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TOWARDS A BETTER LIFE? ASSESSING SOME INITIAL EFFECTS OF RUSSIAN PENSION REFORM

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In 2018, the official retirement age in Russia was abruptly raised from 60 to 65 for men and from 55 to 60 for women. The rise was motivated by the necessity to keep the deficit of the Russian Pension Fund, caused by population ageing and a shrinking labor force, under control. During years preceding this decision, the authorities had assured the population that no measures of this sort would be considered. The study assesses the initial causal effects of the 2018 increase in retirement age on the subjective well-being and economic sentiments of Russian individuals. Using the difference-in-differences and the synthetic control approaches, we show that people close to the retirement threshold and presumably most affected by the pension reform became less confident in the current and future economic situation in the country and in their personal future prospects and financial situation.

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I believed in you as I believed in God.
God is a thing made of clay, that I can smash with a hammer;
and you have fooled me with a lie."

Ethel Lilian Voynich. The Gadfly

Introduction

In most industrialized countries, increased life expectancy generates additional fiscal pressure on pension systems, and Russia is no exception (OECD, 2016). For many years, the retirement age for men and women in Russia remained low (55 for women and 60 for men) despite a few active interventions into the pension system that were undertaken over time by the government. The growing deficit in the Russian Pension Fund (PFR) since 2005 has been considered a serious financial issue (PFR, 2005).[1] However, an increase in retirement age, although suggested by many economists and international organizations, was not on the political agenda. The lower life expectancy in Russia, especially for men, compared to the developed countries, was considered a major obstacle to this policy. In 2018, longevity in Russia was around 68 and 78 years for men and women, respectively (World Bank, 2018). Moreover, on multiple occasions, President Vladimir Putin publicly reiterated the promise not to raise the retirement age during his presidency.[2] Following repeated official promises, the Russian working population were convinced of the stability of the pension system in the country and neglected the possibility of any unexpected changes in their retirement plans.

However, in mid-2018 the Russian authorities announced a gradual increase in retirement age by 5 years for both men and women with a short transition period after the Parliament's approval (see **Table 1**). New rules were expected to enter into force by January 2019. The abrupt announcement of the reform without any prior information campaign or an explicit public discussion sparked a wave of discontent. According to the surveys carried out by the independent Levada-Center, in June 2018, when the reform was initially announced, around 89% of respondents had negative attitudes towards this proposal. This resentment might have several reasons. The first one stems from the fact that many Russians in the pre-retirement age had life plans outside the labor force. These plans could have different reasons, and health-related employability constraints were one of them. However, given the fact that the employment rates in the pre-retirement and early retirement ages were not too low, the second reason could be even more important.

Since the Russian legislation allows receiving both wage and pension benefits to those working beyond the retirement threshold, shifting the retirement age by 5 years is tantamount to taking 60 monthly pensions from workers' wallets. This income shock might be very sensitive for those individuals who have envisaged continuing to work and reckoned on

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[1] See https://pfr.gov.ru/info/order/budzhet_pfr/~1990. Accessed on March 8, 2021.

[2] See https://www.wsj.com/articles/BL-NEB-4921, https://www.bbc.com/news/world-europe-45342721. Accessed on March 8, 2021.

receiving stable earnings over the next 5 years. With the net pension replacement rate of 38.8% compared to the OECD average of 62.9% and a low level of savings among Russian individuals, such an income loss is not trivial (OECD, 2017). Moreover, given that individuals close to retirement age felt entitled to receiving a pension (whether they planned to continue working or not), the sense of loss was especially high due to the well-known phenomenon of loss aversion (Kahneman, and Tversky, 1979).

At the time of writing this paper, too little time has passed to evaluate how the increase in retirement age affected employment, health, consumption, and spending, and we leave these issues for future research. However, the psychological impact and subjective perceptions of the change did not need much time to emerge. Thus, we can evaluate the causal effects reflected in sentiments and subjective well-being for various categories of the population, in particular for those at pre-retirement age. Broken promises and an urge to adapt to the new reality might have jeopardized people's sense of stability. If the policy is perceived as unfair, this could undermine confidence in the future, destroy trust in the government, and amplify feelings of uncertainty, especially for people approaching statutory retirement age.

In this paper, we evaluate the causal effect of the unexpected increase in retirement age in Russia on economic sentiments and subjective well-being. These two closely related parameters reflect a systemic perception of the economic, psychological, political, and social environment in the country, and help predict various economic phenomena. The basic approach implies that subjective well-being builds on emotions and life satisfaction (Diener et al., 2002) and represents individuals' perceptions of their feelings and experiences (Kahneman and Krueger, 2006). Economic sentiment is associated with precautionary motives, consumption, and saving decisions (Białowolski, 2019). Akerlof and Shiller (2009) refer to the "animal spirits" concept coined by John Maynard Keynes (Keynes, 1936), according to which individuals' decisions are largely driven by emotions, predispositions, and instincts. Overall, low spirits represent a lack of confidence among investors, thus bringing markets down.

Many empirical studies have investigated the effects of changes in retirement age on labor market outcomes. Hanel and Riphahn (2012) show that the increase in normal retirement age for women in Switzerland improved employment, especially for low-educated individuals. Lalive and Staubli (2015) reached the same conclusion and highlighted that this pension reform caused female workers to postpone their exit from employment and reduced claims of retirement benefits. Martins et al. (2009) show that, following the increase in legal retirement age for women in Portugal, firms decreased their hiring of younger female workers. Manoli and Weber (2016), Cribb (2013), Staubli and Zweimueller (2013) explore how a change in early retirement age affects a range of labor market outcomes.

Multiple studies examine the effect of retirement on subjective well-being while few explore the effects of the pension policies. As Börsch-Supan (2006) shows, the effect of early retirement on subjective well-being is short-term and negative. Falba et al. (2008) highlight that mental well-being is negatively affected for those older individuals who retired later or earlier than they had expected. Montizaan and Vendrik (2014) notice that the main channel, through which changes in the pension system affect individuals, includes social comparisons of age groups with different exposure to the reform and leads to lower job satis-

faction. In another study, Montizaan et al. (2016) show that an unfair contraction of pension rights has an adverse effect on job motivation among treated workers who are more negatively reciprocal, compared to less reciprocal employees.[3]

While most studies analyze the effects of reforms on the labor market or health outcomes,[4] the issue of how an increase in retirement age affects economic sentiment, or subjective well-being specifically, remains underexplored. Our study contributes to this strand of literature by shedding more light on the causal short-term effects of raising the retirement age on various domains of economic sentiment and subjective well-being. For this, it uses two data sets and applies the difference-in-differences and the synthetic control methods. Since the reform was swift and unexpected, it can be considered a natural experiment allowing the identification of causal impacts.

We assume that individuals close to the retirement threshold before the policy were more exposed to the treatment and we test whether their subjective well-being was affected differently compared to that of the control group. Our main findings suggest that due to the pension reform people close to the retirement threshold became less confident in the economic situation in Russia and their future life. We argue that the postponement of the reception of retirement benefits, especially given prior explicit promises not to raise the retirement age made by President Putin, undermined the sense of stability of the economic and political situation in the country and increased the feelings of uncertainty about the future, especially for people close to the retirement age.

