



Life Satisfaction, Subjective Wealth, and Adaptation to Vulnerability in the Russian Federation during 2002-2019*

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Received: September, 2022

Accepted: June, 2023

Abstract

We offer the first study on vulnerability adaptation to subjective well-being, using rich panel data over the past two decades for Russia. We found no adaptation to vulnerability for life satisfaction and subjective wealth, with longer vulnerability spells associated with more negative subjective welfare. Some evidence indicates that despite little differences between urban and rural areas in life satisfaction, rural areas exhibit a more robust lack of adaptation for subjective wealth, particularly for longer durations of vulnerability. More education generally indicates a stronger lack of adaptation for life satisfaction, but similar levels of adaptation for subjective wealth.

Keywords: Vulnerability, Adaptation, Satisfaction, Subjective wealth, Gender, Panel data, Russia.

JEL Classification: D6, I3, O1.

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1. Introduction

The central hypothesis in the literature on adaptation is that individual well-being is determined not only by the current conditions but also by expectations about future changes in these conditions (Easterlin 1995, 2001). These expectations, in turn, are formed by that individual's past experiences and by the circumstances of the reference groups. Understanding the process of adaptation to low levels of income, either through habituation or social comparisons, is of interest to policy practitioners as it affects the perceptions of subjective welfare about objective economic conditions. For example, if people adapt to poverty and deprived economic conditions, a direct implication for analysis is that we will need to (collect and) analyze panel data on subjective measures on the same individuals for accurate analysis since subjective measures at a single point in time would offer an incomplete picture of economic well-being.

Yet, recent studies suggest that poor individuals do not adapt to poverty (Clark *et al.*, 2016; Dang *et al.*, 2019b).¹ That is, although individuals may have lived in poverty for some time, they do not lower their subjective welfare expectations in response to their undesirable (objective) economic status. This finding is relevant for policy interventions since poor individuals unsatisfied with their economic status would likely have stronger incentives to change their situation and take advantage of opportunities to escape poverty. Consequently, poverty alleviation programs such as education subsidies or job training are useful if they can help provide poor individuals with the means to move out of poverty.

Indeed, as rising global living standards help shrink the poor population everywhere (Jolliffe *et al.*, 2015; Ravallion, 2020), increasingly more attention is shifting from the poor to vulnerable groups of the population. For example, the United Nations have called for more rights to economic resources and access to basic services both for the poor and the vulnerable in the Sustainable Development Goals (SDGs).² Policy programs that help prevent potential economic slides for this population group may effectively serve two objectives at the same time: provide protective measures against slipping into poverty in the short term and sustainable measures against poverty in the longer term. Indeed, policies that target chronic poverty (i. e., building infrastructure or investing in long-term human capital) are quite different from those that target transient poverty (i. e., social safety net). But to our knowledge, no study currently exists on adaptation to vulnerability (to poverty).³

While there exist different vulnerability concepts, we focus in this paper on the concept of vulnerability to poverty, which is commonly defined as “vulnerability as expected poverty” (Chaudhuri, 2003; Christiaensen and Subbarao, 2005).⁴ This concept highlights a fundamental distinction between poverty and vulnerability. Regarding poverty, an individual's poverty status is measured by whether that individual is below a certain critical income threshold (i. e., the poverty line). In contrast, vulnerability is measured by the risk that individuals have of falling into (or remaining in) poverty in the future. Sharing a similar conceptual approach, the vulnerability method introduced by Dang and Lanjouw (2017) that we employ in this paper defines vulnerable individuals as those that are currently non-poor (i. e., with a con-

sumption level above the poverty line) but still face a heightened risk of falling into poverty in the next period. Put differently, vulnerable individuals are currently subject to a considerable risk of falling into poverty; that is, they are currently not poor, but they form the population group that could become poor in the future.

We offer in this paper the first study on adaptation to vulnerability. We measure adaptation with an individual's satisfaction with her life. In particular, we investigate several research questions. Do individuals adapt to vulnerability? If yes, does the process of adaptation vary by different characteristics of an individual, such as age, education achievement, and area of residence (i.e., urban and rural areas)? Do results change for alternative subjective welfare definitions, such as subjective wealth? Do results change for different definitions of vulnerability or different measures of income?⁵ Are there other domains of one's life, such as own economic conditions, work contract, job, pay, and career, that also affects the adaptation to poverty? Finally, will results differ by the varying lengths of time that an individual has to endure vulnerability?

We investigate these questions with panel data for the past two decades from Russia. Russia offers a particularly interesting case study for a variety of reasons. The country underwent a radical transformation from a centrally planned to a market-oriented economy in the early 1990s. Despite this upheaval with some initial faltering, Russia has earned its place among the group of upper-middle-income countries and has achieved remarkable pro-poor growth and reduced inequality since then (Dang *et al.*, 2020). But no studies on Russia have thoroughly analyzed the welfare of vulnerable population groups during this fascinating growth process. We aim to fill this gap with this detailed and policy-relevant analysis of adaptation to vulnerability.

Furthermore, related studies of mobility and vulnerability are typically constrained by short panel data sets. In the case of Russia, we overcome this limitation by exploiting multiple rounds of the Russia Longitudinal Monitoring Surveys that span over the last two decades from 2002 to 2017. Hardly any other transitional countries can offer the type of long-running, nationally representative panel household survey data that Russia does.⁶ Finally, our findings are relevant to other transitional economies that are faced with similar challenges.⁷

We find no adaptation for subjective welfare outcomes, including life satisfaction and subjective wealth. Our findings are robust to different model specifications, vulnerability index values, vulnerability definitions, definitions of income, and various other assumptions. We also find some evidence that there is not much difference between these areas for life satisfaction. Rural areas, however, offer stronger evidence of no adaptation for subjective wealth, particularly for longer durations of vulnerability. Higher education levels exhibit a stronger lack of adaptation, except for longer durations of vulnerability. Yet, the levels of no adaptation to vulnerability are rather similar at different education levels for subjective wealth. Interestingly, we find no adaptation for other subjective well-being outcomes including own subjective wealth, satisfaction with economic conditions, work contract, job, pay, and career.

This paper consists of five sections. We discuss the analytical framework in the next section, which includes our definition of vulnerability and the empirical estimation equation. We subsequently discuss the data in Section 3 before offering the main estimation results in Section 4 and finally conclude in Section 5.

2. Analytical Framework

2.1. Empirical Strategy

To investigate the relationship between subjective well-being and vulnerability to poverty, we employ the following linear model with individual fixed effects and year fixed effects

$$y_{it} = \beta'V_{it} + \gamma'X_{it} + \eta_i + \tau_t + \varepsilon_{it} \quad (1)$$

where y_{it} represents individual i 's subjective well-being outcomes in year t . V is a set of dummy variables that indicate how long an individual has lived in vulnerability. Our coefficients of interest are β , which indicate no adaptation if they are statistically significant and do not decline in size as the duration of vulnerability grows. Furthermore, to measure the general correlation between vulnerability and subjective well-being, we also offer estimates where V_{it} includes two variables: one dummy variable indicates whether an individual suffers from vulnerability (i. e., vulnerability incidence) and the other variable indicates how far the income of this individual falls below the vulnerability line (i. e., the degree of vulnerability intensity or vulnerability gap). Since in this paper we focus on the non-poor population groups that include the vulnerable, we exclude the poor from our analysis (see our discussion in the next section). But we also offer estimates where the poor are included in the estimation sample as robustness checks.

X_{it} includes the control variables, such as employment, age groups, education achievement, marital status, health, household composition and regional dummy variables; η_i and τ_t are respectively the individual fixed effects and year dummy variables. These variables also take into account significant life events associated with poverty, such as unemployment, retirement, loss of a partner, bad health, and changes in household size. Equation (1) is the standard model used in the literature on happiness and adaptation to poverty (e. g., Ferrer-i-Carbonell and Frijters, 2004;⁸ Clark *et al.*, 2016).

Since our estimation sample includes individuals who are 16 years old or older, some of them are still attending school, which results in the education variables being time-varying variables. We also estimate our model after dropping the education variables for robustness checks. The first indicator, life satisfaction, is measured by the question ‘‘To what extent are you satisfied with your life in general at the present time?’’. The response is on a scale from 1 to 5, where 1 means completely satisfied and 5 means completely dissatisfied. The second indicator, subjective wealth, is measured by the income ladder, which asks: ‘‘And now, please imagine a nine-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 of the nine steps are you personally standing today?" Answers are recorded on a scale from 1 to 9, with equal steps between response options.

Satisfaction with one's economic conditions, work contract, job, pay, and career is also measured on a scale from 1 to 5. To provide easier interpretation for the satisfaction variables, hereafter we invert their scales, such that higher values imply higher levels of satisfaction.

2.2. Vulnerability Lines

We follow a recently developed method in setting the welfare line (threshold) that defines the vulnerable population group (Dang and Lanjouw, 2017). In particular, this approach employs the existing (national or international) poverty line to define the category of the poor. It then further disaggregates the non-poor group into two subcategories: the vulnerable, who are defined as those currently non-poor but facing a significant risk of falling into poverty, and the remaining group of people who belong to the middle class or higher-income groups. Since individuals can have varying levels of vulnerability to poverty depending on their income, we can define their vulnerability level with a vulnerability index \mathcal{P} , which is formally defined as the percentage of the non-poor population in the first period that falls into poverty in the second period. We can subsequently derive the vulnerability line from the specified vulnerability index \mathcal{P} .⁹

Specifically, the process of obtaining the vulnerability line V_1 consists of two steps. The first step is to identify a range of values for the vulnerability index and then select an appropriate value for the index, which could be done based on different criteria such as the government's available budget for social protection or (ideal or desirable) social welfare objectives. Let z_j be the poverty line in period j , $j = 1$ or 2 . Given the specified vulnerability index \mathcal{P} obtained in the first step, the second step is to empirically solve for the vulnerability line in the first period, V_1 , from this equation

$$\mathcal{P} = P(y_2 \leq z_2 | z_1 < y_1 \leq V_1) \quad (2)$$

Put differently, V_1 indicates that the vulnerability line is the highest income level among the currently non-poor who have a specified probability of falling into poverty in the next period. We can then deflate the vulnerability line V_1 in the first period to obtain the vulnerability lines in other periods using the appropriate deflators.¹⁰ As discussed earlier, Equation (2) suggests that we can focus on the non-poor population in period 1 and can exclude the poor in this period from our analysis.

