

Risk Attitudes, Informal Employment and Wages: Evidence from a Transition Country

preliminary work!

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Structure of lecture

- Introduction/Motivation
- Embedding our work in the various strands of the literature:
 - Definitions of informality/informal employment
 - Theoretical debates (looking at three paradigms)
 - Empirical literature (on wage gaps and inter-sector mobility)
 - Risk and labor market outcomes
 - Risk and occupational choice
- Data
- Empirical results
 - Descriptives
 - Regression results
 - Discussion of reverse causality and measurement error issues
- Conclusions

Introduction

- ▶ Basic underlying assumptions of this work:
 - The informal sector/informal employment is riskier for the individual. Potential reasons: risk of detection; risk of no benefits since not covered by social insurance regarding illness and/or old age
 - Individuals who voluntarily choose this sector might be more willing to take risks, while individuals who are involuntary in the sector might not be more willing to take risk since they are there not by choice

Our main research questions

- Do individuals who are more willing to take risk have a higher propensity to engage in informal employment?
- What does it tell us about the nature of informal employment (debate voluntary vs involuntary) and the structure of the labor market (integrated vs. segmented)?
- Residual earnings: do individuals willing to take risk experience a larger variance in residual earnings?
- {We look at these research questions using data from **Ukraine**, namely the Ukrainian Longitudinal Monitoring Survey (ULMS)}

- ▶ Four important points in this paper:
 - (1) Our risk attitudes measure is a valid one.
 - (2) The propensity to take risk is an important determinant of selection into informal employment.
 - (3) The structure of the labor market is a complex issue (segmentation within the informal sector)
 - (4) The propensity to take risk is related to residual earnings risk

Bringing together strands of informality literature:

Literature on Informality (1) (Definitions)

- PRODUCTIVE/ILO DEFINITION: characterizes informality in the labour market by job characteristics
 - ➔ Non-professionals, unskilled, marginal jobs, the self-employed, domestic and family workers and workers in small firms with up to 5 employees.
- LEGALISTiC/SOCIAL PROTECTION DEFINITION: characterizes informality in the labour market by non-compliance to the state in terms of labour laws and social security systems
 - ➔ waged workers and the self-employed non-compliant or without access to the social security system or pension system, with no registration/contract. (Source: Perry et al. 2007)

We avoid conceptual «fuzziness» (see Kanbur 2009) by adhering strictly to legalistic/social protection definition

- ➔ informal wage employment=no contract for employment relationship
- ➔ Informal self-employment=no registration of economic activity

Bringing together strands of informality literature: Literature on Informality (2) (Theory debates)

- Debate on labour market segmentation/involuntary informal sector participation vs. voluntary choice of informality (Harris and Todaro 1970; Maloney 1999, 2004; Fields 1990; Perry et al. 2007).
- Three main schools of thought about informal employment in developing countries:
 - (1) Traditional School (going back to Lewis, 1954; Harris and Todaro, 1970) – LM segmented
 - (2) Revisionist School (Maloney 1999, 2004 recently, but going back at least to De Soto 1989) – LM integrated
 - (3) “Second Revisionist School” (Fields 1990) – informal employment is segmented

Bringing together strands of informality literature: Literature on Informality (2) (Theory debates)

- Guha-Kasnobis, Kanbur and Ostrom (2006) and papers in their volume as well as, e.g., Kanbur (2014) are critical of a dichotomous view of labor markets in developing countries along formal-informal divide; for Guha-Kasnobis et al. formal and informal are metaphors with context-dependent connotations.
- This strand of the literature puts policy at the center: what matters are policies that improve workers' lives whether they are formal or informal and/or whether formalization of jobs or keeping jobs informal achieves such an improvement.

Bringing together strands of informality literature: Literature on Informality (3) (Empirical debates)

- Empirical studies in general study wage gaps between formal-informal labour market and/or labour mobility to infer on whether the labour market is segmented (wage gap/low mobility) or integrated (no wage gap/high mobility)
- Empirical studies on Latin America and the Caribbean (LAC) find mixed evidence (here a selection of indicative studies):
 1. for voluntary choice for self-employed in Mexico, e.g. Cunningham and Maloney 2001;
 2. no formal-informal wage gap, e.g. Pratap and Quintin 2006;
 3. evidence for segmentation btw. formal-informal wage employees and voluntary choice of self-employed in Argentina, see Arias and Khamis 2008.

Bringing together strands of informality literature: Literature on Informality (3) (Empirical Debates: transition countries)

- Pages and Stampini (2007): find high mobility from informal and formal salaried jobs, for self-employed and formal no clear pattern (Albania, Georgia and Ukraine).
- Bernabe and Stampini (2008): support for segmentation in Georgia, preference for formal employment over informal work which seems to serve as a buffer in recessions.
- Lehmann and Pignatti (2007) assess the role of the informal sector in the transition country Ukraine and find segmentation to be present for the majority of informal salaried employees. The informal sector is also found to be split into two tiers, with upper-tier voluntary in the sector and the majority in the involuntary lower-tier.
- Bargain, Lehmann and Zaiceva (2016): find similar results for Russia as Lehmann and Pignatti (2007) for Ukraine

Literature on Risk Attitudes and Labor Market Outcomes

- Risk behaviour and the relationship to informal-formal labour market choice have not been studied in this form.
- Risk attitudes and its links to gender, age, migration were studied by Dohmen et al. 2005 and Jaeger et al. 2009 in the German context (females are less risk-taking, older people are more risk-averse, people more willing to take risks are more likely to migrate).
- Risk attitudes and selection into self-employment and entrepreneurship were studied in a developed context by Brown et al. (2011), Caliendo et al. (2009,2010), Ekelund et al. (2005).
- Risk-taking behaviour and the link to entrepreneurship in a transition country was studied by Djankov et al. 2005 (entrepreneurs in Russia are more risk-taking).
- In a developing country context risk attitudes and labour markets (de Mel, McKenzie and Woodruff 2008ab).