The paper proceeds as follows. **Section 2** describes data and **Section 3** gives an overview of the econometric approach. **Section 4** presents the empirical results. **Section 5** concludes by discussing the mechanisms behind the obtained results.

2. Data and variables

We used two sources of data to provide a comprehensive picture of the short-term impact of the pension policy on economic sentiment and subjective well-being. The first data source is the Russian Longitudinal Monitoring Survey (RLMS-HSE) which is an annual long-run individual and household panel data on labor market outcomes, health behaviors, and subjective well-being. The survey is conducted between October and December. We use individual data from the years 2012 to 2019. We outline the treatment threshold as the year 2018 so that October 2018 (the first month of the interview conducted in 2018) is the first month following the official adoption of the reform.[5] The pre-treatment period is the years 2012–2017 and the period after the treatment is the years 2018–2019. We also obtained data on age, gender, marital status, income, wage, and education from this database. The second dataset is the survey "Courier" conducted by the Levada-Center. It is the monthly data that covers questions on individual's perceptions of the overall economic and political situation

[3] Several studies find versatile effects of increased retirement age on health behaviors (Montizaan et al., 2010; Brunello and Comi, 2015; Bertoni, 2016).

[4] Several studies consider the effects of different reforms on economic sentiment (see Attanasio and Brugiavini, 2003; Brodeur and Connolly, 2013; Rudolf, 2014).

[5] The government passed the law on October 3, 2019 (Federal Law No. 350-FZ of 03.10.2018).

in Russia. We use monthly data from 2016 to 2019 and set the announcement of the reform (June 2018) as the treatment benchmark; hence the pre-treatment period is from January 2016 to June 2018 and the post-treatment period is from July 2018 to December 2019.[6]

The second database has certain limitations. Since we deal with repeated cross-sectional data, we grouped individuals according to their year of birth with a 5-year step and calculated the monthly average of examined variables for each group, men and women separately.[7] This way we created a synthetic panel of studied variables where each individual belongs to one time-invariant birth cohort (Deaton, 1985). Since in a pseudo panel we treat numbers in cohorts as an approximation of the true cohort's average, the results may be biased due to the measurement error (Deaton, 1985). However, Verbeek and Nijman (1992) showed that to reduce this bias, at least 100 observations per cohort are required. If the cohort size is relatively large, the synthetic panel can be treated as a genuine panel. Our analysis is aligned with this assumption since on average we use approximately 150 observations within each birth cohort. We take questions from both datasets that generally represent economic sentiment and subjective well-being (**Appendix Table A1, A2**). The parameters of interest are treated as continuous variables for the simplicity of interpretation.[8]

3. Empirical Approach

3.1. Identification of treatment and control groups

The first proposal of the pension policy stipulated an increase in retirement age by five years to 65 for men and by eight years to 63 for women. Eventually, the proposals were watered down to limit women's retirement age to 60 so that the increase in five years is equal for both men and women.[9] Consequently, the retirement age will increase stepwise from 60 to 65 years for men and from 55 to 60 years for women starting from January 1, 2019 (Federal Law No. 350-FZ of 03.10.2018).[10] The alteration of the retirement age is shown in **Table 1** (PFR, 2020).

This raises a question as to whether the policy affected all individuals equally. To identify treatment and control groups, we assign individuals to cohorts by year of birth. Considering the control group, we assume that current retirees at given years were not directly affected by the reform as their lives have not changed critically after the policy.[11] Although

[6] We do not examine the effect of the adoption of pension reform with the second dataset since the parallel trends assumption does not hold for the pre-treatment period in this specification and thus the difference-in-differences method cannot be applied.

[7] Following the same rules, we additionally averaged the panel data by age group and the results did not vary significantly from those conducted for birth cohorts. Hence, without loss of generality, we used the differentiation by birth cohorts in our research.

[8] In the economic literature there are debates on how to draw inferences in nonlinear difference-in-differences models. See Ai and Norton (2003), Norton et al. (2004), Athey and Imbens (2006), Greene (2010), Lechner (2011).

[9] See https://www.bbc.com/news/world-europe-45342721. Accessed on January 21, 2021.

[10] The policy prescribes some details for special cohorts of people, i.e. military personnel, healthcare workers, women with multiple children, among others. However, we omit these details in our study as the number of exposed individuals in data is insignificant.

[11] Although individuals' spouses or children may be affected by the reform, we consider the direct impact.

de-jure, the reform affected all people below the retirement threshold, as the retirement benefits for all of them decreased, however, presumably people close to pension eligibility in 2018 were particularly susceptible to an unanticipated increase in retirement age. We specify a 15-year symmetrical corridor of time around the reference point (the pension reform).[12] Hence, we propose that the treatment group includes individuals who in 2018 have 15 years before retirement or less (men from 44 to 58 and women from 39 to 53 in 2018). We exclude people who had one year before retirement in 2018 since their retirement was postponed half a year only (**Table 1**), hence we argue that they were not severely exposed to the policy. Consequently, the control group includes people who in 2018 have already been retired for 15 years or less (men from 60 to 74 and women from 55 to 69 in 2018).

Table 1. The evolution of retirement age starting from January 1, 2019

Year of birth (male)	Retirement age	Year of birth (female)	Retirement age
before 1958	60	before 1963	55
1959	60,5	1964	55,5
1960	61,5	1965	56,5
1961	63	1966	58
1962	64	1967	59
from 1963	65	from 1968	60

3.2. Empirical Strategy

We use difference-in-difference and synthetic control methods to answer the research question. The difference-in-differences method identifies the causal effects of the intervention by comparing the observed behavior of treated and non-treated individuals (Angrist and Pischke, 2009). The introduction of panel data provides a time-invariant allocation of treatment and control groups, hence individual effects and biases between groups are removed (Imbens and Wooldridge, 2007).[13] We estimate the following equation:

