

Consumption Smoothing of Pensioners in Urban Russia

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In this paper we investigate consumption smoothing strategies of Russian pensioners. Using regression discontinuity design we find that food and non-durable consumption falls upon retirement. We find that labour supply and government subsidies are important mechanisms of consumption smoothing for pensioners. We study the change in subjective perception of minimum income and compare it to the change in total consumption at retirement. We find that the subjective perception of minimum income changes similar to total consumption.

JEL Classification: D9; E2.

Key words: Consumption, Retirement, Regression discontinuity.

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Consumption Smoothing at Times of Retirement in Urban Russia

In this paper we investigate consumption smoothing strategies of Russian pensioners. Using regression discontinuity design we find that food and non-durable consumption falls upon retirement. We find that labour supply and government subsidies are important mechanisms of consumption smoothing for pensioners. We study the change in subjective perception of minimum income and compare it to the change in total consumption at retirement. We find that the subjective perception of minimum income changes similar to total consumption.

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1. Introduction

During 1999 – 2008 Russian private consumption almost doubled and accounted, on average, for 50 percent of GDP.¹ The expansion of private consumption was accompanied by rapid population aging. Russia's population, already relatively old, is expected to continue to age, so that by 2025 one person in every five will be over the age of 65 (Chawla et al., 2007). Despite a period of impressive economic growth (1999 - 2007), pensioners' standards of living remain relatively low. The average income replacement rate of pensions did not exceed 28 percent during the 2000s (State Statistics Service, 2009).

The aim of this paper is to investigate the impact of retirement on household consumption and smoothing strategies. Taking into account the growing number of elderly and the increasing importance of private consumption, we contribute to an important topic in the analysis of aggregate economic fluctuations and the economic policy debate.

The theoretical models developed first by Modigliani and Brumberg (1954) and Friedman (1957) are the basis for analyzing household consumption choices over the life cycle. According to the life-cycle model of consumption, forward-looking agents smooth their marginal utility of consumption across predictable income changes such as retirement. Empirical papers looking into the consumption patterns of older people often find that there is a one-off drop in consumption at retirement. One of the first empirical papers to look at the changes in consumption at retirement is Hamermesh (1984). He

¹ State Statistics Service (2009): Russia in figures 2009. Moscow, Goskomstat Rossii, p.112.

found that American consumers experience a sharp fall in expenditure in the first years after retirement. More recent studies for the US report a decrease in consumption expenditures of at least 5 percent (see Aguiar and Hurst, 2007; Fisher et al., 2008). However the consumption drop varies across different consumption categories. Aguiar and Hurst (2007) report that spending on food consumption falls by 7 percent while spending on clothing and transport fall by 18 and 15 percent respectively. Evidence on the differential expenditure decline is not limited to the US. Banks et al. (1998) report a similar consumption pattern of retired households in Britain. Miniaci et al. (2010) and Battistin et al. (2009) provide similar evidence for Italy. The consumption drop at retirement is also documented for Germany (e.g. Schwerdt, 2005 and Lührmann, 2010).

A considerable number of studies have concentrated on the consumption smoothing abilities of Russian households in response to transitory income shocks such as the economic crisis of 1998. Recent evidence for Russia (e.g. Skoufias, 2003) indicates that Russian households were able to implement self-insurance strategies such as increasing their labour supply, borrowing and selling assets in response to income shocks. Gerry and Li (2010) analyze household smoothing abilities in Russia and find that that the labour market is an important mechanism allowing households to smooth their consumption. The role of government transfers is examined by Lokshin and Yemtsov (2004). They conclude that the system of a formal social safety net was not able to protect Russian households from a transitory income shock in 1998. Finally, Stillman and Thomas (2008) found that household nutrient intake remained constant despite falling expenditures in 1998.

To study the consumption drop of Russian households we use data on food and non-durable consumption available from the survey of household welfare and participation in social programs (henceforth NOBUS). To identify the effect of retirement on consumption, we rely on the exogenous variability in pension eligibility in the framework of a regression discontinuity design (see Hahn et al., 2001).

This study contributes to the literature in three distinct ways. First, we estimate the change in consumption associated with retirement taking into the account heterogeneous decline in different consumption categories. Previous research (see Abasieva et. al, 2010) found a substantial decline in total consumption. In this paper we look separately into consumption of food and non-durables and find substantial heterogeneity across consumption categories. Second, we review important mechanisms of consumption smoothing of Russian pensioners: labour supply and government transfers. Both are found to be important for consumption smoothing. Third we compare the change in the perception of minimum income necessary to make the ends meet to the change in total consumption. We find that decline in the perception of minimum income is similar to the change in total consumption around the time of retirement.

The remainder of this paper is organized as follows. Section 2 describes the Russian pension system. Section 3 describes the data on and definitions of eligibility and retirement. Section 4 presents an identification strategy to deal with the endogenous choice of retirement. Section 5 presents empirical results. We draw conclusions in Section 6.

2. The pension system in Russia

Russia's public pension insurance system was designed in the 1950s and 1960s and was the only source of retirement income in the former USSR. Following the collapse of the Soviet Union, the Russian Federation adopted its own mandatory and almost uniform system of public pension insurance. The system covers both state and private workers as well as self-employed people working in both urban and rural areas. In addition to work-related pensions, social pensions and private pensions were introduced.

