Self-rated economic welfare in Russia

Martin Ravallion *, Michael Lokshin

*Development Research Group, The World Bank, 1818 H Street N.W.,
Washington, DC 20433, USA*

Abstract

Most of those Russian adults who feel that they are poor are not classified as such in the poverty statistics, and most of those who are classified as poor don't feel that way. We study the determinants of peoples' perceptions of their economic welfare in an unusually rich socioeconomic survey. While income is a highly significant predictor, subjective economic welfare is influenced by many other factors including health, education, employment, assets, relative income in the area of residence and expectations about future welfare. Insights are obtained into how objective data should be weighted in assessing economic welfare. © 2002 Elsevier Science B.V. All rights reserved.

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1. Introduction

Years of aggregate economic contraction and rising inequality created a high incidence of income poverty in Russia by the mid-1990s (Milanovic, 1998; World Bank, 1998). The official estimate of the income poverty rate in 1996 is 22%, though there are other credible estimates as high as 36% (Commander et al., 1999). Many Russians now see themselves as 'poor'. In data we describe later, we find that 30% of Russians in 1996 put themselves on the lowest two of rungs of a nine-rung ladder from 'poor' to 'rich'.

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* Corresponding author. Tel.: +1-202-473-6659; fax: +1-202-522-1153.

E-mail addresses: mravallion@worldbank.org (M. Ravallion), mlokshin@worldbank.org (M. Lokshin).

However, as we will also show later, most of those people who perceive themselves to be 'poor' are not in fact classified as such in the poverty statistics. And a majority of the poorest (say) 30% of Russians in terms of their incomes relative to the poverty line do not place themselves on either of the two lowest rungs of the subjective welfare ladder.

This paper tries to understand why subjective assessments of economic welfare in Russia deviate so much from 'objective', income-based, measures. Possibly this reflects an aggregation bias; we will see whether an analysis of the individual level data also suggests a weak relationship. Or possibly the differences reflect deeper limitations in how we routinely measure 'economic welfare' in deciding who is 'poor' and who is not – limitations that can be traced back to well-known theoretical problems in identifying an exact metric of welfare from observed behavior.[1]

The following section discusses alternative approaches to using subjective data in welfare measurement. Section 3 gives some descriptive results on the correlates of self-rated economic welfare. Section 4 tries to explain individual perceptions of economic welfare. Section 5 concludes.

2. Measuring welfare subjectively

There have been various approaches to using subjective data in welfare measurement. Van Praag (1968, 1971) introduced the Income Evaluation Question (IEQ) which asks what income is considered 'very bad', 'bad', 'not good', 'not bad', 'good', 'very good'. The answers to the IEQ are often fitted to a utility function with the formula of the log-normal distribution function. Seidl (1994) has questioned the theoretical basis of the use of the log-normal function, and Van Praag and Kapteyn (1994) have defended that choice.

A similar method is based on the Minimum Income Question (MIQ). This asks what income is needed to 'make ends meet'. A 'social subjective poverty line' in income space is found such that expected minimum income equals actual income (see, for example, Kapteyn et al., 1988; Kapteyn, 1994). By this approach the welfare indicator is still taken to be objectively measured income or expenditure normalized by the social subjective poverty line. Issues have been raised about how people interpret the MIQ (Garner and de Vos, 1995). The concept of 'income' is unlikely to be well-defined for respondents (particularly, but not only, in developing countries). It is, however, possible to derive the subjective poverty line without the minimum

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[1] On the identification problem in consumer demand-based measures see Pollak and Wales (1979) and Pollak (1991). Slesnick (1998) surveys alternative approaches found in empirical work. For a more general discussion of the theory of welfare measurement see Sen (1987).

income question, using qualitative questions about perceived consumption adequacy (Pradhan and Ravallion, 2000).

The IEQ and MIQ both take household income (normalized for differences in household size and composition) to be a valid welfare indicator for the purposes at hand. The possible limitations have been recognized in the literature. For example, in estimating the Leyden poverty line using Russian data, Frijters and van Praag (1997) recognize that "..income is only one factor among others influencing individual life satisfaction levels. Nevertheless, being economists, we'll assume that absolute and relative material circumstances define poverty" (p. 6). They go on to calibrate their welfare metric to only a few variables: income, household size, and age. Education, health status, unemployment, marital status, residential location do not enter the welfare function at given income and demographics.

A more open-ended approach in the literature abandons the income-based metrics entirely and uses instead self-rated welfare as the welfare indicator. In a common version, people are asked to place themselves on a ladder – sometimes referred to as a Cantril ladder, following Cantril (1965) – according to their 'happiness' or 'satisfaction with life as a whole'.[2] However, this is too broad a concept for measuring poverty or 'economic welfare'; when one says that someone is 'poor' one typically does not mean that they are unhappy.

A better starting point for subjective *poverty* measurement is to define the rungs of the Cantril ladder along a dimension from 'poor' to 'rich'. Well-known examples can be found in the public opinion research done by the Social Weather Station in the Philippines (Mangahas, 1995, 1999) and the Eurobarometer (Riffault, 1991). The Social Weather Station asks a sample of adults whether they are 'poor', 'borderline' or 'non-poor'. The Eurobarometer asks a similar question but uses a ladder from one to seven, and identifies those who place themselves on the lowest two rungs as the poor.[3]

We call this type of question the Economic Welfare Question (EWQ). By using the words 'poor' and 'non-poor', the EWQ focuses on a more narrow concept of economic welfare than the 'ladder of life' questions often used in psychometric and other surveys. It does not appear plausible that discrepancies between answers to the EWQ and an objective measure of real income reflect the fact that they are aiming to measure different things.

