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MEASURING RALLY EFFECTS UNDER AUTHORITARIANISM: EVIDENCE FROM RUSSIA'S WAR IN UKRAINE

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ABSTRACT

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KEYWORDS: subjective well-being, rally-round-the-flag, Russia-Ukraine war, preference falsification, authoritarian public opinion, social desirability bias

Measuring Rally Effects under Authoritarianism: Evidence from Russia’s War in Ukraine

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Abstract

Measuring politically sensitive attitudes in authoritarian settings is difficult because expressions of political support may reflect repression and social pressure as much as genuine belief. We propose a complementary approach: using responses to questions that are not themselves politically sensitive to provide indirect evidence about politically sensitive attitudes. Using subjective well-being (SWB), we ask whether within-person changes in life satisfaction, after accounting for changes in material and personal circumstances, can provide evidence of incorporation into a wartime national project. Drawing on more than a decade of panel data from the *Russian Longitudinal Monitoring Survey* (2013–2024), we find that life satisfaction rises significantly following Russia’s 2022 invasion of Ukraine. Gains are initially larger among ethnic Russians and smaller in Moscow and St. Petersburg, consistently larger in military-industrial regions, and sharply lower among those nearest the front. This theoretically patterned heterogeneity is difficult to reconcile with generalized social-desirability bias and is consistent with differentiated wartime incorporation. By 2024, rising non-response and attenuating subgroup differences suggest that the informational value of SWB may deteriorate over time.

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1 Introduction

How can politically sensitive attitudes be measured when citizens believe they cannot safely reveal them? The problem is particularly acute in authoritarian regimes, where repression, self-censorship, and social pressure complicate the interpretation of survey responses. It becomes even more difficult during war, when expressions of support for the state may reflect social expectations of patriotic solidarity and strategic conformity as much as genuine belief. Under these conditions, conventional survey measures of support for political leaders or government policy provide an uncertain guide to underlying attitudes.

Existing efforts to address this problem have focused largely on improving the measurement of politically sensitive attitudes themselves. Indirect questioning techniques, including list and endorsement experiments, seek to make truthful responses less risky (Bullock, Imai, and Shapiro 2011; Blair and Imai 2012). These methods have substantially advanced the study of authoritarian public opinion, but they continue to measure politically sensitive attitudes through survey items whose purpose is to recover those attitudes. We take a different approach, asking whether responses to questions that are not themselves politically sensitive can sometimes provide indirect evidence about politically sensitive attitudes.

The intuition is that politically sensitive attitudes may manifest themselves in ways that extend beyond explicit political expression. They may shape how individuals experience and evaluate their lives, producing psychological outcomes that respondents have little reason to perceive as political. If these downstream consequences are less susceptible to strategic misrepresentation than direct expressions of political support, they may provide complementary evidence about those attitudes. We test this idea using subjective well-being (SWB).

Wartime rally effects provide a particularly demanding setting in which to evaluate this argument. Existing work typically identifies such effects through increases in support for political leaders or governments, despite longstanding concerns that these measures are especially vulnerable to social desirability pressures in authoritarian settings (Hale 2022; Kizilova and Norris 2024). Because questions about life satisfaction do not ask respondents to evaluate political leaders or government policy directly, they may be less vulnerable to the strategic distortions that complicate the interpretation of conventional approval measures. At the same time, life satisfaction may respond to the same feelings of collective purpose and national solidarity that underlie genuine rally effects. We therefore ask whether SWB, after accounting for its material and personal determinants, can serve as an indirect indicator of incorporation into a wartime national project.

Russia's invasion of Ukraine offers an unusually demanding empirical setting in which

to evaluate this proposition. Following the February 2022 invasion, surveys recorded a dramatic increase in support for Vladimir Putin, but scholars have debated whether this apparently reflected genuine changes in political attitudes, preference falsification, or improving wartime economic conditions. If a politically indirect indicator can help discriminate among these competing interpretations in Russia, where concerns about response bias are especially acute, it may offer a broader strategy for studying politically sensitive attitudes in authoritarian settings.

Drawing on panel data from the *Russian Longitudinal Monitoring Survey* spanning 2013 through 2024, we estimate individual fixed-effects models of life satisfaction that account for changes in respondents' material and personal circumstances and regional economic conditions. We then examine whether wartime changes in life satisfaction vary across demographic groups and geographic settings in patterns more consistent with genuine incorporation into the wartime project than with generalized social desirability bias.

We find that life satisfaction rises significantly in each of the first three years following the invasion, even after accounting for its observable material and personal determinants. Crucially, these gains are far from uniform. They are larger among ethnic Russians in the first two war years and among residents of military-industrial regions throughout the period, smaller in Moscow and St. Petersburg, and sharply lower among respondents living closest to the front. Such systematic heterogeneity is difficult to reconcile with a generalized response-bias account but is consistent with meaningful differences in wartime incorporation across segments of Russian society. By 2024, however, several of these subgroup differences attenuate as non-response to the life satisfaction question rises sharply, raising the possibility that the informational value of SWB itself deteriorates as the political and survey environment evolves.

Although we develop and evaluate the approach in the context of Russia, its broader contribution is methodological. Whenever direct expressions of political support are vulnerable to repression, social desirability, or strategic misrepresentation, responses to questions that are not themselves politically sensitive may sometimes provide indirect evidence about politically sensitive attitudes.

The remainder of the paper proceeds as follows. Section 2 develops the argument for using SWB as a politically indirect indicator of wartime incorporation. Section 3 describes the data and research design, Section 4 presents the results, and Section 5 concludes.

2 Measuring Wartime Political Incorporation

2.1 Measuring Rally Effects under Authoritarianism

Rally-round-the-flag effects, broadly defined as crisis-induced increases in patriotic sentiment, national solidarity, and support for political leaders, have long occupied a prominent place in the public opinion literature. Originally identified in the United States by Mueller (1970), such rallies have since been documented across a wide range of democratic settings (Kuijpers 2019). They are typically identified through increases in support for incumbent political authorities following external threats or military conflict. Although scholars have debated the mechanisms underlying these rallies—including patriotic sentiment, elite consensus, and reduced political contestation—increases in reported political support are generally interpreted as evidence of genuine shifts in public opinion.

The problem is more complicated in authoritarian settings. Expressions of support for political leaders may reflect not only genuine attitudes but also self-censorship, social conformity, and other forms of preference falsification induced by repression. These concerns become particularly acute during wartime, when the costs of dissent may increase and social expectations of patriotic solidarity intensify. As a result, conventional measures of regime approval become difficult to interpret precisely when understanding public support can be most consequential.

Russia’s post-invasion rally illustrates the resulting measurement problem. Although surveys recorded a dramatic increase in support for Vladimir Putin following the February 2022 invasion, list experiments have yielded lower estimates of support for the war than direct questions (Chapkovski and Schaub 2022), while other research cautions that repression and self-censorship complicate the interpretation of reported support for the regime (Rosenfeld 2023; Kizilova and Norris 2024; Bussmann and Iost 2024). These findings leave open the extent to which the apparent rally reflects genuine changes in political attitudes rather than strategic misrepresentation and motivate the search for indicators less directly tied to explicit expressions of political loyalty.

