

Minds for the Market: Non-Cognitive Skills in Post-Soviet Countries. *

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Abstract

In this paper we analyze the effect of institutions on the personality traits of individuals who lived under different sets of socio-politico and economic settings. In particular, we focus on two post-Soviet countries, Armenia and Georgia, and compare non-cognitive skills of individuals that were born at least fifteen years before the collapse of the Soviet Union with those that were born later. We use a difference-in-difference approach, comparing Armenia and Georgia with a sample of developing countries that had not gone through the same institutional changes. Evaluating the effect of different regimes on various aspects of personality traits, we find significantly lower outcomes on extraversion, openness, stability, agreeableness, and grit for individuals that were born before the transition. In addition, the measure on “feeling hostile” is significantly higher for the Soviet generation. Our findings suggest that the abrupt and powerful change in institutions played a strong role in shaping the different non-cognitive skills found in the generations born after the transition.

JEL codes: O17, D12, D72, H11, H23, P26

Keywords: Institutions, Non-cognitive skills, Transition

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1. Introduction

This paper documents the long-term impact of socio-political and economic institutions on the development of non-cognitive skills¹ of individuals. To study this relationship, we make use of drastic institutional differences between the communist era and the post-transition era after the collapse of the Soviet Union in two former Soviet Republics. Using evidence from Armenia and Georgia and applying a difference-in-difference strategy, we show that the personality traits such as extraversion, openness, stability, and grit of the older Soviet generations are significantly lower than those of the younger generations that lived mostly after the regime collapsed. Our results suggest that the personality traits of individuals are inherently dependent on institutional environments. Given that non-cognitive skills positively impact labor market and other life outcomes (e.g., Almlund et al., 2011), our findings show one mechanism through which institutions shape economic development (e.g., Acemoglu, 2003). They can also help to explain why institutional change in a country, even very fast change, may take significant time to create economic differences.

Post-Soviet countries provide a unique arena to study the consequences of regime and institutional changes. The Communist Party regime of the USSR controlled the entire economy and society² of fifteen republics for about seventy years. Its collapse was sudden and unpredictable, and everything, from livelihoods and day-to-day life to social and political organization, changed in a very short amount of time. Prices soared, consumption goods were in shortage, and democratic elections had been introduced. While loyalty to the bureaucracy of the Communist Party was the key to achieving life success in the command economy (Cook et al. 1998; Langenecker, 2001), other skills were needed to succeed in the new, though imperfect, market-driven capitalistic world. In this paper we study whether the post-Soviet generation in two former Soviet Republics acquired different

¹ We use the terms non-cognitive skills, personality traits, and personal skills interchangeably throughout this paper.

² The high level of censorship, lack of press freedom, and highly monitored migration are some of the examples of the closed society of the USSR.

non-cognitive skills than the older Soviet generation to adapt to different political and economic institutional arrangements.

The long-term persistence of institutions on economic outcomes has been emphasized by Acemoglu et al. (2001), Rodrik et al. (2004), and Tabellini (2010). Considering non-cognitive skills as one aspect of human capital (Cunha and Heckman, 2007), the findings of this study on the impact of institutions on the formation of these skills shed new light on another channel through which institutions impact economic outcomes and growth.

While there are no other studies to our knowledge that analyze the impacts of institutions on the personality traits of individuals in the context of USSR, we are aware of one other paper that studies a similar question in the context of the reunification of East and West Germany. Friehe et al. (2015) find significant differences in locus of control, openness, conscientiousness, and neuroticism between individuals from East and West Germany before the fall of the Berlin wall. Our paper, however, is different in several important ways. First, the unique experience of the Soviet Union lasted for about seventy years, which assures that even the individuals in the oldest cohort in our study³ were born under the Soviet Union and, more importantly, were raised for the most part by parents who were also born under the Soviet regime. The same cannot be said about the experiences of those who lived in East and West Germany (a period lasting between 1949 and 1990). Second, using the wealth of data available through the World Bank's Skills toward Employment and Productivity (STEP) survey, we are able to include about 24,000 individuals in our control group. This enables us to compare the trends of non-cognitive skills over the life cycle of individuals and test for various robustness checks.

Analyzing the birth cohorts leading up to just before the collapse of the Soviet Union, we observe the gradual decrease of the negative effects of the previous regime on non-cognitive skills (likely reflecting the social and political changes of the Perestroika). These results imply that individuals invest in, and/or their parents and society around them help to shape, non-cognitive skills according

³ Those born as early as 1945.

to their returns in the economy. When there were no returns to these particular personality skills, individuals lacked them comparatively to those who lived in a market economy.

Furthermore, once we consider the sample of female and males separately, we find larger negative effects for the male population for almost all non-cognitive skills. It seems that males had to adapt to the new market economy at a faster pace, as female participation in the labor force is much lower than males in Armenia and Georgia. This fact indicates that the market, and its effect on the type and character of jobs, is one channel through which non-cognitive skills have evolved after the fall of the Soviet Union. These results are robust to various specification checks and sample restrictions.

These findings are in line with Cook, et al. (1998), Langenecker (2001), and Linz and Chu (2013), who show that managers from the former Soviet Union lacked the skills needed to succeed in the new market economy. Cook, et al. (1998) suggest that because party loyalty and personal acquaintance played a larger part than demonstrated or scientifically assessed ability to do the job, the managers in the Soviet Union often lacked interpersonal skills and were unable to work in teams⁴. Moreover, Langenecker (2001) suggests that the managers in the Soviet Union did not require the kinds of skills needed to survive in the newly formed competitive market. Rather, they were expected to follow party doctrine in terms of their organizational leadership and human resource practices. In a slightly different vein, Linz and Chu (2013) analyze whether or not work ethics have changed for the younger generation in transition countries. The authors hypothesize and empirically find that the older generation of workers adhere less strongly than the young generation workers to the type of work ethic typically ascribed to capitalist market economies⁵.

⁴ They use a personality inventory that measures 22 traits, such as Dominance, Managerial Potential, Work Orientation, Flexibility, and Empathy. Comparing three former SU countries (Ukraine, Lithuania, Georgia), they find some heterogeneity within this group. When comparing these three countries with Great Britain, they find that the Lithuanian results do not differ that much from the British ones but that that the British group scores significantly higher than the Ukrainian and Georgian group.

⁵ It uses data collected from employee surveys conducted in Armenia, Azerbaijan, Kazakhstan, Kyrgyzstan, Russia, and Serbia. In the Soviet Union, labor productivity was often low because the worker's employment and wages were not linked to work performance. It finds that in four of the six

Our findings are also backed up by recent economic literature which recognizes the importance of non-cognitive skills for the labor market and educational success of individuals⁶. Almlund et al. (2011) offer an overview of the current evidence on research regarding non-cognitive skills and their relevance for various outcomes in life. Heckman et al. (2006) provide evidence that non-cognitive skills are even more important than cognitive skills and IQ in determining education and labor market outcomes. Acosta et al. (2014) find that personality traits matter in choices like participating in the labor market and attending college. Furthermore, Caliendo et al. (2014) provide evidence that these skills are associated with individual's job search behavior⁷.

This paper also adds to a less studied strand of research documents the formation of non-cognitive skills. The formation of these skills has been associated with inheritance (nature) as well as environmental factors (nurture) such as education, societal norms, and family characteristics. Cunha and Heckman (2007) present a skill formation model to explain how both inheritance and environment impact the development of personality traits, arguing that the so called “nature versus nurture” argument in the formation of non-cognitive skills creates a false dichotomy, and rather both factors are interconnected. Cunha and Heckman (2007) also show that the personality traits are formed mostly during the childhood. These findings are in line with a large body of literature in psychology and personality studies that, following the seminal work of Costa and McCrae (1994), provide evidence that such traits are formed during childhood and early adolescents and are highly stable over life (Roberts and DelVecchio, 2000; Cobb-Clark and Schurer, 2012, Specht et al. 2014). These facts justify our choice to analyze separately the older Soviet generation of people and the

countries, the young generation of workers exhibited stronger adherence than older generation workers, although it is only statistically significant among Armenian and Kyrgyzstan.