The vulnerability gap is defined as

$$\frac{(V_1 - y_1)}{V_1} I(z_1 < y_1 \leq V_1) \quad (3)$$

where $I(\cdot)$ is an indicator function that equals one if $z_1 < y_1 \leq V_1$ and 0 otherwise. Equation (3) suggests that for a person with an income around half of the vulnerability line, the vulnerability gap would equal 0.5.

In our analysis, we set the vulnerability index at a value of 0.25, which corresponds to a vulnerability line that is twice the national poverty line in 2002.¹¹ There are a couple of reasons why we use this vulnerability index (line). First, several countries such as Brazil, India, Pakistan, and Vietnam (Dang and Lanjouw, 2017) have followed a similar approach and set the vulnerability line as a multiple of the national poverty line. This approach is pragmatic since it is straightforward for policymakers to justify their choice to the public that the vulnerability line should provide a higher-income line compared to the poverty line, but the two lines are still closely connected.¹² Second, the vulnerability line that corresponds to this vulnerability index is 13,413 rubles per month in 2019 prices, which we keep fixed in real terms for the subsequent years in our estimation sample (Appendix, Table 1.1). But we will also show robustness checks using other values of the vulnerability index. Finally, since we will further disaggregate the time that an individual lives in vulnerability into varying lengths, we will need to ensure that we have sufficient numbers of observations for each of these time windows.

3. Data Description

The Russian Longitudinal Monitoring Survey (RLMS) was initially created with funding from various sources, including the G-7 countries, USAID, and the World Bank. The survey is currently managed by the Carolina Population Center, University of North Carolina, and Russia's National Research University Higher School of Economics. The ongoing panel survey started in 1994 and has been implemented every year since then, except for a break in 1997 and 1999. The RLMS collects nationally representative data on various topics, including household demographics, income and consumption, occupation characteristics, and others. The sample size is between 4,000 and 6,000 households, capturing between 8,000 and 17,000 individuals each year, which have been replenished several times due to panel attrition over time. Hardly any middle-income countries can offer such long-running and nationally representative panel data as the RLMS.

The main outcome variable that we analyze in this paper is the total household income per capita, which is based on a survey question asking about the total monetary income that a household received during the past 30 days.¹³ By definition, it includes other types of income, such as capital income and labor income. However, the share of the capital income in the total incomes is small, accounting for less than 6 percent in all years. On the other hand, labor income has the biggest share and can comprise more than 60 percent for some years. We also examine several other definitions of income for robustness checks.¹⁴ We deflate all the income variables with the annual regional consumer price deflators indexed to 100 in December 2019.¹⁵

We focus on the period starting from 2002 (rather than 2001) since income growth per capita for this year is 7.1 percent using RLMS data. This is far closer to the average income growth rate of 6 percent for the period 2002-19, compared to the unusually high growth rate

of 27 percent for 2001. In addition, the range of the vulnerability index for 2002-03 is also more comparable to those for other years during the period 2002-19 (Appendix, Table 1.1).¹⁶

The estimation sample consists of 177,236 observations with available (non-missing) data on individual life satisfaction and 175,211 observations with available data on subjective wealth from 2002 to 2019. We also restrict the estimation samples to individuals with available data on other household and individual characteristics, as well as individuals who are 16 years old or older. Since our focus is on adaptation to vulnerability, we also restrict the analysis to households whose current income per capita are higher than the poverty line.

Table 1 offers the summary statistics of the estimation sample for the period 2002-19, which indicates that respondents have an average life satisfaction score of 3.3 and an average subjective wealth score of 4.0. The vulnerability incidence hovers around 24 percent. The majority of the respondents (84 percent) completed secondary education or higher, and the majority of them (64 percent) are employed. More than half (58 percent) of the sample are women, and around three-fourths (73 percent) of the sample live in urban areas (i.e., larger towns or cities).

Table 1
DESCRIPTIVE STATISTICS, RLMS 2002-2019

Variables	Life satisfaction		Subjective wealth	
	Mean	Std_dev	Mean	Std_dev
Dependent variable	3.26	1.06	4.04	1.41
Below vulnerability line	0.24	0.42	0.23	0.42
Vulnerability gap	0.04	0.10	0.04	0.10
<i>Individual characteristics</i>				
Employed	0.64	0.48	0.64	0.48
Unemployed/out of labor force	0.36	0.48	0.36	0.48
Age 16-20	0.07	0.25	0.07	0.25
Age 21-30	0.18	0.39	0.18	0.39
Age 31-40	0.18	0.38	0.18	0.38
Age 41-50	0.16	0.37	0.16	0.37
Age 51-60	0.17	0.37	0.17	0.37
Age 61-70	0.12	0.33	0.12	0.33
Age 71-80	0.08	0.28	0.08	0.28
Age 80+	0.04	0.20	0.04	0.19
Female	0.58	0.49	0.58	0.49
<i>Education</i>				
Incomplete secondary	0.17	0.38	0.17	0.37
Complete secondary	0.30	0.46	0.30	0.46
Secondary (and vocational)	0.27	0.44	0.27	0.44
University and higher	0.27	0.44	0.27	0.44
Single	0.16	0.37	0.16	0.37
Married	0.63	0.48	0.63	0.48
Divorced/widowed/separated	0.21	0.41	0.21	0.41
Self-reported bad health	0.38	0.49	0.38	0.49

(Continued)

Variables	Life satisfaction		Subjective wealth	
	Mean	Std_dev	Mean	Std_dev
<i>Household composition</i>				
Number of hh members aged 15 or younger	0.47	0.72	0.47	0.72
Number of hh members aged 16-24	0.44	0.69	0.44	0.69
Number of hh members aged 25-44	0.98	0.96	0.98	0.96
Number of hh members aged 45-59	0.68	0.82	0.68	0.82
Number of hh members aged 60 and older	0.57	0.77	0.57	0.77
<i>Regional characteristics</i>				
City	0.46	0.50	0.47	0.50
Town	0.27	0.45	0.27	0.45
Small town	0.06	0.24	0.06	0.23
Rural	0.20	0.40	0.20	0.40
Number of observations	177,236		175,211	
Number of individuals	35,110		34,919	

Note: Means and standard deviations are obtained with pooled unweighted data. The summary statistics under “Life satisfaction” and “Subjective wealth” are for each of these estimation samples respectively.

4. Estimation Results

4.1. Adaptation to Vulnerability

We provide estimation results in Table 2, which show that both vulnerability incidence and intensity are statistically significant and are negatively correlated with life satisfaction and subjective wealth.¹⁷ Controlling for other factors, a vulnerable person would be 0.06 points less satisfied (column 1) and 0.15 points feeling less wealthy (column 4) than a non-vulnerable person. For comparison, with life satisfaction, completing more than secondary education has a somewhat similar magnitude of association (which is also negatively and statistically significantly). But this relationship generally fails to hold for subjective wealth.

Table 2
LIFE SATISFACTION/SUBJECTIVE WEALTH AND VULNERABILITY, FIXED-EFFECTS REGRESSIONS, RLMS 2002-2019

Variables	Life satisfaction			Subjective wealth		
	Whole sample	Men	Women	Whole sample	Men	Women
Below vulnerability line	-0.061*** (0.01)	-0.050*** (0.01)	-0.067*** (0.01)	-0.152*** (0.01)	-0.141*** (0.02)	-0.159*** (0.02)
Vulnerability gap	-0.305*** (0.05)	-0.323*** (0.07)	-0.295*** (0.06)	-0.215*** (0.07)	-0.269*** (0.09)	-0.177** (0.08)
<i>Individual Characteristics</i>						
Unemployed/out of labor force	-0.204*** (0.01)	-0.292*** (0.01)	-0.149*** (0.01)	-0.239*** (0.01)	-0.317*** (0.02)	-0.192*** (0.01)

(Continued)