2.2 Subjective Well-Being as a Politically Indirect Indicator

Recent research suggests that survey items vary in political sensitivity, with government approval questions more closely tied to political loyalty than questions about personal life satisfaction. Shen and Truex (2021) construct a self-censorship index from the gap in item nonresponse between regime-assessment and nonsensitive questions, including life satisfaction, and

find that this gap tends to be larger under authoritarian rule, though with substantial variation across authoritarian contexts. Closest to our design, Jiang and Yang (2016) use divergence between explicit measures of regime support and less politically sensitive measures, including happiness, as a benchmark for detecting preference falsification following a political purge in China.

We depart from this literature in an important respect. Existing work uses less politically sensitive measures primarily as benchmarks against which responses to politically sensitive questions can be interpreted. We instead argue that SWB can itself provide indirect evidence about politically sensitive attitudes. Its value lies not in being politically neutral but in being politically indirect. Questions about life satisfaction do not ask respondents to express support for political leaders or government policy and therefore provide fewer incentives for strategic misrepresentation. Yet, crucially, being politically indirect does not mean that SWB is insulated from collective political forces. Feelings of national solidarity, shared purpose, and identification with a wartime project may shape how individuals evaluate their lives even when they are never asked to express support for the regime.

Using SWB as a politically indirect indicator requires distinguishing its political and collective influences from its more familiar determinants. Individual life satisfaction reflects a wide range of material and personal circumstances, including income, employment, health, and household shocks. Once these determinants are taken into account, however, wartime changes in life satisfaction may also reflect broader collective influences on well-being. We argue that one such influence is incorporation into a wartime national project. In this sense, the component of SWB unexplained by observable material and personal circumstances may partly track the national project rather than solely with the pocketbook. Although this component is not a direct measure of political attitudes, it may provide politically informative evidence about wartime incorporation while avoiding many of the incentives for strategic misrepresentation that affect conventional measures of regime approval.

The value of politically indirect outcomes is further enhanced when they can be observed longitudinally. Many techniques designed to reduce preference falsification, including list and endorsement experiments, deliberately recover politically sensitive attitudes at an aggregate level while obscuring individual respondents' underlying answers. This provides protection against strategic misrepresentation but limits researchers' ability to observe politically sensitive attitudes at the individual level and trace how they change within the same respondents. Longitudinal measures of politically indirect outcomes offer complementary leverage. Panel data allow us to follow the same individuals over time and, through individual fixed effects, absorb time-invariant individual characteristics that might otherwise confound comparisons

across respondents. In our setting, this means asking whether life satisfaction changes within individuals after the invasion, after accounting for changes in their material and personal circumstances, and whether these within-person changes vary systematically across groups with different relationships to the war.

2.3 Empirical Implications

This argument yields a clear empirical implication. If wartime changes in SWB primarily reflect generalized social desirability pressures, we should expect within-person changes to be relatively broad-based rather than systematically patterned by groups' relationships to the war. If, instead, wartime changes in SWB partly reflect genuine incorporation into the wartime project, these within-person changes should vary systematically across social groups and geographic settings in ways consistent with differences in identity, exposure, and involvement in the war. We therefore treat theoretically patterned heterogeneity not as a secondary descriptive exercise but as the principal evidence bearing on the interpretation of wartime changes in SWB.

Prior research provides additional reason to expect such heterogeneity. Although wartime crises can produce broad increases in national solidarity, public responses to such crises vary substantially across demographic groups and geographic settings (Perrin and Smolek 2009; Hinton and Vaishnav 2023). Differences in exposure to conflict, social identity, and local context may therefore produce meaningful variation in the extent to which individuals identify with a wartime national project.

Our empirical strategy therefore focuses on heterogeneity in within-person wartime changes in SWB rather than on aggregate changes alone. We examine whether changes in SWB vary by ethnicity, education, gender, and age cohort; between residents of Moscow and St. Petersburg and the rest of the country; across regions differing in the importance of military-industrial production; and by proximity to the fighting in eastern Ukraine. These dimensions capture theoretically relevant differences in national identity, information environments, embeddedness in the war effort, and direct exposure to the costs of the conflict. Where prior evidence provides directional expectations, we expect stronger wartime gains among groups more closely embedded in or identified with the wartime project, and weaker gains among those more skeptical of the war or more directly exposed to its costs. We develop the specific rationale for these comparisons when introducing the corresponding variables below.

Finally, geographic proximity to conflict provides an especially direct test of this logic. Existing research indicates that populations more directly exposed to armed conflict can ex-

perience greater psychological distress even when broader populations exhibit rally effects (Soskolne et al. 1996; Coupe and Obrizan 2016; Gokmen and Yakovlev 2018). We therefore expect respondents living nearest the front to exhibit smaller—and potentially negative—wartime changes in SWB relative to those living farther away.

3 Data and Research Design

To evaluate whether SWB provides evidence of wartime political incorporation, we use data from the *Russia Longitudinal Monitoring Survey* (RLMS) covering 2013–2024.¹ The survey permits us to examine both aggregate trends and within-person changes in life satisfaction over more than a decade spanning the years before and after the invasion. We first document aggregate trends that motivate the analysis and then estimate wartime changes in life satisfaction after accounting for changes in respondents’ material and personal circumstances and regional economic conditions. We subsequently examine whether these changes exhibit the theoretically patterned heterogeneity motivated by the argument developed above.

3.1 Aggregate Trends

Before turning to individual-level evidence, it is useful to consider how objective economic conditions, SWB, and support for the regime evolved over the period covered by our data. Russia experienced weak economic performance during much of the 2010s. Real GDP per capita declined between 2013 and 2016 before recovering gradually, returning to roughly its 2013 level by 2018 and remaining largely flat through 2020. Economic growth resumed thereafter, with particularly strong gains in incomes and wages in 2023 and 2024, driven in part by wartime fiscal expansion and tightening labor markets. These gains were especially pronounced in less-developed regions and those with substantial military-industrial production (Zubarevich 2023).

Aggregate indicators of SWB broadly tracked these material trends through 2021 but rose sharply following Russia’s full-scale invasion of Ukraine. The Levada Analytical Centre’s Social Sentiment Index and Consumer Sentiment Index both increased substantially thereafter,

¹The RLMS is a nationally representative panel survey tracking the economic circumstances and well-being of Russian citizens. It has been conducted annually since 1994 under the joint auspices of the Higher School of Economics and the Carolina Population Center at the University of North Carolina at Chapel Hill. Fieldwork generally occurs between October and December of each survey year, with a small number of interviews conducted earlier in the year. While the same individuals and households are followed across waves, the sample is periodically refreshed to offset attrition.

while the share of respondents reporting satisfaction with their lives reached its highest level in roughly three decades of measurement.² Support for Vladimir Putin likewise rose sharply following the invasion.

Figure 1 indexes these series to their 2013 values. The figure highlights the central empirical puzzle: the sharp post-invasion rise in subjective well-being and regime support coincided with strengthening economic indicators, making it impossible to determine from aggregate trends whether the change in SWB reflected material gains, wartime political incorporation, or other factors. We address this ambiguity using individual-level panel data that allow us to account for changes in respondents' material and personal circumstances and local economic conditions.