⁶ For example, Heckman and Rubinstein (2001) emphasize that non-cognitive skills matter for educational outcomes and earnings using the Generalized Educational Development (GED) testing program in the United States.

⁷ More specifically, Heckman et al. (2006), and Heineck and Anger (2010) show that traits such as stability are associated with higher wages, but agreeableness is associated with lower wages.

younger one that lived after the collapse of the Soviet Union, as non-cognitive skills of each would have been completely formed under the two distinct regimes.

This study adds to the further understanding of post-Soviet countries. While the economic structure of these countries have gone through a quick overhaul, the personality characteristics of the older generation of people working in these new market oriented economies are still strongly influenced by the previous regime. As personalities are associated with economic behavior and labor market outcomes, understanding these personality differences will improve the policies designed to improve the labor markets and the economy of these states.

In section two we will review the institutional backgrounds of Armenia and Georgia. In section three we will explain the data we used and the empirical specification. Section four will conclude the paper.

2. Institutional Background

Armenia and Georgia joined the Soviet Union on March of 1922. Both countries were separated from the Soviet Union by 1991. The collapse of the Soviet Union resulted in a great economic and political shock in 1991 in the post-soviet states. After the collapse the post-soviet state's economies received a sudden hit, the GDP dropped and inflation increased, in the median countries inflation rate reached to 1290 percent per year. The high inflation rates in the early days of transition slowly dampened in the years later after the stabilization policies started to be more effective. (Murrel, 1996). Lack of a proper social security, increase in unemployment and high inflation, millions in post transition countries suffered from poverty (Murrel, 1996). Government revenue relative to GDP dropped. For example it dropped from 52% to 28% in Armenia, and from 32% to 8% in Georgia (Murrel, 1996).

Moreover, until the cease fire in 1994 Armenia suffered from economic difficulties exacerbated by the conflict with Azerbaijan. Out of 550,000 eligible Armenian men an estimated 20,000 (3.6 %) joined the army during the conflict (Chorbajian, et al., 1994). Since the cease fire in 1994, Armenian

economy has improved, it has switched to market economy and has increased trade with Europe, Middle East and other former Soviet states.

Georgia similar to Armenia went through severe economic collapse after the start of the comprehensive reforms to market economy. The difficulties were deepened with the civil war and military conflict in Abkhazia and South Osethia.⁸ In recent years, the economy has bounced back and has had significant economic growth. Although the econ growth has been in the very recent years.

The abrupt change of the economic and political system and its implications for the society in the post-soviet countries is a very unique experience. Other countries that have moved from planned economy to market oriented economies such as China or Vietnam, have gone through these changes much more gradually. After the collapse of the Soviet Union, every aspect of society in Armenia and Georgia had to be restructured. One aspect that could be of particular interest for this paper is the education system as they have been found to be influential on the formation of non-cognitive skills. (Dahmann, and Anger, 2014). However (Roberts at all, 2000) suggests that there were not much fundamental changes into the education system after the fall of Soviet Union. The Soviet Union was a planned society with a universal education system. All schools were organized in the same way, following a similar curriculum across the Eastern Europe and the Soviet Union. Tough, the centralized form of education was not unique to the Soviet Union. Most western European countries also had a similar system. The reforms in the education system after the transition were not so large and were mainly limited to cease in teaching Marxism. There was also more focus on literature and languages in school curriculum. On the other hand, the economic difficulties let to lower public investment on education. But some private schools also started to operate. (Roberts at all, 2000). In this sense, it appears that there was not abrupt or large changed in the education system in these countries that would affect our results.

⁸ In the robustness checks, we exclude the most vulnerable regions from Armenia and Georgia, and show that they do not affect our results.

Moreover, Soviet Union was closed to the outside world. The migration was highly monitored and restricted. The media was centrally controlled and essentially access to information outside the soviet without the filter of government was limited. On the other hand the strict policies during the Stalin era to control all aspects of people's lives and the spread of fear of spies of the government had resulted lower trust in the society. It is evident that this abrupt change in the economic and socio-political environment would affect the people and their personalities.

3. Empirical strategy

3.1. Data source

We use the data from The World Bank's Skills Toward Employment and Productivity (STEP) measurement survey, conducted in 2012 and 2013. The survey aims to mimic OECD's Programme for International Assessment of Adults Competencies (PIAAC) for developing countries. Therefore, its questionnaire was carefully developed to target specifically population in lower income countries (Pierre et al., 2014).⁹ The data has detailed information on individual and household characteristics that are comparable across developing countries from different geographical regions. More importantly, STEP is a unique source of information on non-cognitive skills of individuals for developing countries. To date consistent data on personality traits is scarce and available only from surveys for developed countries, such as SOEP for Germany and BHPS for the Great Britain.

As STEP is an ongoing project, the data are currently available for only ten countries. Our control group, therefore, consist of information on individuals from Bolivia, Colombia, Ghana, Kenya, Laos, Sri Lanka, Vietnam and one Chinese province Yunnan¹⁰. These countries are coming from the lower-middle-income group (besides China and Colombia which are from upper-middle-income group) according to the World Bank's definition, and lacking good governance and institutions (Georgia is doing better, as it underwent a large scale of reforms in 2006 – 2008), see

⁹ More information about STEP is available: <http://microdata.worldbank.org/index.php/catalog/step/about>.

¹⁰ Yunnan is located in the south-west of China and borders Laos and Vietnam

Figure 1. Remarkably, none of the control group countries experienced the same abrupt regime change and transition as did Armenia and Georgia.

STEP focuses on urban population of age 15-64¹¹. The dataset is fully representative for urban population, and the survey provides household and individual weights. In our sample the percentage of urban population varies from 20-25 for Sri Lanka and Kenya to 70-27 for Bolivia and Colombia, while for Georgia it is 53 and 63 for Armenia. If urban population has better social skills than rural, then the effects we are trying to identify in this study could be overestimated.¹² Another potential limitation of the data is that only current residents of countries are surveyed, and we do not have information on their or their relatives' migration background. Given that emigrants self-select themselves into immigration (e.g. Abramitzky, 2013; Kaestner and Malamud, 2014), and decision to migrate might be associated with stronger personality, the results of our analysis could be underestimated. Due these caveats, and given that the control group of countries is somewhat constrained and looks heterogeneous, we conduct a range of tests and robustness checks to validate the results from our analysis.

3.1. Definitions of non-cognitive skills

We focus on so-called the Big Five personality traits (extraversion, conscientiousness, openness, stability and agreeableness), as well as grit, decision-making and hostility. STEP respondents provide self-assessment of how a specific question describes their personality on a scale from 1 (*almost never agree*) to 4 (*almost always agree*).¹³ In total there are 25 questions related to the personality traits. Each non-cognitive skill is a combination of 3 – 4 corresponding questions, and its value is the

¹¹ The following categories of population are excluded: residence of institutions such as prisoners, hospitals, etc.; residence of senior homes and hospices, residents of college dormitories, halfway homes, worker's quarters; persons living outside of the country at the time of data collection.

¹² We test for this possibility by looking into differential effects for individuals from capital cities and the rest towns, and non-capital town.

¹³ For example, on question related to extraversion "Are you outgoing and sociable" respondents can reply *almost never agree, agree some of the time, agree most of the time, or almost always agree*.

average score.¹⁴ The higher scores stand for better social skills, except hostility, which is reversed. Based on Cronbach's alpha statistics, Pierre et al. (2014) report that constructed non-cognitive skill measures are overall reliable. Appendix A provides the exact formulations of questions corresponding to particular non-cognitive skill.

The Big Five taxonomy is well established in the literature and widely used by psychologists and economists nowadays. The STEP survey defines each of the skill from the Big Five traits using 3 questions, and we follow that approach (e.g., among the others, John and Srivastava, 1999; and Lang et al., 2012). Specifically, extraversion is defined as one's tendency to be sociable, talkative and dominant in a social situation. Conscientiousness indicates the quality of being organized, responsible and hardworking. Openness is associated with being open to new intellectual and cultural experiences. Stability is the opposite of neuroticism (emotional instability), and refers to being calm and not easily upset. Agreeableness is the tendency to be good-natured, generous and cooperative.

