The impact of non-cognitive skills, risk attitudes and trust on rural-to-urban migration: Evidence from Ukraine

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Outline of the Presentation

Motivation

- The importance of non-cognitive skills (personality traits) on behavior has been discussed in the psychology literature for decades
- Economists have recently begun to explore more the relationship between non-cognitive skills and life outcomes. A growing economics literature explores this relationship.
- There is also a large literature discussing how risk and social preferences impact microeconomic behavior.
- However, little is known about the link between non-cognitive skills and migration behavior.

Motivation

- In this paper we are interested in:
  - The impact of non-cognitive skills on rural-to-urban migration decisions within a country
- We also study this impact conditioning on risk and trust preferences.

Motivation

- Why do we expect that non-cognitive skills and preferences might affect migration behavior?
- An early study of Sjaastad (1962) points to *psychic costs* of migration including the emotional burden of leaving the familiar surrounding behind, building up new social relations, and adapting to a new social environment.
- Jaeger et al. (2010) and Bauernschuster et al. (2014) explain the channel through which risk attitudes determine geographic mobility by non-monetary costs due to lack of information and uncertainty about other locations.
- Because risk lovers are more able to deal with uncertainties, an obvious expectation would be to find a positive relationship between the willingness to take risk and migration propensity.

Motivation

- We argue the non-monetary (psychic) cost of migration might also be the channel through which non-cognitive skills explain the migration decision.
- For instance, some non-cognitive skills such as openness to new experience may help adapt to a new environment and a different culture, and hence reduce the psychic costs of migration.
- On the other hand, certain skills such as conscientiousness may work in the opposite direction given that a key facet of conscientiousness is a high valuation of persistence and predictability.

Literature Review - (1) Non-cognitive skills/personality traits

- The literature, going back to Andrisani (1977) and Filer (1986), discusses the link between non-cognitive skills and four broad themes of labor market outcomes:
  - Earnings: e.g., Duncan and Dunifon (1998), Osborne Groves (2005), Heineck and Anger (2010)
  - Occupational choice: e.g., Cobb-Clark and Tan (2011)
  - Gender gap related occupational choice and wages: e.g. Beaudry and Lewis, 2014
  - Job search behavior: e.g., Della Vigna and Paserman, 2005
  - Employment type (full-/part-time employment, self/dependent employment): e.g., Braakmann (2009), Caliendo et al. (2014)

Literature Review - (1) Non-cognitive skills/personality traits

- Seminal articles in the Special Issue of JHR 2008 ed. by Bas ter Weel, in particular:
  - Borghans et al. on interpersonal styles (caring and directness) and labor market outcomes
  - Cunha and Heckman on formulating, identifying and estimating the technology of cognitive and noncognitive skill formation
  - Borghans et al. on the economics and psychology of personality traits
- Other seminal papers by Heckman et al. on the formation of cognitive and non-cognitive skills and the contribution of family investment in early vs. older childhood to this formation

Literature Review - (2) Risk and trust attitudes

Two strands of literature looking at the relation of risk attitudes and labor market choices:

- Small literature that looks at question whether risk attitudes can be influenced by life events, changes in labor market state or macroeconomic shocks (Malmendier and Nagel 2011, Sahm 2012, Guiso et al. 2014, Cohn et al. 2015, Dohmen, Lehmann and Pignatti, 2016).
- Large literature that discusses how risk attitudes impact on the labor market, e.g., self-employment (Caliendo et al. 2013), occupational sorting (Bonin et al. 2007, Skriabikova et al. 2014), informal employment (Dohmen, Khamis and Lehmann, 2016).

Literature Review - (3) Migration as an outcome

To the best of our knowledge, there is only little empirical evidence on the link between migration behavior and:

- risk preferences: Jaeger et al. (2010) and Bauernschuster et al. (2014) focus on the impact of risk attitudes on intra-country migration in Germany.
- non-cognitive skills: a working paper by Butikofer and Peri (2016) focuses on the impact of sociability and adaptability skills on the probability of migrating out of one's region of origin (in Norway).

Research questions

- How do non-cognitive skills/personality traits (the "Big Five") affect rural-to-urban migration behavior of individuals within a country?
- To what extent do risk and trust preferences play a role in this migration decision?
- We answer these questions using the Ukrainian Longitudinal Monitoring Survey (ULMS).

Data

- ULMS - 4 year panel: 2003, 2004, 2007 and 2012
- the most comprehensive labor market survey in the transition region with information on:
  - Individual characteristics of respondents
  - Education, cognitive and non-cognitive skills (non-cognitive skills only in 2012)
  - Risk, social and time preferences (only in 2007 and 2012)
  - Main job characteristics (if employed) and non-employment between survey periods
  - Main and secondary job characteristics in the reference week
  - Unemployment and job seeking in the reference week
  - Information on changes of residence

Variables of interest: Outcome variable

The **outcome variable** is generated based on the information on the *type of settlement*:

1. Village (classified as "rural")
2. Town type rural settlement (classified as "rural")
3. Small town (up to 20 thds.) (classified as "town")
4. Medium town (20 – 99 thds.) (classified as "town")
5. City (100 – 499 thds.) (classified as "city")
6. Large city (more than 500 thds.) (classified as "city")

Variables of interest: Outcome variable

- We have information on six types of settlement in the present reference week.
- We define a rural-to-urban movement as a change in the type of settlement from categories (1) or (2) to one category of the set {3,4,5,6}.
- For example, if a person resided in the reference week of 2004 in a village (category 1) and resides in the reference week of 2007 in a city (category 5), we consider it as a rural-to-urban migration.
- Hence our dependent variable is a dichotomous variable.
- *Caveat*: Round-tripping

Variables of interest: Big five taxonomy

- **O**penness, **C**onscientiousness, **E**xtroversion, **A**greeableness, **N**euroticism
- Following Heckman et al. (2014), we group the 24 items into 5 categories:
  O: creative, open to new, enjoying nature/art/music
  C: careful, result-oriented, hard-working, patient
  E: talkative, introverted, sociable
  A: forgiving, polite, generous, asking help
  N: not relaxed, worried, nervous, rudeness, exploited by others, locus of control

- For non-cognitive skills, standardized averages are used.