Variables	Life satisfaction			Subjective wealth		
	Whole sample	Men	Women	Whole sample	Men	Women
Age 16–20	0.275*** (0.03)	0.271*** (0.04)	0.257*** (0.03)	0.298*** (0.03)	0.245*** (0.05)	0.345*** (0.05)
Age 21–30	0.034* (0.02)	-0.011 (0.03)	0.049** (0.02)	0.099*** (0.02)	0.037 (0.04)	0.143*** (0.03)
Age 31–40	-0.008 (0.01)	-0.044** (0.02)	0.015 (0.02)	0.043** (0.02)	0.005 (0.03)	0.070*** (0.02)
Age 51–60	0.065*** (0.01)	0.051*** (0.02)	0.075*** (0.01)	-0.022 (0.02)	-0.044* (0.02)	-0.011 (0.02)
Age 61–70	0.103*** (0.02)	0.083*** (0.03)	0.116*** (0.02)	-0.051** (0.02)	-0.036 (0.04)	-0.056** (0.03)
Age 71–80	0.097*** (0.02)	0.066* (0.04)	0.107*** (0.02)	-0.025 (0.03)	-0.013 (0.05)	-0.028 (0.03)
Age 80+	0.148*** (0.02)	0.129*** (0.05)	0.148*** (0.03)	0.249*** (0.03)	0.239*** (0.06)	0.253*** (0.04)
<i>Education</i>						
Complete secondary	-0.033*** (0.01)	-0.036** (0.02)	-0.031* (0.02)	-0.022 (0.02)	-0.031 (0.02)	-0.014 (0.02)
Secondary (and vocational)	-0.064*** (0.01)	-0.078*** (0.02)	-0.050** (0.02)	-0.063*** (0.02)	-0.071** (0.03)	-0.057** (0.03)
University and higher	-0.064*** (0.02)	-0.062** (0.03)	-0.070*** (0.03)	-0.053** (0.03)	-0.025 (0.04)	-0.068* (0.04)
Single	-0.164*** (0.02)	-0.146*** (0.02)	-0.186*** (0.02)	-0.046** (0.02)	-0.027 (0.03)	-0.058** (0.03)
Divorced/widowed/separated	-0.269*** (0.01)	-0.339*** (0.03)	-0.249*** (0.02)	-0.157*** (0.02)	-0.100*** (0.03)	-0.177*** (0.02)
Self-reported bad health	-0.085*** (0.01)	-0.083*** (0.01)	-0.086*** (0.01)	-0.054*** (0.01)	-0.052*** (0.01)	-0.053*** (0.01)
<i>Household composition</i>						
Number of hh members aged 15 or younger	-0.009 (0.01)	0.008 (0.01)	-0.027*** (0.01)	0.017* (0.01)	0.028** (0.01)	0.009 (0.01)
Number of hh members aged 16–24	0.004 (0.01)	0.002 (0.01)	-0.000 (0.01)	0.021** (0.01)	0.033*** (0.01)	0.011 (0.01)
Number of hh members aged 25–44	0.002 (0.01)	-0.016** (0.01)	0.015** (0.01)	0.032*** (0.01)	0.026** (0.01)	0.036*** (0.01)
Number of hh members aged 45–59	-0.018*** (0.01)	-0.028*** (0.01)	-0.007 (0.01)	0.001 (0.01)	0.010 (0.01)	-0.005 (0.01)
Number of hh members aged 60 and older	0.009 (0.01)	0.036*** (0.01)	-0.002 (0.01)	0.060*** (0.01)	0.069*** (0.02)	0.053*** (0.01)
Constant	3.451*** (0.18)	3.608*** (0.11)	3.360*** (0.22)	4.322*** (0.18)	4.373*** (0.23)	4.281*** (0.20)
Mean of dependent variable (Standard deviation)	3.26 (1.07)	3.33 (1.05)	3.22 (1.07)	4.04 (1.41)	4.12 (1.42)	3.99 (1.40)
R2	0.018	0.021	0.019	0.020	0.021	0.020
Number of observations	177,236	74,547	102,689	175,211	73,565	101,646
Number of individuals	35,110	15,592	19,518	34,919	15,514	19,405

Note: *** p<0.01, ** p<0.05, * p<0.1. Robust standard errors clustered at the household-year level are in parentheses. Regional and time dummy variables are included but not shown. Incomes are expressed in December prices of the 2019 year by using the annual (December to December) CPI for each of the 32 regions (oblasts). The vulnerability index is defined as $P(y_2 \leq z_2 | z_1 < y_1 \leq V_1) = 0.25$ in 2002 in 2019 prices. Estimation results are based on real total household income per capita. The estimation sample is restricted to individuals 16 years old or older.

Table 2 also suggests that a vulnerable person with an income half of the vulnerability line (i. e., with the vulnerability gap variable equal to 0.5) would be 0.22 points ($=0.06+0.31 * 0.5$) less satisfied than the same person when not vulnerable (Table 2, first column). Interestingly, these impacts hold for both men and women. Similar results apply for subjective wealth, where the same vulnerable person is 0.26 points feeling less wealthy than her non-vulnerable peer (Table 2, fourth column).¹⁸ Using other vulnerability indexes offers rather similar results, with larger vulnerability indexes being more likely associated with less life satisfaction and subjective wealth (Appendix, Figure 1.1). Interestingly, these results are similar to those for adaptation to poverty provided in Dang *et al.* (2019b).

But do they change when we include poor individuals in the estimation sample? For sensitivity analysis, we include all individuals (poor and non-poor) plus a binary indicator for poverty status. Estimation results, shown in Appendix, Table 1.2, suggest that results remain qualitatively similar. In fact, the dummy variable that indicates whether an individual lives below the poverty line is not statistically significant, indicating that the inclusion of the poor group does not add to our analysis¹⁹.

Table 3
ADAPTATION TO VULNERABILITY, FIXED-EFFECTS REGRESSIONS, RLMS 2002-2019

Variables	Life satisfaction			Subjective wealth		
	All	Men	Women	All	Men	Women
Up to 1 year in vulnerability	-0.102*** (0.02)	-0.084*** (0.03)	-0.113*** (0.02)	-0.162*** (0.03)	-0.142*** (0.04)	-0.169*** (0.03)
1-2 years in vulnerability	-0.183*** (0.04)	-0.159*** (0.05)	-0.194*** (0.04)	-0.190*** (0.05)	-0.131* (0.07)	-0.221*** (0.06)
2-3 years in vulnerability	-0.261*** (0.06)	-0.280*** (0.09)	-0.247*** (0.07)	-0.121 (0.08)	-0.122 (0.10)	-0.107 (0.09)
More than 3 years in vulnerability	-0.321*** (0.09)	-0.170 (0.14)	-0.419*** (0.10)	-0.228** (0.10)	-0.091 (0.14)	-0.292** (0.12)
<i>Mean of dependent variable</i>	3.17	3.25	3.10	3.99	4.03	3.95
<i>(Standard deviation)</i>	(1.07)	(1.07)	(1.06)	(1.38)	(1.40)	(1.36)
R2	0.024	0.042	0.023	0.032	0.043	0.030
<i>Number of observations</i>	11,606	4,988	6,618	11,462	4,920	6,542
<i>Number of individuals</i>	3,378	1,468	1,910	3,363	1,465	1,898

Note: *** p<0.01, ** p<0.05, * p<0.1. Robust standard errors clustered at household-year level are in parentheses. All regressions include all control variables from Table 2. Vulnerability spells are constructed on an annual basis. The range of vulnerability indexes is selected to ensure that the number of observations in each duration category is at least 100.

Table 2 provides estimates for a contemporaneous relationship only and does not tell whether the duration of stay in vulnerability is negatively correlated with subjective welfare. We further examine this relationship in Table 3. Following a similar approach by Clark *et al.* (2016), we restrict the estimation sample to those we can observe when they first entered vulnerability while in the panel (such that we know how long they have been vulnerable). For the currently vulnerable, we dissect their vulnerability status into four variables: whether

they entered vulnerability within the past year, one to two years ago, and so on, up to three or more years ago. Vulnerability adaptation implies that individuals' subjective wellbeing has a weaker relationship with their vulnerability status over time (i.e. the estimated coefficients are smaller in absolute terms over time). Yet, the estimation results (column 1) suggest no vulnerability adaptation, with all the estimated coefficients on vulnerability durations being negative, and the estimated coefficient on vulnerability duration of less than one year are smaller in absolute terms than (and statistically significantly different from) those on vulnerability durations of greater than one year. Estimates are generally qualitatively similar for subjective wealth, with the estimated coefficient on vulnerability duration of less than one year being smaller in absolute magnitude (but not statistically different from) those on longer vulnerability duration (column 4).

While there is not much difference between men and women for adaptation in terms of life satisfaction (Table 3, columns 2 and 3), a gender gap exists for adaptation in terms of subjective wealth. Specifically, men appear to adapt better, with the estimated coefficients on vulnerability durations of more than one year not being statistically significant (Table 3, column 5). But women do not show any sign of adaptation for either life satisfaction or subjective wealth (Table 3, columns 3 and 6).

Would the estimates change if we, instead of fixing the vulnerability index at 0.25 (or 25 percent), use different values of the vulnerability indexes? Table 4 investigates whether the estimation results on vulnerability adaptation shown in Table 3 change for the range of vulnerability indexes from 23 to 26 percent calculated in 2002-03.²⁰ The results remain very similar. For example, the estimated coefficient on the dummy variable indicating whether individuals live in vulnerability for less than one year is -0.1 for the vulnerability index of 23 percent and -0.09 for the vulnerability index of 26 percent. These figures are close to the corresponding figure of -0.1 for the vulnerability index of 25 percent.

Table 4
ADAPTATION OF LIFE SATISFACTION TO VULNERABILITY, FIXED-EFFECTS REGRESSIONS, RLMS 2002-2019

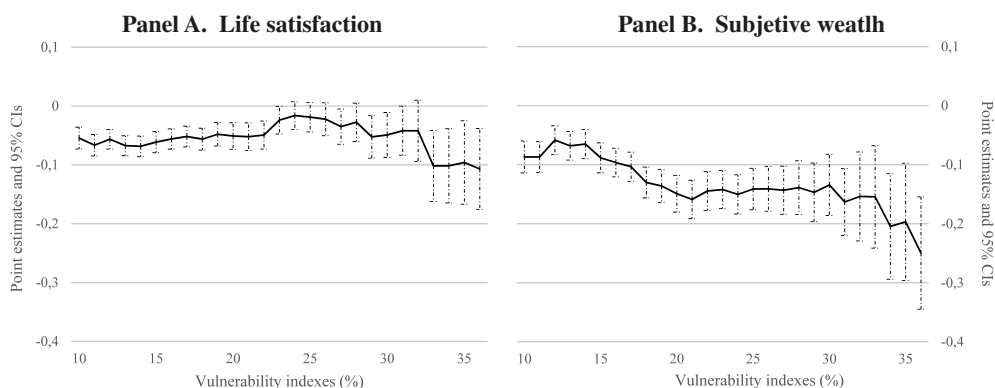
	Vulnerability indexes (%)			
	23	24	25	26
<i>Panel A: Life Satisfaction</i>				
Up to 1 year in vulnerability	-0.103*** (0.02)	-0.127*** (0.02)	-0.102*** (0.02)	-0.086*** (0.02)
1-2 years in vulnerability	-0.172*** (0.03)	-0.227*** (0.04)	-0.183*** (0.04)	-0.106** (0.05)
2-3 years in vulnerability	-0.176*** (0.05)	-0.240*** (0.05)	-0.261*** (0.06)	-0.041 (0.11)
More than 3 years in vulnerability	-0.148** (0.06)	-0.338*** (0.07)	-0.321*** (0.09)	-0.039 (0.20)
R2	0.033	0.029	0.024	0.033
Number of observations	12,543	12,895	11,606	8,114
Number of individuals	3,452	3,647	3,378	2,515

(Continued)

	Vulnerability indexes (%)			
	23	24	25	26
<i>Panel B: Subjective Wealth</i>				
Up to 1 year in vulnerability	-0.173*** (0.03)	-0.164*** (0.03)	-0.162*** (0.03)	-0.153*** (0.03)
1-2 years in vulnerability	-0.183*** (0.05)	-0.194*** (0.05)	-0.190*** (0.05)	-0.160** (0.07)
2-3 years in vulnerability	-0.173*** (0.06)	-0.205*** (0.07)	-0.121 (0.08)	-0.130 (0.12)
More than 3 years in vulnerability	-0.053 (0.08)	-0.268*** (0.09)	-0.228** (0.10)	0.051 (0.18)
R2	0.043	0.038	0.032	0.039
Number of observations	12,441	12,773	11,462	7,983
Number of individuals	3,449	3,641	3,363	2,502

Note: *** p<0.01, ** p<0.05, * p<0.1. Robust standard errors clustered at household-year level are in parentheses. All regressions include all control variables in Table 2. Vulnerability spells are constructed on an annual basis. The range of vulnerability indexes is selected to ensure that the number of observations in each duration category is at least 100.