Literature on risk and occupational choice

- ▶ DeLeire and Levy (2004) show that single parents with dependent children are less likely to work in occupations with high fatality risk.
- ▶ More direct measures of risk and occupations: a correlation between workers' willingness to take risks and the earnings risk of their chosen occupation (e.g.Bonin et al., 2007; Fouarge et al., 2014)
- ▶ Workers who are more willing to take risks profit from working in more risky occupations that pay a risk premium. Dohmen and Falk (2011): Lab experiment reveals a positive effect of stated risk preference on the probability of self-selecting into a more variable payment scheme.
- ➔ Using the same ULMS data as in this paper, Skriabikova et al. (2014) look at risk attitudes and sorting into occupations

Contribution of our work to the literature

- ▶ We incorporate direct risk measures in a study of the informal labour market, which has not been done before .
- ▶ We analyze the following research questions:
 - ▶ How much do risk attitudes matter for selection into labour market states along the formal-informal divide?
 - ▶ How do risk attitudes relate to earnings? Are people who are more willing to take risk confronted with a larger variance in residual earnings (larger individual deviations from the mean of residual earnings)?
- ▶ We employ a unique survey in Ukraine (ULMS), which allows us to study job histories, informality and risk measures.

Data (1)

- Ukrainian Longitudinal Monitoring Survey (ULMS): 4 waves – 2003, 2004, 2007 and 2012.
- Main focus on 2007 and 2012 waves (in 2007 and 2012 waves, risk measures similar to the ones of the SOEP are included)
- Data can be linked into a panel of individuals. Job history goes back until 1986 (year of Chernobyl disaster).
- Informality questions (questions regarding registration of contract) are in reference weeks of 2003, 2004, 2007 and 2012
- See Lehmann, Muravyev and Zimmermann (2012) on ULMS data set

ULMS 2007 and ULMS 2012

- ▶ The sample size for 2003: 8500 individuals.
- ▶ The sample size for 2004: 7200 individuals.
- ▶ The sample size for 2007: 6750 individuals.
- ▶ The sample size for 2012: 7753 individuals.
- ▶ Household information, education, gender, job history information, sectors, regions, enterprise information (ownership etc.), hours worked, trust, nationality.

Soliciting answers on informal wage and self employment

- ▶ Informal wage employment: Non-registration of contract
- ▶ voluntary or involuntary informal wage employment: voluntary or involuntary non-registration.
- ▶ Informal self-employment: non-registration of activity.

Data (2): questions capturing formality/informality

Informality:

(1) Employees

Tell me, please, are you officially registered at this job, that is are you on a work roster, work agreement or contract?

1. Registered 2. Not Registered.

Why aren't you officially registered at this job?

1. Employer does not want to register.
2. I do not want to register.
3. Both.

(2) Self-employed

Is your activity registered?

1. Yes 2. No

Data (3)

Overview of Informality Definition in the Data

	Wage Employment	Self-employment
Registered	Formal	Formal
Unregistered		
Employer	Informal	Informal
Employee	involuntary informal	
both	voluntary informal	
	voluntary informal	

Data (4)

Different measures of risk attitudes from risk module (ULMS 2007 and 2012)

- ▶ ‘Subjective’ risk attitudes measure (1. general, 2. life domain specific, i.e., career, financial matters, health, car driving and sports and leisure)
 - ▶ ‘Objective’ risk measure (Hypothetical Investment question)
 - ▶ Lotteries
- ➔ Here, we focus on the first one.

Data (5)

Risk Attitudes: General (1) and Career (2)

- (1) *How do you see yourself? Are you generally a person who is fully willing to take risks or do you try to avoid taking risks? Please give a number from 0 to 10, where the value 0 means: "Completely unwilling to take risks" and the value 10 means "Completely willing to take risks". You can take the values in between to make your estimate.*

- (2) *People can behave differently in different situations. How would you rate your willingness to take risks in career matters? (0 to 10 as before).*