Individuals may claim the unreduced pension after accumulating 25 (20) years of service and reaching the legal retirement age of 60 for males and 55 for females. The income replacement rate is set at 55 percent of the average salary in the last two years of employment or any best 5 years of service.² The Russian pension code contains special provisions for various groups of workers. Individuals employed in the Far North and/or working in hazardous conditions are entitled to early unreduced pensions. Sinyavskaya (2005) reports that in 2003 nearly 24 percent of new pension claims were based on special provisions.

Russian legislation has no provision restricting the right of pensioners to work. In fact Maleva and Sinjavskaja (2007) and Nivorozhkina (2007), find that the vast majority of pensioners continue working while receiving a pension, most of them with the same employer. Moreover, younger cohorts indicate greater willingness to continue working after reaching retirement age. In this respect the Russian pension system may be viewed as a provider of a supplementary income for older households.

3. Data

² At the same time there is an upper cap on pensions. According to federal legislation the maximum pension may not exceed 3 minimum pensions. For every additional year of contribution the upper cap on pensions may rise by 1 percent but may not exceed a total of 20 percent.

We use information on consumption and pension status obtained from the NOBUS survey.³ The survey also provides information on a range of demographic, education, employment and income variables. The survey was developed by the World Bank and was administered by the Federal State Statistics Service (Rosstat) in the 2nd quarter of 2003. The survey uses a random sample of 44,529 households and 117,209 people. Such a sample size makes it possible to obtain representative data both at national and regional level (see Ovcharova and Tesluk, 2008).

The information on food consumption collected with the NOBUS survey is comprehensive and includes purchased food, including food consumed away from home; food that is home-produced; food received as a gift or remittances from other households as well as food received from an employer as payment in kind.⁴ The estimated food consumption is adjusted to take regional price differences into account and includes the value of food produced at home or received as a gift.⁵ Non-durable consumption is computed in a similar way to food consumption. For the purpose of our study we include in non-durable consumption the value of health; housing, communication; recreation and culture and education expenditures. Non-durable consumption also includes the value of government subsidies received by Russian households for expenditures on housing, medical care and transport.⁶

We define individuals as being eligible to retire when they reach the statutory retirement age. To define the retirement status we use the respondent's self-reported status. An individual is defined as retired if he/she reports receiving a work-related old-

³ NOBUS is a publicly available dataset and may be downloaded at <http://go.worldbank.org/VWPUL3S9F0>.

⁴ We would like to thank Lilia Ovcharova and Emil Tesluk for sharing the code to compute consumption aggregates. The code is available at <http://go.worldbank.org/VWPUL3S9F0>.

⁵ To avoid taking work related expenditures into account we exclude the value of food consumed regularly outside the home.

⁶ In our estimation we use the household-adjusted OECD scale.

age pension. As explained in Section 2, some groups of workers may receive an unreduced work-related pension before reaching the statutory retirement age.

In the estimation we take the head of the household to be the oldest male living in the household aged 50 to 70 years. We exclude households situated in rural areas because of the problems associated with assigning monetary value to food produced at home and/or received in kind and small number of observations available in the dataset. We restrict the sample to households whose heads are either employed or retired and receiving a work-related pension. Finally, households with missing information on consumption are excluded from the analysis. The total number of observations is equal to 6,475.

4. Identification strategy

The probability of becoming a pensioner changes discontinuously when an individual reaches retirement age. In this respect the decision to retire may correspond to the regression discontinuity design (e.g. Trochim, 1984; Hahn et al., 2001; Lee and Card, 2008; Imbens and Lemieux, 2008). The idea underlying the regression discontinuity design is to compare individuals who are marginally above or below some known eligibility threshold (retirement age in our case) where the probability of being retired changes discontinuously. Such individuals should have similar characteristics except for retirement status. In other words, inference made on the basis of a sample of individuals marginally above and below some known threshold can be as good as a randomized experiment (Lee and Lemieux, 2010).⁷

⁷ A consequence of a randomized experiment is that assignment to treatment is independent of the observed covariates.

In regression discontinuity design, treatment is determined based on a value of an observed “assignment” variable (age in our case) exceeding a known cut-off (threshold) point. The assignment variable may correlate with potential outcomes, but it is assumed to be smooth so any discontinuity in the conditional distribution of the outcome, indexed by the value of this covariate at the cut-off value, is interpreted as evidence of a causal effect of the treatment.

In order to give the effect casual interpretation we need to impose an assumption of smoothness – continuity of conditional regression functions. The assumption implies that all factors (observed and unobserved) influencing the outcome should be smooth functions in the close proximity to the cut-off.

As was discussed in the previous section, being eligible for a pension does not necessarily imply that an individual actually receives a pension. Some individuals receiving an old-age pension have not reached retirement age and retire on the basis of special legal provisions. On the other hand retirement is not mandatory. The decision to retire fits the fuzzy regression discontinuity design. The causal effect of retirement on consumption can be estimated using two-stage least squares (TSLS) where the endogenous variable, pension receipt, is instrumented by the dummy variable – reaching retirement age.⁸ For this instrument we specify the following regression of household consumption on the retirement status.

$$Y = \beta_0 + \beta_1 P + f(X - c) + \varepsilon \quad (1)$$

$$P = \gamma_0 + \gamma_{1E} + g(X - c) + v \quad (2)$$

⁸ See also Imbens and Angrist (1994).

where P is a dummy variable that is equal to 1 if the individual receives pension and 0 otherwise. The decision to retire is instrumented by a dummy variable E that takes the value 1 if the individual has reached retirement age and 0 otherwise, $f(\cdot)$ and $g(\cdot)$ are flexible functions of age.