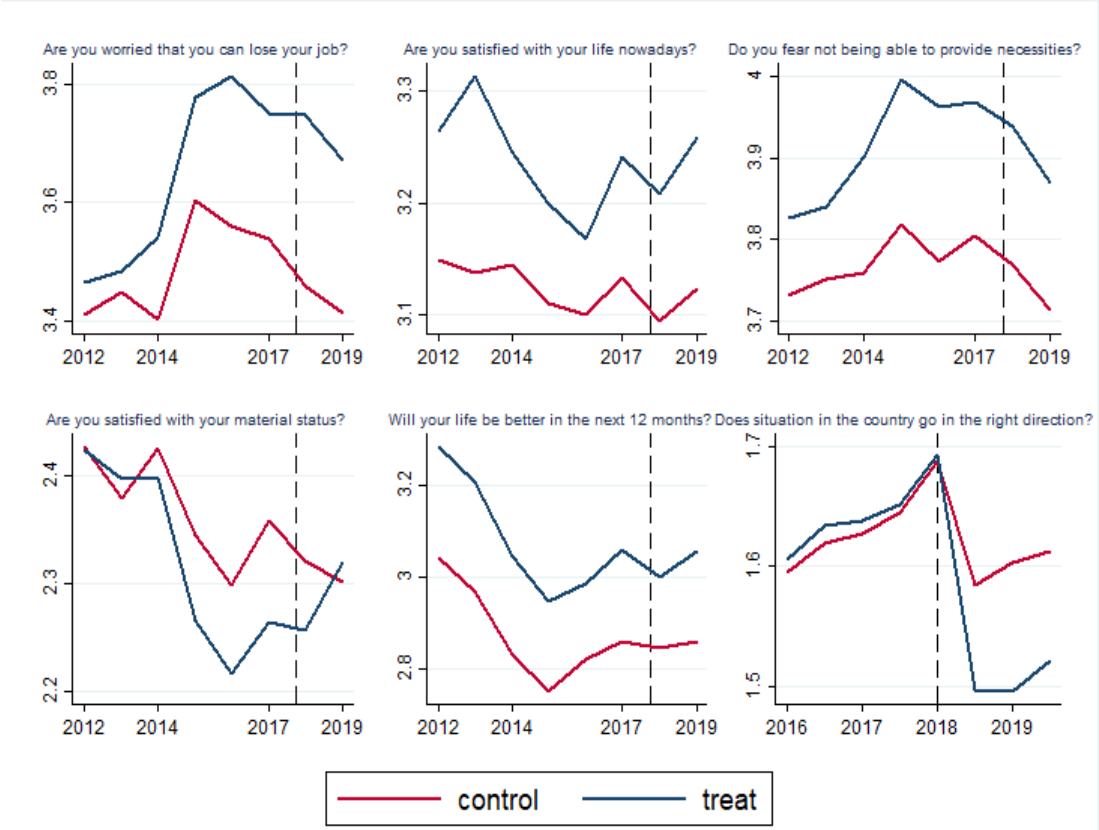
$$Y_{itk} = \beta_0 + \beta_1 dT_i + \beta_2 dP_i + \beta_3 dT_i \times dP_i + \beta_4 X_i + \gamma_i + \sigma_t + \tau_k + u_{itk}, \qquad (1)$$

where Y_{itk} is the observed outcome of an individual i (RLMS-HSE) or a birth cohort i (Levada-Center); dT_i is treatment dummy variable; dP_i is a period dummy variable; X_i is a set of controls (marital status, education, age, gender, children); γ_i, σ_t and τ_k are cohort, year and region fixed effects, respectively, to account for unobserved heterogeneity. Robust standard errors are clustered at the regional level to account for potential heteroskedasticity (Bertrand et al., 2004). The coefficient of the interaction term β_3 identifies the causal effect of the pension reform. It shows a change in the variable of interest in the post-treatment period among the respondents of a treatment group in comparison to a control group.

[12] Analyzing 5- or 10-year groups did not provide parallel trends for the studied variables arguably due to the small sample size.

[13] For additional literature on the difference-in-differences method see Ashenfelter and Card (1985), Heckman and Robb (1985), Card and Krueger (1994), Angrist and Krueger (1999), Blundell and Macurdy (1999).

The identifying assumption for the difference-in-differences method is parallel trends, i.e. absent the reform, trends over the years would have been similar for both groups (Angrist and Pischke, 2009). A lack of parallel trends makes it impossible to provide accurate causal inferences for the policy intervention and contributes to lower credibility of results (Lechner, 2011). From **Figure 1** we find that most variables from both datasets have parallel pre-intervention trends. Since pension reform is anchored to a year of birth, which is a fixed parameter, the intervention is not exposed to endogenous assignment to treatment. Importantly, people did not migrate from treatment to control group, thus there are no compositional changes over time (Angrist and Pischke, 2009; Lechner, 2011). For variables that did not satisfy the crucial parallel trends assumption, the synthetic control method was introduced.



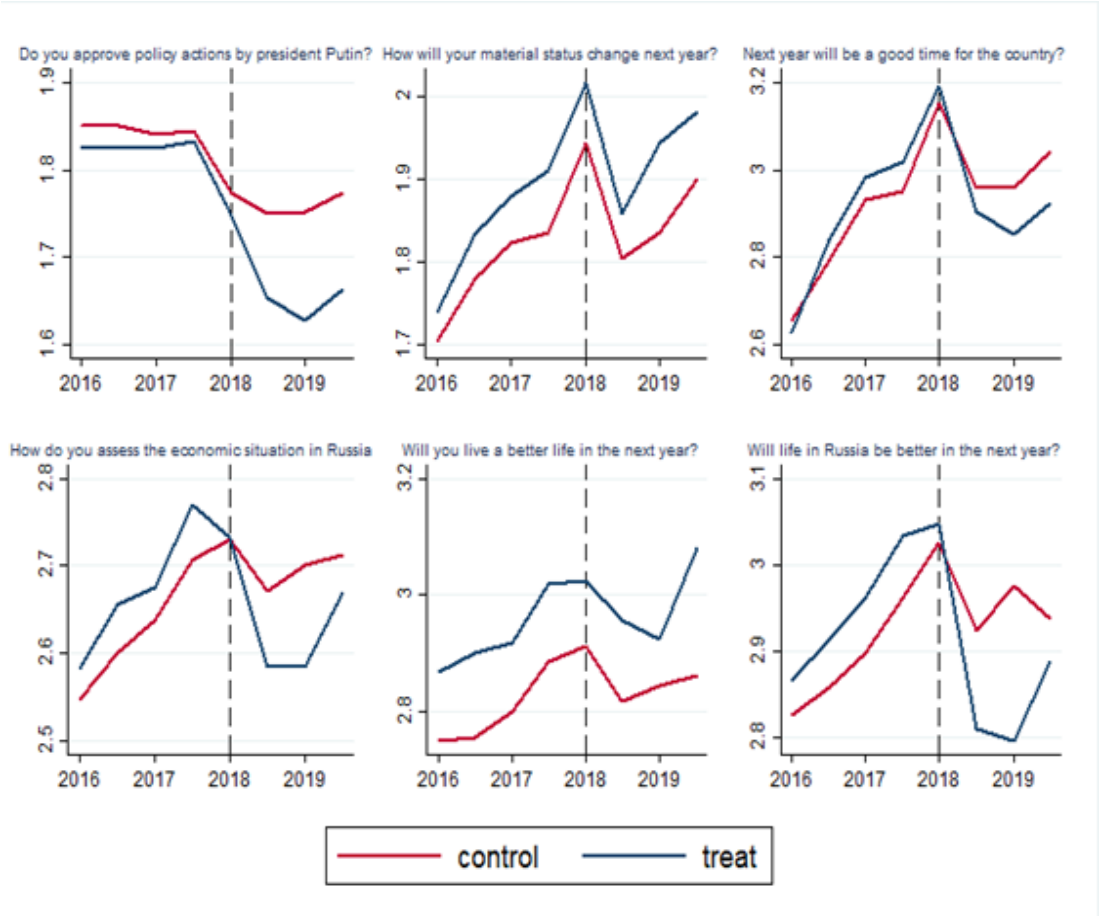


Figure 1. Parallel trends of studied variables

The synthetic control method is implemented if there is a specified treatment group with many potential control groups, and one cannot select which of them is the best choice (Abadie and Gardeazabal, 2003; Abadie et al., 2010). Hence, a weighted counterfactual of control groups is constructed based on predictors. A valuable advantage of this method is that it eliminates endogeneity issues generated by the omitted variable bias (Abadie et al., 2003). We estimate the following model:

$$Y_{it}^{N} = \alpha_t + \theta_t Z_i + \lambda_t \mu_i + \epsilon_{it}, \qquad (2)$$

where α_t is a constant factor (time trend), Z_i is a vector of observed factors with a coefficient θ_t, μ_i is a vector of unobserved factors with a coefficient λ_t, and ϵ_{it} is an error term. The evaluation was carried out using the *synth* package for statistical software Stata (Abadie et al., 2011). To examine whether the weighted counterfactual of control groups accurately represents the treatment group in the pre-intervention period, Abadie et al. (2010) use the Root Mean Square Percentage Error (RMSPE), which is the minimum average percentage of deviation of values before treatment, i.e. the pre-intervention difference between two trends which should be close to zero.

In our analysis with the synthetic control method, the treatment group consists of men who were from 44 to 58 in 2018 and women who were from 39 to 53 in 2018. To specify the control groups, we clustered individuals according to their year of birth with a 5-year step, so that the entire sample is stratified into several groups. All the birth cohorts with a 5-year category except the ones in the treatment group are assigned as control groups including young people alongside retirees. If the paths of the treatment and synthetic control

groups converge in the pre-treatment period and diverge in the post-treatment period, the intervention effect can be observed graphically. It is assumed that there was no pre-intervention influence of the reform on the treatment group (Abadie et al., 2010).

4. Empirical Results

4.1. Baseline Results

Main results consider variables from the RLMS-HSE dataset.

4.1.1. Difference-in-differences method

We first implemented the difference-in-differences method to those variables that satisfied the parallel trend assumption, namely, life satisfaction and satisfaction with personal finances (both from 2014), expectations about future personal financial status, and life in the next year. Since RLMS-HSE is a panel survey, the observations for treated and control agents in both post- and pre-treatment periods are obtained, which enables us to conduct a difference-in-difference analysis to control for unobservable characteristics that remain constant over time. The results in **Table 2** show the effect of the increase in retirement age on some indicators of economic sentiment and subjective well-being from the RLMS-HSE dataset. Our findings indicate that the pension reform resulted in lower assessment of the future life quality by 0.06 points, and in a higher fear of not being able to provide for necessities by 0.04 points among people close to retirement eligibility. We also analyzed the indicators of life satisfaction and satisfaction with financial status starting from the year 2014 since, for these variables, the parallel trends assumption holds for the 2014–2019 period (see **Figure 1**). However, the coefficients of the interaction terms for life satisfaction and satisfaction with financial status are not significant, hence we cannot state any causal inference from the increase in retirement age for these parameters of psychological attitudes.

Table 2. Difference-in-differences estimation of the increase in retirement age on economic sentiment variables, RLMS-HSE

	(1) life_sat (from 2014)	(2) money_future	(3) money_sat (from 2014)	(4) life_future
dP_1 (post-reform)	0.0235	-0.0335*	0.0892***	-0.150***
	(0.0169)	(0.0202)	(0.0169)	(0.0141)
dT_1 (treated)	-0.0881**	0.264***	-0.350***	0.254***
	(0.0364)	(0.0360)	(0.0372)	(0.0239)
$dT_i \times dP_i$	**-0.00902**	**0.0423****	**-0.00440**	**-0.0624*****
	(0.0185)	(0.0202)	(0.0186)	(0.0152)
Constant	2.990***	3.863***	2.310***	3.070***
	(0.0526)	(0.0508)	(0.0527)	(0.0336)
Fixed effects	yes	yes	yes	yes
Controls	yes	yes	yes	yes
Observations	39,374	55,858	39,380	45,743
R-squared	0.0690	0.0331	0.0488	0.0645

Note. This table displays estimates of **Eq. (1)**. Regressions control for cohort, year and region fixed effects. Robust clustered standard errors in parentheses. Significance levels: *** = 1%, ** = 5%, * = 10%.

4.1.2. Synthetic control method

Next, we examine the effect of the pension reform on life satisfaction, satisfaction with personal financial status, and the fear of losing a job for the period 2012–2019 using the synthetic control method. The analysis was conducted with the *synth* package for the statistical software Stata (Abadie et al., 2011). Inferences can be drawn from the graphical representation of the results. **Figure 2** shows that the pension reform had a major impact on life satisfaction of exposed individuals since the two lines representing treatment and synthetic control groups converge before the treatment (RMSPE equals 0.0048, i.e. is close to zero meaning that trends before the intervention were almost equal) and diverge after the intervention. This divergence shows the difference in life satisfaction for both groups due to the increase in the retirement age. The path for the treated group went down but the line for the control group went up right after the policy. Consequently, the two lines become closer to each other, meaning that the impact of the policy was abrupt only in the very short-term. The chosen explanatory variables that make the two lines converge in the pre-treatment period are lagged life satisfaction variables, satisfaction with financial status, trust, and beliefs in a future better life (**Appendix Table A3**).

In addition, the pension reform had a significant negative influence on satisfaction with the personal financial situation for people close to the retirement threshold. RMSPE is 0.008 and the explanatory variables for this indicator are trust, fear of not being able to provide necessities in future, and lagged financial satisfaction variable (**Appendix Table A4**). Considering the fear of losing a job, this indicator did not change abruptly after the policy as the line on the graph for the treatment group is flat and then goes down towards the synthetic control group. RMSPE is 0.024 and explanatory variables for this indicator are lagged fear of losing a job, satisfaction with personal financial status, fear of not being able to provide necessities in future, and education level (**Appendix Table A5**).