Data (6) – SOEP: experimental validation of general risk question

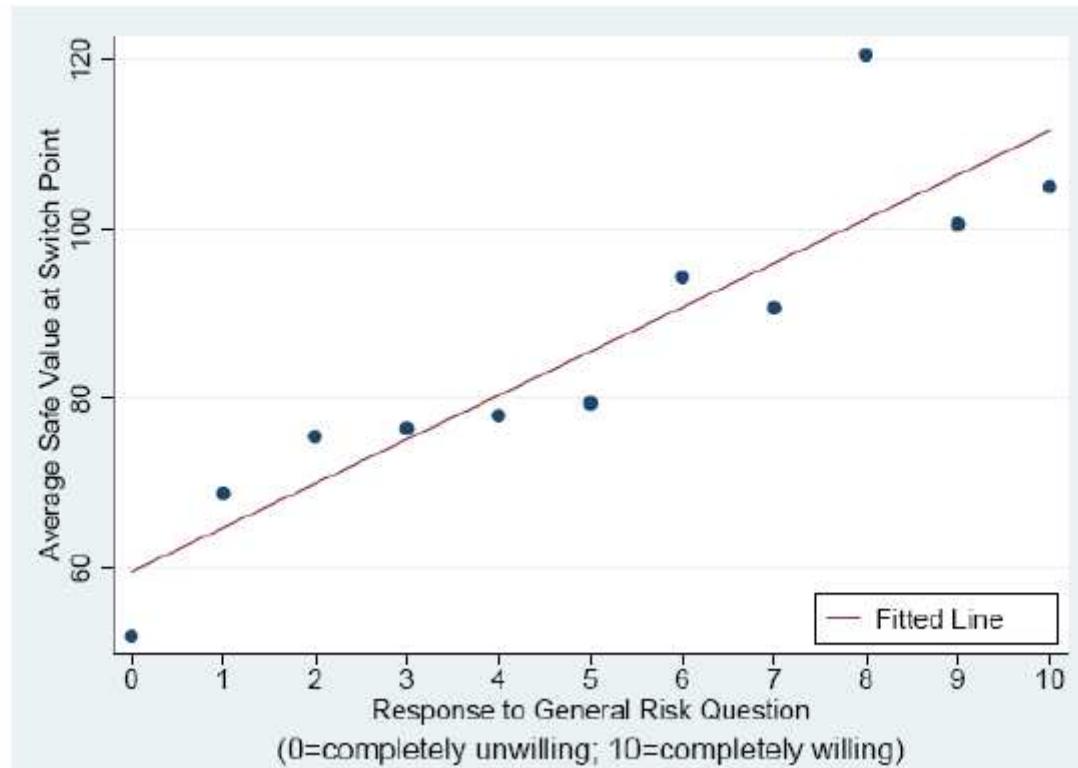
- Dohmen et al. (2011)

450 subjects, representative sample of adult population

- Subjects answer the general risk question
- Subjects also take part in paid lottery experiment
 - ⊕ Lottery: 300 or 0 Euros, with equal probability
 - ⊕ Safe option: X Euros, where X varies across 20 choices
 - ⊕ One choice is randomly selected and implemented
 - ⊕ Incentive compatible measure of risk preference: switching point from the lottery to the safe option
- Lottery measure standardizes for incentives and context. 

Data (7) – SOEP: experimental validation of general risk question

General Risk Question and Risk Taking Behavior



Source: Dohmen et al. (2011)

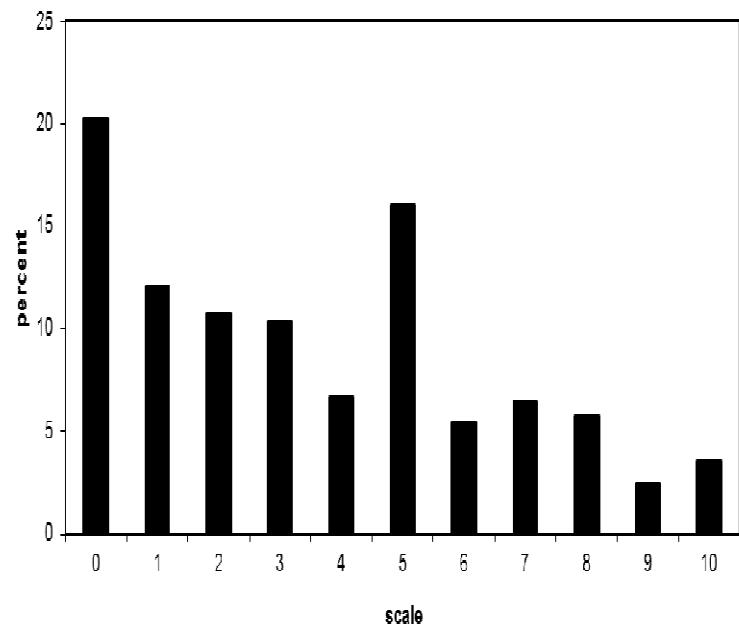
Descriptive analysis: Occupation and informality - 2007

Occupation and Informality									
	Formal employees		Informal employees		involuntary informal		voluntary informal		
	N	percent	N	percent	N	percent	N	percent	
managers	85	3.06	0	0	0	0	0	0	
professionals	470	16.93	9	2.92	2	0.97	5	6.02	
technicians and associate professionals	438	15.78	7	2.27	3	1.45	2	2.41	
clerks	203	7.31	20	6.49	17	8.21	2	2.41	
service workers and shop and market sal	183	6.59	79	25.65	57	27.54	18	21.69	
skilled agricultural, forestry, and fis	30	1.08	2	0.65	1	0.48	1	1.2	
skilled manual worker	582	20.97	66	21.43	41	19.81	23	27.71	
plant and machine operators and assembl	246	8.86	19	6.17	11	5.31	8	9.64	
unskilled occupations	493	17.76	105	34.09	74	35.75	24	28.92	
armed forces (better to eliminate)	46	1.66	1	0.32	1	0.48	0	0	
total	2,776		308		207		83		