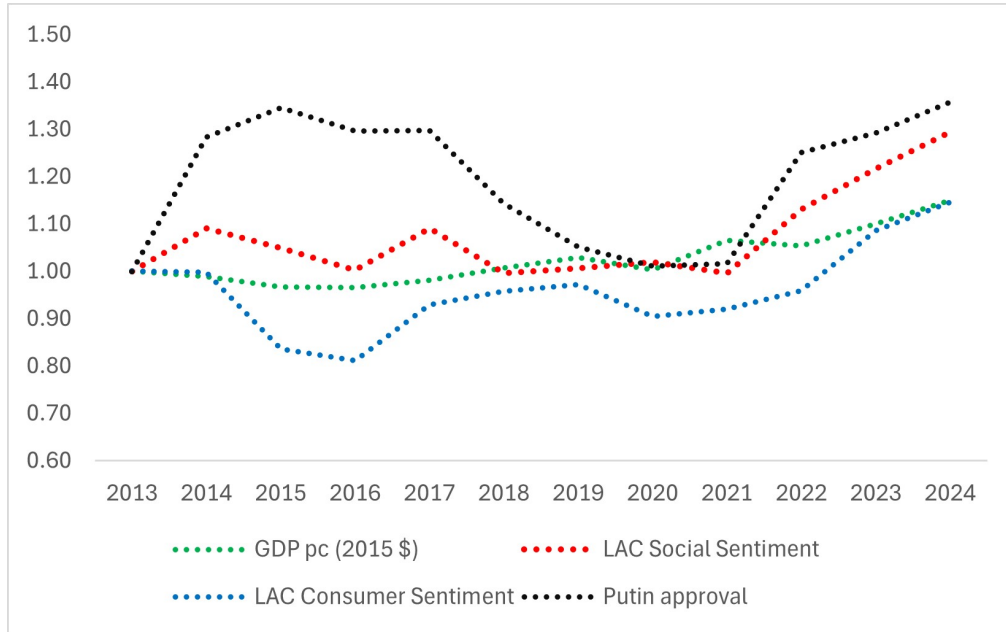


Figure 1: Aggregate Trends in Economic Conditions, Subjective Well-Being, and Regime Support, 2013–2024 (2013 = 1)

GDP per capita in constant 2015 USD is from the World Bank World Development Indicators. LAC Social Sentiment Index and LAC Consumer Sentiment Index are annual averages of monthly observations from the Levada Analytical Centre. All series are indexed to 2013 = 1.

3.2 Data

Our analysis uses data from the *Russia Longitudinal Monitoring Survey* (RLMS), which interviewed respondents annually throughout the period surrounding Russia's full-scale invasion

²See <https://www.levada.ru/en/ratings/socio-economic-indicators/> and <https://www.levada.ru/2025/11/13/nastroenie-i-udovletvoryonnost-zhiznyu-v-oktyabre-2025-goda/>.

of Ukraine. We focus on survey waves conducted between 2013 and 2024, providing nearly a decade of pre-invasion observations and three post-invasion waves. The resulting unbalanced panel contains more than 160,000 person-year observations on approximately 28,000 individuals, with respondents observed an average of 5.7 times over the sample period.

The principal outcome is respondents' assessment of their overall life satisfaction, measured using the standard RLMS question asking how satisfied they are with their lives as a whole. We use life satisfaction as our empirical measure of SWB and examine wartime changes in this outcome after accounting for observable individual, household, and regional determinants of well-being.

The RLMS offers several advantages for the present analysis. First, our 2013–2024 analytic window provides nearly a decade of pre-invasion observations alongside the first three years of the war, allowing wartime changes in life satisfaction to be situated within a longer pre-war trend. Second, its panel structure permits the inclusion of individual fixed effects, enabling us to examine within-person changes over time. Third, the survey collects rich information on respondents' labor market status, income, health, and household circumstances, allowing us to account for many of the observable determinants of SWB.

3.3 Variables

Our primary outcome is *life satisfaction*, measured using the RLMS question, “To what extent are you satisfied with your life in general at the present time?”³ Respondents choose from a five-point scale ranging from “fully satisfied” to “not at all satisfied.” Our preferred specification codes the variable as a binary indicator equal to one for respondents reporting that they are “fully” or “rather” satisfied with their lives, and zero for all other responses. This coding provides a readily interpretable measure of whether respondents regard themselves as satisfied with their lives and facilitates interpretation of the coefficients from our linear fixed-effects models. As a robustness check, we also estimate specifications using the original five-point measure, reverse-coded so that higher values indicate greater well-being.

Our principal explanatory variables are three war-year indicators corresponding to the first three years following Russia's full-scale invasion of Ukraine. Because the 2022 RLMS wave straddled the February 24 invasion date, the first war-year indicator equals one only for post-invasion interviews.⁴ The second and third war-year indicators correspond to the 2023 and

³Single-item life satisfaction measures of this form are widely used in the literature on SWB (Andrew E. Clark, Frijters, and Shields 2008).

⁴In 2022, 4.5% of individual observations were collected in January and none in February; the remainder were collected between September and December.

2024 survey waves, respectively. The omitted category consists of all observations from 2013 through 2021 together with the pre-invasion observations from January 2022.

To account for the principal observable determinants of SWB, we include a standard set of controls drawn from the literature on life satisfaction (Andrew E. Clark et al. 2008). These include marital status, whether a household member died during the previous year, self-rated health, employment status, age, university education, log real monthly individual income, and log real monthly household income.⁵ Because macroeconomic conditions also shape SWB (Tella, MacCulloch, and Oswald 2003), our preferred specification additionally includes log real regional monthly wages, a parsimonious measure of local economic conditions that helps distinguish changes in the regional economic environment from broader wartime shifts in collective sentiment.⁶ Together, these controls allow us to account for wartime changes in observable individual, household, and regional circumstances that might otherwise confound changes in life satisfaction.

We examine demographic heterogeneity along dimensions that theory suggests may capture differences in respondents' relationships to the war, independent of their self-reported attitudes toward it. Ethnic Russians occupy the notional in-group of the pan-Russian nationalist narrative the Kremlin has used to justify the invasion, which casts Russians, Ukrainians, and Belarusians as branches of a single nation rather than as distinct peoples (Kuzio 2023), and ethnic Russian regions have shown disproportionate political mobilization in the invasion's wake (Gorbuntsova, Khanna, and Mehmood 2026). Given ethnic Russians' privileged position within the narrative used to justify the war, we expect them to account for a disproportionate share of any post-invasion increase in SWB. Conversely, survey evidence from Russia associates higher education with a greater likelihood of expecting negative economic and political consequences from the war, a pattern tentatively attributed to broader access to independent information sources (Gugushvili 2025); insofar as this reflects differential exposure to information about the war's costs rather than differential willingness to voice dissent, we expect smaller wartime gains in SWB among university-educated respondents. We additionally examine heterogeneity by gender and age cohort, distinguishing respondents born in or before 1973, who had reached adulthood by the Soviet collapse, from those who came of age afterward; we treat these comparisons as exploratory rather than attaching directional

⁵We use an $\ln(x + 1)$ transformation to accommodate zero-income observations. As a robustness check, we replace these objective income measures with a subjective indicator of economic well-being based on the question, "How satisfied are you with your economic conditions at the present time?" (1 = fully satisfied, 5 = not at all satisfied). We code the indicator as one for respondents who are fully or "somewhat" satisfied and zero otherwise.