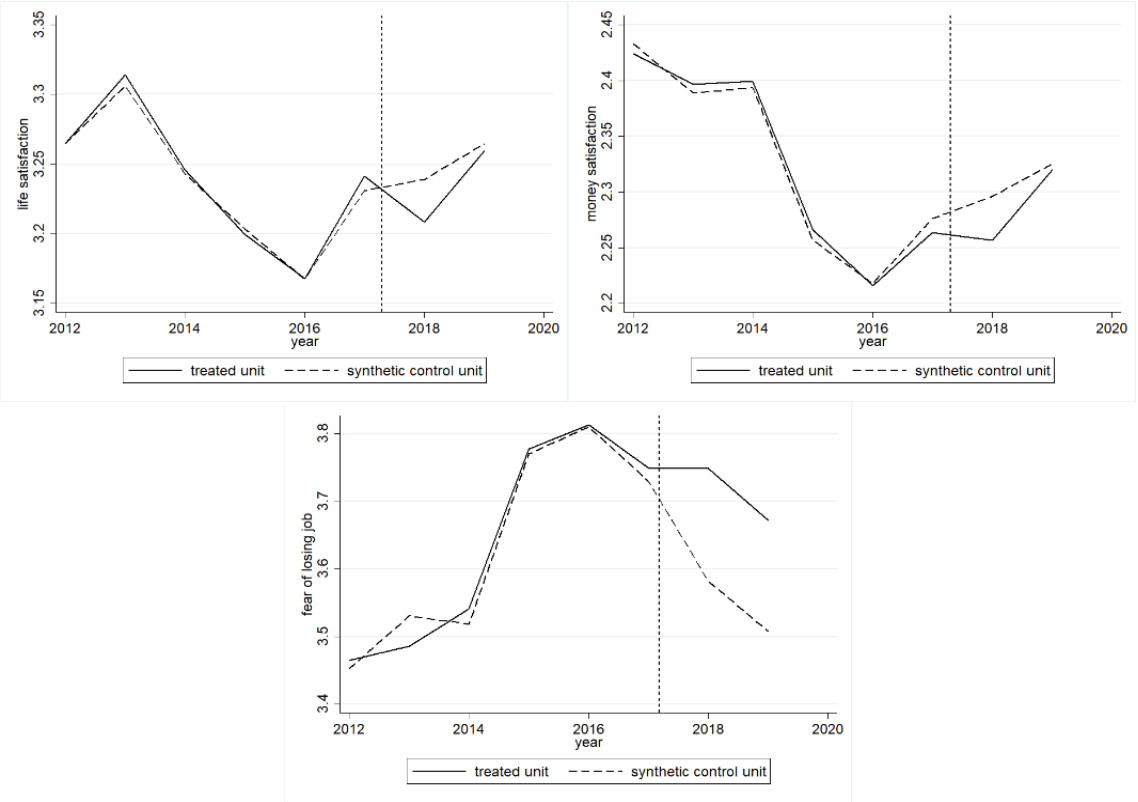


Figure 2. Synthetic control estimation of the increase in retirement age on economic sentiment variables, RLMS-HSE[14]

4.2. Alternative Results

The next step is to define the effects of the increase in retirement age on variables of economic sentiment derived from the Levada-Center as an alternative source of data. The evaluation strategy is similar to the previous one. We estimate **Equation 1** which identifies the causal effects (β_3) of the pension policy on the variables of interest. The results from **Table 3** suggest that the assessment of the situation in the country was lower by 0.104 points among people close to eligibility, relative to the control group, due to the increase in the retirement age. The pension policy also had a significant negative impact on the approval of policy actions by President Putin and the evaluation of the future economic and overall situation in the country for people close to the retirement threshold. Expectations about the economic situation in Russia in the next year followed the same negative pattern for people close to the retirement threshold due to the announcement of the policy. Lastly, we do not find any significant effect of the announcement of the increase in the retirement age on people's anticipation of their future financial situation and their beliefs in the improvements of their future life, hence we cannot state a causal relationship with these variables.

[14] Note that the intervention (vertical dashed line) is outlined closer to the year 2017 due to the peculiarities of the RLMS-HSE data collection. The survey is conducted between October and December; hence the 2018 data starts from October 2018, which is the first month following the official adoption of the reform. Thus, the results in 2018 fall into the post-treatment period and already represent the apparent differences between treatment and control groups.

Table 3. Difference-in-differences estimation of the increase in retirement age on economic sentiment variables, Levada-Center

VARIABLES	(1) affairs_rus	(2) presid	(3) money_future	(4) econ_future	(5) econ_rus	(6) life_future	(7) rus_future
dP_1 (post-reform)	-0.0349*	-0.0730***	0.0294	0.0900*	0.0487	0.0205	0.0305
	(0.0207)	(0.0223)	(0.0292)	(0.0515)	(0.0338)	(0.0275)	(0.0396)
dT_1 (treated)	0.00933*	-0.0205**	0.0590***	0.0372**	0.0373**	0.125***	0.0496**
	(0.00477)	(0.00811)	(0.0207)	(0.0186)	(0.0186)	(0.0383)	(0.0245)
$dT_i \times dP_i$	**-0.104*** **	**-0.0907*** **	**0.0226**	**-0.130** **	**-0.119*** **	**0.0213**	**-0.163*** **
	(0.0212)	(0.0237)	(0.0299)	(0.0536)	(0.0384)	(0.0467)	(0.0435)
Constant	1.635***	1.832***	1.817***	2.896***	2.646***	2.821***	2.915***
	(0.00354)	(0.00735)	(0.00603)	(0.00167)	(0.0119)	(0.0186)	(0.00920)
Observations	288	288	288	288	288	288	288
R-squared	0.402	0.409	0.119	0.032	0.083	0.248	0.15

Note. This table displays estimates of **Eq. (1)**. Robust standard errors in parentheses. Significance levels: *** = 1%, ** = 5%, * = 10%.

4.3. Robustness checks

In this section, we perform robustness checks of our findings. First, we check robustness of the results derived using the difference-in-differences method by varying the time window of the pre-treatment period. Specifically, we change the first year of the analysis from 2012 to 2013 and from 2016 to 2015 for the baseline and additional results, respectively. Our analysis shows that the main results are generally robust to alternative time window specifications (**Appendix Table A6**). Second, we assign a fake treatment group, i.e. young individuals within a 15-year cohort (men 25–39 years old and women 20–34 years old in 2018), and leave the control group as it is. The results show that all estimators from the main results are robust to this specification (**Appendix Table A7**).

To check the robustness of the results derived using the synthetic control method, we conduct a "backdating" test, in which we reassign the treatment to occur in the year 2015 (Abadie, forthcoming). We find that for life satisfaction, satisfaction with personal financial status, and the fear of losing a job the synthetic unit for a placebo treatment in 2015 follows the path of the actual treated unit with little divergence (**Appendix Fig. A1**). Hence, the results are robust as there is no shock from a fake intervention in 2015.

5. Conclusions

This study assesses the immediate causal effects of the 2018 pension reform on the subjective well-being and economic sentiment of Russian individuals and examines its impact on presumably more exposed people close to the retirement threshold. We use the difference-in-differences and the synthetic control methods as an empirical approach. Overall, our results show a negative effect of the pension reform on subjective well-being and economic sentiment of men who were from 44 to 58 and women who were from 39 to 53 years old in 2018 compared to other age groups less immediately affected by the reform. In particular, the increased retirement age resulted in a lower assessment of the overall situation in

the country, the evaluation of quality of life in Russia, and diminished expectations of future financial status of people close to the retirement threshold. Exposed individuals became less confident in the current and future economic situation in the country. We find that the need to adjust to the unanticipated retirement shock had a significant negative influence on economic sentiment and subjective well-being of affected individuals.

In comparison to empirical research on the consequences of early retirement (Börsch-Supan and Jürges, 2009), our study analyses the causal effects of the unexpected increase in retirement age. There is similar research that studies the causal relationship between an exogenous shock in retirement expectations and subjective and objective well-being. Research on this subject identifies a negative effect on job satisfaction among younger cohorts due to social comparisons (Montizaan and Vendrik, 2014), a deterioration of mental health due to unanticipated loss of retirement income (de Grip et al., 2012) and a decrease in productivity and work motivation among negatively reciprocal employees (Montizaan et al., 2016). Our study is unique in identifying the effect of an abrupt increase in retirement age on various economic sentiment parameters. Moreover, unlike studies that analyze sole measure of a studied variable (Falba et al., 2008; Montizaan et al., 2016), we examine versatile characteristics of economic sentiment and subjective well-being, thus exploring the issue from different perspectives.