Grit is also consists of three questions, and it measures persistence on tasks (Duckworth et al., 2007). The decision-making is comprised of four questions that access alternative thinking process while making a decision. It also takes into account the extent of which one considers the future consequences of their actions and decisions. Hostility corresponds to two questions that assess the tendency of an individual to view others behavior towards them in a negative way. Table 1 presents summary statistics of our non-cognitive skills measures and pairwise correlations between them.

[Table 1 about here]

3.3. Empirical specification

To examine whether institutions affect non-cognitive skills of people, we apply a difference-in-difference (DID) approach using the following specification:

$$y_{ic} = \alpha \text{Born before}_{ic} \times \text{Arm_Geo}_c + \sum_{n=1949}^{1997} \beta_n \text{Birth year}_{n_{it}} + \gamma X_{ic} + \mu_c + \varepsilon_{ic}, \quad (1)$$

¹⁴ For robustness check, instead of a mean score we use a score derived as a first component after using principle component analysis. The results remain the same.

where y_{ic} is the one of the measures of non-cognitive skills of individual i from country c ; Arm_Geo_c is the dummy variables that equals 1 for Armenia and Georgia, and 0 for the rest countries. Armenia and Georgia is the treated group that has experienced two distinctively different institutional settings. The control group of countries is Bolivia, Colombia, Ghana, Kenya, Laos, Sri Lanka, Vietnam and Yunnan. For stability and decision making skills, the control group is modified as discussed in the next Section 3.4.

Our treatment is being born in or before 1976, which is fifteen years before the fall of the Soviet Union in 1991 and the start of transition.¹⁵ We choose fifteen years, since non-cognitive skills tend to form in childhood and adolescence and only moderately change afterwards (Roberts and DelVecchio, 2000; Cobb-Clark and Schurer, 2012, Specht et al. 2014). Those that were born in 1976, arguably, are the last cohort that built their personality under the communist regime. Strict separation of individuals that were born before and after 1976, however, seems to be very restrictive. For example, those that were born in 1977 lived fourteen years in the Soviet Union, while those that were born in 1982 – only nine years. Communism regime, therefore, likely impacts personality of the former more than the later. To account for these differences, we code our treatment variable in the following way: $Born\ before_{ic}$ equals 1 for the individuals born in or before 1976, equals 14/15 for those born in 1977, equals 13/15 for those born in 1978, ..., equals 1/15 for those born in 1990, and equals 0 for those born in or after 1991.

The coefficient of our interest is α on the interaction terms between $Born\ before_{ic}$ and Arm_Geo_c dummy variable. Its negative sign would demonstrate lower scores of non-cognitive skills for individuals that were living under the communist regime.

Instead of simple linear or quadratic age (or year of birth) variable, we control non-parametrically for the full set of year of birth dummy variables. In this way we control for a discreet variability of non-cognitive skills during the life time, and for the fact that reports of personality traits

¹⁵ In the robustness checks we show that our results remain qualitatively the same if we change 1976 to 1974, and consider individuals that were born fifteen years before the start of turmoil preceding the collapse of the Soviet Union in 1989.

can alter with age (Soto et al., 2008). Thus, $Birth\ year_{nit}$ is the dummy variable that equals 1 if a person was born in year n , and 0 otherwise.¹⁶ X_{ic} is the vector of individual-specific characteristics; μ_c is the country fixed effects and ε_{ic} is the error term satisfying the usual assumption.

The vector X_{ic} includes indicators for gender; whether a person currently study in educational institution; four dummy variables for the level of education (ISCET 1, 2, 3 or 4, and 5); interaction terms between the last two sets of variables; marital status (married, divorces, separated or widowed); employment status (employed or unemployed); proxies for household wealth: number of rooms and whether the household owns its house or apartment; and proxies for family environment: whether parents actively participated in the life of an individual in this childhood, whether an individual lived with both parents at age 12, the number of siblings, whether an individual had an economic shock before age 15, and its socio economic status at age 15 (middle or high) These control variables can correlate with our non-cognitive skills, mitigate omitted variable bias and ensure the homogeneity of our sample. Appendix A details definitions of employed variables.

3.4. Identification

The crucial identification assumption in DID estimations is that the distribution of non-cognitive skills across ages is similar in treated and control groups of countries if there were no transition. Accounting for the full set of year of birth dummy variables, and the rich set individual-specific characteristics in the empirical specification help us mitigate this concern. However, if our non-cognitive skill measures exhibit different age trends for treated and control group of countries, then our identification would come from the wrong source. This outcome is possible, as personality traits are not necessarily show similar age trends in all countries. For instance, Donnellan and Lucas (2008)

¹⁶ Those that were born in 1948 are the reference group. We also drop individuals that were born in 1947 and 1998, as we have only a few of them.

reports that stability decreases with age in Germany, but increases in Britain.¹⁷ For the other personality traits from Big Five the authors find similar trends in two countries.

To detect this possibility we, therefore, start from testing for common age trends in countries from our sample. We proceed in three steps. First, we estimate a simpler version of specification (1): $y_{ic} = \gamma X_{ic} + \mu_c + \varepsilon_{ic}$, and obtain fitted values \hat{y}_{ic} for each of non-cognitive skill y_{ic} . Controlling for the vector of individual-specific characteristics X_{ic} , which are described in the previous section 3.3, helps us ensure the homogeneity of our sample. Second, for each country c and year of birth j we compute average values of conditional non-cognitive skills, \hat{y}_{jc} . Finally, we run a simple trend regression: $\hat{y}_{jc} = \alpha_c + \beta_c \times year\ birth_j + \varepsilon_{jc}$, where α_c is country fixed effects and $year\ birth_j$ is a linear trend variable that measures the year of birth. We are interested in estimating the country-specific coefficients $\hat{\beta}_c$ on trend variable. If these coefficients have the same sign for all countries for a non-cognitive skill measure, then the assumption of common age trends is not violated. If the coefficients $\hat{\beta}_c$ for Armenia and Georgia¹⁸ and some other countries have opposite signs, we cannot compare Armenia and Georgia with them. Table 2 reports the estimates $\hat{\beta}_c$ for each non-cognitive skill.

[Table 2 about here]

According to Table 2, the estimates $\hat{\beta}_c$ have the same signs for extraversion, consciousness, openness, agreeableness, grit and hostility. Therefore, for these personality traits we consider all countries as a control group. For stability the signs of the coefficients for Armenia and Georgia are negative, however, for Colombia, Sri Lanka, Vietnam and Yunnan the coefficients are positive. Since for those countries age trends are going into opposite direction than for Armenia and Georgia, we exclude them from the control group of countries when estimating treatment effect for stability

¹⁷ Donnellan and Lucas (2008) use neuroticism personality trait (“I see myself as someone who gets nervous easily”), which is exactly opposite of stability. Their analysis is based on the SOEP for Germany and the BHPS for Britain datasets.

¹⁸ The issue can get more problematic if the coefficients for Armenia and Georgia have opposite signs, luckily, we do not observe such an outcome.

measure. For the case of decision making, only one country – Ghana have similar age trends as Armenia and Georgia. Therefore, we include only Ghana into control group.

Figure 2 plots \hat{y}_{jc} scores of each of non-cognitive skill for the treated and chosen control groups, averaged over five years. The vertical line marks a cohort of individuals that were born between 1973 and 1977. This cohort is the last one that spent their childhood and adolescence under the communist regime. For better visualization, we also plot simple linear trends that are divided by this cohort. Figure 2 suggest that cohort trends are similar in the treated and control groups for all non-cognitive skills. In many cases we can observe that changes in trends are larger for Armenia and Georgia after 1973-1977 cohort than in the control groups.