Variables of interest: Mapping 24 items into big five

How do you see yourself?	
3 Do you come up with ideas other people haven't thought of before? 11 Are you very interested in learning new things? 14 Do you enjoy beautiful things, like nature, art and music?	Openness
2 When doing a task, are you very careful? 6 Do you finish whatever you begin? 8 Do you work very hard? For example, do you keep working when others stop to take a break? 12* Do you prefer relaxation more than hard work? 13 Do you enjoy working on things that take a very long time (at least several months) to complete? 17 Do you work very well and quickly? 21 Do you think carefully before you make an important decision?	Concientiousness
1 Are you talkative? 4* Do you like to keep your opinions to yourself prefer to keep quiet when you have an opinion? 20 Are you outgoing and sociable, for example, do you make friends very easily?	Extraversion
9 Do you forgive other people easily? 16 Are you very polite to other people? 19 Are you generous to other people with your time or money? 23 Do you ask for help when you don't understand something?	Agreeableness
5* Are you relaxed during stressful situations? 7 Do people take advantage of you? 10 Do you tend to worry? 15* Do you think about how the things you do will affect you in the future? 18 Do you get nervous easily? 22 Are people mean/not nice to you? 24* Do you think about how the things you do will affect other?	Neuroticism

Variables of interest: Preferences

- **Risk**: "Are you generally a person who is fully willing to take risks or do you try to avoid taking risks?"
  Scale is from 0"Completely unwilling to take risks" to 10 "Completely willing to take risks"
- **Trust**: "Are you a person who in general trusts other persons, or are you a person who rather does not trust other persons?"
  Scale is from 0"I do not trust other persons at all" to 10"I trust other persons completely".

- For preferences, dichotomous variables are used: a dummy variable indicating 1 for values 6-10.

Variables of interest: Demographics & macro variables

Demographic and regional characteristics as control variables:

- Pre-determined individual-level variables (i.e., age, sex, Ukrainian/Russian language)
- Additional individual-level variables that may be jointly determined with migration decisions (i.e., education, marital status, number of kids, employment status)
- Unemployment rate and log of GDP at region (oblast) level

Data limitations and how we deal with them

- **Limitation (1)**: Non-cognitive skills are only available in 2012
- Assumption taken from the literature: Non-cognitive skills/personality traits are hardly malleable in adulthood.
- Relying on this assumption, we consider non-cognitive skills fixed over the panel period.
- *Robustness check* through netting-out the age effect on big five factors.
- **Limitation (2)**: Risk and trust preferences are available both in 2007 and 2012.
- We assign the preferences of 2007 to 2003 & 2004 waves.
- *Reverse causality check* using repeated information on risk & trust in ULMS 2007 & 2012 waves.

Summary statistics (2012) Stat. 2004-7

	Urban			Rural stayers			Movers into urban		
	Obs	Mean	Std. Dev.	Obs	Mean	Std. Dev.	Obs	Mean	Std. Dev.
Age	3644	42.84	16.13	2309	47.31	14.98	48	32.44	13.00
Female	3644	0.56	0.50	2309	0.59	0.49	48	0.58	0.50
Ukranian language	3644	0.30	0.46	2309	0.68	0.47	48	0.42	0.50
Married	3643	0.62	0.48	2309	0.66	0.47	48	0.77	0.42
No. kids	3640	1.23	0.95	2309	1.66	1.05	48	0.88	0.87
Education level	3637	3.03	0.88	2306	2.77	0.86	48	3.23	0.93
Employed	3644	0.51	0.50	2309	0.45	0.50	48	0.71	0.46
Risk indicator	3527	0.22	0.42	2270	0.18	0.39	48	0.23	0.42
Risk index	3527	3.62	2.71	2270	3.20	2.64	48	3.75	2.61
Trust indicator	3529	0.51	0.50	2274	0.58	0.49	47	0.64	0.49
Trust index	3529	5.81	2.29	2274	6.15	2.02	47	6.38	2.35
Openness	3643	3.05	0.54	2308	3.01	0.57	48	3.19	0.52
Conscientiousness	3643	2.87	0.47	2308	2.99	0.44	48	2.94	0.48
Extraversion	3643	2.63	0.62	2308	2.65	0.60	48	2.66	0.61
Agreeableness	3641	2.85	0.52	2303	2.96	0.49	48	3.05	0.52
Neuroticism	3643	2.09	0.41	2308	2.10	0.40	48	2.02	0.41

Empirical specification

$$Y_{it} = \alpha + \beta_1 NCskills_i + \beta_2 Risk_{it} + \beta_3 Trust_{it} + X'_{i,t-1}\Omega + \epsilon_{it} \quad (1)$$

where Y is a binary variable, equal to 1 if s/he moves from "rural-to-urban", and 0 if s/he stays in the rural area. *NCskills* is a vector of big five factors. *Risk* and *Trust* are dichotomous variables, equal to 1 for values 6 and above. X is a vector of control variables including demographic and labor market characteristics of the previous period (described before).