5. Empirical analysis

In this section we present the results of the estimation of the fall in consumption due to retirement induced by eligibility. Three sets of results are presented for food consumption, non-durable consumption and total consumption (sum of the previous two categories).

In the empirical modelling we follow the work of Battistin et al. (2009) and use a parametric approach which provides a reasonable fit to the data. We limited the estimation sample to a 10-year band before and after pension eligibility. In the estimation, people who are within three months of their 60th birthday are excluded, as the recall questions on consumption for those who are retiring may cover both pre- and post-retirement periods. As a smoothing parameter we choose a second-order polynomial.

5.1. Graphical presentation

We start with a graphical presentation of pension take-up rates and consumption change due to retirement. In all cases we also show the fitted values from a quadratic regression model estimated separately on either side of the cut-off. In Figure 1 panel a presents the proportion of retired heads of households by time to/from eligibility. We observe a steady increase in the number of pension claims as people approach the

threshold of retirement eligibility. Crossing the threshold is clearly associated with a discontinuous increase in pension take-up rates.

We next examine the distribution of consumption data. Figure 1 presents the results for total consumption (see panel b.) and food (see panel c.) and non-durable consumption (see panel d.) separately. We observe a significant decline, at the threshold, for total and food consumption. At the same time we do not observe a change in non-durable consumption upon reaching retirement age.⁹

5.2. Definition of retirement status

It has been documented previously that the labour force participation of Russian pensioners is high compared to OECD countries. As we mentioned in the previous section, Russian pension law does not penalize working pensioners and thus provides them with the possibility to supplement their pension with labour income. The practice of relying on a pensioner's labour was typical of the Soviet system and has survived until the present day. Moreover, the income replacement rate of pensions in Russia (the ratio of average pensions to average wages) does not exceed 25 percent and thus additional wages may be an important source of income for pensioners.

Using the Russian Longitudinal Monitoring Survey (RLMS) for the 1992 - 1998 period, Kolev and Pascal (2003) found that approximately 35 percent of males aged 60 – 65 were employed. In our data we observe a sizable drop in the number of hours worked as individuals cross the retirement threshold (see Figure 2, panel a). We define the retirement status as receiving a pension and working zero hours.¹⁰ According to the new

⁹ In estimations we account for the household size by using the household-adjusted OECD scale.

¹⁰ We also looked at alternative measures of employment: positive wages and having a paid job. The results appear to be similar.

definition we find a higher share of pensioners in work and a declining trend as people grow older (see Figure 2, panel b). More importantly, we observe a sharp decrease in hours of work and a sharp increase in the proportion of pensioners at the eligibility threshold.

5.3. Regression results

In this section we present the estimation results for total consumption, and food and non-durable consumption. The first-stage regression of retirement status on pension eligibility, a second-order polynomial in age, yields an R^2 of 0.97 – the coefficient of eligibility, γ_1 , is estimated at 0.465, with a standard error of 0.025.

The results for total consumption are reported in the first column of Table 1. They suggest that total consumption drops by 30 percent at retirement, which is significantly different from zero at the 1 percent level. The results for food consumption are reported in the second column of Table 1, suggesting a drop of 27 percent, which is also significantly different from zero at the 5 percent level. Finally, the last column of Table 1 presents the estimates of non-durable consumption. The results suggest that non-durable consumption declines by 12 percent and the estimate is not statistically significant. Our results suggest that food consumption is responsible for a large part of the decline in consumption. In line with our results, most of the studies find that food consumption drops much more sharply than the consumption of other non-durable items (e.g. Banks et al. 1998).

We examine the robustness of our results by checking the sensitivity to the choice of the width of the sample window and alternative specifications of the smoothing

parameters. The results appear to be robust.¹¹ We implement an overidentification test following Lee (2008). The test examines whether the observed baseline covariates are “locally” balanced on either side of the threshold. The baseline covariates used in the test should not be affected by the eligibility status, but they should correlate with unobservable, which are likely to affect consumption. In the estimation we used the same procedure as described in Section 2 for a battery of outcomes: education, age of the household head, size of the dwelling and size of the city in which the individual is living. In all of the cases considered there is no indication of a discontinuity at the threshold.¹²

5.4. Impact of government subsidies

So far we have found that food consumption drops in response to retirement. At the same time, however, we do not observe a statistically significant decline in non-durable consumption upon retirement. One of the possible explanations for this is the existence of government subsidies for pensioners. Until the end of 2004 Russia had a complex system of government in-kind transfers inherited from its Soviet past. The system included three distinct classes of beneficiaries. First, disadvantaged groups: those who need government assistance such as orphans, people with disabilities and the elderly without pensions. Second, those who had rendered special services to their country (e.g. veterans of war conflicts, and individuals who worked in hazardous or dangerous professions). Third, those who have at some time provided valuable services to the state, (e.g. military and security personnel, recipients of Medals of Honor). Moreover, in response to growing poverty and unemployment many regions introduced additional

¹¹ The results are available on request.