Indeed only changes in trends matter for our identification. Since, unlike in classical DID approach, the differences between non-cognitive skills can stem either from pre-1976 or post-1976 periods. It is possible that the regime change affected non-cognitive skills of younger generation in Armenia and Georgia, while the age trends for older generations in these two countries are similar to those in the control group. It is also possible, however, that personality traits of older individuals are much different in former Soviet countries from the rest countries, but they converge for younger people. The next section discusses our DID estimation results and discusses whether these changes are statistically and economically significant.

4. Results and Discussion

4.1. Baseline results

Table 3 offers the estimation results for the whole range of non-cognitive skills. These DID estimations are based on controlling for year of birth and country fixed effects and a set of observable individual and household characteristics. According to the Table 3, the both coefficients on interaction terms between *Born before* and *Armenia*, and *Born before* and *Georgia* dummy variables are negative and significant for extraversion, stability, agreeableness¹⁹, and grit. These results suggest

¹⁹ The result for agreeableness will later disappear in the paper when we test for permutations.

that, *ceteris paribus*, individuals that were born in Armenia and Georgia before 1976 have lower scores of those non-cognitive skills. The change of institutional environments in these two countries thereby has had positive effect on the personality traits of people. Moreover, younger generation in Georgia is significantly more open to the new experience, while for Armenians, this coefficient though it has similar sign it is not significant. Younger generation in Armenia but not in Georgia seems to be significantly better in decision making. Finally, younger Georgians seem to see the world significantly less hostile towards them, while this has been changed for Armenia.

[Table 3 about here]

Panel B of table 3 presents the results from the estimation of modified specification, in which instead of *Born before* dummy variable, we consider three cohorts: individuals born between 1948 and 1961, between 1962 and 1976, and between 1977 and 1991. The reference group in this specification is individuals that were born on the year 1992 or later, and who spend their entire childhood and adolescence in the new institutional environments. Again we separate the effects for Armenia and Georgia. The qualitative results in Table 4 are similar to those in Table 3, however, they give us important insights about the evolution of the effects for people of different cohorts. In line with our predictions, the negative effects of the previous regime on the non-cognitive skills diminishes as the cohorts are closer to the collapse of the Soviet Union. The magnitude of coefficients that were previously in table 3, panel A, significant are the smallest for the 1977-1991 cohorts in both Armenia and Georgia. Extraversion loses its significant and negative sign for this cohort in Armenia, while the significant of the grit coefficient disappears in the case of Georgia.

Once considering the sample of females and males separately, for seven out of ten previously significant outcomes, we find larger effects (in absolute terms) for the male population. We argue that as female participation in the labor force is very low in Armenia and Georgia, this result indicates one possible channel that non-cognitive skills have changed after the Soviet. As these skills were not rewarded under the Soviet economic system, individuals did not have incentives to invest on them

(for themselves or through parent's influence on children). Once this changed, those who were wanted to participate in the market economy were incentivized to invest in these skills.

The results discussed in this section are robust to various specification checks and sample restrictions which we will explain in the following section.

[Table 4 about here]

4.2. Robustness checks

Next, we test for placebo treatment effects. We implement this test in five ways. First, we randomly assign year of birth, second – country, and third – both year of birth and country to all individuals from our sample. Fourth and fifth, we consider sample of individuals being born between 1947 and 1975 (1976 and 1997), and the treatment year 1961 (1986), and estimate our main specification on these subsample and with *Born before 1961* (*Born before 1986*) variables. We expect to obtain insignificant coefficients on the interaction terms between *Born before* and *Armenia (Georgia)* dummy variables in all three cases. The results presented in Table 6 confirm our expectations.

[Table 5 about here]

In table 6 we test for another four sets of robustness checks which are depicted on panels A-D. Panel A of table 6 shows the results of interaction with capital cities. In panel B shows the interaction with potentially vulnerable regions in Armenia and Georgia. Here the interaction term *conflict* includes regions in Armenia and Georgia that potentially were the most vulnerable shortly before or after the collapse of the Soviet Union. These include Armenian region Syunik, which is the closest to Nagorny-Karabach autonomous republic – a disputable land between Armenia and Azerbaijan. We also exclude Lori region that had a devastating earthquake in 1988. Further we exclude Georgian region Adjara, which was subject to the coup and ethnic armed clashes; nowadays it is an autonomous republic. We also exclude the regions neighboring Adjara (Guria and Samtskhe-Javakheti), and the regions neighboring Abkhazia (Samegrelo-Zemo Svaneti) and South Ossetia (Shida Kartli and Racha-Lechkhumi-Kvemo Svaneti). Abkhazia and South Ossetia went through civil and ethnic wars

shortly after the collapse of the Soviet Union, nowadays they are autonomous republics, but were not surveyed by STEP.

In panel C we test if our results are robust to the exclusion of individuals that were born either before the important events in the control countries. We exclude from the sample individuals that were born in the year or before the following events: Laos 1954 (independence from France and start of communism), Vietnam 1976 (reunification of South and North Vietnam), Bolivia 1982 (transition to democracy), Colombia 1957 (transition to democracy), Ghana 1957 (independence from UK), Kenya 1963 (independence from UK), and Sri Lanka 1948 (independence from UK).

In panel D the estimation is based on a matched sample of controls based on individual characteristics.

[Table 6 about here]

5. Conclusion

The importance of personality traits on various life outcomes such as education, participation in crime, labor market participation and labor market outcomes have been emphasized and investigated by a large body of recent literature. However, the question of how these non-cognitive skills develop in an individual has received less attention. Both inheritance and environment affect the formation of personality traits. Whether and how these traits are affected by the socio-political and economical institutions that one faces in the society are the contributions of the current paper.

This paper analyses the effects of institutions on the personality traits of individuals who lived under different sets of regimes. In particular we are focusing on two post-soviet countries: Armenia and Georgia. We compare non-cognitive skills of individuals that were born at least fifteen years before the collapse of the Soviet Union with those that were born later. The formation of personality traits during the childhood and early adolescence has been discussed and supported in a large body of literature in psychology and economics (as discussed in section 1). The research design in this paper is based on this assumption. Applying a difference-in-difference empirical strategy, we find significantly lower outcomes on extraversion, openness, stability, agreeableness, and grit, and

significantly larger outcome for hostility for individuals that were born before the transition. These results are consistent through various robustness checks. Moreover we find larger effects (in absolute terms) for males versus females. These results are in line with the works of Cook, et al (1998), Langenecker (2001), Linz, and Chu (2013) who show that the managers in the Soviet Union lacked interpersonal, and teamwork skills. Similarly, we argue that the socio-politico-economical system that was the Soviet Union did not encourage the same type of non-cognitive skills that we have found crucial for success in the market economies. However, we find that after the collapse of the soviet, the new generation, quickly have adopted these skills. The finding of this paper emphasizes yet another channel through which institutions affect economic outcomes: through formation of non-cognitive skills. Thus, after institutions are likely to affect outcomes far after their own date. Moreover, these findings are relevant to implementing large array of policies including those for the labor markets in the post transition countries.