- We also present results of "rural-to-city" and "rural-to-town" migration.
- Main results come from the estimation of a probit model.
- To control for unobserved heterogeneity, we also estimate a Random Effects probit model.

Effects of big five on migration

Balanced panel

	(1) rural-urban	(2) rural-urban	(3) rural-urban	(4) rural-city	(5) rural-city	(6) rural-city	(7) rural-town	(8) rural-town	(9) rural-town
Openness	0.008***	0.003*	0.002	0.004***	0.002*	0.001	0.003**	0.001	0.000
	(0.002)	(0.002)	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Conscient.	-0.013***	-0.008***	-0.008***	-0.008***	-0.005***	-0.005***	-0.005***	-0.002**	-0.002***
	(0.002)	(0.002)	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Extraversion	-0.002	-0.002	-0.001	-0.002*	-0.002**	-0.002*	0.001	0.001	0.000
	(0.002)	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Agreeable.	-0.008***	-0.005***	-0.005***	-0.004**	-0.002	-0.002*	-0.005***	-0.003***	-0.003***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.001)	(0.001)	(0.002)	(0.001)	(0.001)
Neuroticism	-0.004*	-0.003*	-0.003*	-0.002	-0.001	-0.001	-0.003*	-0.002*	-0.002*
	(0.002)	(0.002)	(0.002)	(0.002)	(0.001)	(0.001)	(0.002)	(0.001)	(0.001)
Covariates									
Set 1	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Set 2	No	No	Yes	No	No	Yes	No	No	Yes
Obs	6,164	6,153	6,120	6,079	6,068	6,035	6,077	6,066	6,034

Set 1: Age, age square, female, Ukrainian.
Set 2: Education level, employed, married, no. kids.

Effect of big five & preferences on rural-to-urban migration

Balanced panel

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Openness	0.008***	0.008***	0.008***	0.004*	0.004*	0.004*	0.002	0.002	0.002
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Conscient.	-0.012***	-0.012***	-0.012***	-0.008***	-0.008***	-0.008***	-0.008***	-0.008***	-0.008***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Extraversion	-0.004*	-0.004*	-0.004*	-0.004**	-0.003*	-0.004*	-0.003*	-0.003*	-0.003*
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Agreeable.	-0.003	-0.003	-0.003	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001
	(0.003)	(0.003)	(0.003)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Neuroticism	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Risk	0.005		0.005	0.001		0.001	0.001		0.001
	(0.005)		(0.005)	(0.004)		(0.004)	(0.004)		(0.004)
Trust		-0.003	-0.003		-0.003	-0.003		-0.003	-0.003
		(0.004)	(0.004)		(0.003)	(0.003)		(0.003)	(0.003)
Covariates									
Set 1	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Set 2	No	No	No	No	No	No	Yes	Yes	Yes
Obs	4,138	4,159	4,072	4,127	4,148	4,061	4,103	4,123	4,038

Set 1: Age, age square, female, Ukrainian.
Set 2: Education level, employed, married, no. kids.

Effect of big five & preferences on rural-to-city migration

Balanced panel

Reverse causality

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Openness	0.005***	0.006***	0.005***	0.003**	0.003**	0.003**	0.002**	0.002**	0.002*
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Conscient.	-0.007***	-0.007***	-0.007***	-0.005***	-0.005***	-0.005***	-0.004***	-0.004***	-0.004***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Extraversion	-0.004***	-0.004***	-0.004***	-0.004***	-0.003***	-0.004***	-0.003***	-0.003***	-0.003***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Agreeable.	-0.000	-0.000	0.000	0.001	0.001	0.001	0.001	0.001	0.001
	(0.002)	(0.002)	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Neuroticism	0.001	0.001	0.001	0.001	0.000	0.001	0.000	0.000	0.000
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Risk	0.007***		0.008***	0.004**		0.004**	0.004**		0.004**
	(0.003)		(0.003)	(0.002)		(0.002)	(0.002)		(0.002)
Trust		-0.004	-0.004*		-0.003	-0.003		-0.003	-0.003
		(0.002)	(0.002)		(0.002)	(0.002)		(0.002)	(0.002)
Covariates									
Set 1	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Set 2	No	No	No	No	No	No	Yes	Yes	Yes
Obs	4,089	4,111	4,024	4,078	4,100	4,013	4,054	4,075	3,990

Set 1: Age, age square, female, Ukrainian.
Set 2: Education level, employed, married, no. kids.

Effect of big five & preferences on rural-to-town migration

Balanced panel

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Openness	0.002	0.001	0.001	-0.000	-0.000	-0.000	-0.001	-0.001	-0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Conscient.	-0.003**	-0.003*	-0.003*	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001
	(0.002)	(0.002)	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Extraversion	0.001	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001
	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Agreeable.	-0.003	-0.003	-0.003	-0.002	-0.002	-0.002	-0.001	-0.001	-0.002
	(0.002)	(0.002)	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Neuroticism	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.000	-0.000
	(0.002)	(0.002)	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Risk	-0.007		-0.007	-0.005		-0.005	-0.004		-0.004
	(0.005)		(0.005)	(0.003)		(0.003)	(0.003)		(0.003)
Trust		0.002	0.002		0.001	0.001		0.000	0.000
		(0.003)	(0.003)		(0.002)	(0.002)		(0.002)	(0.002)
Covariates									
Set 1	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Set 2	No	No	No	No	No	No	Yes	Yes	Yes
Obs	4,090	4,111	4,024	4,079	4,100	4,013	4,056	4,076	3,991

Set 1: Age, age square, female, Ukrainian.

Set 2: Education level, employed, married, no. kids.