⁶We apply a region-month deflator series from *Rosstat* to convert all nominal ruble figures to real values.

expectations to them. All subgroup indicators used in the heterogeneity specifications are time-invariant, constructed from each individual’s earliest pre-invasion observation to avoid confounding the interaction estimates with wartime changes in the characteristics themselves.

We also examine three dimensions of geographic heterogeneity.⁷ First, we expect more muted wartime gains in Moscow and St. Petersburg, where opposition mobilization has been particularly prominent and residents report greater access to alternative information and greater skepticism toward the war (Enikolopov, Petrova, and Zhuravskaya 2020; OVD-Info 2025). Second, we expect larger gains in military-industrial regions, where local economies and communities are more directly connected to the war effort. We operationalize this dimension using both Zubarevich’s (2025) classification of regions experiencing war-related growth in military production and Simola’s (2023) measure based on concentrations of defense-adjacent industries. Beyond any material benefits—which our individual, household, and regional economic controls are intended to capture—residence in such regions may foster greater psychological investment in a national project to which the local community is visibly contributing. Finally, we expect smaller or negative wartime changes among respondents living within 200 kilometers of Donetsk, given evidence that proximity to armed conflict can impose psychological and material costs and attenuate rally effects (Soskolne et al. 1996; Coupe and Obrizan 2016; Osiichuk and Shepotylo 2020; Hintson and Vaishnav 2023).

Table 1 presents descriptive statistics for the variables used in the analysis. Just over half of person-year observations (52.1%) are classified as satisfied with life. The sample is 87% ethnic Russian; 28% hold a university degree, 56% are employed, and just over half were born in 1973 or earlier. Approximately 12% reside in Moscow or St. Petersburg. The geographically defined groups vary considerably in size: 14% of the sample resides in military-industrial regions according to the classification of Zubarevich (2025), while the broader classification based on concentrations of military-adjacent manufacturing industries (Simola 2023) encompasses roughly one-third of the sample. Only 2.5% of observations are within 200 kilometers of Donetsk.⁸

⁷While the RLMS is nationally representative, its regional subsamples are not designed to be representative of individual regions. Its multi-stage cluster design concentrates observations in a limited number of primary sampling units within each region. Location-based heterogeneity estimates should therefore be interpreted with caution, as the regional samples may not capture the full socioeconomic and geographic diversity of the regions they represent. Individual fixed-effects specifications reduce reliance on cross-sectional differences across respondents, but do not eliminate this limitation.

⁸Following Zubarevich (2025), the military-industrial regions identified in the RLMS sample are Kurgan, Udmurtia, Chuvashia, Tula, and Chelyabinsk. Following Simola (2023), they are Kurgan, Kaluga, Udmurtia, Chuvashia, Tver, Nizhny Novgorod, Saratov, Penza, Smolensk, Tula, Rostov, and the Moscow region. Respondents within 200 km of Donetsk are located in the Rostov region.

Table 1: Descriptive Statistics

	Mean	SD
<i>Panel A: Outcome variables and treatment indicators</i>		
Satisfied with life (=1)	0.521	0.500
Life satisfaction (cardinal, 1–5)	3.316	1.036
War year 1 (2022, post-invasion)	0.076	0.264
War year 2 (2023)	0.078	0.268
War year 3 (2024)	0.078	0.268
<i>Panel B: Individual and household controls</i>		
Married	0.523	0.499
Divorced	0.139	0.346
Death in household	0.028	0.166
Good or very good health	0.369	0.483
Log age	3.800	0.395
University education	0.279	0.449
Employed	0.558	0.497
Unemployed	0.035	0.183
Log individual income (real, 2016 RUB)	9.229	2.560
Log household income (real, 2016 RUB)	10.774	0.761
Satisfied with economic conditions (=1)	0.225	0.418
<i>Panel C: Heterogeneity subgroups and regional variables</i>		
Ethnic Russian	0.868	0.339
Male	0.416	0.493
University education (time-invariant)	0.267	0.443
Born 1973 or earlier	0.525	0.499
Moscow or St. Petersburg	0.117	0.321
Military-industrial region	0.135	0.342
High defense GVA share (top tertile)	0.316	0.465
Within 200 km of Donetsk	0.025	0.156
Log regional wage (real, 2016 RUB)	10.549	0.465

Notes: Unbalanced panel, 2013–2024. Binary variables coded 0/1.

Time-invariant subgroup variables assigned from each individual's earliest observed wave.

3.4 Estimation strategy

Subjective well-being reflects many influences apart from the collective political forces of interest here. Income, employment, health, family circumstances, and local economic conditions all shape how individuals evaluate their lives. If wartime changes in SWB are to provide evidence of political incorporation, these alternative determinants must be taken into account. Our objective is therefore to estimate wartime changes in life satisfaction after accounting for the principal observable material and personal determinants of individual well-being.

We estimate an individual fixed-effects linear probability model:

$$y_{it} = \beta_1 \text{WarYear1}_{it} + \beta_2 \text{WarYear2}_{it} + \beta_3 \text{WarYear3}_{it} + \delta Z_{it} + \mu_m + \alpha_i + \varepsilon_{it}, \quad (1)$$

where y_{it} equals one if individual i reports being satisfied with their life at present in year t , and zero otherwise. Z_{it} is the vector of time-varying controls described above, including, in our preferred specification, log real monthly individual income, log real monthly household income, and log real regional monthly wages. The regional wage measure captures changes in local economic conditions that might otherwise confound the war-year coefficients, helping to distinguish wartime changes in life satisfaction from those associated with improving material conditions. μ_m are month fixed effects capturing seasonal variation in reported well-being, while α_i are individual fixed effects absorbing all time-invariant differences across respondents. The war-year coefficients are therefore identified from within-person changes in life satisfaction over time, conditional on changes in the included covariates. Standard errors are clustered at the individual level.

We estimate separate coefficients for each post-invasion year rather than imposing a single pooled post-invasion indicator. This allows the trajectory of wartime changes in SWB to evolve flexibly over time and permits direct comparison with the conventional expectation that rally effects decay relatively quickly (Murray 2017).

The coefficients β_1 , β_2 , and β_3 measure the average within-person change in the probability of reporting life satisfaction in each war year relative to the pre-invasion baseline, conditional on the included covariates and fixed effects. These coefficients identify changes associated with the wartime period rather than the causal effect of the invasion itself. Interpreting them as evidence of wartime incorporation requires that they not be driven primarily by contemporaneous changes in determinants of SWB omitted from the model. Figure 2 in Section 4 examines the evolution of life satisfaction before and after the invasion and provides evidence on whether the post-invasion increase represents a departure from pre-existing trends.

To examine whether wartime changes in life satisfaction vary systematically across groups, we augment equation (1) with interactions between the war-year indicators and a single, time-invariant subgroup indicator g_i :

$$y_{it} = \sum_{k=1}^3 \beta_k \text{WarYear}_{k_{it}} + \sum_{k=1}^3 \gamma_k (\text{WarYear}_{k_{it}} \times g_i) + \delta Z_{it} + \mu_m + \alpha_i + \varepsilon_{it}. \quad (2)$$

The γ_k coefficients capture the differential wartime change for members of subgroup g relative to non-members in war year k . We estimate separate specifications for each of the demographic and geographic subgroup indicators described above. Consistent with the argument developed in Section 2, these interaction coefficients allow us to assess whether wartime changes in life satisfaction exhibit theoretically patterned heterogeneity consistent with differential incorporation into the wartime national project.