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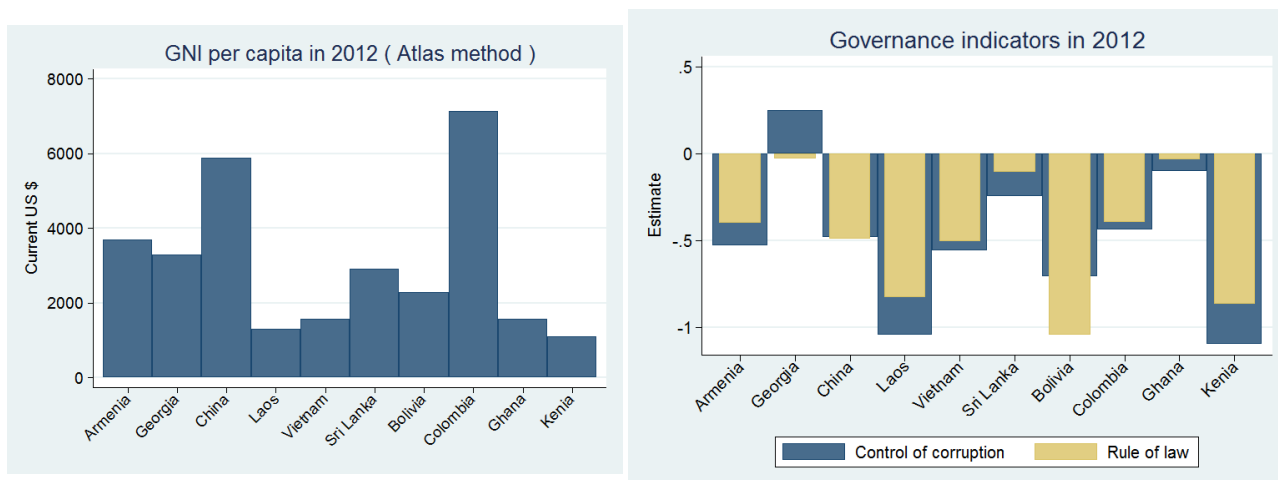
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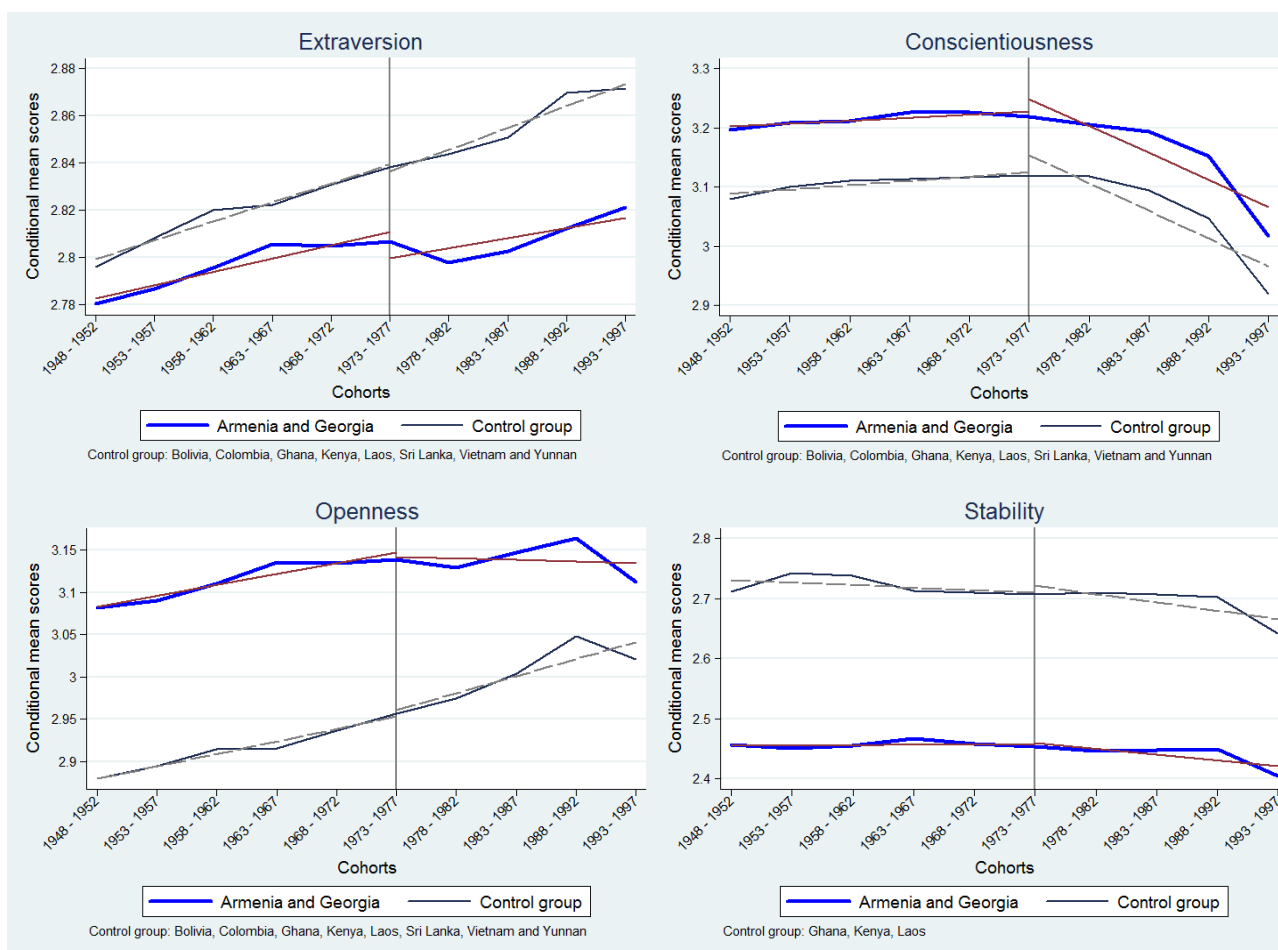
Figures and Tables

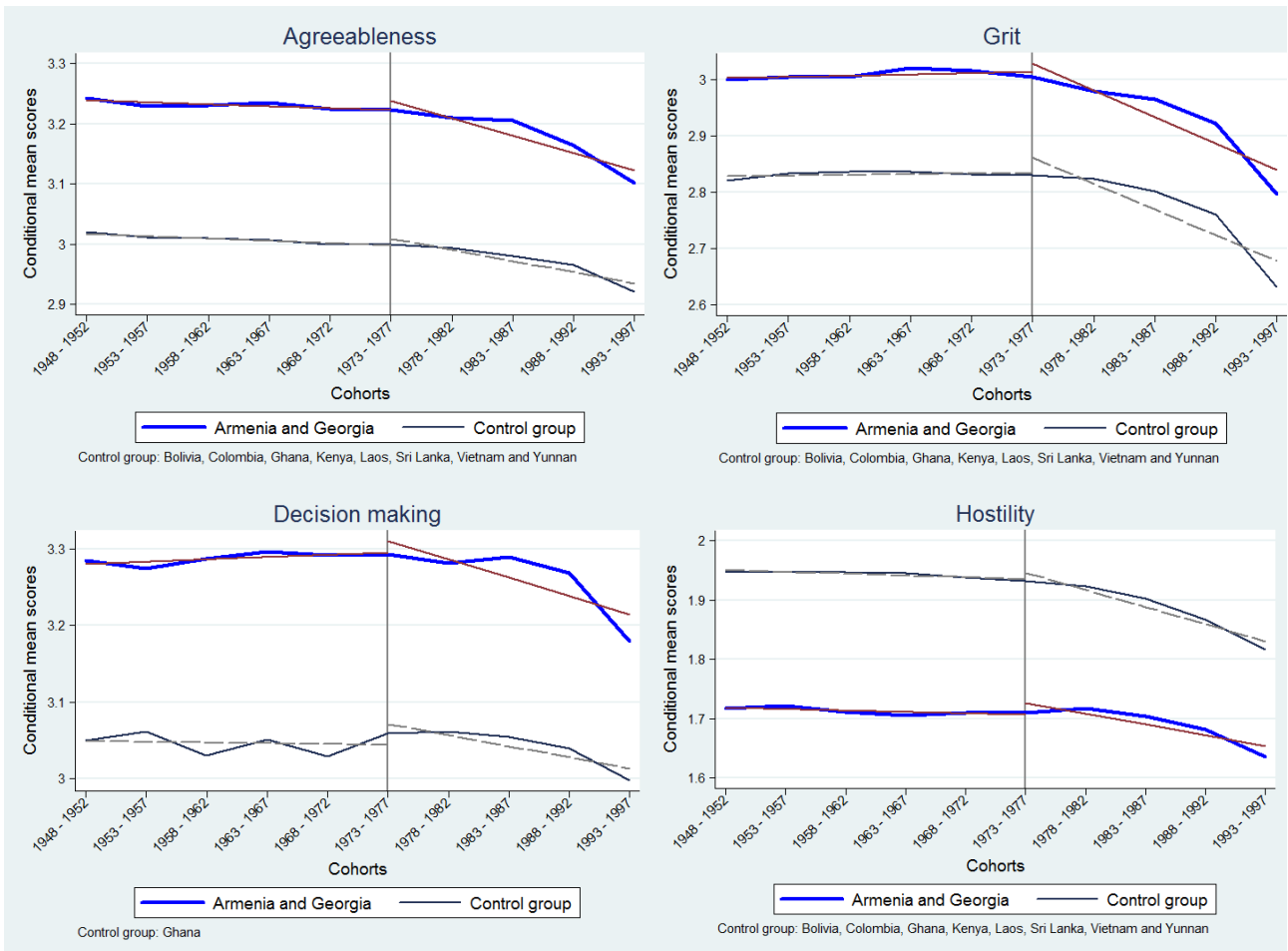
Figure 1: Economic and governance indicators