Effects of big five & preferences on migration –incl. regional (oblast-level) controls

Clustered s.e.

	(1) rural-urban	(2) rural-urban	(3) rural-urban	(4) rural-city	(5) rural-city	(6) rural-city	(7) rural-town	(8) rural-town	(9) rural-town
Openness	0.004*	0.004*	0.004*	0.003**	0.003**	0.003**	-0.000	-0.000	-0.000
	(0.002)	(0.002)	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Conscient.	-0.008***	-0.008***	-0.008***	-0.005***	-0.005***	-0.005***	-0.001	-0.001	-0.001
	(0.002)	(0.002)	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Extraversion	-0.004*	-0.004**	-0.004**	-0.004***	-0.004***	-0.003***	0.001	0.001	0.001
	(0.002)	(0.002)	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Agreeable.	-0.001	-0.001	-0.000	0.001	0.001	0.001	-0.002	-0.002	-0.002
	(0.002)	(0.002)	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Neuroticism	0.000	0.000	0.001	0.001	0.001	0.001	-0.001	-0.001	-0.001
	(0.002)	(0.002)	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Risk	0.001	0.001	0.002	0.004**	0.004**	0.004**	-0.005	-0.005	-0.004
	(0.004)	(0.004)	(0.004)	(0.002)	(0.002)	(0.002)	(0.003)	(0.003)	(0.003)
Trust	-0.003	-0.003	-0.003	-0.003	-0.003	-0.003*	0.001	0.001	0.001
	(0.003)	(0.003)	(0.003)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Regional covariates									
Unemp. rate		-0.001			-0.000			-0.001	
		(0.001)			(0.000)			(0.001)	
Log GDP			0.006***			0.002**			0.003**
			(0.002)			(0.001)			(0.001)
Observations	4,061	4,061	4,061	4,013	4,013	4,013	4,013	4,013	4,013

All specifications include controls for age, age square, female, Ukrainian language.

Effects of big five & preferences on migration: Random effects probit estimation

	(1) rural-urban	(2) rural-urban	(3) rural-urban	(4) rural-city	(5) rural-city	(6) rural-city	(7) rural-town	(8) rural-town	(9) rural-town
Openness	0.004*	0.000	0.000	0.003**	0.003**	0.003**	-0.000	-0.000	-0.000
	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.003)	(0.000)	(0.000)
Conscient	-0.008***	-0.001	-0.001	-0.005***	-0.005***	-0.005***	-0.001	-0.000	-0.000
	(0.002)	(0.002)	(0.002)	(0.001)	(0.001)	(0.001)	(0.012)	(0.000)	(0.000)
Extraversion	-0.004**	-0.000	-0.000	-0.004***	-0.003***	-0.004***	0.001	0.000	0.000
	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.009)	(0.000)	(0.000)
Agreeable	-0.001	-0.000	-0.000	0.001	0.001	0.001	-0.002	-0.000	-0.000
	(0.002)	(0.000)	(0.000)	(0.001)	(0.001)	(0.001)	(0.018)	(0.000)	(0.000)
Neuroticism	0.000	0.000	0.000	0.001	0.000	0.001	-0.001	-0.000	-0.000
	(0.002)	(0.000)	(0.000)	(0.001)	(0.001)	(0.001)	(0.010)	(0.000)	(0.000)
Risk	0.001		0.000	0.004**		0.004**	-0.005		-0.000
	(0.004)		(0.000)	(0.002)		(0.002)	(0.051)		(0.000)
Trust		-0.000	-0.000		-0.003	-0.003		0.000	0.000
		(0.001)	(0.001)		(0.002)	(0.002)		(0.000)	(0.000)
Obs	4,127	4,148	4,061	4,078	4,100	4,013	4,079	4,100	4,013

All specifications include controls for age, age square, female, Ukrainian language.

Reverse causality check for preferences: Effects of risk & trust measured in 2007 on rural-to-city migration btw. 2007-2012

Rural-to-urban/town

Main results - back

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Rural-to-city btw. 2007-2012									
Risk 2007	0.012***		0.012***	0.004**		0.004**	0.003**		0.003**
	(0.004)		(0.004)	(0.002)		(0.002)	(0.001)		(0.001)
Trust 2007		-0.004	-0.003		-0.002	-0.002		-0.001	-0.001
		(0.004)	(0.004)		(0.002)	(0.002)		(0.002)	(0.001)
Observations	2,056	2,088	2,013	2,056	2,088	2,013	2,044	2,076	2,001
Covariates									
Set 1	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Set 2	No	No	No	No	No	No	Yes	Yes	Yes

Set 1: Age, age square, female, Ukrainian.
Set 2: Education level, employed, married, no. kids.

Reverse causality check for risk: OLS estimation, balanced panel

Trust

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(a) Dependent variable:									
Change in risk index btw. 2007-12									
Rural-urban migration	-0.065	-0.089	-0.092						
	(0.199)	(0.201)	(0.206)						
Rural-city migration				-0.340	-0.368	-0.382			
				(0.354)	(0.349)	(0.376)			
Rural-town migration							0.158	0.137	0.124
							(0.199)	(0.250)	(0.203)
(b) Dependent variable:									
Risk index in 2012									
Rural-urban migration	0.052	-0.116	-0.157						
	(0.176)	(0.173)	(0.178)						
Rural-city migration				-0.080	-0.273	-0.354			
				(0.309)	(0.301)	(0.317)			
Rural-town migration							0.160	0.013	-0.008
							(0.191)	(0.224)	(0.185)
Risk index 2007	0.250***	0.209***	0.209***	0.249***	0.208***	0.208***	0.253***	0.212***	0.212***
	(0.025)	(0.026)	(0.026)	(0.025)	(0.026)	(0.026)	(0.025)	(0.023)	(0.026)
Covariates									
Set 1	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Set 2	No	No	Yes	No	No	Yes	No	No	Yes
Observations	1,596	1,596	1,585	1,580	1,580	1,569	1,583	1,583	1,573

Set 1: Age, age square, female, Ukrainian.
Set 2: Education level, employed, married, no. kids.