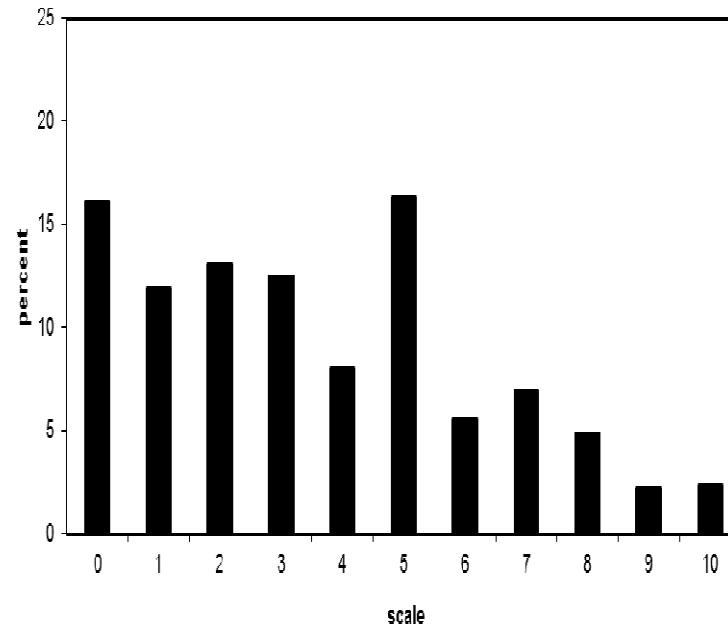
Source: ULMS 2007

Descriptive analysis: Distribution of risk index – 2007 & 2012

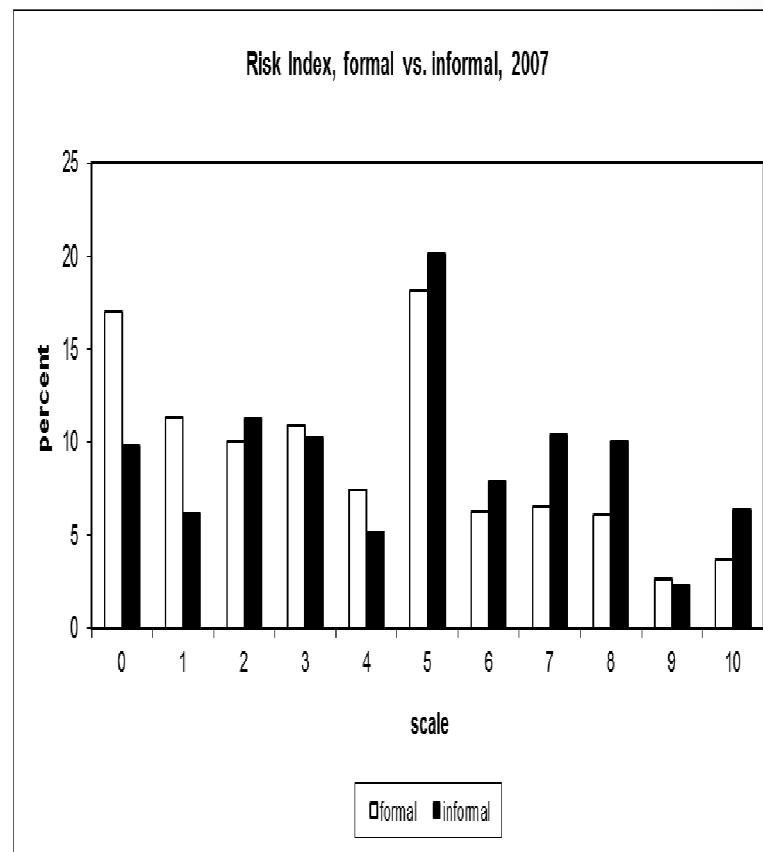
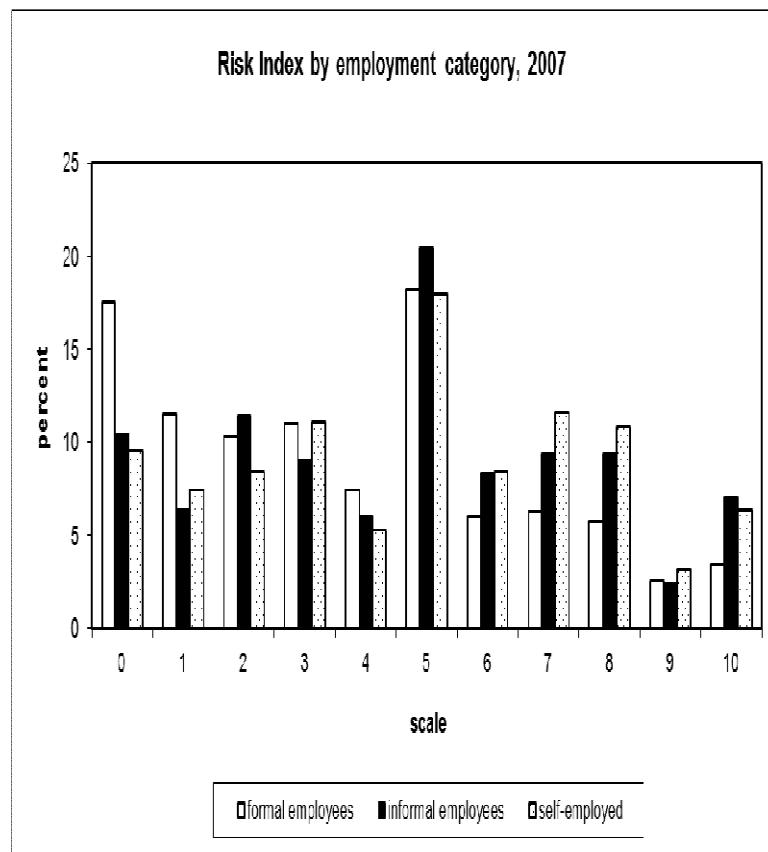
Risk Index 2007 for all respondents



Risk Index 2012 for all respondents



Descriptive analysis: Distribution of risk index by employment category and along formal-informal divide