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[2] For further discussion of the psychological literature on subjective welfare see Argyle (1987), Diener (1994), Diener et al. (1999) and Furnham and Argyle (1998). For a useful cross-country compendium of the questions asked, and a summary of the answers, see Veenhoven et al. (1993).

[3] In principle, the answers to the IEQ and MIQ could also be used this way, though it is not commonly done. For example, using the MIQ one might identify all households with actual income below their personal subjective minimum as poor, instead of comparing actual income to the single (social) subjective poverty line.

3. Subjective and objective economic welfare in Russia

Public opinion surveys usually only obtain a quite narrow set of attitudinal data, and there is little else in the survey. To better understand how people answer subjective questions, one needs to have those questions asked in the context of a comprehensive objective socio-economic survey including detailed income and expenditure modules as well as subjective questions.

The Russian Longitudinal Monitoring Survey (RLMS) is ideal from this point of view, in that it is a comprehensive survey of all aspects of levels of living, based on the first nationally representative sample of several thousand households across the Russian Federation.[4] In our analysis we use the data from three rounds of RLMS, conducted in December 1994 (Round 5), in October 1995 (Round 6), and in October 1996 (Round 7). The sample of Round 7 includes information on about 3750 households and 7377 adults. The panel sample includes information on 2870 households and 6256 individuals who were present in all three rounds of the survey. We shall use the following version of the EWQ asked in the RLMS:

> Please imagine a 9-step ladder where on the bottom, the first step, stand the poorest people, and on the highest step, the ninth, stand the rich. On which step are you today?

We shall examine how the answers to this question vary with a wide range of individual and household characteristics. As our main objective welfare indicator we use the 'welfare ratio' given by total household income (y) as a proportion of the poverty line (z). The distribution of welfare ratios determines the level of absolute poverty. (Almost all measures of poverty are homogeneous of degree zero in incomes and the poverty line.) We use established poverty lines for Russia.[5] These comprise both food and non-food components. The food component used linear programming to find the food baskets which minimized the cost of reaching predetermined age- and gender-specific nutritional norms, subject to the constraint that the quantities obtained were no lower than certain positive bounds given by the averages for those with the lowest 30% of consumption. The food

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[4]A range of issues related to the sample design and collection of these data are explained in the documents found in the home page of the RLMS, where the data sets can also be obtained free; see http://www.cpc.unc.edu/projects/rlms/rlms_home.html.

[5]The poverty lines are from Popkin et al. (1995). These were accepted as the guideline for all official Russian poverty line calculations. They are modified versions of those in Popkin et al. (1992) which were accepted as a law in the Russian Federation in 1992 both on the regional and on the all Russia levels. The main modification is that the new poverty lines allow for economies of scale in consumption.

Table 1
Comparison of subjective economic welfare with real income in Russia[a]

| | Subjective rank | | | | | | | |
Income rank	1 *Lowest*	2	3	4	5	6	7+ *Highest*	Total
Lowest 1	224	180	196	196	156	34	7	993
2	204	234	279	208	192	28	26	1171
3	244	287	405	332	306	65	35	1674
4	164	245	362	349	325	68	19	1532
5	126	194	340	352	400	90	28	1530
6	25	22	67	72	98	25	18	327
Highest 7+	6	9	25	23	53	17	17	150
Total	993	1171	1674	1532	1530	327	150	7377

[a]Cramer's $V = 0.0991$; Chi-square $= 434$ (significant at $p < 0.0005$).

basket was created separately for children aged 0–6, 7–17, adult males and females, female pensioners aged 55 and older, and male pensioners aged 60 and older. Region-specific food prices were then used to cost these food baskets. Age- and gender-specific Engel coefficients were then used to obtain allowances for non-food spending. Thus, each age and gender grouping has its specific poverty line that is used to construct a household-specific poverty line according to the demographic composition of the household. Total real monthly disposable household income (in June 1992 prices) includes wages and salaries, social security, private transfers, income in-kind and from home production.

Table 1 summarizes the joint distribution of the household income- based and subjective welfare indicators. We assign individuals to categories of welfare ratios (y/z) in such a way that the number of respondents in each category is equal to the number of respondents in the corresponding subjective welfare group. If there was a complete agreement between the two then the number of respondents in the non-diagonal cells of Table 1 would be zero. We decided to condense the highest seventh, eighth, and ninth rungs of the EWQ into one due to a small number of respondents who assigned themselves to these rungs (only 28 of the 7377 respondents put themselves in rung 8 and only 3 put themselves on rung 9).