Figure 1
LIFE SATISFACTION/SUBJECTIVE WEALTH AND VULNERABILITY, RLMS 2002-2019



Note: Regressions include all the control variables in Table 2. The dashed line represents the 95% confidence intervals.

Next, we more generally investigate whether the estimated coefficients on the dummy variable indicating individuals living below the vulnerability line vary if we allow for the vulnerability index (and its associated vulnerability line) to change. Specifically, we significantly broaden the range of the analyzed vulnerability index to between 10 percent and 35 percent (instead of fixing it at 25 percent) and consider the associated vulnerability lines across the different survey years. In other words, we fix the vulnerability index at a given value on the [10,35] range but use the different associated values of vulnerability line for each different survey year (e.g., for the given vulnerability index of 0.25, the corresponding vulnerability lines are 13,413 rubles in 2002-03, 17,861 rubles in 2003-04, and 9,455 rubles in 2004-05). We plot the estimation results in Figure 1, which are similar and suggest that higher vulnera-

bility levels tend to be associated with lower levels of subjective well-being, with the patterns being also stronger for subjective wealth than life satisfaction.

Figure 2 further shows the results disaggregated by males and females, which are similar to Figure 1 without significant differences between males and females.

Figure 2
LIFE SATISFACTION/SUBJECTIVE WEALTH AND VULNERABILITY BY GENDER, RLMS 2002-2019

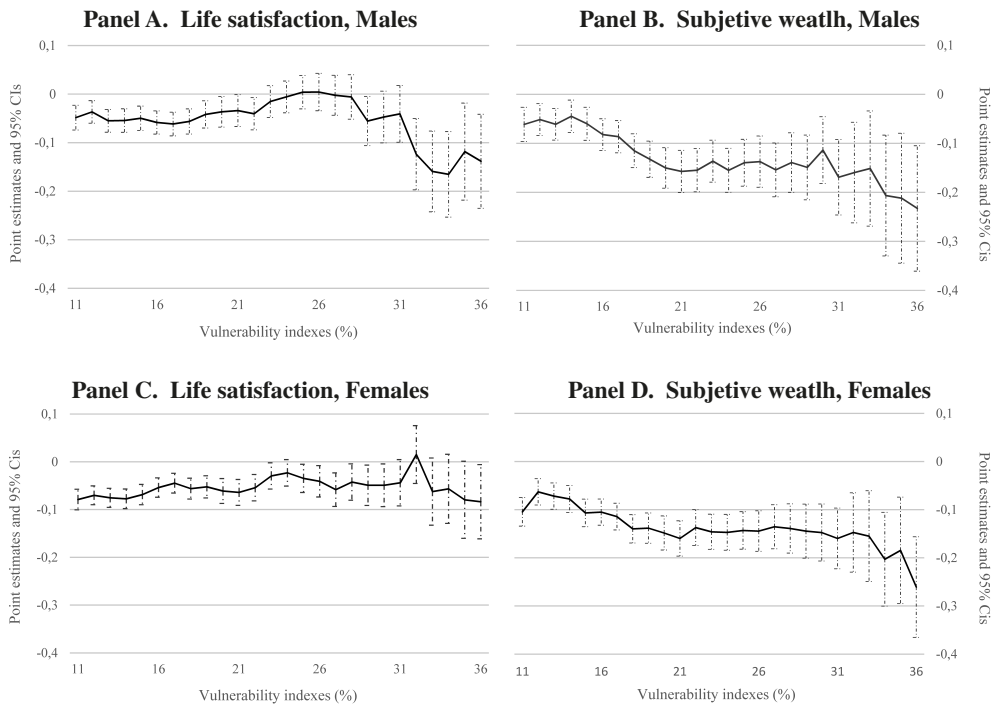
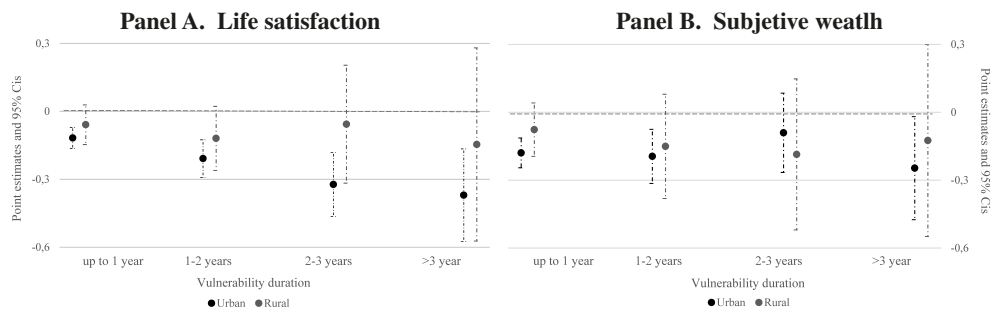
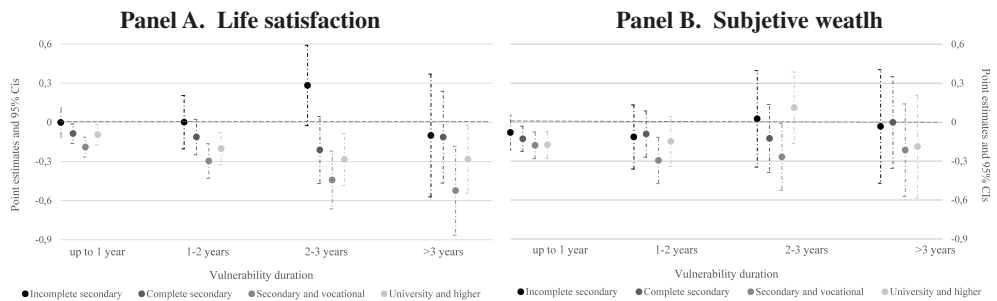


Figure 3
URBAN/RURAL PROFILES OF VULNERABLE INDIVIDUALS, FIXED-EFFECTS REGRESSION, RLMS 2002-2019



As the last step, we examine whether estimation results vary for different characteristics of the population, such as areas of residence and education achievement. Disaggregating estimates by urban and rural areas, Figure 3 shows that there is not much difference between these areas for life satisfaction. However, rural areas offer stronger evidence of no adaptation for subjective wealth, particularly for longer durations of vulnerability.

Figure 4
EDUCATIONAL PROFILES OF VULNERABLE INDIVIDUALS, FIXED-EFFECTS REGRESSION, RLMS 2002-2019



Note: Vulnerability spells are constructed on an annual basis. The dashed line represents the 95% confidence intervals.

Figure 4 shows that the lack of adaptation to vulnerability regarding life satisfaction is stronger for higher education levels, except for longer durations of the vulnerability of 3 years or more. On the other hand, the level of no adaptation to vulnerability is similar at different education levels for subjective wealth.

4.2. Robustness Checks

We implement a battery of robustness checks in this subsection, indicating that estimation results are robust to different model specifications, vulnerability index values, vulnerability definitions, income definitions, alternative modelling options, and various other checks.

First, as an alternative model specification, we add log income per capita as a control variable instead of the vulnerability gap. While the latter variable focuses on how far below the vulnerability line the vulnerable are, the former variable takes into account the whole income distribution. Estimate results, shown in Appendix, Table 1.3, are rather similar.

Second, instead of obtaining the vulnerability index (line) based on the period 2002-03, we switch to obtaining these parameters using the period 2001-02. The range of the vulnerability index is larger for the latter period (i.e., [30, 43]), given the unusual economic growth discussed earlier. We then rerun the estimates for adaptation for vulnerability (shown in Table 3); estimation results, provided in Appendix, Table 1.4, remain qualitatively similar.

Third, as discussed earlier, the education achievement variables can be time-varying for some individuals that were still going to school at the time of the survey. For robustness

checks, we drop these education variables and rerun the estimates in Table 3. Estimation results, shown in Appendix, Table 1.5, are qualitatively similar.

Fourth, Figure 1.2 in Appendix shows estimation results where we use two other definitions of income that adjust for equivalence scales. The first definition is the OECD scale, and the second is based on Schwarze's (2003) adjustment and our own adjustment (Abanokova *et al.*, 2022) using subjective scales. Estimates are generally qualitatively similar for both of these alternative definitions of income.

Fifth, to address concerns about potential bias due to panel attrition,²¹ we add to the regressions additional variables that indicate whether an individual participates in the next survey wave or the number of survey waves an individual participates in. This represents a simple but effective way to control for selectivity bias that does not require complicated modeling of the selection process (Verbeek and Nijman, 1992). Estimation results, shown respectively in Appendix, Table 1.6, remain similar.