Descriptive statistics on risk index by employment category

Average measures of risk attitudes for formal, informal and self-employed work						
	Formal employees	N	Informal employees	N	Self-employed 1/	N
All	3.692	2725	4.642	299	4.786	379
Gender						
Men	4.334	1332	5.335	167	5.192	214
Women	3.078	1393	3.765	132	4.261	165
Age Group						
15-25	4.575	388	5.302	96	5.237	38
26-35	4.139	583	5.278	79	5.250	76
36-45	3.557	687	3.887	62	4.817	120
46-55	3.097	725	3.467	45	4.330	106
56-65	3.544	283	3.692	13	4.935	31
65+	3.068	59	4.250	4	3.250	8
Education 3/						
High School or below	3.704	655	4.569	123	4.568	118
Higher education	3.688	2070	4.693	176	4.885	261
Married						
Yes	3.537	1811	3.741	135	4.792	255
No	4.002	912	5.384	164	4.774	124
Children 4/						
Yes	3.732	2317	4.543	265	4.847	301
No	3.468	408	5.412	34	4.551	78
Region						
Kiev	3.409	154	7.000	10	5.214	14
Center	3.699	667	4.015	65	4.688	96
West	3.911	471	4.745	47	5.684	76
East	3.590	748	4.795	78	4.771	83
South	3.711	685	4.646	99	4.209	110
Registration details 5/						
Formal Self-employed	...	...	...	...	4.926	162
Informal Self-employed	...	...	...	...	4.702	218
Involuntary informal	...	...	4.500	200	...	...
Voluntary informal	...	...	4.988	84	...	...

Regression Results

- Probit models

→ Dependent variable (LHS): Informal (1) vs formal (0)

→ Right Hand Side variables: Risk attitudes indices plus other covariates

- Multinomial Logit models

→ dependent variable now has 5 alternatives, formal employee is base category and we can distinguish between voluntary and involuntary informal wage employment

→ Right hand side variables similar to probit models

Probit Analysis: Risk and Informality 2007

Probit Regressions, Marginal Effects		(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES							
risk index		0.0047*** (0.0016)	0.0046*** (0.0015)	0.0030** (0.0012)			
career risk index					0.0034** (0.0015)	0.0034** (0.0014)	0.0022** (0.0011)
age10		-0.0275 (0.0288)	0.0021 (0.0282)	0.0118 (0.0248)	-0.0183 (0.0286)	0.0080 (0.0279)	0.0190 (0.0237)
age2100		0.0014 (0.0034)	-0.0016 (0.0033)	-0.0017 (0.0028)	0.0004 (0.0033)	-0.0021 (0.0033)	-0.0025 (0.0027)
ukrainian		-0.0119 (0.0107)	-0.0118 (0.0102)	-0.0135 (0.0083)	-0.0107 (0.0106)	-0.0101 (0.0101)	-0.0121 (0.0078)
female		-0.0149 (0.0100)	-0.0183* (0.0096)	-0.0136* (0.0078)	-0.0180* (0.0097)	-0.0207** (0.0094)	-0.0147** (0.0072)
married		-0.0474*** (0.0105)	-0.0455*** (0.0102)	-0.0175** (0.0083)	-0.0353*** (0.0104)	-0.0343*** (0.0100)	-0.0091 (0.0076)
children in household		0.0048 (0.0056)	0.0045 (0.0054)	0.0037 (0.0044)	-0.0021 (0.0057)	-0.0020 (0.0055)	0.0009 (0.0040)
high school education		-0.0096 (0.0163)	-0.0037 (0.0155)	0.0010 (0.0125)	-0.0038 (0.0163)	0.0018 (0.0156)	-0.0001 (0.0111)
incomplete higher education/technical		-0.0269* (0.0147)	-0.0196 (0.0140)	-0.0078 (0.0113)	-0.0229 (0.0150)	-0.0143 (0.0143)	-0.0096 (0.0102)
higher education		-0.0615*** (0.0180)	-0.0492*** (0.0173)	-0.0415*** (0.0151)	-0.0585*** (0.0182)	-0.0449*** (0.0174)	-0.0441*** (0.0145)
Inhhsinadjusted		-0.0023 (0.0050)	-0.0030 (0.0048)	0.0035 (0.0042)	-0.0020 (0.0049)	-0.0024 (0.0047)	0.0032 (0.0039)
none0407			0.0570*** (0.0108)	0.0441*** (0.0094)		0.0544*** (0.0109)	0.0402*** (0.0096)
informalspell0304				0.0618*** (0.0115)			0.0547*** (0.0119)
Observations		2,300	2,300	1,772	2,064	2,064	1,585
Standard errors in parentheses							
*** p<0.01, ** p<0.05, * p<0.1							
Dependent variable: all informals (w aged employees and self-employed) 1							
Risk Index/Career Risk Index: Risk measure 0-10.							
Base category: Kiev, industry, below high school education							
Sector and Region controls.							