¹² The results are available on request.

programs which were based on a similar categorical principle. By the end of 2004 the system included an enormous set of combinations of privileges and beneficiary categories. Yet most of the in-kind subsidies were aimed at pensioners and included subsidies for housing and community services, medical expenses and transport (Alexandrova, Struyk, 2007). The impact of the government subsidies on household consumption in Russia is discussed by Gerry and Li (2010). They find that apart from pensions, government subsidies played only a limited role in consumption smoothing.

In the NOBUS survey, respondents were asked about the amount of government subsidies received for health care, housing and transport. Table 1 column 4 presents results of the estimation of the drop in expenditure on non-durables net of government subsidies. Our results suggest that in the absence of government subsidies non-durable consumption would decline by 33 percent, which is significant at five percent level.¹³ This is considerably higher than previously found (see Table 1 column 3).

5.4. Response to the minimum income question

The process of adaptation to changes in income and life situation have received a lot of attention in the recent literature. Easterlin (1974) found that indicators of well-being remained relatively flat for the post-war period in the USA despite the rise in income. There are two possible explanations for the observed phenomenon. The first is that people care more about their relative position or their peers' incomes. The second is that there is a process of habituation to income levels. Easterlin (2005) shows that aspiration to material goods tends to rise with consumption. Moreover, Easterlin (2001)

¹³ Full results are available on request.

indicates that although retirement is associated with a drop in income, life-cycle welfare remains constant or even increases (see also Blanchflower and Oswald, 2008).

To further examine the issue of adaptation to retirement, we turn our attention to the minimum income question (MIQ) (see Groedhart et al., 1977) which respondents were asked during the interview. In our study the minimum income question was worded as follows: “Could you tell us how much money your family needs to live satisfactorily?”. In the Figure 3 we present the distribution of the responses to the minimum income question. We observe that the subjective perception of sufficient resources diminishes with age. There is also a discontinuity in the perception of sufficient resources at the pension eligibility threshold. The result of the estimation of the regression model (see Table 1 column 5) indicates that the perception of sufficient resources declines by 31 percent. At the same time the consumption drop caused by retirement induced by eligibility is equal to 30 percent, which is very close to the drop in the perception of sufficient resources reported by the households. Thus the magnitude of the drop in consumption largely coincides with the fall in the subjective perception of minimum needs.

6. Conclusion

In this paper we have investigated the size of the consumption drop in Russia due to retirement. We used detailed micro data on household consumption of food and non-durables and evaluated the causal effect of retirement on consumption. The identification strategy used in the paper was based on the regression discontinuity design. To obtain the causal interpretation of the effect we made an assumption that consumption should be the

same around the threshold of pension eligibility if no one retired. Our results are robust to the choice of the observation window and smoothing parameters.

Our analysis suggests three important conclusions. First, we find that a significant fraction of individuals who reach retirement age and receive a pension continue to work. Labour supply after reaching retirement age is found to be an important consumption smoothing strategy of Russian households. The retirement age in Russia is relatively low – 60 for men – and the average income replacement rate of pensions are not generous. It is thus not surprising that a lot of people continue working well into retirement. From the policy perspective the current system of awarding pensions at an early age whether or not the recipient leaves the labour force ignores the fact that a significant proportion of older people is able and willing to work longer and to earn a living from employment. At the same time the state pension system does not sufficiently protect the consumption of older people who are not capable of working after reaching retirement age or who are forced to work because of the inadequate size of the pensions.

Second, we find that the fall in food consumption is greater than the fall in non-durable consumption. Yet the fall in the consumption of non-durables is dampened by in-kind government transfers: if the government transfers did not exist, the fall in non-durable consumption would be much greater. The reform of the social safety net which came into effect in 2005 introduced significant changes in the targeting of the most vulnerable groups. More importantly, most of the in-kind benefits were converted into monetary form. The impact of the reform has not been studied in depth yet. However we expect that the improved targeting of government transfers should provide better possibilities for the most vulnerable groups of pensioners to smooth consumption.

Moreover the monetization of social benefits should ease the fall in food consumption by shifting some of the decline in consumption to non-durables.

Third, we find that the fall in consumption is mirrored by the fall in the subjective perception of sufficient resources. The fact that the perception of sufficient resources declines by the same degree as total consumption may indicate that the observed consumption drop should not be taken as evidence against life-optimizing behavior. We believe that the drop in the perception of subjective resources may be driven by two factors. First, objectively pensioners require fewer resources due to the elimination of work-related expenditures. Second there is a process of subjective adaptation towards decreasing resources available for consumption. Taking into account the fact that our effect identifies the magnitude of the consumption drop only for retired individuals who are marginally eligible to retire (i.e. those who have just turned 60) we believe that objective necessities dominate the subjective process of adaptation.