4 Results

4.1 Baseline Results

Table 2 presents our main estimates. Column 1 includes the war-year indicators and individual and household controls but omits income; Column 2 adds log real monthly individual and household incomes; Column 3 adds log real regional monthly wages per capita and is our preferred specification, as it adds a measure of local economic conditions that might otherwise contribute to wartime changes in life satisfaction.

Across all three specifications, the war-year coefficients are positive and sustained or increasing in magnitude over time. In Column 3, the probability of reporting satisfaction rises by 2.2 percentage points in 2022, 3.2 percentage points in 2023, and 3.5 percentage points in 2024, with all three estimates statistically significant at the 1% level. The persistence of these gains is notable. Rally effects in the broader literature typically decay within months of the triggering event (Murray 2017); by contrast, the increase in life satisfaction documented here persists through the second and third years of the war.

Comparing Columns 1 through 3 also shows that introducing individual, household, and regional economic controls attenuates but does not eliminate the war-year coefficients. Thus, the wartime increase in life satisfaction is not fully accounted for by the observable improvements in material conditions captured by these measures: a substantial conditional increase remains.

Table 2: War-Year Effects on Life Satisfaction (Binary)

	(1) No income	(2) Income	(3) + Reg. wage
2022 (post-invasion)	0.027*** (0.004)	0.029*** (0.004)	0.022*** (0.005)
2023	0.056*** (0.005)	0.056*** (0.005)	0.032*** (0.006)
2024	0.074*** (0.005)	0.069*** (0.005)	0.035*** (0.007)
Married	0.068*** (0.008)	0.061*** (0.008)	0.070*** (0.008)
Divorced	-0.009 (0.009)	-0.007 (0.009)	-0.001 (0.009)
Death in household	-0.055*** (0.006)	-0.051*** (0.007)	-0.051*** (0.007)
Healthy	0.079*** (0.004)	0.075*** (0.004)	0.075*** (0.004)
Employed	0.060*** (0.005)	0.038*** (0.005)	0.044*** (0.005)
Unemployed	-0.112*** (0.008)	-0.100*** (0.008)	-0.095*** (0.008)
Observations	166,807	158,455	158,187
Individuals	28,466	27,769	27,763
Month FE	Yes	Yes	Yes
Income controls	No	Yes	Yes
Regional wage	No	No	Yes

Standard errors clustered at individual level. Column 2 income and Column 3 regional wage use real measures.

* $p < 0.10$ ** $p < 0.05$ *** $p < 0.01$

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Notes: Linear probability model with individual and month fixed effects. Dependent variable equals one if the respondent reports being fully or rather satisfied with their life at present. “War year 1” = 1 for March 2022 onward; “War year 2” = 1 for 2023; “War year 3” = 1 for 2024. Reference period: 2013–2021 plus pre-March 2022 interviews. Column 2 adds log real individual and household income. Col 3 adds log regional real wage per capita. Log age and university education included in all columns but not reported. Individual fixed effects included in all columns.

The coefficients on the controls are broadly consistent with established determinants of life satisfaction. Becoming married is associated with an approximately 7.0 percentage-point increase in the probability of reporting satisfaction, while becoming unemployed is associated with a decrease of approximately 9.5 percentage points. Experiencing the death of a household member is associated with a decline of approximately 5.1 percentage points, while transitioning into good or very good health is associated with an increase of approximately 7.5 percentage points. These familiar life events provide a useful benchmark for interpreting the wartime coefficients: the estimated 3.5 percentage-point increase in 2024 is roughly half the magnitude of the associations with becoming married or transitioning into good health.

Figure 2 examines whether the post-invasion estimates represent a departure from the pattern observed during the preceding years. Using the controls from Column 3, we replace the three war-year indicators with separate indicators for each survey year. None of the pre-invasion coefficients is statistically distinguishable from zero relative to the 2021 reference year, providing no evidence of a pre-existing trend in conditional life satisfaction.⁹ By contrast, all three post-invasion coefficients are positive and statistically significant, with the 2023 and 2024 estimates larger than the 2022 estimate. The resulting pattern is one of relative stability before the invasion followed by a marked and sustained upward shift afterward.

⁹The small number of pre-invasion interviews conducted in 2022 are included in the omitted reference category.

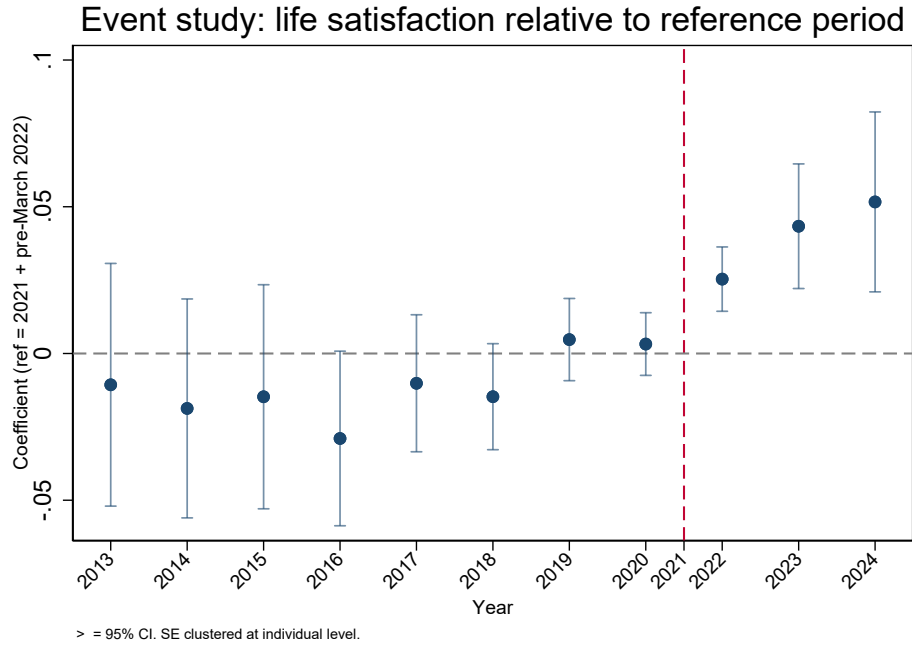


Figure 2: Year-by-year fixed-effects estimates of life satisfaction

Points are coefficients on year indicators from the individual fixed-effects specification, with 2021 as the reference year. The 2022 indicator equals one only for post-invasion interviews; the small number of pre-invasion interviews conducted in January 2022 are pooled with the reference category. Bars indicate 95% confidence intervals. Standard errors are clustered at the individual level. The specification includes the controls from Column 3 of Table 2. The dashed vertical line marks February 2022.

Taken together, the baseline results provide evidence of a substantial and persistent post-invasion increase in life satisfaction that is not readily explained by observable changes in individual, household, or regional economic conditions. They do not, by themselves, establish that this conditional increase reflects wartime political incorporation. Before turning to the heterogeneous patterns that bear more directly on that interpretation, we assess whether the baseline finding is robust to alternative measures, specifications, and samples.