Multinomial Logit Analysis: Risk and Informality 2007

Multinomial Logit Regressions, Odds Ratios				
	formal self-employed	inf. Invol. employees	inf. vol. employees	informal self-employed
risk index	1.170*** (0.044)	1.070 (0.045)	1.153*** (0.063)	1.153*** (0.053)
age10	31.896*** (32.414)	1.341 (1.043)	0.759 (0.717)	2.251 (2.022)
age2100	0.661*** (0.079)	0.944 (0.087)	1.009 (0.112)	0.885 (0.094)
ukrainian	0.916 (0.243)	1.100 (0.324)	0.716 (0.258)	0.578* (0.172)
female	0.636** (0.146)	0.669 (0.177)	0.999 (0.358)	0.381*** (0.120)
married	0.982 (0.272)	0.454*** (0.116)	0.588 (0.206)	0.369*** (0.107)
children in household	0.938 (0.133)	1.076 (0.164)	1.045 (0.216)	1.135 (0.172)
high school education	1.508 (0.836)	1.273 (0.529)	0.675 (0.325)	1.062 (0.494)
incomplete higher education/technic	1.681 (0.848)	0.897 (0.339)	0.448* (0.190)	0.975 (0.402)
higher education	1.657 (0.893)	0.289** (0.160)	0.333* (0.189)	0.622 (0.317)
Inhhsinadjusted	1.793*** (0.260)	0.924 (0.125)	0.983 (0.176)	1.044 (0.158)
none0407	0.768 (0.264)	3.072*** (0.806)	2.853*** (0.971)	2.316*** (0.691)
constant	0.000*** (0.000)	0.007** (0.015)	0.029 (0.074)	0.001*** (0.003)
N	2280			
pseudo R-squared	0.249			

Standard errors in parentheses
 * significant at 10%; ** significant at 5%; *** significant at 1%
 Relative Odds Ratios
 Base Category: formal employees
 Sector and Region controls.

Link between risk attitudes and residual earnings risk

1. Wage regressions for 3 occupational groups (service/unskilled occupations/skilled manual) with voluntary and involuntary informal, formal employees dummies
2. Similar regressions with all occupational groups but managers
3. Residuals from these regressions
4. Standard deviations for three job categories (formal, informal involuntary, informal voluntary)
5. Regression of standard deviation on risk attitudes measure
6. Alternatively, get means for the three different states and regress absolute difference (individual to mean residual earnings) on risk attitudes measure [show results of this procedure in next table]

Residual Earnings Analysis

	Residual Earnings Analysis			
	(1)	(2)	(3)	(4)
risk index	0.0188*	0.0037***	0.0273***	0.0283***
	(0.0097)	(0.0014)	(0.0069)	(0.0068)
age10	-0.0210	-0.0131	-0.6607***	-0.5733***
	(0.1580)	(0.0274)	(0.1350)	(0.1372)
age2100	-0.0060	0.0009	0.0622***	0.0537***
	(0.0170)	(0.0030)	(0.0146)	(0.0148)
ukrainian	-0.0609	-0.0002	-0.0287	-0.0214
	(0.0704)	(0.0096)	(0.0476)	(0.0467)
female	-0.0417	-0.0033	0.0452	0.0460
	(0.0630)	(0.0079)	(0.0386)	(0.0380)
married	-0.0576	-0.0135	0.0079	0.0003
	(0.0656)	(0.0094)	(0.0456)	(0.0453)
children in household	-0.0586	0.0029	-0.0047	-0.0050
	(0.0368)	(0.0054)	(0.0246)	(0.0246)
high school education	-0.0004	-0.0065	0.0332	0.0493
	(0.0848)	(0.0147)	(0.0664)	(0.0627)
incomplete higher education/technical	0.0019	-0.0066	0.0811	0.1085**
	(0.0752)	(0.0142)	(0.0592)	(0.0550)
higher education	-0.0208	0.0012	0.0679	0.1153*
	(0.1084)	(0.0228)	(0.0669)	(0.0629)
Inhhsinadjusted	0.0502	-0.0045	0.0789***	0.0725***
	(0.0336)	(0.0060)	(0.0225)	(0.0222)
none0407		0.0459***		0.2393***
		(0.0140)		(0.0667)
Constant	0.3631	0.9390***	1.3222***	1.0788***
	(0.4166)	(0.0752)	(0.3315)	(0.3347)
Observations	940	940	1,960	1,960
R-squared	0.0527	0.1349	0.0678	0.0810
Dependent variables: absolute difference (individual to mean residual earnings)				
Three occupations: service/unskilled occupations/skilled manual (column 1, 2)				
All except managers (column 3, 4)				
Sector and Region controls.				

Reverse Causality issue: Informality and Risk

- The literature on personality traits and also risk attitudes provides evidence that these measures are rank-order stable and persistent over relatively long time-horizons (see, e.g., Andersen et al., 2008; Reynaud and Couture, 2012; Dohmen et al., 2012, Dohmen, Lehmann and Pignatti, 2016)
- So, being informal in the labor market should not change risk attitudes.
- Having two waves of risk attitudes measures and informality, we can test this more formally, though

A closer look at time-varying individual risk attitudes

How is time variation related to measurement problems?

We start off with re-test reported in Dohmen et al. (2007):