Our results have some important limitations which mainly concern heterogeneity in the ability to smooth consumption. First of all, the NOBUS dataset does not provide information on wealth. Household wealth has been found to be an important determinant of consumption smoothing abilities (e.g. Bernheim et al. 2001). The authors show that most of the consumption drop occurs among poor households. Second, we do not have information on whether retirement was the consequence of some unexpected shock. For example, Smith (2006) finds that the most significant drop in consumption is observed for individuals who retire early due to health problems or involuntary unemployment. The relatively small number of observations does not allow us to split the sample into educational subgroups. Education has been found to be an important determinant of

coping with consumption shocks in Russia (Mu, 2006). Finally, an acute question is whether our results could be generalized to other periods, after all the data at hand covers only one year. Gorodnichenko et al. (2010) analyze changes in the consumption smoothing abilities of Russian households during the 1994-2005 period. Based on a sample of working-age individuals the authors conclude that the response of consumption to permanent and transitory income shocks becomes weaker over time. We believe, according to the results found in this paper, that the retirement consumption drop in Russia was greater at the beginning of the 1990s and smaller in the second half of the 2000s.

References

- Aguiar, M., and Hurst, E. (2007): Lifecycle prices and production. In: *American Economic Review*, 97 (5), pp. 1533–59.
- Alexandrova, A., and Struyk, R. (2007): Reform of in-kind benefits in Russia: high cost for a small gain. In: *Journal of European Social Policy*, 17(2), pp. 153–166.
- Battistin, E., Brugiavini A., Rettore E., and Weber G. (2009): The retirement consumption puzzle: evidence from a Regression Discontinuity Approach. In: *American Economic Review*, 99(5), pp. 2209–26.
- Banks, J., Blundell, R., and Tanner, S. (1998): Is There a Retirement-Savings Puzzle?. In: *The American Economic Review*, 88(4), pp. 769–88.
- Bernheim D. B., Skinner J., and Weinberg, S. (2001): What Accounts for the Variation in Retirement Wealth among U.S. Households?. In: *American Economic Review*, 91(4), pp. 832-857.
- Blanchflower, D. G., and Oswald, A. J. (2008): Is well-being U-shaped over the life cycle?. In: *Social Science & Medicine*, 66(8), pp. 1733–49.
- Chawla, M., Betcherman, G., and Banerji, A. (2007): From Red to Gray: The “Third Transition” of Aging Populations in Eastern Europe and the Former Soviet Union, Washington D.C.: World Bank Publications.
- Easterlin, R. A. (2005): A Puzzle for Adaptive Theory. In: *Journal of Economic Behavior and Organization*, 56(4), pp. 513–21.
- Easterlin, R. A. (2001): Income and Happiness: Towards a Unified Theory. In: *The Economic Journal*, 111(473), pp. 465–84.

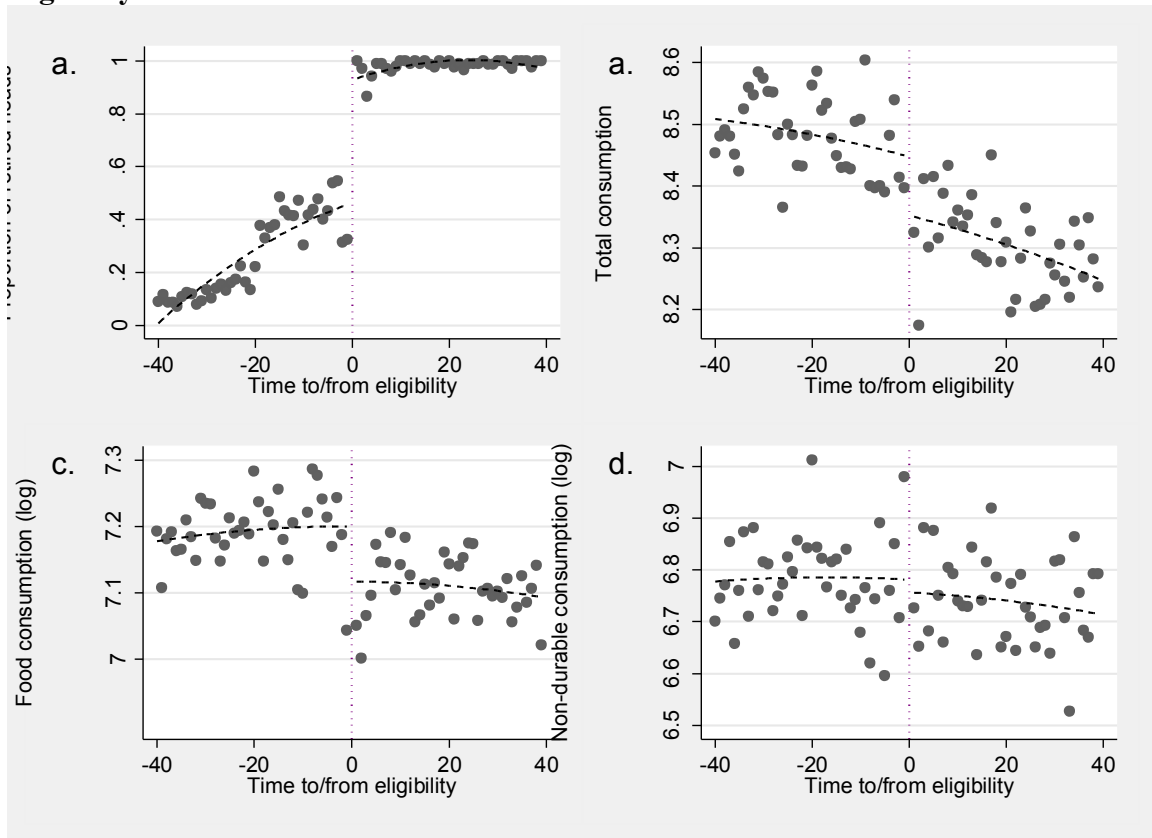
- Easterlin, R. A. (1974). Does economic growth improve the human lot? Some empirical evidence. In: David P. A., and Melvin, W. R. (eds.): Nations and households in economic growth. Palo Alto: Stanford University Press, pp. 98–125.
- Fisher, J. D., Johnson, D. S., Marchand, J., Smeeding, T. M., and Torrey, B. B. (2008): The retirement consumption conundrum: Evidence from a consumption survey. In: Economics Letters, (99)3, pp. 482–5.
- Friedman, Milton (1957). A Theory of the Consumption Function. Princeton: Princeton University Press.
- Gerry, C. J., and Li, C. A. (2010): Consumption smoothing and vulnerability in Russia. In: Applied Economics, 42(16), pp. 1995-2007.
- Gorodnichenko, Y., Sabirianova Peter, K, and Stolyarov, D. (2010): Inequality and Volatility Moderation in Russia: Evidence from Micro-Level Panel Data on Consumption and Income. In: Review of Economic Dynamics, 13(1), pp. 209–237.
- Groedhart, T., Halberstadt, V., Kaptein, A. and Van Praag, B. (1977): The Poverty Line: Concept and Measurement. In: Journal of Human Resources, 12, pp. 503–20.
- Hahn, J., Todd, P., and Van der Klaauw, W. (2001): Identification and Estimation of Treatment Effects with a Regression-Discontinuity Design. In: Econometrica, 69(3), pp. 201–9.
- Hamermesh, D. S. (1984): Life-Cycle Effects on Consumption and Retirement. In: Journal of Labor Economics, 2(3), pp. 353–70.
- Imbens W. G., and Angrist D. J., (1994): Identification and Estimation of Local Average Treatment Effects. Econometrica, 62(2), pp. 467-465.