Note: This figure plots GNI per capita in 2012 (left graph) and two governance indicators: control of corruption and rule of law for all countries from our sample. Governance indicators vary on the scale from -2 to 2, where higher values stand for better governance quality. Data sources: World Development Indicators, and Worldwide Governance Indicators, from the World Bank.

Figure 2: Conditional mean non-cognitive skills scores by cohorts





Note: This figure plots conditional mean scores of non-cognitive skills for Armenia and Georgia, and the countries from chosen control group for individuals being born in ten consequent cohorts. Vertical line marks the last cohort of people who spend their all childhood and adolescence under communistic regime. Straight lines show linear trends for cohorts before and after 1993-1977.

Table 1: Summary statistics and pairwise correlations of non-cognitive skills

Variable	N	Mean	SD	1	2	3	4	5	6	7
1 Extraversion	27743	2.88	0.61							
2 Conscientiousness	27733	3.12	0.54	0.13*						
3 Openness	27727	3.01	0.59	0.23*	0.26*					
4 Stability	27713	2.64	0.62	0.05*	0.04*	0.04*				
5 Agreeableness	27717	3.02	0.57	0.15*	0.22*	0.28*	0.01			
6 Grit	27722	2.85	0.61	0.12*	0.30*	0.28*	0.02*	0.26*		
7 Decision making	27707	3.06	0.58	0.15*	0.26*	0.35*	-0.03*	0.27*	0.26*	
8 Hostility	27690	1.85	0.66	-0.12*	-0.07*	0.01	-0.14*	-0.00	0.01	-0.04*

Table 2: Test for common trends

	Extraversion	Conscientiousness	Openness	Stability	Agreeableness	Grit	Decision making	Hostility
Armenia	0.001***	-0.003***	0.002***	-0.000*	-0.002***	-0.003***	-0.001	-0.002***
Bolivia	0.002***	-0.003***	0.003***	0.000	-0.002***	-0.003***	0.000	-0.002***
Colombia	0.002***	-0.001*	0.005***	0.001**	-0.001***	-0.002***	0.002***	-0.003***
Georgia	0.000***	-0.003***	0.000	-0.001***	-0.003***	-0.003***	-0.002***	-0.001***
Ghana	0.000*	-0.004***	0.002***	-0.002***	-0.002***	-0.005***	-0.000*	-0.002***
Kenya	0.001***	-0.003***	0.002***	-0.002***	-0.001***	-0.003***	0.000	-0.001***
Laos	0.002***	-0.002***	0.004***	-0.000	-0.001***	-0.003***	0.001***	-0.002***
Sri Lanka	0.002***	-0.002***	0.004***	0.000	-0.002***	-0.003***	0.001***	-0.002***
Vietnam	0.002***	-0.002**	0.003***	0.000	-0.002***	-0.002***	0.001	-0.003***
Yunnan	0.002***	-0.002*	0.005***	0.000	-0.002***	-0.002***	0.002***	-0.004***
N obs.	500	500	500	500	500	500	500	500
R2	0.992	0.927	0.972	0.969	0.973	0.925	0.960	0.978

Note: This Table reports the coefficients $\hat{\beta}_c$ from the regression: $\hat{y}_{jc} = \beta_c \times year\ birth_j + \alpha_c + \varepsilon_{jc}$, where \hat{y}_{jc} is the conditional mean of non-cognitive skill for year of birth j and country c . Higher values year of birth mean lower age. Standard errors are robust, not reported. *** indicates significance at the 1% level, ** - at the 5% level, and * - at the 1% level.

Table 3: The effects of institutional change of non-cognitive skills

	Extraversion (I)	Conscientiousness (II)	Openness (III)	Stability (IV)	Agreeableness (V)	Grit (VI)	Decision making (VII)	Hostility (VIII)
Panel A: Baseline results								
Born before× Arm_Geo	-0.178*** (0.034)	-0.022 (0.025)	-0.114*** (0.029)	-0.223*** (0.034)	-0.106*** (0.030)	-0.142*** (0.032)	0.015 (0.042)	0.147*** (0.039)
N obs.	25,271	27,142	27,135	15,702	23,294	27,132	19,038	27,101
R2	0.064	0.155	0.163	0.098	0.078	0.089	0.084	0.073
Panel B: Results by cohorts								
1948-1961× Arm_Geo	-0.133*** (0.032)	-0.018 (0.025)	-0.093*** (0.028)	-0.240*** (0.038)	-0.045 (0.031)	-0.095*** (0.032)	-0.044 (0.048)	0.111*** (0.036)
1962-1976× Arm_Geo	-0.108*** (0.031)	-0.049** (0.024)	-0.071*** (0.024)	-0.073** (0.033)	-0.014 (0.026)	-0.063** (0.031)	0.073** (0.033)	0.087*** (0.032)
1992-1997× Arm_Geo	0.083** (0.041)	-0.037 (0.030)	0.067* (0.039)	0.061 (0.041)	0.101** (0.041)	0.085** (0.043)	0.105** (0.047)	-0.079 (0.054)
N obs.	27,128	27,119	27,112	16,323	27,104	27,109	7,748	27,078
R2	0.083	0.156	0.165	0.082	0.071	0.092	0.113	0.074

Note: This Table reports the results from estimation of the specification (1) for the dependent variables indicated in the headlines. The controlled variables defined in the text and Appendix A, country and year of birth fixed effects are included, but not reported. Panel A reports the results from baseline regressions. Panel B reports the results from the specification, where birth cohorts are interacted with Armenia and Georgia dummy variable. The reference cohort group is those individuals that were born during 1977-1991. Standard errors are clustered at the country-year of birth level. Reported R2 is adjusted for the number of covariates. *** indicates significance at the 1% level, ** - at the 5% level, and * - at the 10% level.

Table 4: Separate estimates for males and females.

	Extraversion	Conscientiousness	Openness	Stability	Agreeableness	Grit	Decision making	Hostility
	(I)	(II)	(III)	(IV)	(V)	(VI)	(VII)	(VIII)
Born before×	-0.228***	-0.130***	-0.207***	-0.316***	-0.150***	-0.192***	-0.167***	0.124***
Arm_Geo	(0.042)	(0.034)	(0.036)	(0.048)	(0.038)	(0.039)	(0.054)	(0.046)
Born before×	0.075**	0.157***	0.146***	0.147***	0.059*	0.086**	0.305***	0.021
Arm_Geo×	(0.034)	(0.033)	(0.031)	(0.047)	(0.035)	(0.036)	(0.060)	(0.040)
female	0.036	0.030	-0.203**	-0.240***	-0.012	-0.245***	-0.505**	0.111
	(0.097)	(0.086)	(0.089)	(0.083)	(0.084)	(0.089)	(0.238)	(0.096)
N obs.	27,128	27,119	27,112	16,323	27,104	27,109	7,748	27,078
R2	0.085	0.158	0.167	0.087	0.072	0.093	0.118	0.075

Note: This table reports the results of the estimation of specification (1) augmented with triple interaction term between Born before, Armenia and Georgia and females dummy variables for dependent variables indicated in the headlines. Control variables include the usual set plus their interactions with female dummy variable, country and year fixed effects, not reported. The definitions of all variables are in the text and Appendix A. Standard errors are clustered at the country-year of birth level. Reported R2 is adjusted for number of covariates. *** indicates significance at the 1% level, ** - at the 5% level, and * - at the 10% level.