The matching of household income and subjective welfare rankings is clearly weak. For example, of the 993 adults who said they were on the lowest rung of the ladder, only 224 were amongst the poorest 993 adults in terms of y/z. The matrix is not even dominant diagonal, though it is not too far from it. Nonetheless, the value of Cramer's V statistic is under 0.1, though
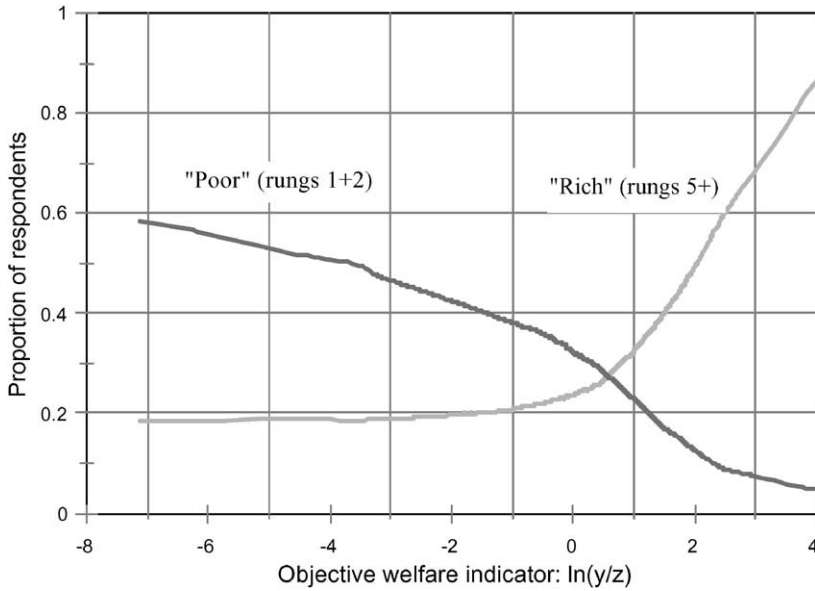
Fig. 1. Subjective economic welfare against real income.

the association between the two variables is still highly significant.[6] While 29.4% of adults placed themselves in the lowest two subjective rungs, less than half (43.0%) were also amongst the 32.7% of adults living in households with incomes below the poverty line.

The curve labeled 'poor' in Fig. 1 plots the proportion of the sample who placed themselves on the lowest two rungs of the subjective welfare ladder against the objective welfare measure, $\ln(y/z)$. The curve is downward sloping as expected. Going from 0.5 standard deviation below the poverty line to 0.5 standard deviation above reduces the proportion of people placing themselves on either of the lowest two rungs from 0.34 to 0.25 (the objective poverty measure falls from 1.0 to 0.0). (The standard deviation of $\ln(y/z)$ is 1.05.) On going from one standard deviation below to one above, the proportion falls from 0.37 to 0.19, so the slope is −0.09 in both cases. So roughly doubling incomes only reduces the subjective poverty rate by about 10 percentage points.

Fig. 1 also gives the mean proportion of the sample on rungs five-plus at each value of $\ln(y/z)$. This is roughly the (subjectively) richest quarter

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[6]Cramer's V statistic tests the null hypothesis of no association between the row variable and the column variable. For 2×2 tables, $-1 < V < 1$, and $0 < V < 1$ otherwise. For further discussion of Cramer's V statistic see Agresti (1984).

of respondents. Here we find near zero gradient in the proportion of those responding that they are on the fifth rung or higher as $\ln(y/z)$ increases; amongst the 'objectively poor' about one-fifth put themselves on these upper rungs of the ladder, and it matters little how poor they are. But amongst the 'objectively non-poor' there is a sharp increase in the proportion of respondents who see themselves as being on the upper rungs of the ladder as real income deflated by the poverty line increases. It is in the responses of the income non-poor that one sees a sharper differentiation in subjective perceptions of welfare.

An instructive way of looking at the relationship between the subjective economic welfare and income is to start from an explicit assumption about the underlying continuous variable determining where one sees oneself on the ladder from 'poor' to 'rich'. Let this latent continuous variable be denoted w and assume that this is determined by $\ln(y/z)$ as well as other variables, which (for the moment) we will simply lump into an i.i.d. error term, ε:[7]

$$w = \beta \ln(y/z) + \varepsilon. \tag{1}$$

Assuming level comparability of the ladder across persons, someone with $w < c_1$ (say) will respond that she is on the first rung; someone for whom $c_1 < w < c_2$ will be on the second, and so on up to the highest rung. On also assuming that ε is normally distributed (with distribution function F), we can use an ordered probit to model the responses. This gives an estimate for β of 0.195 with a standard error of 0.0116 (t-ratio of 16.8, with 7377 observations).[8] So the regression coefficient is highly significant. However, the correlation is low; the Aldrich–Nelson R^2 is 0.047.[9] So, while

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[7] Later we relax the homogeneity restriction embodied in the following equation so as to allow determinants of z to influence w independently of y/z. In subsequent work we also allow the error term to include an idiosyncratic individual effect (Ravallion and Lokshin, 2001). However, this rules out the possibility of describing how subjective welfare is influenced by time invariant individual and households characteristics. Given the aims of the present paper that is too great a limitation.

[8] The estimated values of c_i ($i = 1, 6$) are -1.078 (standard error of 0.0186), -0.503 (0.0157), 0.104 (0.0150), 0.670 (0.0162), 1.597 (0.0234) and 2.1358 (0.0342), respectively.