- Imbens, G. W., and Lemieux, T. (2008): Regression discontinuity designs: A guide to practice. In: *Journal of Econometrics*, 142(2), pp. 615–35.
- Kolev, A., and Pascal, A. (2003): What Keeps Pensioners at Work: Evidence from Household Panel Data. In: *Economics of Transition*, 10(1), pp. 29–53.
- Lee, D. S. (2008): Randomized Experiments from Non-random Selection in U.S. House Elections. In: *Journal of Econometrics*, 142(2), pp. 675–97.
- Lee, D. S., and Card, D. (2008): Regression discontinuity inference with specification error. In: *Journal of Econometrics*, Volume 142(2), pp. 655–674.
- Lee, D. S., and Lemieux, T. (2010): Regression Discontinuity Designs in Economics. In: *Journal of Economic Literature* (forthcoming), NBER Working Paper No. 14723, available at: <http://www.princeton.edu/~davidlee/wp/w14723.pdf> (accessed May 6 2010).
- Lokshin, M., and Yemtsov, R. (2004): Household Strategies of Coping with Shocks in Post-crisis Russia. In: *Review of Development Economics*, 8, pp. 15–32.
- Lührmann, M (2010): Consumer Expenditures and Home Production at Retirement – New Evidence from Germany. In: *German Economic Review*, 11(2), pp.225-245.
- Maleva T., Sinjavskaja, O. (2007): Российские пенсионеры: трудовые биографии, экономическая активность, пенсионные истории Родители и дети, мужчины и женщины в семье и обществе / под. науч. ред. ТМ. Малевой, О.В.Синявской; независимый институт социальной политики. – М.: НИСП, 2007. – стр. 545–595.
- Miniaci, R., Monfardini, C., and Weber, G. (2010): How does consumption change upon retirement? In: *Empirical Economics*, 38(2), pp. 257–280

- Modigliani, F., and Brumberg, R. H. (1954): Utility analysis and the consumption function: an interpretation of cross-section data. In: Kurihara, K. K., (ed.): Post-Keynesian Economics, New Brunswick, NJ: Rutgers University Press, pp. 388–436.
- Mu, R, (2006): Income Shocks, Consumption, Wealth, and Human Capital: Evidence from Russia. *Economic Development and Cultural Change*, 54(4), pp. 857-92.
- Nivorozhkina, L. (2007): Работаящие пенсионеры: как долго продолжать трудиться? /Родители и дети, мужчины и женщины в семье и обществе / под. науч. ред. ТМ.Малевой, О.В.Синявской; независимый институт социальной политики. – М.: НИСП, 2007. – стр. 596–623.
- Kamila, Abasieva; Nivorozhkin, Anton; Nivorozhkina, Ludmilla (2010): Drop in consumption associated with retirement * the regression discontinuity design approach. *Prikladnaja Jekonometrika*, Vol. 19, No. 3, S. 112-126.
- Ovcharova, L., and Tesluk, E. (2008): Sensitivity of Poverty and Inequality Statistics to Alternative Definitions of Household Welfare. Illustration using the NOBUS Survey, Manuscript, available at: www.socpol.ru/news/docs/Sensitivity_Poverty_Russia.pdf (accessed May 6 2010).
- Schwerdt, G. (2005): Why does consumption fall at retirement? Evidence from Germany. In: *Economics Letters*, (89)3, pp. 300–5.
- Sinyavskaya O. (2005): Pension Reform in Russia: a Challenge of Low Pension Age. Discussion Paper, Institute of Economic Research, Hitotsubashi University, available at: http://hermes-ir.lib.hit-u.ac.jp/rs/bitstream/10086/14233/1/pie_dp267.pdf (accessed May 6 2010).