4.2 Robustness to Alternative Specifications

Table 3 examines the robustness of the baseline results to alternative outcome coding, controls for economic well-being, estimators, and sample restrictions. All specifications retain the regional wage control. Column 1 replaces the binary life satisfaction outcome with the original five-point scale, reverse-coded so that higher values indicate greater satisfaction. The war-year coefficients remain positive and statistically significant in all three years, indicating that the baseline result is not an artifact of the binary coding.

Column 2 replaces reported individual and household income with respondents' subjective assessments of their current economic conditions. This provides a demanding test of whether the wartime increase in SWB reflects changes in economic well-being: wartime changes in life satisfaction could reflect not only changes in realized income but also changes in how respondents perceive their economic circumstances, particularly if the war altered economic sentiment or expectations independently of income. The coefficients for all three war years remain positive and statistically significant after accounting for subjective economic satisfaction.

Column 3 addresses the use of a linear probability model for a binary outcome by estimating a correlated random-effects probit model following Mundlak (1978). The specification includes person-specific means of the time-varying regressors, allowing for correlation between the individual effect and those regressors while avoiding the incidental-parameters problem associated with fixed-effects probit. The war-year coefficients are again positive and statistically significant in 2022, 2023, and 2024, reproducing the qualitative pattern of the linear fixed-effects estimates.

Finally, selective attrition could bias the wartime estimates if respondents who attrit from the RLMS after the invasion differ systematically from those who remain. This concern is particularly relevant given the substantial out-migration from Russia following the invasion, estimated to have reached as many as 900,000 people (The Bell 2025). Column 4 addresses this broader selection concern by re-estimating our preferred specification on a restricted panel of respondents observed at least once before the invasion and in each of the three post-invasion survey years (2022–2024). The 2022 coefficient is essentially unchanged from the full-sample estimate (0.021 versus 0.022), while the 2023 and 2024 coefficients attenuate modestly (to 0.026 and 0.029, from 0.032 and 0.035) but remain positive, statistically significant at the 1% level, and increasing across war years.

Taken together, these checks show that the sustained post-invasion increase in life satisfaction is robust to alternative outcome coding, measures of economic well-being, estimation methods, and sample restrictions designed to address selective panel attrition.

Table 3: Robustness Checks

	(1) Cardinal LS	(2) Econ sat. ctrl	(3) CRE probit	(4) Restricted panel
2022 (post-invasion)	0.056*** (0.008)	0.011** (0.004)	0.078*** (0.016)	0.021*** (0.005)
2023	0.062*** (0.011)	0.026*** (0.005)	0.128*** (0.019)	0.026*** (0.007)
2024	0.084*** (0.013)	0.034*** (0.007)	0.158*** (0.023)	0.029*** (0.008)
Observations	158,187	165,534	158,187	96,238
Individuals	27,763	28,382	27,763	10,221
Month FE	Yes	Yes	Yes	Yes
Income controls	Yes	Econ sat.	Yes	Yes
Regional wage	Yes	Yes	Yes	Yes

Notes: Standard errors clustered at individual level. * $p < 0.10$ ** $p < 0.05$ *** $p < 0.01$

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Notes: Columns 1, 2, and 4 include individual and month fixed effects; Column 3 reports correlated random-effects probit estimates with person-specific means of the time-varying regressors. All columns include the full set of demographic controls and the regional wage control. Col. 1 uses ordinal life satisfaction (1–5 scale) as the outcome. Col. 2 uses binary life satisfaction and substitutes satisfaction with current economic conditions for individual and household income. Col. 3 uses binary life satisfaction and includes the full income control set. Col. 4 restricts the sample to respondents observed at least once before the invasion and in all three post-invasion survey years (2022–2024). Standard errors are clustered at the individual level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

4.3 Heterogeneity

The aggregate patterns in Table 2 conceal substantial variation across demographic groups and regions. Figures 3 and 4 present interaction coefficients from equation (2), showing the differential wartime change for each subgroup relative to non-members, with 95% confidence intervals. These comparisons provide a more discriminating test of the wartime-incorporation interpretation: theoretically patterned differences across groups would be more consistent with differentiated wartime incorporation than with generalized response bias.

Figure 3 examines four demographic subgroups. The clearest pattern is by ethnicity. The interactions for ethnic Russians are positive and statistically significant in 2022 and 2023, consistent with our expectation that, given their privileged position within the nationalist narrative used to justify the invasion, they would account for a disproportionate share of the early wartime increase in life satisfaction (Kuzio 2023; Gorbuntsova, Khanna, and Mehmood 2026). University education exhibits the opposite pattern in the first war year: the interaction is negative and statistically significant in 2022, consistent with prior survey evidence that university-educated Russians were more likely to expect negative economic and political consequences from the war, a pattern tentatively attributed to broader access to independent information sources (Gugushvili 2025). The gender and cohort comparisons, which we treat as exploratory, reveal less consistent differences across war years.

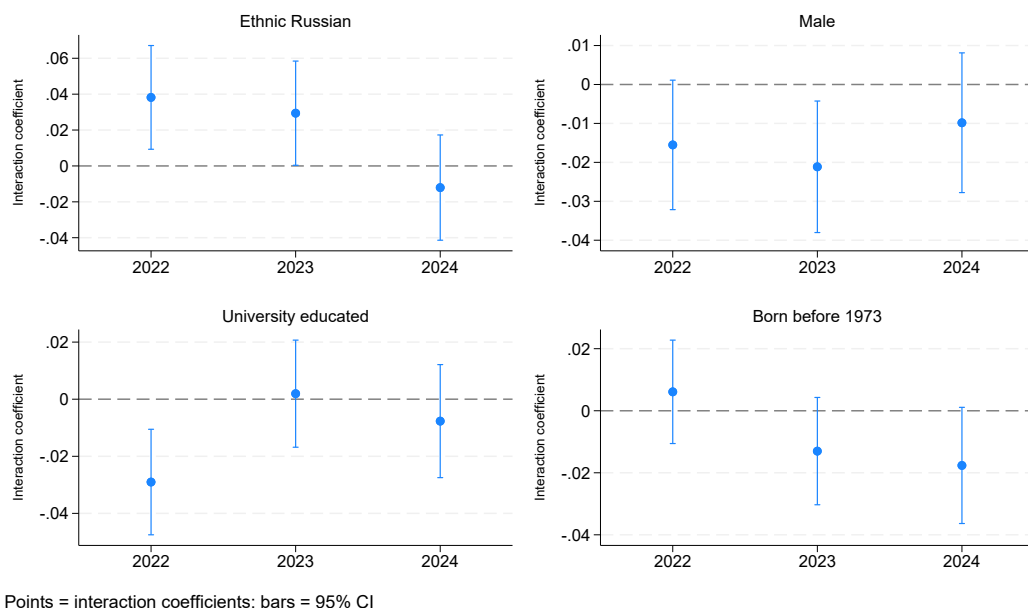


Figure 3: Heterogeneity by Ethnicity and Individual Characteristics

Points are interaction coefficients $\hat{\gamma}_k$ from equation (2); bars indicate 95% confidence intervals. Each panel reports results from a separate regression augmenting the Column 3 specification of Table 2 with interactions between the war-year indicators and the indicated subgroup. All specifications include individual and month fixed effects, the full set of individual and household controls, log real individual and household income, and log real regional wages. Standard errors are clustered at the individual level. Subgroup indicators are time-invariant and constructed from each individual's earliest pre-invasion observation.