[9] In assessing the fit of all ordered probits in this paper we use the (normalized) Aldrich and Nelson (1984) pseudo R^2 since the standard (McFadden, 1974) pseudo-R^2 is known to be biased downward for the types of models we are estimating, and there is evidence that the Aldrich–Nelson R^2 performs better (Veall and Zimmerman, 1996). The Aldrich–Nelson statistic is defined as

$$R^2_{AN} = \frac{LRT/(LRT + N)}{-2l_0/(N - 2l_0)}$$

where $LRT = 2(l_m - l_0)$, l_0 is the value of log-likelihood function if the non-intercept coefficients are restricted to zero, l_m is the log-likelihood value of the model, and N is the number of observation.

the welfare ratio (as conventionally measured) is a highly significant predictor of a person's ladder rung, it is clear that this variable alone can only account for a small share of the variance (more strictly, the share of the restricted log-likelihood function) in responses to the ladder question. This result confirms the impression from Table 1 that there are many other factors influencing subjective perceptions of poverty besides income relative to the poverty line.

4. Why do subjective and objective welfare indicators differ so much?

The above results suggest a weak positive relationship between self-rated economic welfare and a standard objective measure of economic welfare. We now test two hypotheses as to why there is disagreement between the subjective and objective indicators.

The Wrong Weights Hypothesis: As elsewhere, the Russian poverty lines used as deflators depend on regional cost-of-living differences and equivalence scales. The low correlation between objective and subjective measures may be due to the weighting of the various components in constructing the poverty lines. The identification problems in calibrating standard measures of 'real income' are well known (as noted in the introduction). Some other set of weights may give a much better fit.

The Low Dimensionality Hypothesis: Even with an 'ideal' deflator, the welfare ratio may miss things that matter to perceived welfare. Past incomes may matter as well as current incomes. Health, education and employment may matter independently of income. Individual circumstances may matter independently of household economic welfare. And where you live may matter, either directly or via perceptions of relative well-being.[10]

4.1. Testing the Wrong Weights Hypothesis

The poverty lines are determined by a vector of variables x_z. Without loss of generality we can write this relationship as $z = g(x_z)$ where g is the function used to determine the poverty line for given x_z. To test the Wrong Weights Hypothesis we want to see whether that function is the right one for explaining the observed differences in subjective welfare at given income. To

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[10]It has been argued that the circumstances of the individual, relative to others in some reference group, influence perceptions of well-being at any given level of individual command over commodities. Runciman (1966) provided an influential exposition, and supportive evidence. Also see the discussions in van de Stadt et al. (1985), Easterlin (1995), Frank (1997) and Oswald (1997).

do so we estimate an augmented model in which we re-write Eq. (1) in the form

$$w = \beta \ln[y/g(x_z)] + \gamma_z x_z + \varepsilon. \tag{2}$$

This allows the subjective valuation of x_z to differ from the objective one, as incorporated in the function g. If the variables in x_z have been incorrectly weighted in the function g then we will find that $\gamma_z \neq 0$.

Table 2 (column 1) gives the estimates of the ordered probit based on (2). The second column gives the values of γ_z/β. This allows us to directly compare the weights on x_z with those built into the construction of the poverty lines, as given in the third column. The latter were obtained from an OLS regression of $\ln z$ on x_z.[11]

There is clearly strong support for the Wrong Weights Hypothesis. In comparison to the model in (1) we observe almost a threefold increase in the pseudo-R^2, which rises from 0.04 to 0.11. Comparing columns (2) and (3) of Table 2, there are striking differences in the properties of the equivalence scale consistent with the subjective welfare indicator versus that used in the objective poverty lines. The latter has an elasticity of 0.8 to household size, while the subjective indicator calls for an elasticity half this size. The demographic composition variables behave very differently. Most notably, due to the properties of the poverty lines, the objective welfare indicator deems pensioner households to be less poor than others ceteris paribus, while the subjective welfare indicator tells us the exact opposite.

Table 3 gives the distribution of the predicted subjective rank (based on the estimation of the model in Table 2) against the actual. One can see a significant improvement in the degree of association; Cramer's V is 0.14 as compared to 0.10 in Table 1.

The lack of correspondence in the geographic effects is striking. While there are a number of strong geographic effects in perceptions of poverty, they bear very little relationship with the cost-of-living differences built into the objective poverty lines.

While there is support for the Wrong Weights Hypothesis, it is plain that income and the variables used in constructing the poverty lines leave many unexplained differences in subjective perceptions of economic welfare.

4.2. Testing the Low Dimensionality Hypothesis

Next we investigate whether there are other dimensions of welfare that influence answers to the EWQ but not the income-based measures (even

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[11]While we know the precise variables in x_z, the formula used in obtaining the Russian poverty lines from x_z was not available. However, the fit of this semi-log specification is excellent, indeed there is near perfect prediction (Table 2), so we are clearly very close to the formula actually used.