Table 5: Robustness checks: placebo effects

	Extraversion (I)	Conscientiousness (II)	Openness (III)	Stability (IV)	Agreeableness (V)	Grit (VI)	Decision making (VII)	Hostility (VIII)
Panel A: year of birth is random								
Born before× Arm_Geo	0.038 (0.027)	-0.026 (0.024)	-0.009 (0.019)	0.014 (0.030)	-0.003 (0.025)	-0.036 (0.026)	0.050 (0.050)	0.002 (0.030)
N obs.	27,128	27,119	27,112	16,323	27,104	27,109	7,748	27,078
R2	0.082	0.149	0.166	0.076	0.064	0.085	0.108	0.070
Panel B: country of birth is random								
Born before× Arm_Geo	-0.020 (0.020)	-0.004 (0.017)	-0.025 (0.021)	-0.033 (0.023)	0.025 (0.021)	0.004 (0.018)	0.021 (0.024)	-0.029 (0.022)
N obs.	27,128	27,119	27,112	16,323	27,104	27,109	7,748	27,078
R2	0.082	0.156	0.165	0.079	0.071	0.091	0.111	0.074
Panel C: year of birth and country of birth are random								
Born before× Arm_Geo	0.008 (0.020)	-0.022 (0.019)	-0.018 (0.020)	-0.022 (0.022)	0.002 (0.021)	0.015 (0.019)	0.001 (0.030)	-0.020 (0.021)
N obs.	27,128	27,119	27,112	16,323	27,104	27,109	7,748	27,078
R2	0.082	0.149	0.166	0.076	0.064	0.085	0.108	0.070
Panel D: Sample 1947-1975, breaking year 1961								
Born before× Arm_Geo	-0.005 (0.035)	0.040 (0.027)	-0.014 (0.029)	-0.156*** (0.041)	-0.025 (0.029)	-0.016 (0.032)	-0.131*** (0.050)	0.032 (0.037)
N obs.	12,253	12,245	12,243	6,332	12,241	12,244	3,652	12,228
R2	0.082	0.161	0.188	0.137	0.093	0.096	0.155	0.055
Panel E: Sample 1976-1997, breaking year 1986								
Born before× Arm_Geo	-0.063* (0.035)	0.011 (0.027)	0.003 (0.028)	-0.118*** (0.028)	-0.102*** (0.030)	-0.057* (0.033)	-0.006 (0.043)	0.092** (0.037)
N obs.	14,875	14,874	14,869	9,991	14,863	14,865	4,096	14,850
R2	0.091	0.154	0.138	0.061	0.051	0.077	0.098	0.098

Note: This table reports the results of the estimation of specification (1) for placebo treatment effects. In the first panel year of birth is randomly distributed across individuals, in the second panel – country and in the third panel – both year of birth and country are randomly distributed across individuals. The dependent variables are indicated in the headlines. All other control variables are included, but not reported. The definitions of all variables are in the Appendix A. Country-region, year of birth fixed effects are controlled for in all specifications. Standard errors are clustered at the country-year of birth level. Reported R2 is adjusted for number of covariates. *** indicates significance at the 1% level, ** - at the 5% level, and * - at the 1% level.

Table 6: Robustness checks

	Extraversion (I)	Conscientiousness (II)	Openness (III)	Stability (IV)	Agreeableness (V)	Grit (VI)	Decision making (VII)	Hostility (VIII)
Panel A: interaction with capital cities								
Born before× Arm_Geo	-0.208*** (0.043)	-0.021 (0.034)	-0.096*** (0.033)	-0.188*** (0.041)	-0.089** (0.035)	-0.075** (0.036)	0.022 (0.044)	0.125*** (0.040)
Born before× Arm_Geo× capital	0.085* (0.047)	-0.002 (0.041)	-0.006 (0.034)	-0.047 (0.048)	-0.035 (0.044)	-0.092** (0.046)	-0.022 (0.038)	0.021 (0.054)
N obs.	27,128	27,119	27,112	16,323	27,104	27,109	7,748	27,078
R2	0.112	0.172	0.184	0.087	0.086	0.120	0.125	0.095
Panel B: interaction with conflict regions								
Born before× Arm_Geo	-0.155*** (0.034)	-0.034 (0.027)	-0.087*** (0.028)	-0.230*** (0.037)	-0.118*** (0.030)	-0.140*** (0.035)	-0.004 (0.041)	0.140*** (0.042)
Born before× Arm_Geo× conflict	-0.015 (0.060)	0.130* (0.073)	-0.142** (0.066)	0.153*** (0.058)	0.090 (0.056)	0.106 (0.072)	0.143** (0.057)	-0.021 (0.074)
N obs.	27,128	27,119	27,112	16,323	27,104	27,109	7,748	27,078
R2	0.112	0.172	0.184	0.087	0.086	0.120	0.126	0.095
Panel C: constraints on individuals from the control group								
Born before× Arm_Geo	-0.197*** (0.035)	-0.017 (0.027)	-0.089*** (0.031)	-0.217*** (0.036)	-0.081** (0.032)	-0.120*** (0.034)	0.057 (0.041)	0.192*** (0.042)
N obs.	23,075	23,069	23,062	14,590	23,056	23,060	7,617	23,030
R2	0.089	0.148	0.163	0.066	0.068	0.098	0.112	0.081
Panel D: on the matched sample								
Born before× Arm_Geo	-0.229*** (0.048)	-0.004 (0.039)	-0.157*** (0.034)	-0.202*** (0.046)	-0.169*** (0.044)	-0.238*** (0.044)	0.096 (0.087)	0.096 (0.075)
N obs.	12,689	12,688	12,683	9,341	12,681	12,683	6,530	12,673
R2	0.156	0.163	0.162	0.096	0.119	0.156	0.063	0.128

Note: This table reports the results for three robustness checks using the estimation of specification (1) for dependent variables indicated in the headlines. In Panel A we include interaction term between Born before, Armenia and Georgia and capital city dummy variables. In Panel B we include interaction term between Born before, Armenia and Georgia and potentially conflict regions in Armenia and Georgia dummy variables. In both panels we control in addition for country-region interactions. In Panel C we exclude individuals that were born before important events happening in the control group of countries. In Panel D we conduct estimation on the matched sample of individuals. All other control variables, country and year fixed effects are included, but not reported. The definitions of all variables are in the text and Appendix A. Standard errors are clustered at the country-year of birth level. Reported R2 is adjusted for number of covariates. *** indicates significance at the 1% level, ** - at the 5% level, and * - at the 1% level.

