Dynamic
Games

ECO No. 98/30
Mathias HOFFMANN
Long Run Capital Flows and the
Feldstein-Horioka Puzzle: A New
Measure of International Capital Mobility
and Some Historical Evidence from Great
Britain and the United States

ECO No. 98/31
Oliver KIRCHKAMP
Simultaneous Evolution of Learning
Rules and Strategies

ECO No. 98/32
Ramon MARIMON/Fabrizio ZILIBOTTI
Unemployment vs. Mismatch of Talents:
Reconsidering Unemployment Benefits

ECO No. 98/33
Giorgia GIOVANNETTI/Ramon
MARIMON
An EMU with Different Transmission
Mechanisms?

ECO No. 98/34
Marcello D'AMATO/Barbara PISTORESI
Delegation of a Monetary Policy to a
Central Banker with Private Information

ECO No. 98/35
Leonardo BARTOLINI/Giuseppe
BERTOLA/Alessandro PRATI
Day-To-Day Monetary Policy and the
Volatility of the Federal Funds Interest
Rate

ECO No. 98/36
Matthias BRUECKNER
Voting on Policies in Committees: A
Welfare Analysis

ECO No. 98/37
Albert MARCET/Ramon MARIMON
Recursive Contracts

ECO No. 98/38
Étienne BILLETTE de VILLEMEUR
Heterogeneity and Stability: Variations on
Sarf's Processes

*out of print

ECO No. 98/39
Giuseppe BERTOLA
Macroeconomics of Distribution and
Growth

ECO No. 98/40
Spyros SKOURAS
Risk Neutral Forecasting

* * *

ECO No. 99/1
Jian-Ming ZHOU
How to Carry Out Land Consolidation -
An International Comparison

ECO No. 99/2
Nuala O'DONNELL
Industry Earnings Differentials in Ireland:
1987-1994

ECO No. 99/3
Ray BARRELL/Rebecca RILEY
Equilibrium Unemployment and Labour
Market Flows in the UK

ECO No. 99/4
Klaus ADAM
Learning while Searching for the Best
Alternative

ECO No. 99/5
Guido ASCARI/Juan Angel GARCIA
Relative Wage Concern and the
Keynesian Contract Multiplier

ECO No. 99/6
Guido ASCARI/Juan Angel GARCIA
Price/Wage Staggering and Persistence

ECO No. 99/7
Elena GENNARI
Estimating Money Demand in Italy:
1970-1994

ECO No. 99/8
Marcello D'AMATO/Barbara PISTORESII
Interest Rate Spreads Between Italy and
Germany: 1995-1997

ECO No. 99/9
Søren JOHANSEN
A Small Sample Correction for Tests of
Hypotheses on the Cointegrating Vectors

ECO No. 99/10
Søren JOHANSEN
A Bartlett Correction Factor for Tests on
the Cointegrating Relations

ECO No. 99/11
Monika MERZ/Axel
SCHIMMELPFENNIG
Career Choices of German High School
Graduates: Evidence from the German
Socio-Economic Panel

ECO No. 99/12
Fragiskos ARCHONTAKIS
Jordan Matrices on the Equivalence of the
I (1) Conditions for VAR Systems

ECO No. 99/13
Étienne BILLETTE de VILLEMEUR
Sequential Decision Processes Make
Behavioural Types Endogenous

ECO No. 99/14
Günther REHME
Public Policies and Education, Economic
Growth and Income Distribution

ECO No. 99/15
Pierpaolo BATTIGALLI/
Marciano SINISCALCHI
Interactive Beliefs and Forward Induction

ECO No. 99/16
Marco FUGAZZA
Search Subsidies vs Hiring Subsidies:
A General Equilibrium Analysis of
Employment Vouchers

ECO No. 99/17
Pierpaolo BATTIGALLI
Rationalizability in Incomplete
Information Games

ECO No. 99/18
Ramon MARIMON/Juan Pablo
NICOLINI/Pedro TELES
Competition and Reputation

ECO No. 99/19
Ramon MARIMON/Fabrizio ZILIBOTTI
Employment and Distributional Effects of
Restricting Working Time

ECO No. 99/20
Léonor COUTINHO
Euro Exchange Rates: What Can Be
Expected in Terms of Volatility?

*out of print

- ECO No. 99/21**
Bernard FINGLETON
Economic Geography with Spatial
Econometrics: A 'Third Way' to Analyse
Economic Development and
'Equilibrium', with Application to the EU
Regions
- ECO 99/22**
Mike ARTIS/
Massimiliano MARCELLINO
Fiscal Forecasting: The Track Record of
the IMF, OECD and EC
- ECO 99/23**
Massimo MOTTA/Michele POLO
Leniency Programs and Cartel
Prosecution
- ECO 99/24**
Mike ARTIS/Hans-Martin KROLZIG/
Juan TORO
The European Business Cycle
- ECO 99/25**
Mathias HOFFMANN
Current Accounts and the Persistence of
Global and Country-Specific Shocks: Is
Investment Really too Volatile?
- ECO 99/26**
Mathias HOFFMANN
National Stochastic Trends and
International Macroeconomic
Fluctuations: The Role of the Current
Account
- ECO 99/27**
Gianmarco I.P. OTTAVIANO/
Jacques-François THISSE
Integration, Agglomeration and the
Political Economics of Factor Mobility
- ECO 99/28**
Gianmarco I.P. OTTAVIANO
Ad usum delphini: A Primer in 'New
Economic Geography'
- ECO 99/29**
Giorgio BASEVI/
Gianmarco I.P. OTTAVIANO
The District Goes Global: Export vs FDI
- ECO 99/30**
Hans-Martin KROLZIG/Juan TORO
A New Approach to the Analysis of
Shocks and the Cycle in a Model of
Output and Employment
- ECO 99/31**
Gianmarco I.P. OTTAVIANO/
Jacques-François THISSE
Monopolistic Competition, Multiproduct
Firms and Optimum Product Diversity
- ECO 99/32**
Stefano MANZOCCHI/
Gianmarco I.P. OTTAVIANO
Outsiders in Economic Integration: The
Case of a Transition Economy
- ECO 99/33**
Roger E.A. FARMER
Two New Keynesian Theories of Sticky
Prices
- ECO 99/34**
Rosalind L. BENNETT/
Roger E.A. FARMER
Indeterminacy with Non-Separable Utility
- ECO 99/35**
Jess BENHABIB/Roger E.A. FARMER
The Monetary Transmission Mechanism
- ECO 99/36**
Günther REHME
Distributive Policies and Economic
Growth: An Optimal Taxation Approach
- ECO 99/37** - Ray BARRELL/
Karen DURY/Ian HURST
Analysing Monetary and Fiscal Policy
Regimes Using Deterministic and
Stochastic Simulations
- ECO 99/38**
Chiara FUMAGALLI/Massimo MOTTA
Upstream Mergers, Downstream
Mergers, and Secret Vertical Contracts
- ECO 99/39**
Marcel FRATZSCHER
What Causes Currency Crises: Sunspots,
Contagion or Fundamentals?
- ECO 99/40**
Simone BORGHESI
Intergenerational Altruism and
Sustainable Development
- ECO 99/41**
Jeni KLUGMAN/Alexandre KOLEV
The Role of the Safety Net and the
Labour Market on Falling Cash
Consumption in Russia: 1994-96. A
Quintile-Based Decomposition Analysis

*out of print



© The Author(s), European University Institute.

Digitised version produced by the EUI Library in 2020. Available Open Access on Cadmus, European University Institute Research Repository.