Table 2
Comparison of the weights on the variables used to construct the poverty lines[a]

	Subjective welfare indicator				Objective welfare indicator	
	(1) Ordered probit		(2) γ_z/β		(3) OLS	
	Ratio	St. error	Ratio	St. error	Ratio	St. error
Log of total household income	0.223	0.012	1.000	0.000	1.000	0.000
Log of household size	−0.094	0.034	−0.420	0.148	−0.802	0.001
Household composition variables						
Proportion of small children	0.571	0.112	2.558	0.512	−0.048	0.003
Proportion of older children	0.492	0.077	2.205	0.363	−0.387	0.002
Proportion of adult men	0.266	0.064	1.193	0.299	−0.620	0.001
Proportion of adult women	0.363	0.060	1.624	0.293	−0.368	0.001
Proportion of pensioners			Reference			
Month of interview dummies						
Month 1			Reference			
Month 2	0.030	0.032	0.133	0.145	−0.012	0.001
Month 3	0.116	0.055	0.521	0.247	−0.025	0.001
Geographic dummies						
Territory 1			Reference			
Territory 2	−0.287	0.095	−1.287	0.443	0.048	0.002
Territory 3	0.018	0.091	0.082	0.409	−0.176	0.002
Territory 4	−0.003	0.068	−0.015	0.302	−0.001	0.002
Territory 5	0.006	0.062	0.026	0.279	0.145	0.001
Territory 6	0.124	0.068	0.556	0.299	0.202	0.002
Territory 7	0.109	0.064	0.487	0.280	0.035	0.001
Territory 8	0.314	0.062	1.405	0.272	0.153	0.001
Territory 9	0.160	0.073	0.718	0.321	0.163	0.002
Territory 10	0.145	0.069	0.648	0.311	−0.023	0.002
Territory 11	0.079	0.075	0.352	0.336	0.013	0.002
Territory 12	0.045	0.075	0.202	0.334	0.011	0.002
Territory 13	0.142	0.065	0.638	0.292	−0.098	0.001
Territory 14	0.310	0.073	1.388	0.325	−0.397	0.002
Constant					−12.235	0.001
Ancillary parameters						
c1	2.210	0.178				
c2	2.803	0.179				
c3	3.432	0.180				
c4	4.015	0.180				
c5	4.966	0.182				
c6	5.520	0.185				
Pseudo-R^2	0.111					
R^2 (for poverty lines)					0.983	

[a] 7377 observations.

Table 3
Comparison of re-weighted objective indicator with the subjective indicator[a]

Re-weighted rank based on Table 3	Subjective rank							
	1 *Lowest*	2	3	4	5	6	7+ *Highest*	Total
Lowest 1	271	223	222	149	108	18	2	993
2	211	270	276	202	190	12	10	1171
3	231	285	413	323	331	56	35	1674
4	162	215	376	360	310	79	30	1532
5	96	151	310	388	425	116	44	1530
6	15	23	56	83	113	27	10	327
Highest 7+	7	4	21	27	53	19	19	150
Total	993	1171	1674	1532	1530	327	150	7377

[a]Cramer's $V = 0.1376$; Chi-square $= 836$ (significant at $p < 0.0005$).

when the latter's deflator is optimally weighted from the point of view of self-rated welfare). The augmented model is

$$w = \beta \ln[y/z(x_z)] + \gamma_z x_z + \gamma_o x_o + \varepsilon, \tag{3}$$

where x_o is a vector of other variables that we hypothesize matter to self-rated welfare but are not in x_z. The variables we add to the model fall into three groups

(i) *Supplementary objective indicators of personal or household circumstances.* Here we include household expenditure and assets, since these might better pick up permanent income, which is likely to influence self-rated welfare at given current income. We also exploit the longitudinal nature of the data and include past incomes. Self-rated welfare may depend on some sort of moving average of past and expected future incomes. Or a person on a falling (rising) income trajectory may feel more (less) poor at given current incomes.[12] (As we have noted, this might be why the elderly feel poorer than their current incomes would suggest). Education and health, for example, might also influence how poor a person feels at their current income level, via their effect on expected future income, or through the effect of these variables on the perceived riskiness of their current incomes. We also include employment status; the existence of subjective welfare losses from unemployment is one possible explanation for why a great many Russian

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[12]Elsewhere we find that income trajectories influence demand for governmental redistribution in these data (Ravallion and Lokshin, 2000).

workers have continued working despite the fact that their employers have been long overdue on wage payments.[13] There is evidence for other countries of large psychic costs of unemployment (Clark and Oswald, 1994; Oswald, 1997; Winkelmann and Winkelmann, 1998). Stage of the life cycle (age and marital status) might also matter to self-rated welfare.

(ii) *Measures of relative income*. All the above variables relate solely to individual or household characteristics, disconnected from the respondent's social setting. However, self-rated welfare may well depend heavily on the specific reference group one belongs to. To test this, we include two variables measuring the individual's relative position within certain reference groups. One such group is the family itself; here we include a dummy variable taking the value one if the individual concerned has a higher income than anyone else in the family. The other relative income variable is the mean income of the locality in which the respondent lives.

(iii) *Attitudinal variables*. All of the above variables are (more or less) objectively measurable. There may also be determinants of self-rated welfare that can only be assessed through more subjective attitudinal questions. We also include a set of attitudinal variables related to expectations about future welfare, perceived insecurity of employment and whether the respondent thinks that the government cares about people like her.[14] While these variables may well pick up omitted shift factors in self-rated welfare, they also create concerns about their likely endogeneity to self-rated welfare. We also present the restricted form in which these variables are suppressed.

Table 4 gives our estimate of this extended model. Adding the variables in groups (i) and (ii) above to Eq. (1) greatly improves the explanatory power of the model, as indicated by the fact that the pseudo R^2 is more than doubled. The association between the predicted and actual ranking is stronger. We move from Cramer's $V_1 = 0.10$ in model (1) to $V_2 = 0.14$ in model (2) to $V_3 = 0.19$ for model (3).