Complementarity of big five and preferences in explaining migration behavior

	Obs	ll(null)	ll(model)	df	AIC	BIC
			Rural-to-urban migration			
Big five	6153	-784.9	-688.6	10	1397.2	1464.5
Risk	4939	-568.3	-529.5	6	1071.1	1110.1
Trust	4979	-565.6	-526.6	6	1065.1	1104.2
Risk, trust	4858	-562.6	-523.6	7	1061.3	1106.7
Big five, risk	4127	-459.7	-410.8	11	843.6	913.2
Big five, trust	4148	-456.4	-407.7	11	837.4	907.0
Big five, risk, trust	4061	-454.4	-405.5	12	835.1	910.8
			Rural-to-city migration			
Big five	6068	-455.7	-403.4	10	826.8	893.9
Risk	4881	-336.6	-315.4	6	642.8	681.8
Trust	4922	-337.2	-314.1	6	640.3	679.3
Risk, trust	4801	-335.6	-312.1	7	638.2	683.5
Big five, risk	4078	-260.9	-221.4	11	464.8	534.3
Big five, trust	4100	-261.2	-221.7	11	465.5	535.0
Big five, risk, trust	4013	-260.2	-218.8	12	461.6	537.2
			Rural-to-town migration			
Big five	6066	-447.2	-386.9	10	793.8	860.9
Risk	4876	-314.7	-284.2	6	580.4	619.3
Trust	4916	-310.7	-281.7	6	575.4	614.4
Risk, trust	4795	-309.3	-279.2	7	572.4	617.7
Big five, risk	4079	-265.4	-237.1	11	496.3	565.7
Big five, trust	4100	-261.2	-234.8	11	491.7	561.2
Big five, risk, trust	4013	-260.2	-232.6	12	489.2	564.7

Complementarity of big five and preferences in explaining migration behavior

- A full model of probit including the big five and preferences provides a lower value of Akaike's (and Bayesian) information criterion, compared to a model including only the big five or preferences separately.
- Additionally, adjusted R^2 from OLS regressions increases substantially when including the big five and preferences together, compared to using only preferences (not presented here).
- This evidence indicates complementarity between the big five and preferences in explaining internal migration.

To sum up

- Risk preferences and non-cognitive skills are both important determinants of internal migration
- Three of the big five (Openness to experience, Conscientiousness, Extraversion) and risk preferences are consistently correlated with rural-to-urban migration.
- The effects are driven by rural-to-city movements.
- The estimated effect of a one standard deviation increase in a given personality trait changes the probability of moving from rural to urban by around 0.3 to 0.8 percentage point, and from rural to city by around 0.3 to 0.5 percentage point.
- The size of the effects are quite substantial relative to the unconditional rural-to-urban migration probability of 3 percent, and unconditional rural-to-city migration probability of 1.5 percent.

To sum up

- Our results are robust to the usage of:
  - controls for regional macro indicators,
  - balanced panel,
  - demographics measured in the initial year of the panel (i.e., 2003)
- We also controlled for unobserved heterogeneity through a random effects probit model. The results are similar to those from our main specification.

Next steps

- To deal with the measurement error in risk and trust, we will instrument the 2012 index with the 2007 index.
- Factor analysis of non-cognitive skills
- Reverse causality check for the big five:
  - we can net out the age effect of the big five (Heineck and Anger, 2010)
  - Alternatively, using an external data set (GSOEP) we can also conduct a robustness check similar to what we have done for preferences.

Thanks for your attention!

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Appendix Tables

Summary statistics 2004 & 2007 back

2004	Urban			Rural stayers			Movers into urban		
	Obs	Mean	Std. Dev.	Obs	Mean	Std. Dev.	Obs	Mean	Std. Dev.
Age	3800	43.20	16.69	3234	44.96	16.46	133	42.20	16.02
Female	3800	0.59	0.49	3234	0.58	0.49	133	0.52	0.50
Ukranian language	3799	0.36	0.48	3233	0.69	0.46	133	0.16	0.37
Married	3782	0.60	0.49	3218	0.67	0.47	131	0.69	0.47
No. kids	3799	1.27	0.98	3232	1.65	1.17	133	1.32	1.00
Education level	3797	2.72	1.02	3232	2.32	1.00	133	2.66	0.89
Employed	3800	0.51	0.50	3234	0.40	0.49	133	0.51	0.50
2007	**Urban**			**Rural stayers**			**Movers into urban**		
	Obs	Mean	Std. Dev.	Obs	Mean	Std. Dev.	Obs	Mean	Std. Dev.
Age	3606	43.70	16.91	2676	46.78	15.86	73	41.30	15.31
Female	3606	0.58	0.49	2676	0.59	0.49	73	0.44	0.50
Ukranian language	3595	0.38	0.49	2663	0.67	0.47	73	0.41	0.50
Married	3603	0.62	0.48	2675	0.69	0.46	73	0.71	0.46
No. kids	3603	1.22	0.96	2675	1.67	1.09	73	1.41	1.07
Education level	3585	2.98	0.82	2658	2.69	0.87	73	2.85	0.72
Employed	3606	0.53	0.50	2676	0.45	0.50	73	0.67	0.47
Risk indicator	3533	0.26	0.44	2561	0.20	0.40	73	0.19	0.40
Risk index	3533	3.77	2.90	2561	3.18	2.89	73	2.89	2.78
Trust indicator	3542	0.55	0.50	2598	0.56	0.50	73	0.51	0.50
Trust index	3542	6.11	2.31	2598	6.26	2.40	73	5.63	1.92