Sixth, we turn next to examining the question of whether the lack of adaptation to vulnerability may apply to other subjective welfare outcomes such as satisfaction with one's overall economic conditions, work contract, job, pay, and career. Indeed, Table 1.7, Appendix shows that there is a negative contemporaneous relationship between vulnerability and these outcomes, which provides additional supportive evidence for our estimation results.

Seventh, for another modelling option to the linear FE model, we employ the nonlinear ordered logit model. In particular, we use the "blowup and cluster" (BUC) estimator by Baetschmann *et al.* (2020) that controls for unobserved time-invariant heterogeneity. The estimation results, shown in Table 1.8, remain qualitatively similar. Finally, as an alternative to using four dummy variables indicating the different numbers of years individuals spend in vulnerability, we employ instead a single continuous variable for the years spent in vulnerability. This alternative specification gives qualitatively similar results to those in Table 3 (with more years spent in vulnerability leading to less life satisfaction and lower subjective wealth), except that the estimated coefficient for subjective wealth for men is not statistically significant (Table 1.9, Appendix).

5. Conclusion

We offer the first study on adaptation to vulnerability using panel data from Russia, a middle-income transition country. We find that there is no adaptation for subjective welfare outcomes including life satisfaction and subjective wealth. Furthermore, our findings are robust to different model specifications, vulnerability index values, income definitions, and various other checks.

We also find some evidence that there is not much difference between these areas for life satisfaction. Rural areas, however, offer stronger evidence of no adaptation for subjective wealth, particularly for longer durations of vulnerability. The lack of adaptation to vulner-

ability regarding life satisfaction is stronger for higher education levels, except for longer durations of vulnerability. On the other hand, the level of no adaptation to vulnerability is rather similar at different education levels for subjective wealth.

Appendix

Table 1.1
VULNERABILITY LINES FOR RUSSIA, 2002-2019

Vulnerability index	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
6															86741	88437	89632
7									65107	27997	61340				32230	33800	37318
8								29279	21610	32160	76415				24250	23420	25342
9								21767	19161	24757	38159			45740	21078	20603	21813
10					60753										18827	19143	19247
11					30677				18733	17288	21536	27838		29089	16320	17317	17162
12					24088			40356	16421	16520	19565	24445	66165	24823	15297	15804	16413
13					19650			24046	15458	15079	18123	22039	36531	22562	14427	14187	15611
14					17708			20248	14880	14455	17162	20403	29396	20506	13506	13249	14970
15					15165			17848	14254	13686	16248	19056	26257	19067	12943	12936	14542
16					32805			18883	13243	13350	15672	17997	23783	17679	12636	12466	14168
17					23021			18100	16077	12617	15191	17227	22118	16395	12381	12258	13954
18					18314			16074	15052	12424	13941	16602	21120	15624	11306	11475	13794
19					14470			14399	11991	11525	13412	15976	20073	14647	11204		13099
20					13484			14416	13980	11606	13028	15543	18789	14185			12778
21					12990			13633	12955	10787	12835	15062	17552	13773			12617
22					39615			12758	12489	11045	11826	14725	16981	13517			11709
23					18548			12527	12302	10997	14388	16220	13260	13260			11602
24					15463			12297	12023	10373	11537	13811	15840	12591			11495
25					13413			11652	11603	10613	11441	13474	15697	12283			11441
26					11598			11468	11510	10421		13281	15459	12334			11388
27					10309			10777	11417			13185	15126	11923			11174
28					9957			11671	11184			12944	14841	11821			
29					9684			10998				12704	14508	11769			
30					8903			10858				12511	14175	11564			
31					8396			10363	10485			12271	13747				
32					10717			10606				12126	13604				
33					9923			10561				12078	13461				
34					9724			10428				11934	13128				
35					8276			9984				11838	13081				
36					9367							11741	12605				
37					9089							11645	12510				
38					9010							11597	12462				
39												11549	12320				
40												11308	12129				
41												11068					
Poverty line	6810	7938	8222	8252	8875	9247	9211	9320	9631	9604	9614	9624	9513	10279	10232	10432	10693

Note: Vulnerability and poverty lines are expressed in December prices of the 2019 year by using the annual (December to December) CPI for each of 32 regions (oblasts). Estimation results are based on real total household income per capita.

Table 1.2
LIFE SATISFACTION/SUBJECTIVE WEALTH AND VULNERABILITY, FIXED-EFFECTS
REGRESSIONS, RLMS 2002-2019

Variables	Life satisfaction			Subjective wealth		
	Whole sample	Men	Women	Whole sample	Men	Women
Below vulnerability line	-0.052*** (0.01)	-0.039*** (0.01)	-0.061*** (0.01)	-0.141*** (0.01)	-0.133*** (0.01)	-0.147*** (0.01)
Below poverty line	-0.000 (0.01)	0.003 (0.01)	-0.001 (0.01)	0.004 (0.01)	0.014 (0.02)	-0.002 (0.02)
Vulnerability gap	-0.407*** (0.03)	-0.405*** (0.04)	-0.403*** (0.03)	-0.363*** (0.04)	-0.402*** (0.05)	-0.330*** (0.04)
<i>Individual Characteristics</i>						
Unemployed/out of labor force	-0.208*** (0.01)	-0.303*** (0.01)	-0.148*** (0.01)	-0.216*** (0.01)	-0.298*** (0.01)	-0.165*** (0.01)
Age 16-20	0.308*** (0.02)	0.333*** (0.03)	0.261*** (0.03)	0.270*** (0.03)	0.234*** (0.04)	0.297*** (0.04)
Age 21-30	0.034** (0.02)	-0.001 (0.02)	0.040* (0.02)	0.091*** (0.02)	0.030 (0.03)	0.131*** (0.03)
Age 31-40	-0.011 (0.01)	-0.040** (0.02)	0.006 (0.01)	0.033** (0.01)	-0.006 (0.02)	0.060*** (0.02)
Age 51-60	0.069*** (0.01)	0.064*** (0.02)	0.074*** (0.01)	-0.005 (0.01)	-0.021 (0.02)	0.004 (0.02)
Age 61-70	0.107*** (0.01)	0.129*** (0.03)	0.102*** (0.02)	-0.032* (0.02)	0.005 (0.03)	-0.047** (0.02)
Age 71-80	0.107*** (0.02)	0.109*** (0.03)	0.102*** (0.02)	0.010 (0.02)	0.054 (0.04)	-0.007 (0.03)
Age 80+	0.148*** (0.02)	0.164*** (0.04)	0.129*** (0.03)	0.286*** (0.03)	0.277*** (0.05)	0.286*** (0.03)
<i>Education</i>						
Complete secondary	-0.047*** (0.01)	-0.050*** (0.01)	-0.046*** (0.01)	-0.013 (0.01)	-0.015 (0.02)	-0.012 (0.02)
Secondary vocational	-0.079*** (0.01)	-0.087*** (0.02)	-0.073*** (0.02)	-0.038** (0.02)	-0.050** (0.02)	-0.029 (0.02)
University and higher	-0.088*** (0.02)	-0.089*** (0.02)	-0.096*** (0.02)	-0.013 (0.02)	0.008 (0.03)	-0.026 (0.03)
Single	-0.161*** (0.01)	-0.135*** (0.02)	-0.182*** (0.02)	-0.026 (0.02)	0.006 (0.03)	-0.045** (0.02)
Divorced/widowed/separated	-0.259*** (0.01)	-0.306*** (0.02)	-0.249*** (0.01)	-0.157*** (0.01)	-0.127*** (0.03)	-0.168*** (0.02)
Self-reported bad health	-0.083*** (0.00)	-0.079*** (0.01)	-0.084*** (0.01)	-0.046*** (0.01)	-0.038*** (0.01)	-0.050*** (0.01)

(Continued)

Variables	Life satisfaction			Subjective wealth		
	Whole sample	Men	Women	Whole sample	Men	Women
<i>Household composition</i>						
Number of hh members aged 15 or younger	0.000 (0.01)	0.014* (0.01)	-0.014** (0.01)	0.022*** (0.01)	0.027*** (0.01)	0.018** (0.01)
Number of all members aged 16-24	0.020*** (0.01)	0.023*** (0.01)	0.014** (0.01)	0.032*** (0.01)	0.041*** (0.01)	0.026*** (0.01)
Number of all members aged 25-44	0.017*** (0.01)	0.010 (0.01)	0.021*** (0.01)	0.038*** (0.01)	0.037*** (0.01)	0.038*** (0.01)
Number of all members aged 45-59	-0.009* (0.01)	-0.010 (0.01)	-0.005 (0.01)	0.002 (0.01)	0.007 (0.01)	-0.001 (0.01)
Number of all members aged 60 and older	0.027*** (0.01)	0.052*** (0.01)	0.014* (0.01)	0.071*** (0.01)	0.072*** (0.01)	0.070*** (0.01)
Constant	3.343*** (0.13)	3.483*** (0.12)	3.263*** (0.16)	4.270*** (0.17)	4.020*** (0.25)	4.289*** (0.18)
R2	0.030	0.031	0.032	0.023	0.025	0.023
Number of observations	231,871	97,543	134,328	228,734	96,011	132,723
Number of individuals	39,348	17,583	21,765	39,141	17,485	21,656

Note: *** p<0.01, ** p<0.05, * p<0.1. Robust standard errors clustered at household-year level are in parentheses. Regional and time dummy variables are included but not shown. Incomes are expressed in December prices of the 2011 year by using the annual (December to December) CPI for each of 32 regions (oblasts). The vulnerability index is defined as $P(y_2 \leq z_2 | z_1 < y_1 \leq V_1) = 0.25$ in 2002, which is then adjusted for inflation using annual (December to December) CPI for each of 32 regions. Estimation results are based on real total household income per capita. The estimation sample is restricted to individuals 16 years old or older.