The estimate of (3) shows that many variables not included in the objective indicator have a strong influence on subjective welfare. Last year's income, and total household expenditure have positive and significant effects. Since the coefficient on last year's income is positive, the regression implies that income growth lowers subjective welfare controlling for current income (and raises it, controlling for last year's income). So this does not suggest that

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[13]Wage arrears in Russian industry were 111 percent of the monthly wage bill in 1996 (Working Center For Economic Reform, 1999).

[14]For measuring expectations, we use the survey question: "do you think that in the next 12 months you and your family will live better than today, or worse"; 'about the same' was an option. For measuring attitudes to the government, we used the question: "do you agree or disagree that the people who govern the country do not care what will become of people like you?".

Table 4
An extended model of self-rated economic welfare[a]

	Without attitudinal variables		With attitudinal variables	
	Coefficient	St. error	Coefficient	St. error
Household income				
Log of total household income, round 7	0.077***	0.016	0.037**	0.018
Log of total household income, round 6	0.050**	0.016	0.039**	0.018
Log of total household income, round 5	0.024	0.019	0.026	0.021
Household consumption				
Total household expenditure (×10000)	0.124***	0.021	0.104***	0.023
Share of household non-food expenditure	0.157**	0.073	0.067	0.080
Household characteristics				
Log of household size	−0.258***	0.042	−0.199***	0.047
Proportion of small children	0.089	0.144	−0.173	0.161
Proportion of big children	0.121	0.101	0.126	0.112
Proportion of adult men	−0.237**	0.084	−0.289**	0.093
Proportion of adult women	−0.018	0.079	0.016	0.087
Proportion of pensioners	*Reference*			
Highest household educational level is high-school	*Reference*			
Households without completed high school education	0.025	0.041	0.048	0.044
Individual characteristics				
Individual income (/10000)	0.313***	0.048	0.339***	0.058
Maximum individual income in the household	−0.002	0.033	−0.005	0.036
Age (×10)	−0.501***	0.054	−0.371***	0.060
Age squared (×100)	0.049***	0.006	0.038***	0.007
Male	0.024	0.032	0.017	0.035
Female	*Reference*			
Single	*Reference*			
Married	0.094*	0.051	0.087	0.057
Divorced	−0.172**	0.068	−0.216**	0.075
Widowed	−0.197**	0.071	−0.221**	0.078
Has job	0.042	0.075	0.016	0.082
Self-evaluation of health				
Very good	*Reference*			
Good	−0.251**	0.112	−0.282**	0.123
Normal	−0.423***	0.112	−0.421***	0.123
Bad	−0.672***	0.118	−0.600***	0.130
Very bad	−0.936***	0.146	−0.806***	0.160
Education				
High school	−0.127**	0.059	−0.093	0.065
Technical/Vocational	−0.058	0.057	−0.034	0.063
University	*Reference*			
Occupation				
Officials managers	0.351**	0.179	0.201	0.198
Professionals	0.059	0.084	0.192**	0.093
Technicians and assistant profession	0.125	0.081	0.201**	0.092

Table 4 (*Continued*).

	Without attitudinal variables		With attitudinal variables	
	Coefficient	St. error	Coefficient	St. error
Clerks	−0.042	0.096	0.034	0.107
Service, shop, market worker	0.001	0.092	0.106	0.102
Skilled agricultural and fishery	0.352	0.231	0.316	0.266
Craft and related work	0.009	0.079	0.054	0.089
Plant machinery operation assembly	−0.082	0.079	0.015	0.089
Manual labor	−0.050	0.083	0.038	0.093
Student	*Reference*			
Armed force	−0.405**	0.173	−0.274	0.191
Unemployed	−0.254***	0.063	−0.221***	0.069
Month 1	*Reference*			
Month 2	0.017	0.035	0.018	0.038
Month 3	0.107	0.061	0.096	0.068
Geographic variables				
Mean log of income in the territory	−0.200***	0.045	−0.192***	0.051
Assets and durables				
Car or truck	0.155***	0.033	0.172***	0.036
Summer house	−0.026	0.041	0.027	0.045
House	−0.015	0.038	−0.007	0.042
Freezer	0.114**	0.054	0.160**	0.060
Refrigerator	−0.001	0.064	−0.044	0.070
Washer	0.173***	0.038	0.184***	0.042
TV B/W	0.088**	0.032	0.066	0.035
TV Color	0.166***	0.041	0.191***	0.045
VCR	0.234***	0.034	0.216***	0.037
Attitudinal variables				
Expects to live better			0.301***	0.044
No change	*Reference*			
Expects to live worse			−0.432***	0.034
Afraid of losing job			−0.042	0.043
Government does not care about me			−0.301***	0.030
Uncertain of finding job in case of unemployment			−0.038	0.045
Ancillary parameters				
c1	0.481	0.363	−0.325	0.405
c2	1.126	0.363	0.363	0.405
c3	1.804	0.364	1.080	0.405
c4	2.437	0.364	1.745	0.406
c5	3.458	0.365	2.804	0.407
c6	4.043	0.366	3.388	0.408
Pseudo-R^2		0.231		0.622

[a]*is significant at 10% level; ** is significant at 5% level; *** is significant at 1% level. 6256 observations. Individual income is not logged, because there are many zeros. The mean individual income is 1966 rubbles per month (3182 if calculated only on positive incomes).

people on a rising income trajectory are less likely to feel they are currently poor, at given current circumstances. Rather, the results in Table 4 suggest that subjective welfare depends on a positively weighted distributed lag of incomes.

