Does Education or Underlying Human Capital Explain Liberal Economic Attitudes?

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Abstract

There is a worldwide tendency for more educated people to trust in markets, private business, and trade, and to distrust government regulation and public provision relative to the less educated even in countries where people generally favor regulation (Aghion, et al. 2010). Individual survey data drawn from the Russian RMLS indicate that for Russia, as for most of the world, respondents with higher levels of education are more likely to trust private businesses, foreign banks, and privatization, to distrust government regulation, and to favor lesser provision of services by the State (vs. the private sector). This matches the macro survey findings of Aghion et al. (2010) for the transition economies and the work of Caplan (2001, 2002, 2007). However, it is not clear whether education is a causal factor in these preferences or whether education is proxying for different levels of cognitive ability, health or other forms of human capital. We use individual height data as instruments for education to remove the contemporaneous effects of schooling itself on the education trust link. We find that this IV estimation leaves us with clear and persistent links between education and market friendly attitudes in Russia. This human capital effect is also quite independent of the role of age in determining liberal attitudes and is not simply a cohort effect. This seems to conform to the worldwide observation that – whatever the independent changing institutions – greater health and cognitive ability seems to promote liberal beliefs in and of themselves.

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Introduction

There is now a large literature on the importance of general attitudes towards trust as indicators of social capital which are also correlated with low corruption, good institutions, and high national income. What is interesting is that general measures of trust within a population tend to be correlated with higher education and higher incomes. In addition, individuals with high education and high income tend to be more liberal on both economic and social dimensions – where liberal refers to favoring freer markets and greater individual freedom. There are numerous studies documenting a positive correlation between education and favorable attitudes to democratic values and liberal ideas in a broad sense (Dee, 2004). Even in transition economies, Aghion, et al. (2010) observe that education tends to be correlated with trust in others and trust in companies although they pursue a different dimension of the ways in which the fall of communism has influenced attitudes towards liberalism. In the United States, Caplan (2001, 2002, 2007) and Caplan and Miller (2010) have shown that people with higher education or higher measured cognitive ability are more likely to "think like economists," by which is meant that their preferences are more likely to mirror the more open, more market-preferring responses of expert economists on issues ranging from regulation of wages, to immigration, to free trade, to welfare. In general though, one can think of the answers to these questions as mirroring high education elite attitudes which are broadly liberal (in the classical or European sense) for both the economy and society.

An interesting question that arises is to what extent these liberal attitudes are fostered by the educational system itself or to the social environment that promotes greater educational attainment or to other conditions antecedent to the trend of higher education. These include rising material wealth and general societal prosperity.

Using material from the Russian RMLS social survey data we examine a sample of several thousand individuals from the Moscow region for whom we have demographic information including their age, gender, educational attainment, recent income/earnings and expectations of future income. In addition, we have information about their measured heights.

The latter is very important because height is known to be strongly correlated with measures of IQ and education in the general literature on cognitive ability and human capital. In the well-known work on the importance of the height premium in wages, Case and Paxson (2006) take advantage of the fact that both childhood measures of height and adult height are strongly correlated (over 0.7) and that these height measures are correlated with childhood measures of IQ. In general, adult height is mostly determined by genetics plus prenatal and early childhood nutrition and parental environment in the earliest years. Short of drastic interventions

which primarily might serve to stunt height, later effects on height are weak above an environmental and nutritional threshold. Case and Paxson used data from the U.S. and the U.K. to show that the wage premium enjoyed by taller men was almost entirely determined by height's correlation with higher IQ – both the direct wage effects of greater IQ and the indirect effects of IQ on occupational choice rewarding more cognitively demanding jobs.