Effects of big five on migration: Balanced panel of 2003-2012

back

	(1) rural-urban	(2) rural-urban	(3) rural-urban	(4) rural-city	(5) rural-city	(6) rural-city	(7) rural-town	(8) rural-town	(9) rural-town
Openness	0.004**	0.004**	0.003*	0.004***	0.002**	0.001	0.003**	0.001	0.000
	(0.002)	(0.002)	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Conscient	-0.009***	-0.009***	-0.008***	-0.007***	-0.005***	-0.004***	-0.005***	-0.002**	-0.002**
	(0.002)	(0.002)	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Extraversion	-0.001	-0.001	-0.001	-0.002*	-0.001	-0.001	0.001	0.001	0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Agreeable	-0.005***	-0.005***	-0.005***	-0.004***	-0.003**	-0.002**	-0.004**	-0.002**	-0.002**
	(0.002)	(0.002)	(0.002)	(0.001)	(0.001)	(0.001)	(0.002)	(0.001)	(0.001)
Neuroticism	-0.002	-0.002	-0.002	-0.001	-0.001	-0.001	-0.002	-0.001	-0.001
	(0.002)	(0.002)	(0.002)	(0.001)	(0.001)	(0.001)	(0.002)	(0.001)	(0.001)
Covariates									
Set 1	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Set 2	No	No	Yes	No	No	Yes	No	No	Yes
Observations	5,167	5,167	5,138	5,105	5,098	5,069	5,113	5,106	5,078

Set 1: Age, age square, female, Ukrainian.
Set 2: Education level, employed, married, no. kids.

Effects of big five on migration: Balanced panel of 2003-2012, using covariates from 2003

back

	(1) rural-urban	(2) rural-urban	(3) rural-urban	(4) rural-city	(5) rural-city	(6) rural-city	(7) rural-town	(8) rural-town	(9) rural-town
Openness	0.004**	0.004**	0.003*	0.004***	0.002**	0.002*	0.003**	0.001	0.001
	(0.002)	(0.002)	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Conscient	-0.008***	-0.008***	-0.008***	-0.007***	-0.005***	-0.005***	-0.005***	-0.002**	-0.002**
	(0.002)	(0.002)	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Extraversion	-0.001	-0.001	-0.000	-0.002*	-0.001	-0.001	0.001	0.001	0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Agreeable	-0.005***	-0.005***	-0.005***	-0.004***	-0.003**	-0.003**	-0.004**	-0.002**	-0.002**
	(0.002)	(0.002)	(0.002)	(0.001)	(0.001)	(0.001)	(0.002)	(0.001)	(0.001)
Neuroticism	-0.002	-0.002	-0.002	-0.001	-0.001	-0.001	-0.002	-0.001	-0.001
	(0.002)	(0.002)	(0.002)	(0.001)	(0.001)	(0.001)	(0.002)	(0.001)	(0.001)
Covariates									
Set 1	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Set 2	No	No	Yes	No	No	Yes	No	No	Yes
Observations	5,167	5,167	5,147	5,105	5,098	5,079	5,113	5,106	5,087

Set 1: Age, age square, female, Ukrainian.
Set 2: Education level, employed, married, no. kids.

Effects of big five & preferences on rural-to-urban migration: Balanced panel of 2003-2012

back

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Openness	0.008***	0.008***	0.008***	0.004**	0.004**	0.004**	0.003*	0.003*	0.003*
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Conscient	-0.013***	-0.013***	-0.013***	-0.009***	-0.009***	-0.009***	-0.009***	-0.008***	-0.008***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Extraversion	-0.001	-0.002	-0.001	-0.000	-0.001	-0.000	-0.000	-0.001	-0.000
	(0.002)	(0.002)	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Agreeable	-0.008***	-0.008***	-0.009***	-0.005***	-0.005***	-0.005***	-0.005***	-0.005***	-0.005***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Neuroticism	-0.003	-0.003	-0.003	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Risk 2007	-0.006		-0.006	-0.005		-0.006	-0.006		-0.006
	(0.005)		(0.005)	(0.004)		(0.004)	(0.004)		(0.004)
Trust 2007		0.007*	0.007*		0.006**	0.006**		0.005*	0.005*
		(0.004)	(0.004)		(0.003)	(0.003)		(0.003)	(0.003)
Covariates									
Set 1	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Set 2	No	No	No	No	No	No	Yes	Yes	Yes
Obs	5,145	5,151	5,127	5,138	5,144	5,120	5,110	5,115	5,092

Set 1: Age, age square, female, Ukrainian.
Set 2: Education level, employed, married, no. kids.