Figure 4 reveals even sharper geographic differences. Residents of Moscow and St. Petersburg exhibit a differential wartime change of -5.6 percentage points in 2022, indicating that their post-invasion change in life satisfaction was substantially smaller than that of residents elsewhere. This is consistent with our expectation that wartime gains would be more muted in the two cities, where opposition mobilization has been particularly prominent and residents report greater access to alternative information and greater skepticism toward the war (Enikolopov, Petrova, and Zhuravskaya 2020; OVD-Info 2025). The differential narrows to -2.7 percentage points in 2023 and becomes statistically insignificant in 2024, indicating that the estimated geographic divergence diminished as the war continued.

The military-industrial results point in the opposite direction. Residents of regions classified as military-industrial exhibit positive differential wartime changes ranging from 6.5 to 7.8 percentage points across the three war years. A broader measure based on the regional concentration of military-adjacent manufacturing produces a similar pattern. These findings are consistent with our expectation that communities more directly connected to the war effort would exhibit larger wartime gains in life satisfaction, potentially reflecting greater psycho-

logical investment in a national project to which the local community is visibly contributing. Because the specifications control for regional wages as well as individual and household income, the pattern is not readily explained by measured material gains alone.

The sharpest negative differentials occur among respondents living within 200 km of Donetsk. Their interaction coefficients are approximately -9.4 percentage points in 2022, -11.0 percentage points in 2023, and -12.4 percentage points in 2024. The increasingly negative differential is consistent with our expectation that respondents living near active conflict would experience smaller or even negative wartime changes in life satisfaction (Soskolne et al. 1996; Coupe and Obrizan 2016; Osiichuk and Shepotylo 2020; Hinton and Vaishnav 2023). The result is particularly striking because the relative divergence grows rather than diminishes as the war continues, a pattern consistent with the cumulative psychological and material burdens of living in close proximity to an active war zone.

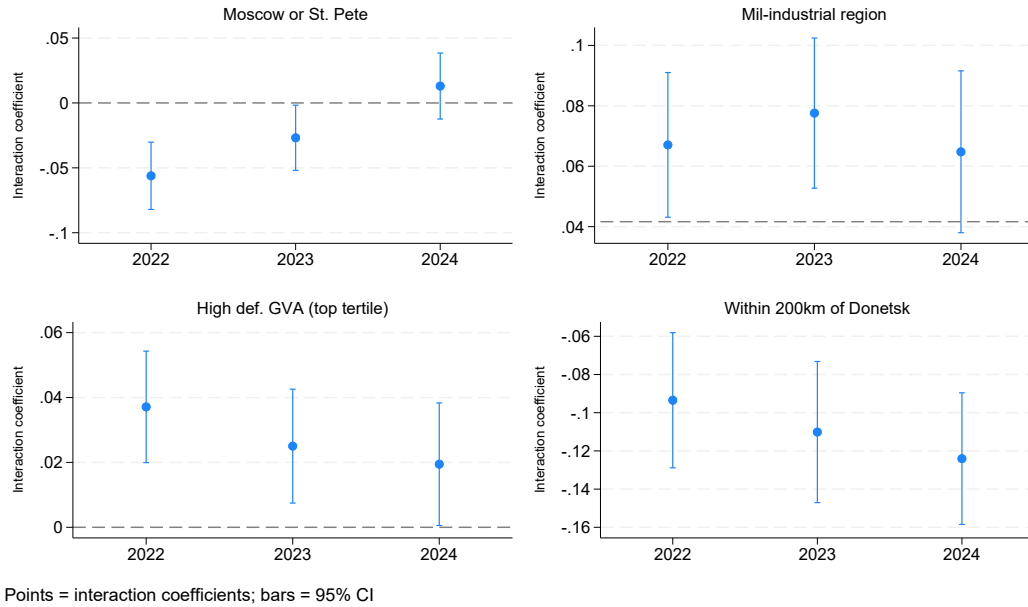


Figure 4: Heterogeneity by location and regional war exposure

See Figure 3. *Military-industrial region* follows the classification of Zubarevich (2025). *Within 200 km of Donetsk* identifies respondents residing within 200 km of Donetsk.

Taken together, the heterogeneity results reveal a socially and geographically differentiated wartime increase in life satisfaction. Groups expected to occupy a more central place in the wartime project—ethnic Russians in the early war years and residents of military-industrial regions—exhibit larger relative gains. Groups expected to be more skeptical of the war or more directly exposed to its costs—university-educated respondents in 2022, residents of Moscow

and St. Petersburg, and especially those living closest to the front—exhibit smaller gains or relative declines. These patterns persist after accounting for individual, household, and regional economic conditions, consistent with the interpretation that the observed differences reflect more than variation in measured material circumstances alone.

This systematic heterogeneity is important for interpreting the aggregate post-invasion increase in life satisfaction. A generalized social-desirability mechanism does not readily account for why reported life satisfaction should vary across groups in these theoretically anticipated directions. The results are instead consistent with psychologically meaningful variation in wartime incorporation: the post-invasion increase is largest among groups expected to identify most strongly with or be most deeply embedded in the wartime project and smallest among groups expected to be more skeptical of the war or more directly exposed to its costs.

4.4 Data Quality and the Reliability of the Measure Over Time

The preceding analysis assumes that non-response to the life satisfaction question does not change during the war in ways that systematically distort the observed patterns. We examine this possibility directly, both because selective non-response could bias our estimates and because changes in willingness to answer may indicate whether a politically indirect question becomes more sensitive as the war progresses.

Figure 5 documents the evolution of non-response to the life satisfaction question over the survey period. Non-response remains low and stable through 2023 before nearly doubling in 2024. To examine whether this change is systematically associated with characteristics plausibly related to political sensitivity, we regress an indicator for non-response on education, Moscow or St. Petersburg residence, age, gender, and ethnicity, allowing these relationships to vary across the three war years. Higher education and Moscow or St. Petersburg residence are negatively associated with non-response, and neither becomes differentially associated with non-response during the war years. The 2024 increase is instead more concentrated among older, less educated respondents living outside Moscow and St. Petersburg. These patterns provide little evidence that selective non-response among groups expected to be more skeptical of the war explains the observed wartime changes in life satisfaction. In particular, the stability of non-response through 2023 strengthens the case for interpreting the 2022 and 2023 heterogeneity patterns as meaningful rather than as artifacts of changing sample composition. The sharp increase in 2024, however, warrants more cautious interpretation of that year's estimates.