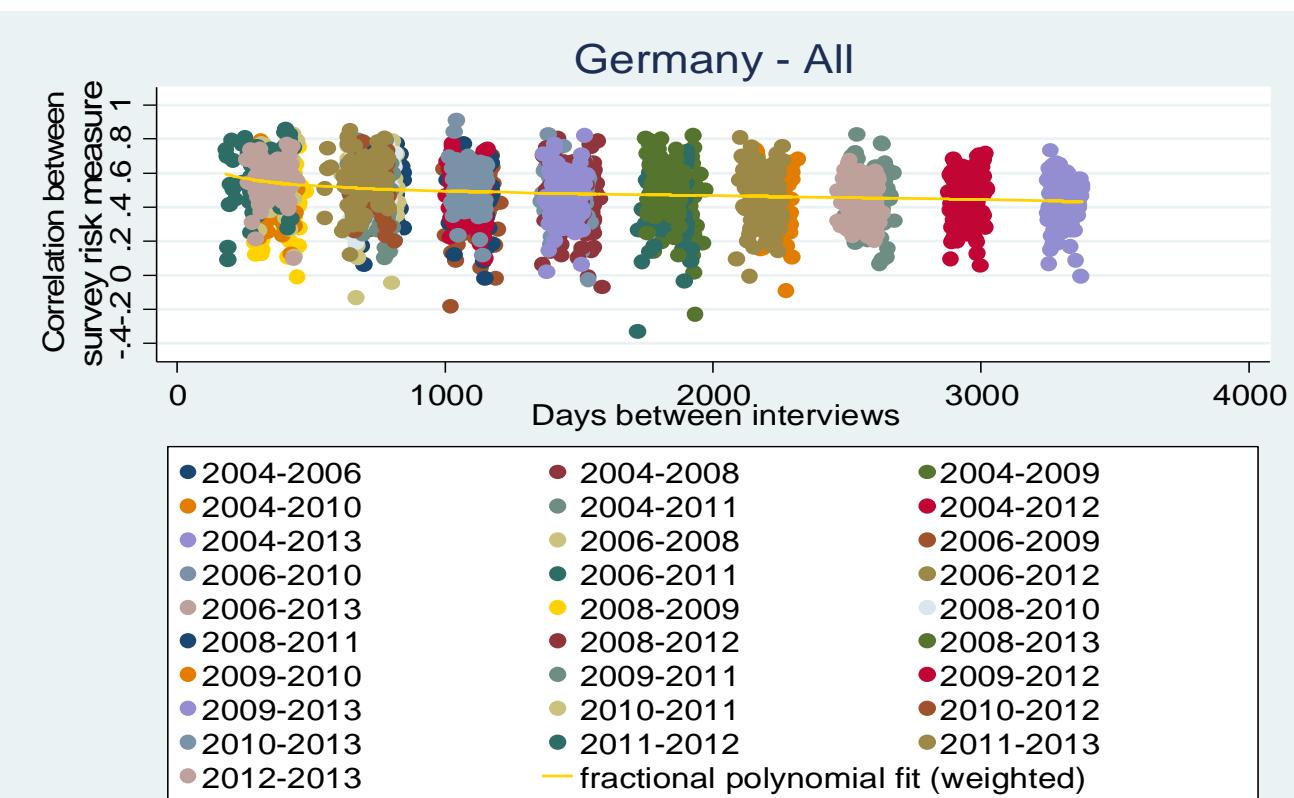
Respondents are re-interviewed approximately 5 weeks later.

Correlations between two responses: 0.62 for whole sample (300 long-term respondents of SOEP), 0.615 for restricted sample (no significant events occurring between interviews).

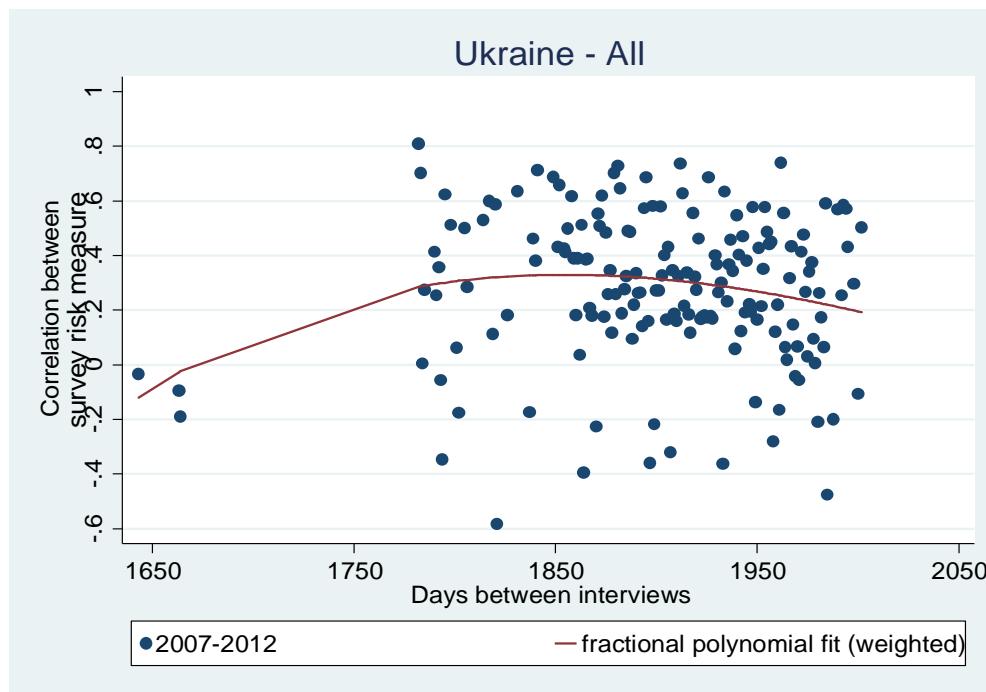
⇒ Given this short time span, much of the imperfect correlation over time can be interpreted as measurement error.

Next we look at how correlation declines with time.