A stagnant economy, and the economic and political sanctions imposed on Russia might have exacerbated the negative perception of the reform and increased the feelings of insecurity and mistrust in the system in general. The unanticipated increase in the retirement age has disrupted people's expectations for their future, especially for those who were close to retirement. As a consequence of the growing backlash and uncertainty, people became more pessimistic about the economic and political situation in the country and less satisfied with their lives more generally. The abrupt announcement of the policy fueled the grievances of the population. It left pre-pensioners no time to adjust to the new reality and might have provoked a feeling of being fooled, affecting their objective and subjective well-being.

Economic sentiment represents optimism or pessimism that drives consumer behavior and affects household decisions in different areas of life. Our findings argue that decreased confidence in the future of the country’s economy and personal financial circumstances may contribute to declining consumption, lower fiscal revenues, and deferral of investment expenditures. Furthermore, negative societal attitudes may have an impact on banks, in terms of mitigating credit activities and can jeopardize public policies. Poor economic sentiment may affect individual’s behavior in investment markets and bring them down. It also corresponds to increased precautionary savings since people close to retirement have less time to adjust for the unexpected shock compared to younger individuals. Considering labor market outcomes, negative economic sentiment may result in decreased job satisfaction and thus increased unemployment.

A decline in economic sentiment parameters can signal feelings of unfairness and distrust in the government’s actions. Decreased subjective well-being should raise awareness and enhance focus on the socio-economic needs of elderly individuals. It is important to take into consideration these consequences when modeling a policy implementation. However, aside from the statistical significance of the results, there is also an economic significance.

The real effects of the increase in retirement age may outweigh the effects from the decreased economic sentiment and subjective well-being of individuals. However, this is yet to be determined. Our findings are a step forward in identifying the results of the pension policy. Further analysis may be fruitfully extended to empirically detect the miscellaneous consequences of the Russian pension reform in 2018 on the labor market, patterns of saving and consumption, and health behavior.

References

Abadie A. (forthcoming). Using Synthetic Controls: Feasibility, Data Requirements, and Methodological Aspects. *Journal of Economic Literature.*

Abadie A., Gardeazabal J. (2003). The economic costs of conflict: A case study of the Basque Country. *American Economic Review*, 93 (1), 113–132.

Abadie A., Diamond A., Hainmueller J. (2010). Synthetic control methods for comparative case studies: Estimating the effect of California's Tobacco Control Program. *Journal of the American Statistical Association*, 105 (490), 493–505.

Abadie A., Diamond A., Hainmueller J. (2011). Synth: An R package for synthetic control methods in comparative case studies. Journal of Statistical Software, 42 (13), 1–17.

Ai C., Norton E.C. (2003). Interaction terms in logit and probit models. *Economics Letters*, 80 (1), 123–129.

Akerlof G., Shiller R. (2010). *Animal spirits: How human psychology drives the economy, and why it matters for global capitalism* (1st ed.). Princeton University Press.

Angrist J.D., Krueger A.B. (1999). Chapter 23 – Empirical Strategies in Labor Economics (O. C. Ashenfelter & D. Card, Eds.). *Handbook of Labor Economics*, 3, 1277–1366.

Angrist J., Pischke J.-S. (2009). *Mostly Harmless Econometrics: An Empiricist's Companion* (1st ed.). Princeton University Press.

Ashenfelter O., Card D. (1985). Using the longitudinal structure of earnings to estimate the effect of training programs. *The Review of Economics and Statistics*, 67 (4), 648–60.

Athey S., Imbens G.W. (2006). Identification and inference in nonlinear difference-in-differences models. *Econometrica*, 74 (2), 431–497.

Attanasio O.P., Brugiavini A. (2003). Social security and households' saving. *The Quarterly Journal of Economics*, 118 (3), 1075–1119.

Bertoni M., Brunello G., Mazzarella G. (2018). Does postponing minimum retirement age improve healthy behaviors before retirement? Evidence from middle-aged Italian workers. *Journal of Health Economics*, 58, 215–227.

Bertrand M., Duflo E., Mullainathan S. (2004). How much should we trust differences-in-differences estimates? *The Quarterly Journal of Economics*, 119 (1), 249–275.

Białowolski P. (2019). Economic sentiment as a driver for household financial behavior. *Journal of Behavioral and Experimental Economics*, 80, 59–66.

Blundell R., Macurdy T. (1999). Chapter 27 – Labor Supply: A Review of Alternative Approaches (O.C. Ashenfelter, D. Card (eds.). *Handbook of Labor Economics*, 3, 1559–1695.

Börsch-Supan A., Jürges H. (2006). *Early Retirement, Social Security and Well-Being in Germany* (NBER Working Papers No. 12303), National Bureau of Economic Research, Inc.

Brodeur A., Connolly M. (2013). Do higher child care subsidies improve parental well-being? Evidence from Quebec's family policies. *Journal of Economic Behavior & Organization*, 93, 1–16.

Brunello G., Comi S. (2015). The side effect of pension reforms on the training of older workers. Evidence from Italy. *The Journal of the Economics of Ageing*, 6, 113–122.

Card D., Krueger A.B. (1994). Minimum wages and employment: A case study of the fast-food industry in New Jersey and Pennsylvania. *American Economic Review*, 84 (4), 772–793.

Cribb J., Emmerson C., Tetlow G. (2016). Signals matter? Large retirement responses to limited financial incentives. *Labour Economics*, 42, 203–212.

de Grip A., Lindeboom M., Montizaan R. (2012). Shattered dreams: The effects of changing the pension system late in the game. *The Economic Journal*, 122 (559), 1–25.

Deaton A. (1985). Panel data from time series of cross-sections. *Journal of Econometrics*, 30 (1), 109–126.

Diener E., Oishi S., Lucas R.E. (2002). Subjective well-being: The science of happiness and life satisfaction (S.J. Lopez, C.R. Snyder, Eds.). *The Oxford Handbook of Positive Psychology*, 63–73.

Falba T.A., Gallo W.T., Sindelar J.L. (2008). Work expectations, realizations, and depression in older workers. *The Journal of Mental Health Policy and Economics*, 12 (4), 175–186.

Greene W. (2010). Testing hypotheses about interaction terms in nonlinear models. *Economics Letters*, 107 (2), 291–296.

Hanel B., Riphahn R.T. (2012). The timing of retirement – New evidence from Swiss female workers. *Labour Economics*, 19 (5), 718–728.

Heckman J.J., Robb R. (1985). Alternative methods for evaluating the impact of interventions: An overview. *Journal of Econometrics*, 30 (1), 239–267.

Imbens G., Wooldridge J. (2007). *What's new in econometrics? Difference-in-differences estimation* (Lecture 10 for NBER summer 2007).

Kahneman D., Krueger A.B. (2006). Developments in the measurement of subjective well-being. *Journal of Economic Perspectives*, 20 (1), 3–24.