The idea that height correlates with human capital and cognitive ability, which in turn is related to education, allows us to consider using height as an instrument for education to see how the correlation between education and market liberal attitudes to business (as shown by answers to various "trust" survey questions) is driven less by education itself than by the component of human capital that – like height – is mostly determined by genetic endowment plus early childhood and prenatal nutrition and environment. This unusual instrument has the effect of ruling out the effects on education and various trust answers that might be influenced by contemporaneous variables such as the quality or nature of education itself or other social variables relating to the contemporaneous environment that might promote both higher education and greater preferences for liberalism or trust in business. Ideally, we would have a "true" measured of this unobserved index of human cognition which might include iq but might also include any other aspects of human capital favorable to higher education rather than the other way around (these could include non-cognitive traits such as conscientiousness, risk-taking, or neuroticism, but also factors such as childhood health, etc.) Thus, though we may not know the exact components of these unobserved characteristics that are mostly developed by early childhood that affect later education, the use of height as an instrument will allow us to treat education in a way that excludes contemporary effects on the education to trust in business/markets or preference for liberalism links.

Data

In this study we use samples taken from the 15th wave of the Russian social survey (RLMS). We consider the cohort of individuals who were between 25 and 65 years old at the time of their interview, to eliminate those with no chance of completing higher education and those who were born before the Second World War. TABLE 1 consists of three panels dividing all variables into three groups. It contains basic summary statistics for all variables used in our analysis as well as their detailed descriptions.

Table 1 -Summary statistics

Variables	Mean	S.D.	Min	Max
Dependent variables				
"To what extent do you trust Small and medium private companies?" 1-Don't trust at all, 2 – Rather not trust, 3- Indifferent 4 – Rather trust, 5 – Trust completely				
trust_p_business	**2.642**	**1.084**	**1**	**5**
We sum the answers to the next three questions to create an economic liberalism variable. "Who do you think should control prices for utilities/fuel/food/housing?" 0 – government, 1 – market.				
econ_liberal	**0.393**	**0.874**	**0**	**4**
We sum the answers to the next four questions to create a liberal service variable. Who do you think should provide public service for health care/road construction/employment/garbage disposal?" 1 – state, 2 – state and private equally, 3 - doesn't matter, 4 - private				
service_liberal	**6.983**	**2.684**	**4**	**16**
"What should be done to previously privatized companies?" 1 – returned to the state, 2 – returned to the state and then privatized again, 3 – owners should be forced to pay today's market value, 4 – nothing.				
no_expropriation	**1.997**	**1.197**	**1**	**4**
We sum answers to the following questions to create a variable for social liberalism. "How much is it important for you personally, that in our country today there exist: Free and fair elections/Law and order/Freedom of speech/Independent press/ Political opposition/ Fair courts/ Protection of rights of national, religious, etc. minorities? 1 – Not important, 2 – Rather unimportant, 3 – Yes and No, 4 – Rather important, 5 Very important.				
lib_soc	**28.744**	**4.79**	**7**	**35**
Control variables				
Variable gender takes value *gender=1* for males and *gender=0* for females				
gender	**0.439**	**0.496**	**0**	**1**
How has the financial situation of your family changed in the last 12 months? 1 – Greatly worsened, 2 – slightly worsened, 3 – didn't change, 4 – slightly improved, 5 – greatly improved				
prev_income	**3.067**	**0.864**	**1**	**5**
Variable *age* measures individuals age				
age	**43.904**	**11.121**	**25**	**65**
level_educ $=c+\sum_{i=1}^{N} t_i + \sum_{i=1}^{N} t_i g_i$, where *level_educ* is constructed index of education. c – years spent in school, t_i – years spent in *i-th* post-secondary educational institution, g_i – signal function, which tales value $g_i=1$ if individual graduated from *i-th* postsecondary educational institution and $g_i=0$ otherwise.				
level_educ	**15.441**	**5.139**	**0**	**42**
Instruments				
height	**167.854**	**8.914**	**140**	**200**
Variable *community* refers to individual's community of birth. *community=1* if individual was born in a village, *community=2*if individual was born in an urban-type settlement, *community=3* if individual was born in a city.				
community	**2.009**	**0.917**	**1**	**3**

While the interpretation of most variables is intuitive, some choices should be explained. All variables referring to attitudes toward social liberalism are combined into one score since all

of them have high levels of pairwise correlations, therefore avoiding complications of multicollinearity. We also controlled for the role of previous income.