Recall that the narrow subjective welfare model in Table 2 suggests a much lower elasticity of the cost of living to household size than embodied in the poverty lines, which are closer to the 'per capita' normalization. This no longer holds in our extended model in Table 4, though the calculation is complicated by the fact that there are multiple 'income' variables. Suppose that there is an equi-proportional increase in all household incomes (at all dates) and expenditures, and that household size increases by the same proportion. Then it is readily verified from the estimates in Table 4 that subjective welfare will be virtually unchanged; more precisely, the sum of the coefficients on the logged household incomes and expenditures is 0.335, which is close to (minus one times) the coefficient on household size (Table 4). Individual income, however, matters independently of household income per capita. Subjective economic welfare clearly depends on both permanent household income per capita and individual income. The fact that we found a size elasticity well below unity in the narrow model of Table 2 appears to be attributable to the omission of this independent effect of individual income, rather than scale effects on household consumption as is commonly inferred from such data.[15]

Among individual characteristics, divorced or widowed respondents put themselves on a lower rung of the ladder controlling for income and household size. One possible interpretation is that divorced or widowed respondents feel less economically secure. Self-rated welfare (at given income) falls with age up to 51 years, then rises; this probably reflects a life-cycle in the demands on individual income from dependents (children and aging parents). Gender makes no significant difference. Healthier people (by their own rating) have a higher self-evaluation of their economic welfare. Unemployment lowers it. Higher individual education raises self-rated welfare, but household education does not matter independently of this. The ownership of a consumer durable such as a car, washer, TV, and VCR has a positive effect on subjective welfare.

Note that all these effects are conditional on incomes and other household and individual characteristics. For example, unemployment lowers self-rated welfare controlling for income. By implication, even with a very generous unemployment compensation scheme that restored the individual's entire working income, unemployment would still lower subjective welfare. (Clearly this is inconsistent with claims that there are adverse effects on work incentives of

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[15]At mean individual income, the elasticity is 0.064.

Table 5
Comparison of actual and predicted subjective welfare from Table 4 (with attitudinal variables)[a]

Rank based on predicted values based on Table 4	Subjective rank							
	1 *Lowest*	2	3	4	5	6	7+ *Highest*	Total
Lowest 1	280	215	147	48	30	4	1	725
2	213	210	226	128	78	10	6	871
3	138	219	344	247	222	23	7	1200
4	69	132	269	311	246	40	16	1083
5	24	84	178	284	343	78	41	1032
6	0	10	28	51	72	27	19	207
Highest 7+	1	1	8	14	41	25	10	100
Total	725	871	1200	1083	1032	207	100	5218

[a]Cramer's $V = 0.2293$; Chi-square $= 1646$ (significant at $p < 0.0005$).

unemployment compensation.) Similarly our results are consistent with the view that people value their education and health independently of the likely income gains (Sen, 1987).

The attitudinal variables have particularly strong effects. Pseudo R^2 rises to 0.622, and Cramer's V statistic rises to 0.23. Table 5 gives the cross-tab of actual and predicted values, analogous to Tables 1 and 3 (though note that the number of observations falls, due to missing data in the extended model). Respondents who expect their welfare to rise are significantly less likely to see themselves as poor, controlling for current incomes and the other variables in our model; and the reverse effect is evident for those who expect things to get worse. (The omitted category is 'stay the same'.) This knocks out the effect of education, suggesting that education is significant in the restricted model because it picks up expectations of future welfare. There is also a strong negative welfare effect of agreeing that "the government does not care about people like me". This could reflect perceptions of vulnerability amongst socially excluded individuals.

There is a strong indication of the importance of higher relative income within one's locality. (Having the highest income within the family does not, however, add significantly to perceived welfare.) The geographic effects on self-rated welfare discussed in the last section can be attributed in large part to perceptions of relative welfare within the local community, in that (other things constant) people in richer areas feel relatively worse off. This would explain the large discrepancy between objective and subjective poverty rates in the (objectively) best off region, Moscow and Saint Petersburg. To test this explanation, we replaced the mean of the log welfare ratio in the area

of residence with a complete set of geographic dummy variables.[16] There was only a small gain in pseudo R^2 to 0.244 (0.628 for the extended model with the attitudinal variables). So average objective welfare in the area of residence can account for almost all the variance attributable to geographic effects. (Other coefficients and standard errors are affected little).

Our results do not suggest that only relative income matters. Suppose that all incomes and expenditures increase by the same proportion. Subjective welfare will still increase; the combined effect of a one percent increase in current and past household incomes, household expenditure and individual income (at sample mean) is 0.335, versus −0.200 for income in the area of residence. While relative income in the locality matters, it is only one factor; absolute income also matters to perceived welfare, as well as the other factors we have discussed. The elasticity to 'own income' is 0.135 (controlling for own income relative to income in the locality), versus an elasticity of 0.235 with respect to relative income. Nonetheless, it is clear that there is a large gap between the perceived welfare gains of a personal income gain versus a generalized one, echoing observations of Easterlin (1995) and others.