Kahneman D., Tversky A. (1979). Prospect Theory: An Analysis of Decision under Risk. *Econometrica*, 47(2), 263–291.

Keynes J.M. (1936). *The general theory of employment, interest and money*. Macmillan.

Lalive R., Staubli S. (2015). *How does raising women's full retirement age affect labor supply, income, and mortality* (Paper NB 14-09), NBER Retirement Research Center.

Lechner M. (2011). The estimation of causal effects by difference-in-difference methods. *Foundations and Trends(R) in Econometrics*, 4 (3), 165–224.

Manoli D.S., Weber A. (2016). *The effects of the early retirement age on retirement decisions* (NBER Working Papers No. 22561), National Bureau of Economic Research, Inc.

Martins P.S., Novo A.A., Portugal P. (2009). *Increasing the legal retirement age: The impact on wages, worker flows and firm performance* (IZA Discussion Papers No. 4187), Institute of Labor Economics (IZA).

Montizaan R.M., Vendrik M.C. (2014). Misery Loves Company: Exogenous shocks in retirement expectations and social comparison effects on subjective well-being. *Journal of Economic Behavior & Organization*, 97, 1–26.

Montizaan R., Cörvers F., de Grip A. (2010). The effects of pension rights and retirement age on training participation: Evidence from a natural experiment. *Labour Economics*, 17 (1), 240–247.

Montizaan R., de Grip A., Cörvers F., Dohmen T. (2016). The impact of negatively reciprocal inclinations on worker behavior: Evidence from a retrenchment of pension rights. *Management Science*, 62 (3), 668–681.

Norton E., Wang H., Ai C. (2004). Computing interaction effects and standard errors in logit and probit models. *Stata Journal*, 4 (2), 154–167.

OECD. (2017). *Pensions at a Glance 2017: OECD and G20 Indicators.*

OECD. (2016). *OECD Business and Finance Outlook 2016*.

Rudolf R. (2014). Work shorter, be happier? Longitudinal evidence from the Korean Five-Day Working Policy. *Journal of Happiness Studies*, 15 (5), 1139–1163.

Staubli S., Zweimüller J. (2013). Does raising the early retirement age increase employment of older workers? *Journal of Public Economics*, 108, 17–32.

Verbeek M., Nijman T. (1992). Can cohort data be treated as genuine panel data? *Empirical Economics*, 17 (1), 9–23.

World Bank, World Development Indicators. (2018). *Life expectancy at birth (years), Russian Federation.* Retrieved from https://data.worldbank.org/indicator/SP.DYN.LE00.MA.IN?locations=RU, https://data.worldbank.org/indicator/SP.DYN.LE00.FE.IN?locations=RU.

Appendix

Table A1. Parameters of economic sentiment and subjective well-being, RLMS-HSE and Levada-Center

Variables	Questions
RLMS-HSE	
lose_job	"Are you worried that you could lose your job in the future?"
life_sat	"Are you satisfied with your life nowadays?"
money_future	"Do you fear not being able to provide necessities in the future?"
money_sat	"Are you satisfied with your financial status?"
life_future	"Will your life be better in the next 12 months?"
Levada-Center	
affairs_rus	"Does the situation in the country go in the right direction?"
presid	"Do you approve policy actions by President Vladimir Putin?"
money_future	"How will your financial status change next year?"
econ_future	"Next year will be a good or a bad time for the country's economy?"
econ_rus	"How do you assess the overall economic situation in Russia?"
life_future	"Will you live a better life in the next year?"
rus_future	"Will life in Russia be better in the next year?"

Table A2. Descriptive statistics

Variables	Obs	Mean	Std. Err.	[95% Conf.	Interval]	Min	Max
RLMS-HSE							
lose_job	69,144	3.513942	0.0050309	3.504081	3.523802	1	5
life_sat	126,647	3.309609	0.0029924	3.303744	3.315474	1	5
money_future	125,948	3.715009	0.0034983	3.708153	3.721866	1	5
money_sat	126,138	2.45317	0.0032297	2.44684	2.4595	1	5
life_future	103,765	3.122517	0.0025655	3.117489	3.127546	1	5
Levada-Center							
affairs_rus	37,370	1.609607	0.0025236	1.60466	1.614553	1	2
presid	38,067	1.609607	0.0021304	1.773742	1.782093	1	2
money_future	23,659	1.849191	0.0039651	1.841419	1.856962	1	3
econ_future	24,917	2.902998	0.0064849	2.890287	2.915709	1	5
econ_rus	17,553	2.658235	0.0055062	2.647442	2.669028	1	5
life_future	15,032	2.900546	0.0067492	2.887316	2.913775	1	5
rus_future	16,899	2.919862	0.0064809	2.907158	2.932565	1	5

Table A3. Synthetic control method, predictors and weights for life satisfaction

cohorts by age in 2018	treated	synthetic
life_sat (2013)	3.313927	3.306013
life_sat (2015)	3.19955	3.203532
life_sat (2016)	3.16783	3.167481
life_sat (2017)	3.241303	3.23102
life_sat (2014)	3.245965	3.243004
money_sat	2.327639	2.451605
trust	1.70841	1.698862
life_future	3.087711	3.068628

cohorts by age in 2018	unit weight
male 75-80 female 70-74	0.453
male 70-74 female 65-69	0
male 65-69 female 60-64	0
male 60-64 female 55-59	0.045
male 44-58 female 39-53	**treated**
male 39-43 female 34-38	0.285
male 34-38 female 29-33	0
male 29-33 female 24-28	0.216
male 24-28 female 19-23	0
male 19-23 female 15-18	0

Table A4. Synthetic control method, predictors and weights for satisfaction with the personal financial status

predictor balance	treated	synthetic
money_sat (2012)	2.423975	2.432748
money_sat (2013)	2.396785	2.388698
money_sat (2016)	2.215944	2.217954
money_sat (2017)	2.263824	2.276022
money_future	3.915622	3.86843
trust	1.70841	1.6792

cohorts by age in 2018	unit weight
male 75-80 female 70-74	0
male 70-74 female 65-69	0
male 65-69 female 60-64	0
male 60-64 female 55-59	0.187
male 44-58 female 39-53	**treated**
male 39-43 female 34-38	0.813
male 34-38 female 29-33	0
male 29-33 female 24-28	0
male 24-28 female 19-23	0
male 19-23 female 15-18	0

Table A5. Synthetic control method, predictors and weights for fear of losing a job

predictor balance	treated	synthetic
lose_job (2012)	3.465308	3.452337
lose_job (2015)	3.777063	3.770218
lose_job (2016)	3.813433	3.810349
lose_job (2017)	3.749297	3.729632
money_sat	2.327639	2.348729
money_future	3.915622	3.861417
educ_level	5.386806	5.345276

cohorts by age in 2018	unit weight
male 75-80 female 70-74	0.453
male 70-74 female 65-69	0
male 65-69 female 60-64	0
male 60-64 female 55-59	0.585
male 44-58 female 39-53	**treated**
male 39-43 female 34-38	0.413
male 34-38 female 29-33	0.003
male 29-33 female 24-28	0
male 24-28 female 19-23	0
male 19-23 female 15-18	0