We use height as an instrument by reasoning that educational level can serve as a marker for learned or acquired human capital during the years of schooling or as a signal for human capital that is independent of schooling itself. Since adult height is primarily determined (above a certain minimum threshold of nutrition and health care) by a combination of genetic endowment plus environmental factors including prenatal and early childhood nutrition, using height as an instrument for education allows us to focus on the link between education and attitudes towards liberalism that are not strongly tied to the educational experience itself. Rather the focus becomes on those who obtain higher education because of high endowments of human capital to reveal their tendencies towards liberalism. In a sense this is analogous to Caplan and Miller's use of IQ (2010) and its link to liberalism. Where it differs is that it allows for a stronger component of environmental effects and for non-cognitive human capital correlated with health and height that are acquired by early childhood. We have no priors about the relative weights to be assigned to genetic vs. environmental effects, nor about IQ vs . non-cognitive abilities in determining attitudes towards liberalism. The purpose of the instrument is simply to reveal the effects of human capital on attitudes independent of the schooling itself. In this we reflect the previous work of Nye, et al. (2012) regarding the use of height as an instrument to disentangle the effects of human capital on trust.

TABLE 2 provides the "traditional" test for height's validity as an instrument.

Table 2 - OLS Height and Education

VARIABLES	(1) level_educ
height	0.089***
	(0.010)
gender	-2.086***
	(0.184)
age	-0.033***
	(0.006)
Constant	2.931
	(1.791)
Observations	5,680
R-squared	0.031

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

TABLE 3 provides OLS regressions of education on different measures of individual attitudes toward liberalism. We use trust to different business institutions, because we believe that these variables partially reflect agent's attitudes toward market institutions. As we can observe from the TABLE 3 OLS estimation provides us evidence of positive and significant educational impact on agent's attitude toward different branches of economic liberalism even when controlling for gender and age.

Table 3 - Market and Liberal Preferences vs education and gender (OLS)

	(1)	(2)	(3)	(4)	(5)
VARIABLES	trust_p_business	econ_liberal	service_liberal	no_expropriation	lib_soc
level_educ	0.022***	0.034***	0.058***	0.036***	0.102***
	(0.003)	(0.002)	(0.007)	(0.003)	(0.013)
gender	-0.009	0.094***	0.381***	0.078*	-0.168
	(0.042)	(0.032)	(0.099)	(0.045)	(0.187)
Age	-0.010***	-0.006***	-0.025***	-0.020***	0.020***
	(0.001)	(0.001)	(0.003)	(0.002)	(0.006)
height	0.003	0.002	-0.013**	0.001	0.001
	(0.002)	(0.002)	(0.006)	(0.003)	(0.011)
Constant	2.185***	-0.201	9.231***	2.164***	26.197***
	(0.406)	(0.312)	(0.950)	(0.438)	(1.810)
Observations	4,916	5,372	5,549	5,022	4,924
R-squared	0.025	0.051	0.025	0.064	0.014

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

TABLE 4 provides multivariate OLS analysis of attitude to liberalism determinants. Education level has strong economically and statistically significant results. In all cases it has positive significance[1]. Gender is positive and significant in specifications (2), (3) , and (4).