Table 1.3
LIFE SATISFACTION/SUBJECTIVE WEALTH AND VULNERABILITY, FIXED-EFFECTS REGRESSIONS, RLMS 2002-2019

Variables	Life satisfaction			Subjective wealth		
	Whole sample	Men	Women	Whole sample	Men	Women
Below vulnerability line	-0.017** (0.01)	-0.015 (0.01)	-0.018* (0.01)	-0.030** (0.01)	-0.040** (0.02)	-0.023* (0.01)
Log of income per capita	0.195*** (0.01)	0.182*** (0.01)	0.203*** (0.01)	0.337*** (0.01)	0.308*** (0.02)	0.355*** (0.02)
<i>Individual Characteristics</i>						
Unemployed/out of labor force	-0.183*** (0.01)	-0.269*** (0.01)	-0.130*** (0.01)	-0.200*** (0.01)	-0.276*** (0.02)	-0.155*** (0.01)
Age 16-20	0.274*** (0.03)	0.272*** (0.04)	0.252*** (0.03)	0.295*** (0.03)	0.247*** (0.05)	0.335*** (0.05)
Age 21-30	0.031* (0.02)	-0.013 (0.03)	0.045* (0.02)	0.093*** (0.02)	0.033 (0.04)	0.136*** (0.03)
Age 31-40	-0.008 (0.01)	-0.045** (0.02)	0.015 (0.02)	0.043** (0.02)	0.005 (0.03)	0.070*** (0.02)

(Continued)

Variables	Life satisfaction			Subjective wealth		
	Whole sample	Men	Women	Whole sample	Men	Women
Age 51-60	0.059*** (0.01)	0.049*** (0.02)	0.066*** (0.01)	-0.032** (0.01)	-0.047** (0.02)	-0.025 (0.02)
Age 61-70	0.097*** (0.02)	0.076*** (0.03)	0.109*** (0.02)	-0.060*** (0.02)	-0.047 (0.04)	-0.065** (0.03)
Age 71-80	0.099*** (0.02)	0.070** (0.04)	0.107*** (0.02)	-0.022 (0.03)	-0.007 (0.05)	-0.027 (0.03)
Age 80+	0.136*** (0.02)	0.124*** (0.05)	0.133*** (0.03)	0.225*** (0.03)	0.226*** (0.06)	0.225*** (0.04)
<i>Education</i>						
Complete secondary	-0.034*** (0.01)	-0.037** (0.02)	-0.032* (0.02)	-0.024 (0.02)	-0.032 (0.02)	-0.016 (0.02)
Secondary vocational	-0.066*** (0.01)	-0.079*** (0.02)	-0.053** (0.02)	-0.067*** (0.02)	-0.073*** (0.03)	-0.062** (0.03)
University and higher	-0.073*** (0.02)	-0.070** (0.03)	-0.080*** (0.03)	-0.067** (0.03)	-0.036 (0.04)	-0.084** (0.04)
Single	-0.164*** (0.02)	-0.152*** (0.02)	-0.180*** (0.02)	-0.044** (0.02)	-0.037 (0.03)	-0.048* (0.03)
Divorced/widowed/separated	-0.269*** (0.01)	-0.349*** (0.03)	-0.246*** (0.02)	-0.158*** (0.02)	-0.117*** (0.03)	-0.172*** (0.02)
Self-reported bad health	-0.085*** (0.01)	-0.083*** (0.01)	-0.086*** (0.01)	-0.054*** (0.01)	-0.051*** (0.01)	-0.055*** (0.01)
<i>Household composition</i>						
Number of hh members aged 15 or younger	0.010 (0.01)	0.025*** (0.01)	-0.008 (0.01)	0.050*** (0.01)	0.058*** (0.01)	0.043*** (0.01)
Number of all members aged 16-24	0.015** (0.01)	0.013 (0.01)	0.011 (0.01)	0.041*** (0.01)	0.052*** (0.01)	0.031*** (0.01)
Number of all members aged 25-44	0.006 (0.01)	-0.011 (0.01)	0.019*** (0.01)	0.039*** (0.01)	0.035*** (0.01)	0.042*** (0.01)
Number of all members aged 45-59	-0.015** (0.01)	-0.023*** (0.01)	-0.004 (0.01)	0.007 (0.01)	0.017 (0.01)	0.001 (0.01)
Number of all members aged 60 and older	0.017** (0.01)	0.044*** (0.01)	0.005 (0.01)	0.073*** (0.01)	0.084*** (0.02)	0.065*** (0.01)
Constant	1.499*** (0.20)	1.723*** (0.18)	1.339*** (0.25)	0.977*** (0.22)	1.177*** (0.30)	0.776*** (0.25)
R2	0.022	0.023	0.023	0.026	0.026	0.026
Number of observations	177,236	74,547	102,689	175,211	73,565	101,646
Number of individuals	35,110	15,592	19,518	34,919	15,514	19,405

Note: *** p<0.01, ** p<0.05, * p<0.1. Robust standard errors clustered at household-year level are in parentheses. Regional and time dummy variables are included but not showed. Incomes are expressed in December prices of the 2011 year by using the annual (December to December) CPI for each of 32 regions (oblasts). The vulnerability index is defined as $P(y_2 \leq z_2 | z_1 < y_1 \leq V_1) = 0.25$ in 2002, which is then adjusted for inflation using annual (December to December) CPI for each of 32 regions. Estimation results are based on real total household income per capita. Estimation sample is restricted to individuals 16 years old or older.

Table 1.4
ADAPTATION OF LIFE SATISFACTION TO VULNERABILITY USING 2001-02 INDEXES,
FIXED-EFFECTS REGRESSIONS, RLMS 2002-2019

	Vulnerability indexes (%)			
	30	31	32	33
<i>Panel A: Life Satisfaction</i>				
Up to 1 year in vulnerability	-0.047 (0.03)	-0.119*** (0.02)	-0.142*** (0.02)	-0.094*** (0.02)
1-2 years in vulnerability	-0.104** (0.05)	-0.222*** (0.03)	-0.235*** (0.03)	-0.111** (0.05)
2-3 years in vulnerability	-0.151** (0.07)	-0.200*** (0.05)	-0.256*** (0.05)	-0.264*** (0.09)
More than 3 years in vulnerability	-0.105 (0.09)	-0.239*** (0.07)	-0.386*** (0.07)	-0.088 (0.11)
<i>R</i> ²	0.026	0.029	0.028	0.028
<i>Number of observations</i>	6,123	12,644	13,128	9,436
<i>Number of individuals</i>	1,605	3,536	3,663	2,871
<i>Panel B: Subjective Wealth</i>				
Up to 1 year in vulnerability	-0.167*** (0.04)	-0.133*** (0.03)	-0.168*** (0.03)	-0.150*** (0.03)
1-2 years in vulnerability	-0.097 (0.06)	-0.186*** (0.05)	-0.176*** (0.05)	-0.174*** (0.07)
2-3 years in vulnerability	-0.240*** (0.08)	-0.209*** (0.06)	-0.224*** (0.07)	-0.226** (0.10)
More than 3 years in vulnerability	-0.340*** (0.11)	-0.028 (0.09)	-0.274*** (0.10)	-0.256** (0.13)
<i>R</i> ²	0.043	0.039	0.037	0.041
<i>Number of observations</i>	6,087	12,525	13,009	9,301
<i>Number of individuals</i>	1,605	3,532	3,658	2,860

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Robust standard errors clustered at household-year level are in parentheses. All regressions include all control variables in Table 2. Vulnerability spells are constructed on an annual basis. The range of vulnerability indexes is selected to ensure that the number of observations in each duration category is at least 100.

Table 1.5
ADAPTATION TO VULNERABILITY, FIXED-EFFECTS
REGRESSIONS (without educational characteristics), RLMS 2002-2019

Variables	Life satisfaction			Subjective wealth		
	All	Men	Women	All	Men	Women
Up to 1 year in vulnerability	-0.101*** (0.02)	-0.083*** (0.03)	-0.112*** (0.02)	-0.159*** (0.03)	-0.143*** (0.04)	-0.166*** (0.03)
1-2 years in vulnerability	-0.183*** (0.04)	-0.159*** (0.05)	-0.195*** (0.04)	-0.182*** (0.05)	-0.129* (0.07)	-0.212*** (0.06)
2-3 years in vulnerability	-0.258*** (0.06)	-0.273*** (0.09)	-0.245*** (0.07)	-0.109 (0.08)	-0.111 (0.10)	-0.096 (0.09)
More than 3 years in vulnerability	-0.317*** (0.09)	-0.176 (0.13)	-0.413*** (0.10)	-0.206** (0.10)	-0.092 (0.14)	-0.258** (0.12)

(Continued)

Variables	Life satisfaction			Subjective wealth		
	All	Men	Women	All	Men	Women
Mean of dependent variable (Standard deviation)	3.17 (1.07)	3.25 (1.07)	3.10 (1.06)	3.99 (1.38)	4.03 (1.40)	3.95 (1.36)
R2	0.024	0.040	0.023	0.031	0.042	0.029
Number of observations	11,635	5,003	6,632	11,490	4,935	6,555
Number of individuals	3,381	1,469	1,912	3,367	1,467	1,900

Note: *** p<0.01, ** p<0.05, * p<0.1. Robust standard errors clustered at household-year level are in parentheses. All regressions include all control variables from Table 2. Vulnerability spells are constructed on an annual basis. The range of vulnerability indexes is selected to ensure that the number of observations in each duration category is at least 100.