Appendices

Appendix A: Variables and definitions

Variable	Description
Non-cognitive skills	
Extraversion	Comprised of the following questions: Are you talkative? Do you like to keep you opinion to yourself? Are you outgoing and sociable?
Conscientiousness	Comprised of the following questions: When doing a task, are you very careful? Do you prefer relaxation more than hard work? Do you work very well and quickly?
Openness	Comprised of the following questions: Do you come up with ideas other people haven't thought of before? Are you very interested in learning new things? Do you enjoy beautiful things, like nature, art and music?
Stability	Comprised of the following questions: Are you relaxed during stressful situations? Do you tend to worry? Do you get nervous easily?
Agreeableness	Comprised of the following questions: Do you forgive other people easily? Are you very polite to other people? Are you generous to other people with your time or money?
Grit	Comprised of the following questions: Do you finish whatever you begin? Do you work very hard? Do you enjoy working on things that take a very long time?
Decision making	Comprised of the following questions: Do you think about how the things you do will affect you in the future? Do you think carefully before you make an important decision? Do you ask for help when you don't understand something? Do you think about how the things you do will affect others?
Hostility	Comprised of the following questions: Do people take advantage of you? Are people mean/not nice to you?
Other controls	
Attend school	Dummy variable indicating if an individual currently study in education institution
ISCED 1	Dummy variables indicating if an individual achieved complete primary education
ISCED 2	Dummy variables indicating if an individual achieved complete lower secondary education
ISCED 3 or 4	Dummy variables indicating if an individual achieved complete upper secondary or post-secondary non-tertiary education
ISCED 5	Dummy variables indicating if an individual achieved complete bachelor or higher education
Married	Dummy variable indicating if an individual currently is married (in mono or polygamy units)
Divorced	Dummy variable indicating if an individual currently is divorced
Separated	Dummy variable indicating if an individual currently is separated
Widowed	Dummy variable indicating if an individual is widowed

# of rooms	Logarithm of the number of rooms in house where household lives
Hour owner	Dummy variable indicating if a household owns the house
Siblings	Logarithm of the number of siblings that individual has
Parental	Dummy variable indicating if parents encouraged an individual when it was a child in school
Employed	Dummy variable indicating if an individual is employed
Unemployed	Dummy variable indicating if an individual is unemployed
Father Mother	Dummy variable indicating if an individual at age 12 lived with both parents (including step parents)
Shock	Dummy variable indicating if an individual experienced an economic shock at age 15
Middle status	Dummy variable indicating if an individual had a middle socio-economic status at age 15
High status	Dummy variable indicating if an individual had a high socio-economic status at age 15

Appendix B: Complete set of estimates of baseline regression

	Extraversion	Conscientiousness	Openness	Stability	Agreeableness	Grit	Decision making	Hostility
Born before*	-0.178***	-0.022	-0.114***	-0.223***	-0.106***	-0.142***	0.015	0.147***
Arm_Geo	(0.034)	(0.025)	(0.029)	(0.034)	(0.030)	(0.032)	(0.042)	(0.039)
Female	0.009	-0.035***	-0.048***	-0.161***	-0.009	-0.055***	-0.082***	-0.003
	(0.014)	(0.011)	(0.011)	(0.014)	(0.013)	(0.013)	(0.021)	(0.017)
Attend school	0.088	-0.018	0.106	0.079	0.170	0.180	-0.394*	0.222
	(0.098)	(0.141)	(0.100)	(0.111)	(0.118)	(0.148)	(0.234)	(0.145)
ISCED 1	0.093***	-0.061**	0.109***	0.023	0.041	0.007	-0.155	0.023
	(0.036)	(0.030)	(0.034)	(0.028)	(0.034)	(0.035)	(0.143)	(0.038)
ISCED 2	0.135***	-0.021	0.182***	0.029	0.004	-0.006	-0.078	-0.001
	(0.033)	(0.027)	(0.036)	(0.032)	(0.035)	(0.035)	(0.140)	(0.036)
ISCED 3 or 4	0.191***	0.055**	0.313***	0.070**	0.095***	0.028	0.083	-0.035
	(0.033)	(0.026)	(0.035)	(0.029)	(0.035)	(0.036)	(0.140)	(0.037)
ISCED 5	0.225***	0.100***	0.447***	0.105***	0.163***	0.096***	0.239*	-0.070*
	(0.034)	(0.028)	(0.036)	(0.034)	(0.036)	(0.035)	(0.138)	(0.039)
ISCED 1*	-0.033	0.103	0.045	-0.104	-0.145	-0.255	0.444*	-0.090
Attend school	(0.118)	(0.145)	(0.104)	(0.142)	(0.130)	(0.167)	(0.240)	(0.168)
ISCED 2*	0.078	0.105	-0.030	-0.054	-0.040	-0.119	0.576**	-0.222
Attend school	(0.101)	(0.144)	(0.103)	(0.108)	(0.125)	(0.154)	(0.224)	(0.148)
ISCED 3 or 4*	0.014	0.082	0.022	-0.077	-0.116	-0.107	0.437*	-0.251*
Attend school	(0.100)	(0.142)	(0.101)	(0.109)	(0.120)	(0.151)	(0.237)	(0.149)
ISCED 5*	-0.041	0.044	-0.059	-0.041	-0.197	-0.196	0.353	-0.261*
Attend school	(0.108)	(0.146)	(0.107)	(0.121)	(0.123)	(0.156)	(0.235)	(0.153)
Married	0.001	0.034*	-0.010	-0.013	-0.018	0.007	0.031	0.013
	(0.026)	(0.019)	(0.017)	(0.018)	(0.017)	(0.018)	(0.031)	(0.018)
Divorced	-0.002	0.073*	0.009	-0.001	0.014	0.003	0.037	0.055
	(0.071)	(0.039)	(0.045)	(0.055)	(0.048)	(0.058)	(0.050)	(0.042)
Separated	0.009	0.080*	-0.022	-0.081	-0.033	-0.030	0.225**	0.156***
	(0.062)	(0.041)	(0.039)	(0.054)	(0.042)	(0.047)	(0.099)	(0.053)
Widowed	-0.030	0.008	-0.131***	-0.001	-0.024	-0.013	0.061	0.059
	(0.041)	(0.042)	(0.043)	(0.048)	(0.037)	(0.037)	(0.054)	(0.046)
# of rooms	0.069***	-0.006	0.111***	-0.012	0.073***	-0.010	0.067***	-0.075***
	(0.019)	(0.016)	(0.017)	(0.018)	(0.016)	(0.018)	(0.025)	(0.021)
Hour owner	-0.012	-0.022	-0.057***	0.016	-0.023	0.006	0.013	-0.030
	(0.018)	(0.016)	(0.015)	(0.017)	(0.016)	(0.016)	(0.026)	(0.020)
Siblings	-0.009	0.007	-0.003	-0.030**	0.022*	0.006	-0.016	0.026*
	(0.014)	(0.012)	(0.012)	(0.012)	(0.012)	(0.015)	(0.018)	(0.014)
Parental	-0.022*	-0.028**	-0.024**	0.014	-0.041***	-0.027**	-0.069***	-0.013
	(0.012)	(0.011)	(0.010)	(0.010)	(0.012)	(0.012)	(0.016)	(0.013)
Employed	0.050***	0.093***	0.037**	0.026*	-0.018	0.069***	-0.022	-0.008
	(0.018)	(0.016)	(0.015)	(0.016)	(0.017)	(0.021)	(0.023)	(0.017)
Unemployed	0.064**	0.099***	0.087***	0.067***	0.046*	0.090***	0.027	0.005
	(0.027)	(0.024)	(0.020)	(0.021)	(0.024)	(0.025)	(0.024)	(0.026)
Father Mother	0.028	-0.017	0.007	0.027*	-0.002	0.002	-0.053**	-0.020
	(0.020)	(0.014)	(0.016)	(0.015)	(0.018)	(0.021)	(0.025)	(0.019)
Shock	-0.002	-0.002	0.014	-0.034**	0.015	0.003	-0.013	0.078***
	(0.015)	(0.011)	(0.014)	(0.014)	(0.012)	(0.012)	(0.020)	(0.014)
Middle status	-0.013	-0.020	0.013	0.033**	0.004	0.025	-0.023	-0.045***
	(0.017)	(0.015)	(0.015)	(0.015)	(0.014)	(0.019)	(0.025)	(0.017)
High status	-0.007	-0.012	0.085***	0.052**	0.013	0.116***	-0.005	-0.018
	(0.024)	(0.022)	(0.018)	(0.021)	(0.020)	(0.024)	(0.033)	(0.022)
N obs.	27,128	27,119	27,112	16,323	27,104	27,109	7,748	27,078
R2	0.083	0.156	0.165	0.082	0.071	0.092	0.111	0.074

Note: This table presents the full results from estimation of the specification (1) for the dependent variables indicated in the headlines. The definitions of all control variables are in the text and Appendix A. Country and year of birth fixed effects are controlled in all specifications. Standard errors are clustered at the country-year of birth level. Reported R2 is adjusted for the number of covariates. *** indicates significance at the 1% level, ** - at the 5% level, and * - at the 1% level.