Table 4 - Market and Liberal Preferences vs education, gender, and income (OLS)

VARIABLES	(1) trust_p_business	(2) econ_liberal	(3) service_liberal	(4) no_expropriation	(5) lib_soc
level_educ	0.019***	0.032***	0.057***	0.034***	0.093***
	(0.003)	(0.002)	(0.007)	(0.003)	(0.013)
Gender	-0.005	0.092***	0.387***	0.077*	-0.143
	(0.042)	(0.033)	(0.099)	(0.045)	(0.188)
Age	-0.009***	-0.006***	-0.024***	-0.019***	0.023***
	(0.001)	(0.001)	(0.003)	(0.002)	(0.006)
prev_income	0.148***	0.041***	0.083**	0.127***	0.415***
	(0.018)	(0.014)	(0.042)	(0.019)	(0.080)
Height	0.003	0.002	-0.013**	0.001	-0.001
	(0.002)	(0.002)	(0.006)	(0.003)	(0.011)
Constant	1.684***	-0.324	9.006***	1.731***	25.197***
	(0.408)	(0.316)	(0.964)	(0.442)	(1.834)
Observations	4,864	5,320	5,489	4,973	4,872
R-squared	0.039	0.053	0.026	0.072	0.019

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Note for the purposes of our IV estimates that in the multivariate OLS regressions, height has no direct influence on all the primary market liberal variables once education, gender, previous income, and age are controlled for.

We can now report the results from estimating the link between education and trust and various market liberal attitudes such as trust in business and other preferences using multivariate analysis with the same height measure as an IV for education.

TABLE 5 provides first stage estimation for the specification provided in table 6. Note that the sample sizes are different due to differing response completeness for each question.

TABLE 6 shows the results of using height as an IV for education. To the extent that the this IV eliminates the contemporaneous effect of schooling itself and only focuses on schooling as endogenous to underlying human capital (including cognitive ability, basic health, and early

[1] We eliminated a question about trust in Russian banks because the education variable's effect was not statistically different from zero. This problem emerges because of a high association of Russian banks with Russian government and hence is a poor indicator of positive attitudes towards markets. Due to the low level of trust in political parties and in state power in Russia, the positive impact of education on trust in Russian banks is offset by indirect negative impact of the same education on trust in Russian state institutions.

childhood and prenatal nutrition), we document the positive impact of human capital on adult attitudes toward liberalism and market institutions in the simple case for all specifications besides specification (3). Statistically the significant effect is present in specifications (1) and (2).

In tables 7 and 8 we additionally control for income change experience and the coefficients have the expected signs. We control for past income change experience following the same logic as Caplan (2001). We document positive impact of positive income change experience on attitudes toward liberalism.

Table 5 - First stage regressions for basic model

VARIABLES	(1) level_educ	(2) level_educ	(3) level_educ	(4) level_educ	(5) level_educ
height	0.086***	0.091***	0.090***	0.092***	0.084***
	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)
age	-0.031***	-0.034***	-0.033***	-0.036***	-0.029***
	(0.007)	(0.006)	(0.006)	(0.007)	(0.007)
gender	-2.078***	-2.093***	-2.110***	-2.089***	-2.114***
	(0.196)	(0.190)	(0.186)	(0.196)	(0.198)
Constant	3.337*	2.643	2.789	2.608	3.805**
	(1.911)	(1.842)	(1.808)	(1.918)	(1.940)
Observations	4,916	5,372	5,549	5,022	4,924
R-squared	0.030	0.032	0.032	0.033	0.030
F test model	51.25	58.39	61.08	57.20	49.95
P-value of F model	0.000	0.000	0.000	0.000	0.000

Table 6 - Market and Liberal Preferences Basic Model (IV)

VARIABLES	(1) trust_p_business	(2) econ_liberal	(3) service_liberal	(4) no_expropriation	(5) lib_soc
level_educ	0.060**	0.054***	-0.089	0.043	0.114
	(0.028)	(0.020)	(0.064)	(0.028)	(0.126)
gender	0.070	0.136***	0.069	0.095**	-0.143
	(0.043)	(0.031)	(0.100)	(0.043)	(0.196)
age	-0.009***	-0.005***	-0.029***	-0.020***	0.020**
	(0.002)	(0.001)	(0.004)	(0.002)	(0.008)
Constant	2.058***	-0.253	9.643***	2.143***	26.152***
	(0.504)	(0.367)	(1.162)	(0.510)	(2.283)
Observations	4,916	5,372	5,549	5,022	4,924
R-squared		0.038		0.063	0.014