Effects of big five & preferences on rural-to-urban migration: Balanced panel of 2003-2012, using covariates from 2003

back

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Openness	0.008***	0.008***	0.008***	0.004**	0.004**	0.004**	0.003*	0.003*	0.003*
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Conscient	-0.013***	-0.013***	-0.013***	-0.008***	-0.008***	-0.008***	-0.008***	-0.008***	-0.008***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Extraversion	-0.001	-0.002	-0.001	-0.001	-0.001	-0.000	-0.000	-0.000	-0.000
	(0.002)	(0.002)	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Agreeable	-0.008***	-0.008***	-0.009***	-0.005***	-0.006***	-0.006***	-0.005***	-0.006***	-0.006***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Neuroticism	-0.003	-0.003	-0.003	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Risk 2007	-0.006		-0.006	-0.005		-0.006	-0.005		-0.005
	(0.005)		(0.005)	(0.004)		(0.004)	(0.004)		(0.004)
Trust 2007		0.007*	0.007*		0.006**	0.006**		0.006**	0.006**
		(0.004)	(0.004)		(0.003)	(0.003)		(0.003)	(0.003)
Covariates from 2003									
Set 1	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Set 2	No	No	No	No	No	No	Yes	Yes	Yes
Obs	5,145	5,151	5,127	5,138	5,144	5,120	5,119	5,125	5,102

Set 1: Age, age square, female, Ukrainian.
Set 2: Education level, employed, married, no. kids.

Effects of big five & preferences on rural-to-city migration: Balanced panel of 2003-2012

back

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Openness	0.004***	0.004***	0.004***	0.002**	0.002**	0.002**	0.001	0.001	0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Conscient	-0.007***	-0.007***	-0.007***	-0.005***	-0.005***	-0.005***	-0.004***	-0.004***	-0.004***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Extraversion	-0.002*	-0.002*	-0.002*	-0.002	-0.001	-0.002	-0.001	-0.001	-0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Agreeable	-0.004***	-0.004***	-0.004***	-0.003**	-0.002**	-0.003**	-0.002**	-0.002**	-0.002**
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Neuroticism	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Risk 2007	0.002		0.002	0.001		0.001	-0.000		0.000
	(0.003)		(0.003)	(0.002)		(0.002)	(0.002)		(0.002)
Trust 2007		-0.000	-0.000		0.000	0.000		-0.000	-0.000
		(0.002)	(0.002)		(0.002)	(0.002)		(0.002)	(0.002)
Covariates									
Set 1	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Set 2	No	No	No	No	No	No	Yes	Yes	Yes
Observations	5,076	5,083	5,059	5,069	5,076	5,052	5,041	5,047	5,024

Set 1: Age, age square, female, Ukrainian.
Set 2: Education level, employed, married, no. kids.

Effects of big five & preferences on rural-to-city migration: Balanced panel of 2003-2012, using covariates from 2003

back

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Openness	0.004***	0.004***	0.004***	0.002**	0.002**	0.002**	0.002*	0.002*	0.002*
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Conscient	-0.007***	-0.007***	-0.007***	-0.005***	-0.005***	-0.005***	-0.005***	-0.005***	-0.005***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Extraversion	-0.002*	-0.002*	-0.002*	-0.002	-0.001	-0.002	-0.001	-0.001	-0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Agreeable	-0.004***	-0.004***	-0.004***	-0.003**	-0.003**	-0.003**	-0.003**	-0.003**	-0.003**
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Neuroticism	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Risk 2007	0.002		0.002	0.001		0.001	0.001		0.001
	(0.003)		(0.003)	(0.002)		(0.002)	(0.002)		(0.002)
Trust 2007		-0.000	-0.000		0.000	0.000		0.000	0.000
		(0.002)	(0.002)		(0.002)	(0.002)		(0.002)	(0.002)
Covariates from 2003									
Set 1	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Set 2	No	No	No	No	No	No	Yes	Yes	Yes
Observations	5,076	5,083	5,059	5,069	5,076	5,052	5,051	5,057	5,034

Set 1: Age, age square, female, Ukrainian.
Set 2: Education level, employed, married, no. kids.

Effects of big five & preferences on rural-to-town migration: Balanced panel of 2003-2012

back

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Openness	0.003**	0.003**	0.003**	0.001	0.001	0.001	0.000	0.000	0.000
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Conscient	-0.005***	-0.005***	-0.005***	-0.002**	-0.002**	-0.002**	-0.002**	-0.002**	-0.002**
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Extraversion	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Agreeable	-0.004**	-0.004***	-0.004***	-0.002**	-0.002**	-0.002**	-0.002**	-0.002**	-0.002**
	(0.002)	(0.002)	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Neuroticism	-0.002	-0.002	-0.002	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001
	(0.002)	(0.002)	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Risk 2007	-0.010**		-0.010**	-0.005**		-0.005**	-0.004*		-0.004**
	(0.005)		(0.004)	(0.003)		(0.003)	(0.002)		(0.002)
Trust 2007		0.008***	0.008***		0.005***	0.005***		0.004***	0.004***
		(0.003)	(0.003)		(0.002)	(0.002)		(0.002)	(0.002)
Covariates									
Set 1	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Set 2	No	No	No	No	No	No	Yes	Yes	Yes
Observations	5,084	5,090	5,066	5,077	5,083	5,059	5,050	5,055	5,032

Set 1: Age, age square, female, Ukrainian.
Set 2: Education level, employed, married, no. kids.

Effects of big five & preferences on rural-to-town migration: Balanced panel of 2003-2012, using covariates from 2003

back

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Openness	0.003**	0.003**	0.003**	0.001	0.001	0.001	0.001	0.001	0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Conscient	-0.005***	-0.005***	-0.005***	-0.002**	-0.002**	-0.002*	-0.002**	-0.002**	-0.002**
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Extraversion	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Agreeable	-0.004**	-0.004***	-0.004***	-0.002**	-0.002**	-0.002**	-0.002**	-0.002**	-0.002**
	(0.002)	(0.002)	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Neuroticism	-0.002	-0.002	-0.002	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001
	(0.002)	(0.002)	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Risk 2007	-0.010**		-0.010**	-0.006**		-0.005**	-0.005*		-0.005**
	(0.005)		(0.004)	(0.003)		(0.003)	(0.003)		(0.002)
Trust 2007		0.008***	0.008***		0.005***	0.005***		0.005***	0.005***
		(0.003)	(0.003)		(0.002)	(0.002)		(0.002)	(0.002)
Covariates from 2003									
Set 1	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Set 2	No	No	No	No	No	No	Yes	Yes	Yes
Observations	5,084	5,090	5,066	5,077	5,083	5,059	5,059	5,065	5,042

Set 1: Age, age square, female, Ukrainian.
Set 2: Education level, employed, married, no. kids.