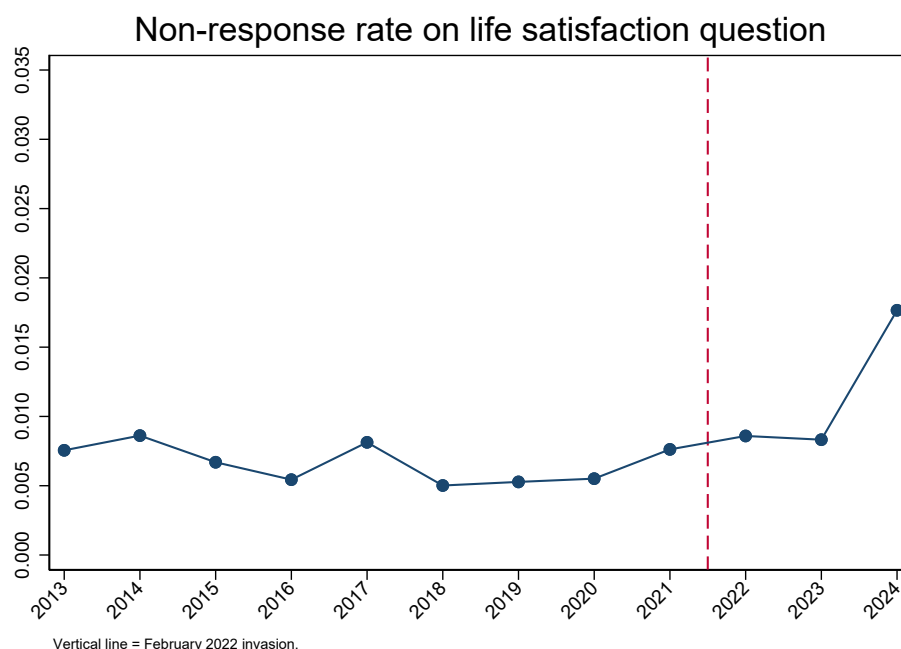


Figure 5: Non-response to the Life Satisfaction Question, 2013–2024

Share of survey respondents who did not answer the life satisfaction question in each survey wave. The dashed vertical line marks February 2022.

The 2024 increase in non-response coincides with another notable feature of the results: several of the subgroup differentials evident in 2022 and 2023 attenuate in 2024. The positive differential for ethnic Russians narrows toward zero and becomes statistically insignificant, while the negative differential for Moscow and St. Petersburg residents similarly disappears by the third war year. This convergence could represent a genuine narrowing of differences in wartime incorporation. Its coincidence with the sharp increase in non-response, however, raises another possibility: the informational content of the SWB measure itself may have deteriorated.

One explanation is intensifying top-down repression, which by some measures increased as the war progressed (OVD-Info 2026). Another is a more diffuse chilling effect independent of changes in formal state enforcement: as the war lengthened, respondents may have become increasingly sensitive to how even ostensibly personal questions might be interpreted or answered. We cannot distinguish these mechanisms with the available data, nor can the non-response evidence rule out strategic distortion among respondents who continue to answer. But either mechanism could weaken the correspondence between reported life satisfaction and the underlying variation in wartime incorporation that SWB is intended to capture. Respondents may increasingly decline to answer or compress their responses toward what they

perceive as socially safer responses, reducing the heterogeneity that makes the measure informative.

The 2024 estimates should therefore be interpreted more cautiously than those for 2022 and 2023. The attenuation of several subgroup differentials may reflect genuine convergence in wartime sentiment, deterioration in the signal quality of SWB, or some combination of the two. This ambiguity is itself informative for the broader measurement argument. The usefulness of politically indirect outcomes need not be invariant to the political environment: under conditions of intensifying repression or pressure toward wartime conformity, questions that initially provide a comparatively unobtrusive window onto politically sensitive attitudes may themselves become increasingly compromised.

5 Conclusion

How can politically sensitive attitudes be studied when direct expressions of political support cannot be taken at face value? This paper proposes that responses to questions that are not themselves politically sensitive can provide complementary evidence about underlying political attitudes. We develop this approach using SWB, asking whether wartime changes in life satisfaction, after accounting for observable material and personal circumstances, can provide indirect evidence of incorporation into a wartime national project.

Drawing on over a decade of panel data from the RLMS, we find a significant and sustained increase in life satisfaction following Russia’s February 2022 invasion of Ukraine. The increase persists after accounting for changes in individual and household income, employment, health, household circumstances, and regional economic conditions, and is robust to alternative measures and specifications. Whereas rally effects measured through conventional indicators of political support commonly decay following the precipitating event (Murray 2017), the conditional increase in life satisfaction persists and grows through the first three years of the war.

The heterogeneity of this increase provides the strongest evidence for interpreting it as more than a byproduct of improving material conditions or generalized response bias. Ethnic Russians experience larger relative gains in the first two war years, while university-educated respondents initially lag. Residents of Moscow and St. Petersburg experience substantially smaller initial gains than residents elsewhere, while those in military-industrial regions exhibit consistently larger increases even after accounting for individual, household, and regional economic conditions. Most strikingly, respondents living closest to the front exhibit large and increasingly negative differentials. These patterns correspond to theoretically meaningful dif-

ferences in identity, information environments, embeddedness in the war effort, and exposure to the direct costs of conflict. A generalized social-desirability mechanism does not readily account for life satisfaction varying across groups in these systematically differentiated ways. The evidence is instead consistent with meaningful variation in the degree to which different segments of Russian society experienced incorporation into the wartime national project.

The results also reveal an important limitation of this measurement strategy. Non-response to the life satisfaction question remains low and stable through 2023, when several of the predicted subgroup differences are most pronounced. In 2024, however, non-response nearly doubles and several of these differentials attenuate. We cannot determine whether this attenuation reflects genuine convergence in wartime sentiment, deterioration in the informational value of the SWB measure, or both. But the coincidence suggests that the usefulness of politically indirect measures may itself change as the political environment evolves. Questions that initially provide a comparatively unobtrusive window onto politically sensitive attitudes may become less informative under conditions of intensifying repression or growing pressure toward wartime conformity.

Despite this growing uncertainty in 2024, the earlier results also bear on the durability of Russia's wartime political order. The sustained post-invasion increase in life satisfaction, and particularly its concentration among groups whose identities or circumstances more closely align them with the wartime project, suggests that the regime's resilience cannot be understood solely through repression, preference falsification, or the material benefits generated by the wartime economy. At least during the first years of the invasion, the evidence is consistent with psychologically meaningful forms of wartime incorporation among important segments of Russian society. Whether these gains persist as economic conditions change, casualties accumulate, and the war continues is a question that additional waves of the RLMS will allow us to revisit.

Alongside these substantive implications for Russia, the paper offers a broader approach to studying politically sensitive attitudes under authoritarianism. Existing approaches to politically sensitive survey questions have largely sought to make truthful revelation less risky. Our approach suggests a complementary strategy: tracing politically indirect outcomes within individuals over time may provide evidence about politically sensitive attitudes that are difficult to measure directly. SWB is one such outcome, but the broader principle may extend to other politically indirect outcomes as well.

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Artificial Intelligence Use Statement During the preparation of this manuscript (2026), the authors used OpenAI’s ChatGPT (GPT-5 series) to suggest improvements to the clarity, concision, organization, and grammar of portions of the manuscript text. The authors also used Anthropic’s Claude Sonnet 5 to assist with organizing and documenting data-analysis workflows and Stata do-files and, in limited instances, to suggest improvements to code organization. These AI tools were not used to generate research findings, interpret results, or make substantive scholarly judgments. All code, analyses, statistical results, citations, and manuscript text were reviewed, edited, and verified by the authors, who take full responsibility for the manuscript and its contents.

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