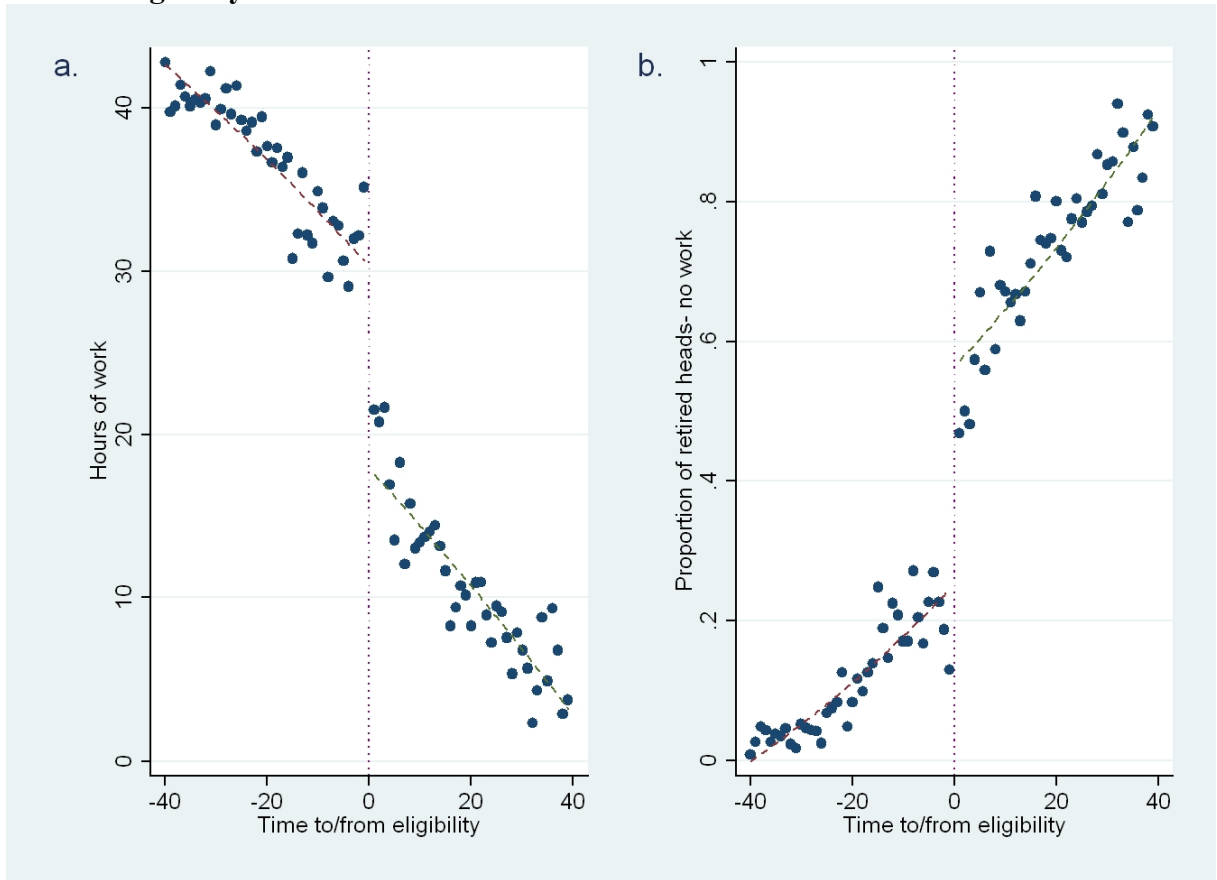
- Skoufias, E. (2003): Consumption smoothing in Russia. In: *The Economics of Transition*, 11(1), pp. 67–91.
- Smith, S. (2006): The Retirement-Consumption Puzzle and Involuntary Early Retirement: Evidence from the British Household Panel Survey. In: *Economic Journal*, 116(510), pp. C130–C148.
- State Statistics Service (2009): *Russia in figures 2009*. Moscow, Goskomstat Rossii.
- Stillman, S., and Thomas, D. (2008): Nutritional Status During an Economic Crisis: Evidence from Russia. In: *The Economic Journal*, 118(531) pp. 1385-1417.
- Trochim, W. M. K. (1984), *Research Design for Program Evaluation: the Regression-Discontinuity Approach*. Beverly Hills: Sage Publications.