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 7 First stage regressions for Extended Model

VARIABLES	(1) level_educ	(2) level_educ	(3) level_educ	(4) level_educ	(5) level_educ
height	0.085***	0.090***	0.088***	0.091***	0.083***
	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)
age	-0.026***	-0.030***	-0.030***	-0.033***	-0.025***
	(0.007)	(0.006)	(0.006)	(0.007)	(0.007)
gender	-2.044***	-2.070***	-2.054***	-2.071***	-2.079***
	(0.196)	(0.190)	(0.186)	(0.196)	(0.199)
prev_income	0.581***	0.543***	0.532***	0.483***	0.560***
	(0.084)	(0.080)	(0.079)	(0.084)	(0.085)
Constant	1.569	0.907	1.381	1.047	2.115
	(1.929)	(1.860)	(1.829)	(1.939)	(1.961)
Observations	4,864	5,320	5,489	4,973	4,872
R-squared	0.040	0.040	0.040	0.040	0.038
F test model	50.82	55.74	56.80	51.52	48.31
P-value of F model	0	0	0	0	0

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 8 - Market and Liberal Preferences Extended Model (IV)

VARIABLES	(1) trust_p_business	(2) econ_liberal	(3) service_liberal	(4) no_expropriation	(5) lib_soc
level_educ	0.060**	0.054***	-0.097	0.043	0.085
	(0.028)	(0.020)	(0.066)	(0.028)	(0.129)
gender	0.078*	0.136***	0.071	0.096**	-0.160
	(0.043)	(0.031)	(0.100)	(0.043)	(0.197)
age	-0.008***	-0.005***	-0.029***	-0.018***	0.022***
	(0.002)	(0.001)	(0.004)	(0.002)	(0.008)
prev_income	0.124***	0.029*	0.165***	0.123***	0.419***
	(0.025)	(0.018)	(0.057)	(0.024)	(0.109)
Constant	1.620***	-0.343	9.218***	1.722***	25.214***
	(0.459)	(0.336)	(1.094)	(0.471)	(2.099)
Observations	4,864	5,320	5,489	4,973	4,872
R-squared	0.003	0.038		0.071	0.019

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Early childhood sanitation conditions explain much of the variation in childhood height across countries (Spears, 2013). Spears (2013) suggests that controlling for countries fixed effects, difference in child variation may arise from the negative effect of germ disposal. He argues that children born in regions with higher rates of self-reported open

defecations have on average lower height in adolescent. Children living in regions with a high rate of open defecation have a much higher probability of contact with harmful germs and getting infections. This results in stunted heights.

We believe that regions reporting higher open defecation rates should have lower general standards of living and generally worse environmental conditions for childhood development. Also, it is conventionally true that Russian villages have much lower standards of living than cities and have greater usage of outdoor facilities with no sewage. Therefore, we can argue that on average, children born outside of cities in Russian should have much worse early child hood environment which will affect physical and mental development in adolescence.

In the next step we use place of birth as an extra instrument for education.

Table 9 shows the distribution of reported places of birth in our sample. It seems to be that percentage of urban born population (cities + urban-type sattlements) well reflects average population structure between 1941 and 1985.

Table 9 – Place of birth tabulation

Community	Freq.	Percent	Cum.
City	410	41.58	41.58
Urban-type settlement	157	15.92	57.51
Village	419	42.49	100
Total	986	100	

Table 10 presents pairwise correlations of height, age and places of birth. We can observe that older populations were born in smaller communities as expected. Also, we can observe a strong negative correlation between a respondent's height and the size of the community he was born in.

Table 10: Pairwise correlations of height, age, and community size

	community	height	age
community	1		
height	-0.15 (0.00)*	1	
age	0.16 (0.00) *	-0.21 (0.00) *	1

*p-values in parentheses

In the next step we provide IV estimates of the effect of cognitive function on attitudes towards economic liberalism employing both place of birth and height as instruments. Table 12 presents the second stage estimation outputs.