Table A6. Robustness check for the alternative time window, baseline results

	(1) life_sat (from 2015)	(2) money_future (from 2013)	(3) money_sat (from 2015)	(4) life_future (from 2013)
dP_1 (post-reform)	0.0162	-0.0351*	0.0798***	-0.0776***
	(0.0170)	(0.0196)	(0.0170)	(0.0141)
dT_1 (treated)	-0.105***	0.293***	-0.390***	0.233***
	(0.0387)	(0.0384)	(0.0394)	(0.0260)
$dT_i \times dP_i$	**0.00259**	**0.0370***	**0.0150**	**-0.0512*****
	(0.0189)	(0.0203)	(0.0189)	(0.0155)
Constant	3.008***	3.852***	2.340***	3.005***
	(0.0549)	(0.0547)	(0.0553)	(0.0369)
Fixed effects	yes	yes	yes	yes
Controls	yes	yes	yes	yes
Observations	32,748	47,447	32,763	38,780
R-squared	0.0700	0.0327	0.0496	0.0560

Note. This table displays estimates of **Eq. (1)**. Regressions control for cohort, year and region fixed effects. Robust clustered standard errors in parentheses. Significance levels: *** = 1%, ** = 5%, * = 10%.

Table A7. Robustness check for a pseudo treatment group, baseline results

	(1) life_sat (from 2014)	(2) money_future	(3) money_sat (from 2014)	(4) life_future
dP_1 (post-reform)	0.0344**	-0.0158	0.00995	-0.0967***
	(0.0174)	(0.0207)	(0.0178)	(0.0138)
dT_1 (treated)	0.565***	-0.484***	0.593***	0.348***
	(0.0332)	(0.0336)	(0.0345)	(0.0196)
$dT_i \times dP_i$	**-0.0186**	**-0.00329**	**-0.00520**	**-0.0114**
	(0.0186)	(0.0215)	(0.0196)	(0.0146)
Constant	3.269***	3.556***	2.630***	3.197***
	(0.0481)	(0.0499)	(0.0516)	(0.0309)
Fixed effects	yes	yes	yes	yes
Controls	yes	yes	yes	yes
Observations	41,813	57,028	41,636	47,602
R-squared	0.0519	0.0513	0.0498	0.1209

Note. This table displays estimates of **Eq. (1)**. Regressions control for cohort, year and region fixed effects. Robust clustered standard errors in parentheses. Significance levels: *** = 1%, ** = 5%, * = 10%.

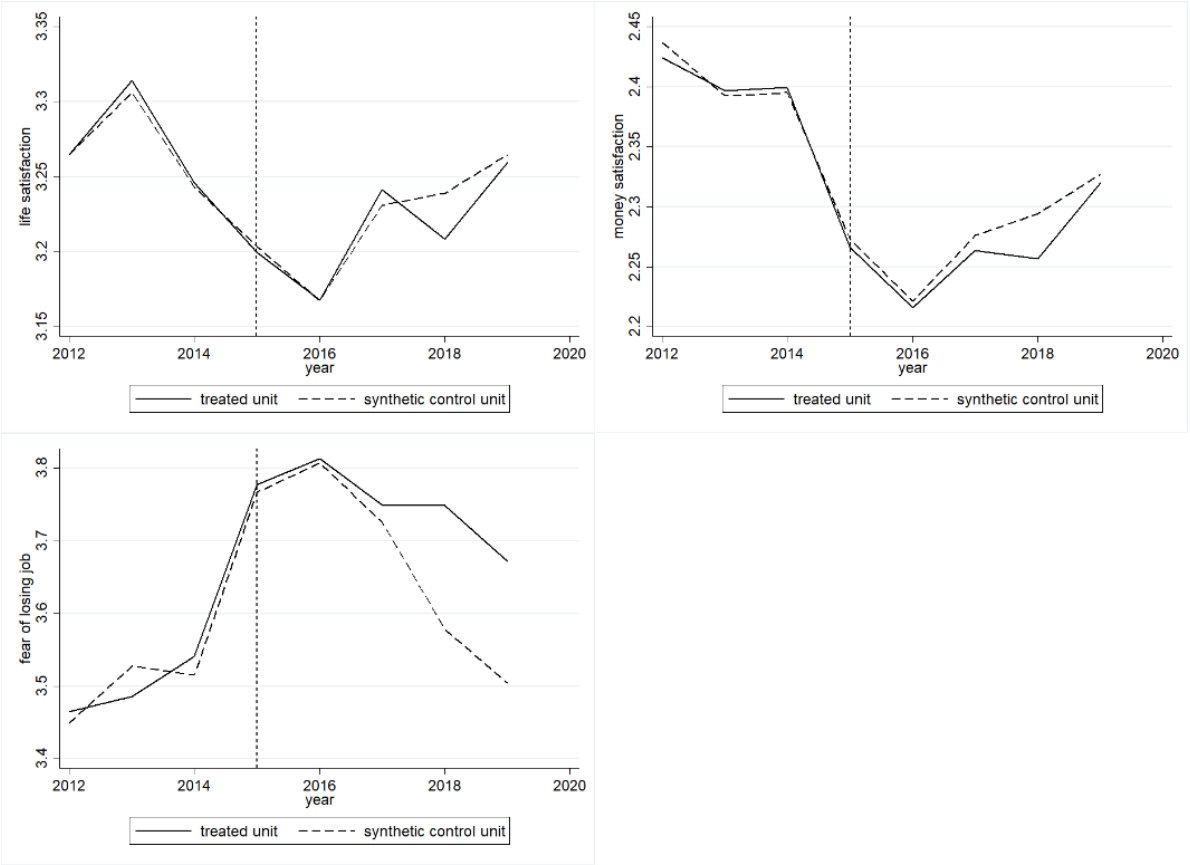


Fig. A1. Robustness check using a backdating test for synthetic control method, baseline results

Родина, А.

Путь к лучшей жизни? Оценка первоначальных эффектов российской пенсионной реформы [Электронный ресурс] : препринт WP3/2021/04 / А. Родина ; Нац. исслед. ун-т «Высшая школа экономики». – Электрон. текст. дан. (605 Кб). – М. : Изд. дом Высшей школы экономики, 2021. – (Серия WP3 «Проблемы рынка труда»). – 26 с. (На англ. яз.)

В 2018 г. пенсионный возраст в России был повышен с 60 до 65 лет для мужчин и с 55 до 60 лет для женщин. Данная мера была мотивирована необходимостью удержания под контролем дефицита Пенсионного фонда Российской Федерации из-за старения населения и сокращения рабочей силы в стране. Настоящая работа оценивает воздействие повышения пенсионного возраста в 2018 г. на субъективное благополучие и экономическое настроение россиян. С помощью метода «разность разностей» и метода синтетического контроля показано, что у людей, близких к границе пенсионного возраста и, предположительно, наиболее подверженных влиянию реформы, снизилась уверенность в текущем и будущем экономическом положении в России, а также ухудшились ожидания относительно собственного будущего.

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