Table 1.6
ADAPTATION TO VULNERABILITY, CONTROLLING FOR WHETHER INDIVIDUALS PARTICIPATE IN THE NEXT SURVEY ROUND AND FOR TOTAL NUMBER OF SURVEY ROUND INDIVIDUALS PARTICIPATE, FIXED-EFFECTS REGRESSIONS, RLMS 2002-2019

Variables	Life satisfaction			Subjective wealth		
	All	Men	Women	All	Men	Women
Up to 1 year in vulnerability	-0.104*** (0.02)	-0.077** (0.03)	-0.123*** (0.03)	-0.159*** (0.03)	-0.120*** (0.04)	-0.179*** (0.04)
1-2 years in vulnerability	-0.186*** (0.04)	-0.150*** (0.06)	-0.208*** (0.05)	-0.185*** (0.06)	-0.100 (0.07)	-0.232*** (0.07)
2-3 years in vulnerability	-0.264*** (0.06)	-0.270*** (0.09)	-0.262*** (0.07)	-0.117 (0.08)	-0.091 (0.11)	-0.122 (0.09)
Over 3 years in vulnerability	-0.325*** (0.10)	-0.156 (0.14)	-0.440*** (0.11)	-0.225** (0.11)	-0.053 (0.14)	-0.315** (0.12)
Participate in next round	-0.007 (0.03)	0.024 (0.04)	-0.038 (0.04)	0.002 (0.04)	0.065 (0.06)	-0.044 (0.05)
Total number of rounds	0.004 (0.01)	-0.026* (0.01)	0.023** (0.01)	0.006 (0.01)	-0.013 (0.02)	0.016 (0.01)
R2	0.024	0.042	0.023	0.032	0.043	0.030
Number of observations	11,606	4,988	6,618	11,462	4,920	6,542
Number of individuals	3,378	1,468	1,910	3,363	1,465	1,898

Note: *** p<0.01, ** p<0.05, * p<0.1. Robust standard errors clustered at household-year level are in parentheses. All regressions include all control variables in Table 2. Vulnerability spells are constructed on an annual basis.

Table 1.7
SATISFACTION WITH OTHER DIMENSIONS OF LIFE AND VULNERABILITY, FIXED-EFFECTS REGRESSION, RLMS 2002-2019

Variables	Satisfaction with				
	Economic conditions	Job	Work contract	Pay	Career
Below vulnerability line	-0.151*** (0.01)	-0.164*** (0.01)	-0.040*** (0.01)	-0.024* (0.01)	-0.134*** (0.01)
Vulnerability gap	-0.455*** (0.05)	-0.430*** (0.06)	-0.255*** (0.06)	-0.275*** (0.06)	-0.497*** (0.07)

(Continued)

Variables	Satisfaction with				
	Economic conditions	Job	Work contract	Pay	Career
Mean of dependent variable (Standard deviation)	2.70 (1.11)	3.61 (0.97)	3.61 (1.00)	2.72 (1.17)	3.15 (1.17)
R2	0.029	0.026	0.021	0.026	0.030
Number of observations	176,978	175,689	123,033	122,875	122,667
Number of individuals	35,093	34,530	23,813	23,798	23,790

Note: *** p<0.01, ** p<0.05, * p<0.1. Robust standard errors clustered at household-year level are in parentheses. All regressions include all control variables in Table 2. Data on satisfaction with economic conditions and satisfaction with job, work contract, pay and career are available respectively from 2000 and 2002 for employed individuals.

Table 1.8
ADAPTATION TO VULNERABILITY, ORDERED LOGIT REGRESSION WITH
FIXED EFFECTS (BUC), RLMS 2002-2019

Variables	Life satisfaction			Subjective wealth		
	All	Men	Women	All	Men	Women
Up to 1 year in vulnerability	-0.260*** (0.06)	-0.250*** (0.09)	-0.276*** (0.08)	-0.324*** (0.06)	-0.311*** (0.09)	-0.327*** (0.08)
1-2 years in vulnerability	-0.479*** (0.10)	-0.483*** (0.15)	-0.476*** (0.14)	-0.390*** (0.10)	-0.332** (0.16)	-0.428*** (0.14)
2-3 years in vulnerability	-0.669*** (0.17)	-0.838*** (0.27)	-0.580*** (0.22)	-0.271* (0.16)	-0.312 (0.24)	-0.207 (0.21)
More than 3 years in vulnerability	-0.786*** (0.25)	-0.539 (0.43)	-0.961*** (0.30)	-0.549** (0.22)	-0.376 (0.38)	-0.617** (0.27)
Number of observations (incl.copies)	15,908	6,970	8,938	21,432	9,283	12,149
Number of observations	9,173	3,963	5,210	9,923	4,251	5,672
Number of individuals	2,427	1,077	1,350	2,685	1,168	1,517

Note: *** p<0.01, ** p<0.05, * p<0.1. All regressions include all control variables from Table 2. Vulnerability spells are constructed on an annual basis. The range of vulnerability indexes is selected to ensure that the number of observations in each duration category is at least 100.

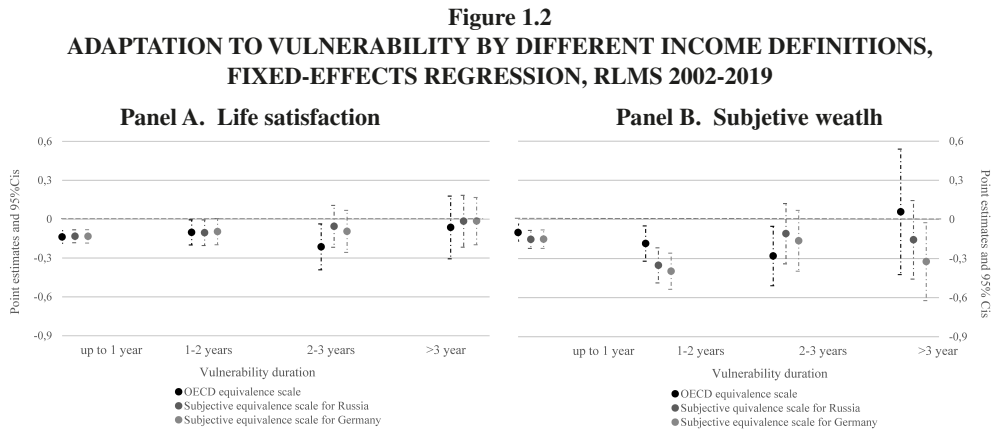
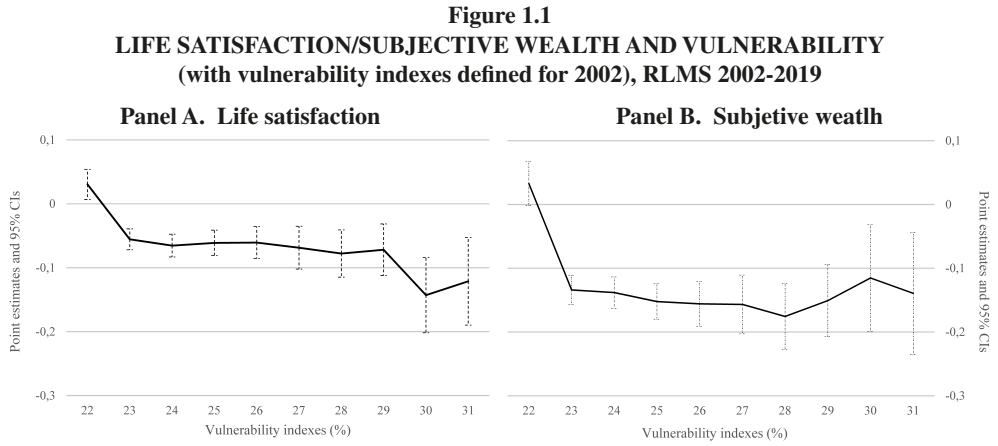
Table 1.9
LIFE SATISFACTION/SUBJECTIVE WEALTH AND DURATION OF VULNERABILITY,
FIXED-EFFECTS REGRESSIONS, RLMS 2002-2019

Variables	Life satisfaction			Subjective wealth		
	Whole sample	Men	Women	Whole sample	Men	Women
Number of years in vulnerability	-0.086*** (0.01)	-0.074*** (0.02)	-0.093*** (0.02)	-0.067*** (0.02)	-0.037 (0.03)	-0.081*** (0.02)
<i>Individual Characteristics</i>						
Unemployed/out of labor force	-0.236*** (0.03)	-0.362*** (0.06)	-0.159*** (0.04)	-0.224*** (0.04)	-0.269*** (0.08)	-0.207*** (0.05)
Age 16-20	-0.014 (0.11)	-0.081 (0.19)	0.009 (0.14)	0.263* (0.15)	0.080 (0.23)	0.380** (0.18)
Age 21-30	-0.086 (0.08)	-0.087 (0.12)	-0.106 (0.11)	0.144 (0.11)	0.094 (0.16)	0.170 (0.14)

(Continued)