Table 11 First stage Liberal attitudes vs. education gender and age (IV height and place of birth)

	(1)	(2)	(3)	(4)	(5)
VARIABLES	level_educ	level_educ	level_educ	level_educ	level_educ
height	0.086***	0.079***	0.078***	0.083***	0.073***
	(0.026)	(0.025)	(0.025)	(0.026)	(0.026)
age	-0.021	-0.025*	-0.022	-0.018	-0.025*
	(0.015)	(0.015)	(0.015)	(0.015)	(0.015)
gender	-2.220***	-2.064***	-2.039***	-2.089***	-2.110***
	(0.453)	(0.431)	(0.428)	(0.437)	(0.445)
community	-1.006***	-1.111***	-1.163***	-1.171***	-1.080***
	(0.187)	(0.177)	(0.177)	(0.182)	(0.183)
Constant	5.420	7.066	7.129*	6.158	7.990*
	(4.506)	(4.328)	(4.288)	(4.416)	(4.500)
Observations	845	919	941	884	865
R-squared	0.075	0.081	0.083	0.086	0.079
F test model	17.05	20.19	21.06	20.69	18.46
P-value of F model	0	0	0	0	0

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 12 Liberal attitudes vs. education gender and age (IV height and place of birth)

VARIABLES	(1) trust_p_business	(2) econ_liberal	(3) service_liberal	(4) no_expropriation	(5) lib_soc
level_educ	0.123***	0.084***	0.303***	0.112***	0.029
	(0.036)	(0.024)	(0.076)	(0.031)	(0.134)
gender	0.269***	0.231***	0.391*	0.152*	0.228
	(0.095)	(0.064)	(0.211)	(0.088)	(0.356)
age	-0.007	-0.000	-0.012	-0.015***	0.022
	(0.004)	(0.003)	(0.009)	(0.004)	(0.015)
Constant	0.835	-1.047**	2.691*	0.840	28.050***
	(0.689)	(0.462)	(1.476)	(0.613)	(2.597)
Observations	845	919	941	884	865
R-squared					0.008

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Conclusions

Our work has confirmed the importance of high human capital as a determinant of attitudes towards market liberalism even in a country such as Russia with a strong tendency to distrust private markets. The results of the survey match work in the United States and other nations showing the links between education and market liberalism. More important, by using height as an instrument for education, we place the focus not on the educational experience itself but on the joint effects of genetic/cognitive endowment and nutritional and early childhood environmental effects on Russian liberal attitudes. Those with higher human capital are more likely to trust in small/private business and to support unregulated market prices even when controlling for gender and age. Moreover, males are also more likely than females to be market liberal (matching results for the United States, cf. Caplan(2001, 2002, 2007). Although more educated people are more likely to be socially liberal as well, the significance of the education to social liberalism correlations becomes insignificant in the second stage regressions with only the market liberal links persisting. Other questions which are less clearly aligned with market liberalism (e.g. whether health care or garbage disposal should be provided as public goods, or whether formerly state owned property should or shouldn't be returned) are insignificant in the IV regressions.

It is important to stress that our controls suggest that this is definitely not an effect of different generations having differing exposures towards markets or globalization or education. If seen in the light of the worldwide literature documenting a persistent link between education and human capital and favorable attitudes towards the market controlling

for country fixed effects, this research suggests that Russians would have tended to become more market liberal over the last few decades even in the absence of major institutional change as long as health, wealth, and underlying cognitive ability had increased to the same degree. Of course, this work does not imply that institutional changes were inconsequential. Indeed, it is quite likely that major social changes will affect the baseline general public's attitudes towards trust in markets and favorable attitudes towards business. The educated may have a tendency to be more market liberal than their less educated compatriots while still being on average hostile to markets depending on upbringing and institutional conditions. However, these tendencies linking human capital and market liberal attitudes can be seen as a persistent trend within all societies experiencing noticeable improvements in human capital.

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