Figure 1. Proportion of retired household heads and consumption by time to/from eligibility



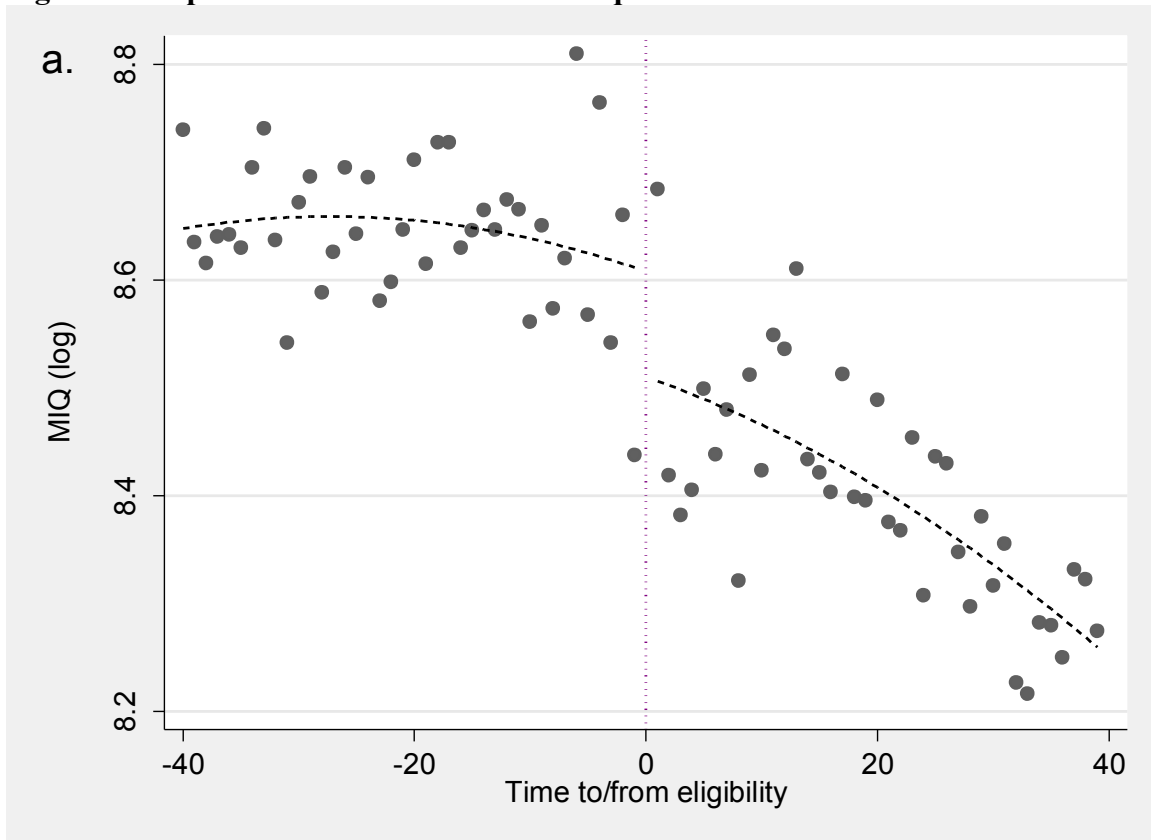
Note: The sample is based on data from the National Survey of Household Welfare and Social Program Participation (NOBUS), 2003. Time to/from eligibility is measured in quarters, with positive (negative) values denoting the number of quarters from (to) eligibility to retire. Retirement is defined as receiving an old-age pension. Total expenditure includes expenditure on food and non-durables. Food expenditure includes expenditure on food items bought, produced at home or received in kind. Expenditure on non-durables includes spending on housing, health, transport, communication, recreation and education. The lines are fitted values for a regression that includes a second-order polynomial in age and a dummy variable for the quarter when people turn 60. The points represent means for people in each age cell (measured in quarters). Points for people age 60 are not shown in the charts.

Figure 2. Hours of work and the proportion of retired, non-working heads by time to/from eligibility



Note: Time to/from eligibility is measured in quarters, with positive (negative) values denoting the number of quarters from (to) eligibility to retire. The lines are fitted values for a regression that includes a second-order polynomial in age and a dummy variable for the quarter in which people turn 60. The points represent means for people in each age cell (measured in quarters). Points for people aged 60 are not shown in the charts.

Figure 3. Response to the minimum income question



Note: Time to/from eligibility is measured in quarters, with positive (negative) values denoting the number of quarters from (to) eligibility to retire. The lines are fitted values for a regression that includes a second-order polynomial in age and a dummy variable for the quarter in which people turn 60. The points represent means for people in each age cell (measured in quarters). Points for people aged 60 are not shown in the chart.

Table 1 Regression results

Consumption categories:	Total	Food	Non-durable	Non-durable net of government transfers	MIQ
	(1)	(2)	(3)	(4)	(5)
Retired	-0.303*** (0.103)	-0.266** (0.110)	-0.117 (0.142)	-0.333** (0.155)	-0.311** (0.147)
$f(X - c) * 100$	0.0206 (0.00137)	0.0205 (0.148)	0.0640 (0.195)	-0.02 (0.21)	-0.140 (0.196)
$f(X - c)^2 * 100$	-0.000928 (0.00135)	-0.000477 (0.00137)	-0.00126 (0.00202)	0.00158 (0.00215)	-0.00639*** (0.00179)
Constant	8.529*** (0.0440)	7.267*** (0.0472)	6.819*** (0.0630)	6.678*** (0.685)	8.691*** (0.0629)
adj. R^2	0.684	0.281	0.66	0.63	0.770

Note: Robust, clustered standard errors in parentheses, * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. The dependent variables in all models are in logs. People who are within three months of their 60th birthday are excluded. The first-stage regression of retirement status on pension eligibility, a second-order polynomial in age, yields an R^2 of 0.97 – the coefficient on eligibility is estimated at 0.465, with a standard error of 0.025.