Comparing Tables 5 and 1, it can be seen that the extra variables we have used in explaining self-rated welfare have greatly improved on the predictive power of income relative to the poverty line on its own. Yet even with the extended model, including the attitudinal variables, the bulk of the data are still in the off-diagonal cells of Table 5. There is clearly a lot about self perceptions of economic welfare that is hard to explain, even with an unusually rich set of data.

5. Conclusions

Our data for Russia in 1996 indicate a highly significant positive correlation between self-rated economic welfare and income relative to a poverty line. Respondents with higher family income per equivalent adult are less likely to place themselves on the poorest rungs of a nine-rung ladder from 'poor' to 'rich', and (at least amongst the objectively non-poor by Russian standards) they are more likely to place themselves on the upper rungs.

Nonetheless, we find large discrepancies between the two types of welfare data. For example, 60% of the poorest eighth of adults in terms of current household income relative to the poverty line did not place themselves on either the poorest or second poorest rungs of the subjective ladder. The

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[16]We also tried the log of the mean, but this made almost no difference. We also tried including the difference between the log of the mean and the mean of the log to test for effects of inequality, but this variable was highly insignificant.

ladder question seems to be somewhat better at distinguishing the rich from middle-income groups than it is at identifying the poor; 87% of those in the upper 6% of the income distribution put themselves above the lowest two rungs of the ladder. However, respondents from high income families were still very reticent to put themselves on the top two or three rungs, and tended to opt for the middle rung; indeed, the fifth rung (of nine) from the bottom was the most common answer given for the upper 2% of incomes, as well as the upper quartile of incomes.

It is also evident from our results that the way in which objective poverty measures for Russia have been calibrated – the equivalence scales, regional cost-of-living deflators and so on – does not accord well with subjective perceptions of who is 'poor'. The theoretical basis for the way these parameters are set in practice is known to be weak. So we should not be too surprised that conventional assessments of whether one person is better off than another can disagree so much with peoples' own perceptions. The discrepancies with self-rated welfare are due in part to the weighting of the demographic and geographic variables that go into the Russian poverty lines used for assessing differences in needs at a given income. If we re-weight these variables to accord with self-rated welfare then the power of the objective measure in explaining self-rated welfare goes up, and substantially so.

However, even when optimally weighted, the information normally used in assessing economic welfare in Russia has limited power for explaining individual perceptions of welfare. When we expand the set of variables to include past incomes, expenditures, assets, educational attainments, health status, employment, age, marital status and average income in the area of residence we can double the explanatory power. Healthier and better educated adults with jobs perceive themselves to be better off, controlling for their current and recent past incomes. The unemployed judge their economic welfare to be lower, even with full income replacement. (It can hardly be surprising then that many Russian workers stay working despite substantial wage arrears.) Individual income matters independently of household income per capita and it is this fact that appears to account for why subjective welfare is more elastic to household income than to household size, rather than scale effects in consumption. Relative income clearly also matters within the local community (but not within the family); living in a rich area lowers perceived welfare, controlling for own income and other characteristics. A distribution-neutral gain in incomes (such that the respondent's income grows at the same rate as her neighbors) has a much smaller impact on self-rated welfare than a purely personal gain.

Expectations about future welfare also appear to have a powerful effect on the self-rated welfare of Russians. While these expectations are to some extent endogenous to perceptions of current welfare, when their significance is seen

in combination with our results on the importance of past incomes, we are drawn to conclude that self-perceptions of welfare are dependent on welfare averaged over longer periods of time than current incomes would normally reveal. It also appears that feelings of 'social exclusion', as indicated by the respondent's belief that the government does not care for him, also have strong negative effects on self-rated welfare.

The systematic effects that we find make sense, and our results clearly reject any notion that one only gets noise from the answers to subjective questions. However, it is also unclear whether the systematic factors that influence self-rated welfare will all be deemed relevant to the types of inter-personal welfare comparisons that are required for making specific policy choices. For example, it is not surprising that people judge their own welfare relative to some immediate reference group, such as their family or community. But it is not obvious that one should base policy choices on such limited perceptions. To give another example, if one is monitoring poverty to assess the social impact of a macroeconomic crisis, the evident smoothing built into self-rated welfare could well make it a dull indicator.

We are also struck by the unexplained differences in perceptions of welfare that remain after controlling for even a broad set of socio-economic data. We can only speculate on the causes. Response errors, random differences in the interpretation of the survey question, idiosyncratic and transient differences in respondent's 'moods', and differences in personality and tastes, are all candidates. For certain purposes, including assessments of the welfare impacts of policies and of overall social progress, one would probably not want to attach much welfare significance to such differences.

The welfare measure used in practice will naturally depend on the purpose of measurement, and there are situations in which self-rated welfare is likely to be a useful indicator for specific purposes. The fact that self-rated welfare appears to be measuring very different things to even quite broad income-based indicators must however make one wary of substituting one for the other.

While it is questionable that asking people whether they are 'poor' or not obviates the need for objective welfare assessments, one can learn something from self-rated welfare responses about how objective data should be used. That appears to be a defensible role for self-rated welfare data, though it means that such data should be used as a supplement to conventional socio-economic surveys, rather than a substitute.

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