Correlations between general risk measures conditioned on days between interviews – German whole sample (SOEP)

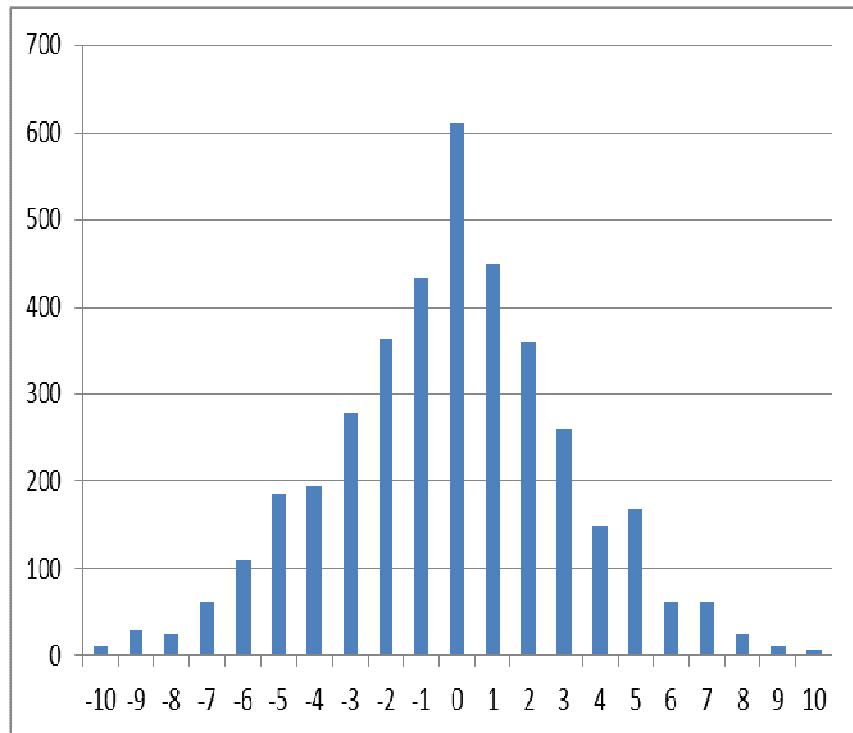


Correlations between general risk measures conditioned on specific time interval – whole ULMS sample



Source: Dohmen et al. (2016)

Change in risk attitudes measure over time in Ukrainian Sample: Panel of All Individuals (2007, 2012)



Change in Risk attitude responses for all individuals

- ▶ Sample: 3864
- ▶ About 15.8 percent give the same risk attitude number in both years (seems low)
- ▶ About 72.8 percent fall in the same 0 or 1 risk indicator in both years (risk indicator=0 when risk index takes values 0-5; =1 when risk index takes values 6-10)

Source: ULMS 2007 and 2012

Formal test of reverse causality

	OLS				
	N	Mean of Dependent Variable			
Dependent variables and covariates					
Effect of moved into informal (2007-2012), not informal 2007 on:					
change in risk index (2007-2012)	3,864	-0.2101	-0.0230 (0.2556)	0.0794 (0.2571)	0.0637 (0.2572)
Covariates					
Age, female			x	x	
Married, education levels				x	

Notes: Authors' calculations based on ULMS 2007, 2012. Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1.

Informality: Non-registration of employees and self-employed. Uses responses to whether individual/activity is registered or not.

Formal Test for Risk and Informality over time (2007, 20012)

	Risk and Informality		Marginal Effects		
	N	Mean of Dependent Variable			
Dependent variables and covariates					
Effect of risk index (2007) on:					
informality (2007)	3,864	0.0844	0.0098***	0.0070***	0.0075***
			(0.0015)	(0.0015)	(0.0015)
moved into informal (2007-2012), not informal 2007	3,864	0.0468	0.0041***	0.0016	0.0018
			(0.0011)	(0.0011)	(0.0011)
moved into informal (2007-2012), no prior informality (2003-2007)	2,495	0.0369	0.0031**	0.0010	0.0012
			(0.0013)	(0.0013)	(0.0012)
Covariates					
Age, female			x	x	
Married, education levels				x	

Notes: Authors' calculations based on ULMS 2003, 2004, 2007, 2012. Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1.

Informality: Non-registration of employees and self-employed. Uses responses to whether individual/activity is registered or not.

Dealing with measurement error issue

Probit Regressions, Marginal Effects, dependent variable informality 2007, adjusted for errors				
	(1)	(2)	(3)	(4)
VARIABLES				
risk index 2007	0.0044** (0.0020)			
risk index 2012		0.0040* (0.0022)		
risk index average (2007, 2012)			0.0056** (0.0024)	
IV risk index 2007 with 2012 risk index				0.0850* (0.0438)
Observations	1,325	1,325	1,325	1,325
Standard errors in parentheses				
*** p<0.01, ** p<0.05, * p<0.1				
Risk adjustment: The change in risk between 2007 and 2012 was adjusted by 10 percent from top and bottom of the distribution				
IV Probit regressions.				
IV first stage risk index 2012 coefficient:	0.5499*** (0.0259)			

Conclusions

- We find that workers who are in **voluntary informal employment relationships or in formal and informal self-employment** to be more willing to take risks than formal employees and informal involuntary employees.
- Risk attitudes are an important determinant for selection into informal employment relationships (significant and positive).
- A person who takes risks in general and career matters has a higher probability to be informal than a person stating to be relative risk averse.
- Risk plays as important role as age/household income, while gender, education, job history and marital status play a larger role

Conclusions, continued

- Findings of the residual earnings analysis suggest that risk attitudes are significant and positively related to difference from mean residual earnings (\rightarrow an increased willingness to take risk increases my residual earning/risk premium of wages)
- Causality issue and test: Risk and Informality (\rightarrow stable risk pattern over time; we find no reverse causality)

Thank you for your attention!