Variables	Life satisfaction			Subjective wealth		
	Whole sample	Men	Women	Whole sample	Men	Women
Age 31-40	-0.111* (0.07)	-0.038 (0.10)	-0.185** (0.09)	0.122 (0.09)	0.055 (0.13)	0.183* (0.11)
Age 51-60	0.096 (0.07)	-0.010 (0.10)	0.190** (0.08)	-0.166* (0.09)	-0.324** (0.14)	-0.028 (0.11)
Age 61-70	0.056 (0.09)	-0.066 (0.15)	0.152 (0.12)	-0.184 (0.12)	-0.254 (0.18)	-0.096 (0.14)
Age 71-80	0.291** (0.12)	-0.019 (0.19)	0.441*** (0.16)	-0.110 (0.14)	-0.064 (0.21)	-0.103 (0.18)
Age 80+	0.329 (0.22)	0.458 (0.33)	0.257 (0.25)	0.456** (0.20)	0.472** (0.24)	0.462* (0.28)
<i>Education</i>						
Complete secondary	-0.030 (0.04)	0.019 (0.06)	-0.065 (0.06)	0.062 (0.06)	0.114 (0.08)	-0.007 (0.08)
Secondary (and vocational)	-0.129** (0.06)	-0.181** (0.09)	-0.093 (0.08)	0.018 (0.08)	0.027 (0.12)	-0.016 (0.11)
University and higher	-0.112 (0.09)	-0.034 (0.14)	-0.127 (0.11)	-0.015 (0.12)	-0.057 (0.18)	-0.040 (0.15)
Single	-0.222*** (0.06)	-0.434*** (0.09)	-0.079 (0.08)	0.055 (0.08)	0.162 (0.11)	-0.052 (0.10)
Divorced/widowed/separated	-0.165*** (0.06)	-0.345*** (0.12)	-0.129* (0.07)	-0.085 (0.09)	-0.151 (0.18)	-0.080 (0.10)
Self-reported bad health	-0.073*** (0.02)	-0.071** (0.03)	-0.075*** (0.02)	-0.050* (0.03)	-0.044 (0.04)	-0.053 (0.03)
<i>Household composition</i>						
Number of hh members aged 15 or younger	-0.003 (0.03)	-0.019 (0.04)	0.007 (0.03)	0.067* (0.04)	0.046 (0.05)	0.088** (0.04)
Number of hh members aged 16-24	0.022 (0.03)	0.052 (0.04)	-0.001 (0.03)	0.084** (0.04)	0.086* (0.05)	0.082* (0.04)
Number of hh members aged 25-44	0.049* (0.03)	0.021 (0.04)	0.064** (0.03)	0.052 (0.04)	0.090* (0.05)	0.028 (0.04)
Number of hh members aged 45-59	-0.008 (0.03)	-0.019 (0.04)	0.002 (0.04)	-0.021 (0.04)	-0.075 (0.05)	0.024 (0.05)
Number of hh members aged 60 and older	0.027 (0.04)	0.103** (0.05)	-0.016 (0.04)	0.050 (0.05)	0.096 (0.07)	0.016 (0.06)
Constant	3.588*** (0.13)	3.437*** (0.18)	3.657*** (0.17)	3.935*** (0.18)	3.720*** (0.24)	4.074*** (0.22)
<i>Mean of dependent variable (Standard deviation)</i>	3.17 (1.07)	3.25 (1.07)	3.10 (1.06)	3.99 (1.38)	4.03 (1.40)	3.95 (1.36)
R2	0.025	0.042	0.023	0.030	0.041	0.028
Number of observations	11,606	4,988	6,618	11,462	4,920	6,542
Number of individuals	3,378	1,468	1,910	3,363	1,465	1,898

Note: *** p<0.01, ** p<0.05, * p<0.1. Robust standard errors clustered at the household-year level are in parentheses. Regional and time dummy variables are included but not shown. Incomes are expressed in December prices of the 2019 year by using the annual (December to December) CPI for each of the 32 regions (oblasts). The vulnerability index is defined as $P(y_2 \leq z_2 | z_1 < y_1 \leq V_1) = 0.25$ in 2002 in 2019 prices. Estimation results are based on real total household income per capita. The estimation sample is restricted to individuals 16 years old or older.



Note: Vulnerability spells are constructed on an annual basis. The dashed line represents the 95% confidence intervals. “OECD equivalence scale” assigns a value of 1 to the first household member, of 0.7 to each additional adult and of 0.5 to each child. “Subjective equivalence scale for Russia” and “Subjective equivalence scale for Germany” are computed as a scale elasticity using formula $e = a - bk$ where a is a adult scale parameter equals 0.407 for Russia and 0.351 for Germany, b is a child scale parameter equals 0.048 for Russia and 0.037 for Germany and k is a number of children (Schwarze (2003) for detailed description of method).

Notes

1. Clark (2018) offers a recent review of adaptation to other outcomes, and he observes that people may adapt to certain life events (including marriage, children, divorce and widowhood), but not others (including unemployment).
2. See <https://sustainabledevelopment.un.org/topics/sustainabledevelopmentgoals>.
3. Only one study exists that looks at the related relationship between vulnerability and happiness (Caria and Falco, 2018).
4. See Calvo (2018), Ceriani (2018), and Gallardo (2018) for recent reviews on the literature on vulnerability.
5. This question asks respondents to imagine where they currently stand on a nine-step ladder where the poorest stand on the first (lowest) step and the richest stand on the ninth (highest) step.
6. For example, the China Health and Nutrition Survey (CHNS) collects panel data and was implemented as early as 1989, but does not offer nationally representative data. A more recent panel survey, the China Family Panel Study (CFPS) provides more coverage but was started only in 2010. Alternatively, in the absence of actual panel data, statistical techniques have recently been developed that allow the construction of synthetic panels from repeated cross sections (Dang and Lanjouw, 2017).
7. Notably, several centrally planned economies that have been undergoing a similar transition process to a market economy, such as China, Cuba, the Lao People's Democratic Republic, the Democratic People's Republic of Korea, and Vietnam, may particularly benefit from Russia's experience. Economies with heavy government subsidies such as the República Bolivariana de Venezuela may likely share certain features with Russia's previous central economic model.
8. Ferrer-i-Carbonell and Frijters (2004) investigated the robustness of empirical relationships from a given well-being scale (0-10) to selected econometric models such as OLS versus ordered logit or random versus fixed effects and concluded that assuming ordinality or cardinality of happiness scores makes little difference, but that allowing for fixed-effects does change results substantially. We also provide robustness checks using an alternative, nonlinear ordered logit model (Section IV.2).
9. A simple example can help illustrate the use of \mathcal{P} in reaching a desired social protection target, given the available budget. Assume that the total population consists of 1,000 households, where the poverty rate is 15 percent (i.e., 150 households are poor). Also assume that in this population, another 300 vulnerable households are currently non-poor, but have a high risk of falling into poverty, and these households can be made secure with a monthly transfer of \$20 per household. Thus, the vulnerability index in this simple scenario is 35 percent (i.e., dividing 300 households that can be aided and that would have fallen into poverty without the government's support over the total of 850 non-poor households). If the government has enough budget to prevent all these 300 non-poor households from falling into poverty, it can reduce the vulnerability index to zero. On the other hand, if the government only has enough resources to prevent half of these vulnerable households from sliding into poverty, it can reduce the vulnerability index to 17.6 percent (i.e., dividing the remaining 150 vulnerable households over the total of 850 non-poor households). A zero-vulnerability index is certainly better than the 17.6-percent vulnerability index, and indicates no household is vulnerable to falling into poverty. However, the former would require a larger social transfer budget of \$6,000 ($=300 * \20), compared with the smaller budget of \$3,000 for the latter.
10. This vulnerability approach is different from previous ones in the literature in several respects. First, it provides a new and explicit framework to estimate the vulnerability line, which is associated with a vulnerability index that can be derived in various and more flexible ways. Second, the target population consists of the currently non-poor households rather than all households. Finally, this approach employs simpler non-parametric estimation methods to estimate vulnerability as a function of consumption alone, and can work with either actual panel data or synthetic panel data that can be constructed from cross sections. This approach has been applied in various country settings including Sub-Saharan Africa, Middle East and North Africa, and India (see Dang *et al.* (2019a) for a recent review). See also Dang and Lanjouw (2017) for a more detailed comparison of this approach with other approaches.

11. We derive the poverty lines from Rosstat's official single poverty thresholds published for different regions (oblasts) every year.
12. A recent study for Russia (Tikhonova, 2018) defines the vulnerable population group as those that are between 0.5 and 0.75 times the median income.
13. We also corrected missing household incomes with incomes from home production.
14. We focus on household income rather than household consumption since changes to consumption items in the survey questionnaires could render the latter variable incomparable over time. For example, 14 percent of total household consumption was comprised of items that were found in 2015 only. Furthermore, comparing household consumption between 1994 and 2015, 12 percent of total household consumption in 1994 is accounted for by consumption items that are more disaggregated than 2015; the corresponding figure for 2015 compared with 1994 is 11 percent.
15. We did not include the value of imputed housing rent in household income for different reasons. The RLMS data enables us to look at household expenditure on rent. However, relatively few households have to pay market-based rents on their homes, the share of such tenants in was less than 10% between 1994-2015. A significant share of the households rent from the government and pay "social rent" instead, which is controlled and below the private market price (Hamilton *et al.*, 2008). Furthermore, the RLMS does not ask home owners to estimate the rental value of their house.
16. Furthermore, Dang *et al.* (2019a) show that after a long period of declining and recovering incomes related to the post-Soviet period and the crisis period of 1998, Russia was able to achieve the pre-crisis income level of 1994 in 2001. The country's steady income growth subsequently started since 2002.
17. As the estimation samples include multiple individuals from the same household in the same year, we cluster the standard errors in the regressions at the household-year level.
18. Multicollinearity among some variables can be an issue with the regressions in Table 2 if, say, the vulnerable are more likely to be less educated and therefore have a higher risk of poverty. To address this concern, we implement variance inflation factors (VIF) tests for all the control variables. The VIF tests (available upon request) range from 1.10-1.11 (for the dummy variable indicating urban/rural locations) to 2.93 (for the variable vulnerability gap). These test values are far less than the rule-of-thumb value of 10 for harmful collinearity given by Kennedy (2008).
19. The estimates are obtained without excluding the poor population from calculating vulnerability gap.
20. We only show the estimates for a range of the vulnerability index of [23, 26], rather than the full range, to ensure there is a sufficient number of observations for each vulnerability duration spell.
21. As RLMS includes subsequent refreshment samples, there is a relatively high attrition from the original sample.

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Resumen

Presentamos el primer estudio sobre la influencia de la vulnerabilidad en el bienestar subjetivo, utilizando datos de panel de las dos últimas décadas para Rusia. No encontramos una adaptación a la vulnerabilidad, ni en términos de satisfacción vital ni de riqueza subjetiva, cuanto más largos son los periodos de vulnerabilidad peor es el bienestar subjetivo. En términos de satisfacción vital existen escasas diferencias entre las zonas urbanas y rurales; no obstante, algunos resultados indican que las zonas rurales muestran una falta de adaptación más acusada a la riqueza subjetiva, sobre todo, en los periodos de vulnerabilidad más prolongados. En general, un mayor nivel educativo indica una peor adaptación en términos de satisfacción vital y valores parecidos en términos de riqueza subjetiva.

Palabras clave: vulnerabilidad, adaptación, satisfacción, riqueza subjetiva, género, datos de panel, Rusia.

Clasificación JEL: D6, I3, O1.