Effects of big five & preferences on migration –incl. regional controls

back

	(1) rural-urban	(2) rural-urban	(3) rural-urban	(4) rural-city	(5) rural-city	(6) rural-city	(7) rural-town	(8) rural-town	(9) rural-town
Openness	0.004	0.004	0.004	0.003	0.003	0.003	-0.000	-0.000	-0.000
	(0.004)	(0.004)	(0.004)	(0.002)	(0.002)	(0.002)	(0.001)	(0.001)	(0.001)
Conscient.	-0.008*	-0.008*	-0.008*	-0.005**	-0.005**	-0.005**	-0.001	-0.001	-0.001
	(0.004)	(0.004)	(0.004)	(0.002)	(0.002)	(0.002)	(0.001)	(0.001)	(0.001)
Extraversion	-0.004*	-0.004*	-0.004*	-0.004*	-0.004*	-0.003*	0.001	0.001	0.001
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Agreeable.	-0.001	-0.001	-0.000	0.001	0.001	0.001	-0.002	-0.002	-0.002
	(0.004)	(0.004)	(0.004)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Neuroticism	0.000	0.000	0.001	0.001	0.001	0.001	-0.001	-0.001	-0.001
	(0.002)	(0.002)	(0.002)	(0.001)	(0.001)	(0.001)	(0.002)	(0.002)	(0.002)
Risk	0.001	0.001	0.002	0.004**	0.004**	0.004***	-0.005	-0.005	-0.004
	(0.005)	(0.005)	(0.005)	(0.002)	(0.002)	(0.002)	(0.004)	(0.004)	(0.004)
Trust	-0.003	-0.003	-0.003	-0.003**	-0.003**	-0.003**	0.001	0.001	0.001
	(0.003)	(0.003)	(0.003)	(0.001)	(0.001)	(0.001)	(0.002)	(0.002)	(0.002)
Regional covariates									
Unemp. rate		-0.001			-0.000			-0.001	
		(0.002)			(0.001)			(0.001)	
Log GDP			0.006			0.002			0.003
			(0.004)			(0.002)			(0.002)
Observations	4,061	4,061	4,061	4,013	4,013	4,013	4,013	4,013	4,013

All specifications include controls for age, age square, female, Ukrainian language.
Standard errors are clustered at oblast level.

Reverse causality check for preferences: Effects of risk & trust measured in 2007 on rural-to-urban & rural-to-town migration btw. 2007-2012

back

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(a) Rural-to-urban btw. 2007-2012									
Risk 2007	0.013**		0.015**	0.004		0.005	0.003		0.004
	(0.007)		(0.006)	(0.004)		(0.004)	(0.003)		(0.003)
Trust 2007		0.002	0.003		-0.000	0.001		-0.000	0.001
		(0.006)	(0.006)		(0.004)	(0.004)		(0.003)	(0.003)
Observations	2,079	2,108	2,032	2,079	2,108	2,032	2,067	2,096	2,020
(b) Rural-to-town btw. 2007-2012									
Risk 2007	-0.002		0.000	-0.003		-0.001	-0.002		-0.000
	(0.006)		(0.005)	(0.004)		(0.004)	(0.002)		(0.002)
Trust 2007		0.005	0.007		0.003	0.004		0.002	0.002
		(0.004)	(0.004)		(0.003)	(0.003)		(0.002)	(0.002)
Observations	2,059	2,087	2,012	2,059	2,087	2,012	2,048	2,076	2,001
Covariates									
Set 1	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Set 2	No	No	No	No	No	No	Yes	Yes	Yes

Set 1: Age, age square, female, Ukrainian.
Set 2: Education level, employed, married, no. kids.

Reverse causality check for trust: OLS estimation, balanced panel

back

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(a) Dependent variable: Change in trust index btw. 2007-12									
Rural-urban migration	0.022	0.054	0.045						
	(0.250)	(0.248)	(0.256)						
Rural-city migration				0.539*	0.564*	0.563*			
				(0.302)	(0.299)	(0.317)			
Rural-town migration							-0.494	-0.453	-0.430
							(0.341)	(0.276)	(0.338)
(b) Dependent variable: Trust index in 2012									
Rural-urban migration	0.000	0.109	0.081						
	(0.224)	(0.224)	(0.234)						
Rural-city migration				0.242	0.367	0.344			
				(0.281)	(0.266)	(0.280)			
Rural-town migration							-0.240	-0.149	-0.159
							(0.335)	(0.249)	(0.346)
Trust index 2007	0.076***	0.073***	0.072***	0.080***	0.076***	0.075***	0.077***	0.074***	0.073***
	(0.021)	(0.021)	(0.021)	(0.021)	(0.021)	(0.021)	(0.021)	(0.022)	(0.021)
Covariates									
Set 1	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Set 2	No	No	Yes	No	No	Yes	No	No	Yes
Observations	1,631	1,631	1,619	1,618	1,618	1,606	1,618	1,618	1,607

Set 1: Age, age square, female, Ukrainian.
Set 2: Education level, employed, married, no. kids.