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# Migration intentions in CESEE. Socio-demographic profiles of prospective emigrants and their motives to move

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## Introduction

- CESEE countries have been characterized by considerable out-migration in past decades
- Together with unfavorable demographic developments this adds up to a large decline of the working age population (Atoyan et al., 2016; IMF, 2016; IMF, 2017)
- In this study we intend to
  - describe the socio-demographic profiles of the prospective emigrants from CESEE
  - learn about their motives to leave
- We use data from the **OeNB Euro Survey** collected in fall 2017
  - Descriptive analysis
  - (Polychoric) Principal Component Analysis and probit regressions

## Literature

- Human capital theory: People migrate if expected utility of moving is higher than expected utility of staying, net the cost of migration
- Borjas (1987), based on Roy (1951): skills of migrants depend on relative wage differentials between sending and host countries
- Chiswick (1999) and Chiquiar and Hanson (2005): positive selection will occur even is inequality is high in source country if the costs of migration are lower for highly skilled
- Liebig and Sousa-Poza (2004) find that high-skilled are more inclined to migrate
- Fouarge and Ester (2007, 2008) find that „*Europeans are not that willing to move*“
  - Great diversity across countries: high in PL and the Baltics, low in old member states, but even lower in other new member states (CZ, HU)
  - Use module of Eurobarometer 2005 (25 countries)

## Literature

- Van Dahlen and Henkins (2008): data from the Netherlands from 2005
  - Socio-demographic factors matter
  - Discontent about quality of public domain is key driver (mentality, crowded space, nature, pollution, crime ); also “sensation seeking” can be a driving force
- Zaiceva and Zimmermann (2008): Eurobarometer data from 2001, 2002 and 2005 (EU25)
  - Potential migrants are young and well-educated; family considerations can be a barrier

The literature further shows that migration intentions are linked to

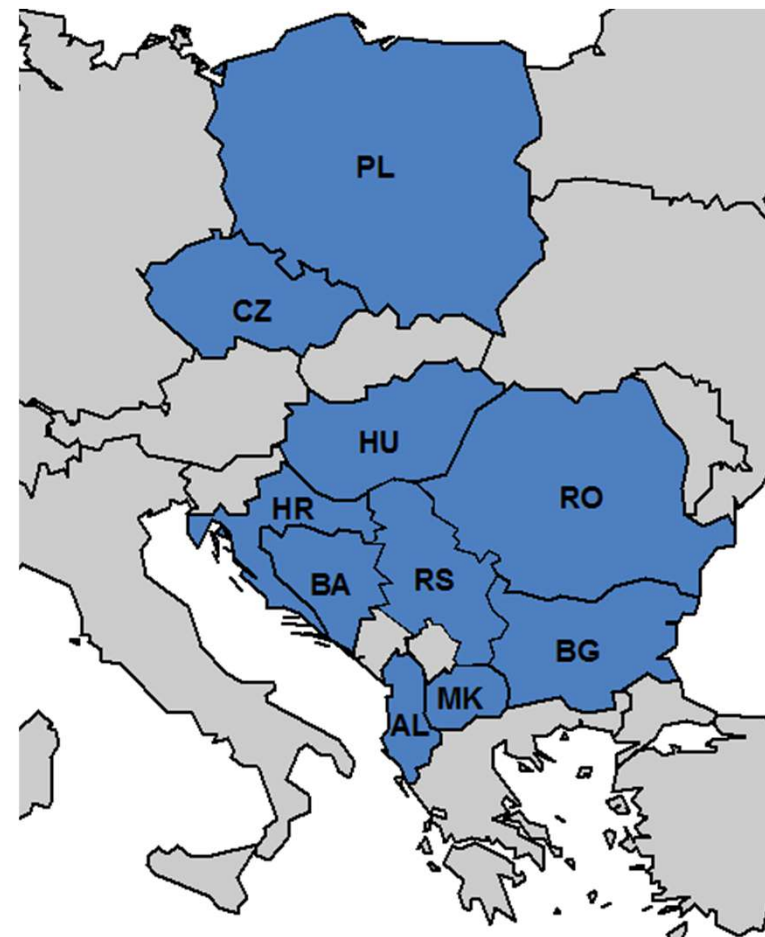
- networks (Manchin and Orazbayev, 2016)
- life satisfaction (Otrachshenko and Popova, 2014)
- relative deprivation (Hyll and Schneider, 2014)
- trust/values (Sandu and de Jong, 1996)

## Data – The OeNB Euro Survey

### Individual-level survey commissioned by OeNB

<https://www.oenb.at/en/Monetary-Policy/Surveys/OeNB-Euro-Survey.html>

- 6 EU countries: BG, HR, CZ, HU, PL, RO
- 4 non-EU countries: AL, BA, MK, RS
- Fall 2007 – fall 2017
- 1,000 randomly selected individuals/country/wave
- unique information about (euro) cash holdings, saving behavior and debt; respondents' economic opinions, expectations and experiences



## Data – The OeNB Euro Survey

### Fall-wave 2017:

- *“Do you intend to move abroad within the next 12 months?”*
  - *“yes”, “no”, “don’t know”, “no answer”*
- + information on socio-demographics, economic situation, region of residence,...

### Limitations:

- No distinction between temporary and permanent migration
- Underestimation if whole family intends to move with respondent
- Intentions vs. actual behavior

## Data on intentions vs. actual behavior

The literature suggests that migration intentions are strong predictors for subsequent behavior

- Dustmann (2003) studies return migration from Germany and shows that approx. 25% of those with intentions actually moved
- Van Dahlen and Henkens (2008) find for the Netherlands that 24% of those with migration intentions actually move and they show that those who do not move do not differ greatly in their observable characteristics from those who do move
- Gordon and Molho (1995) report that 90% of those who in 1980 expressed an interest to leave the UK did so within 5 years

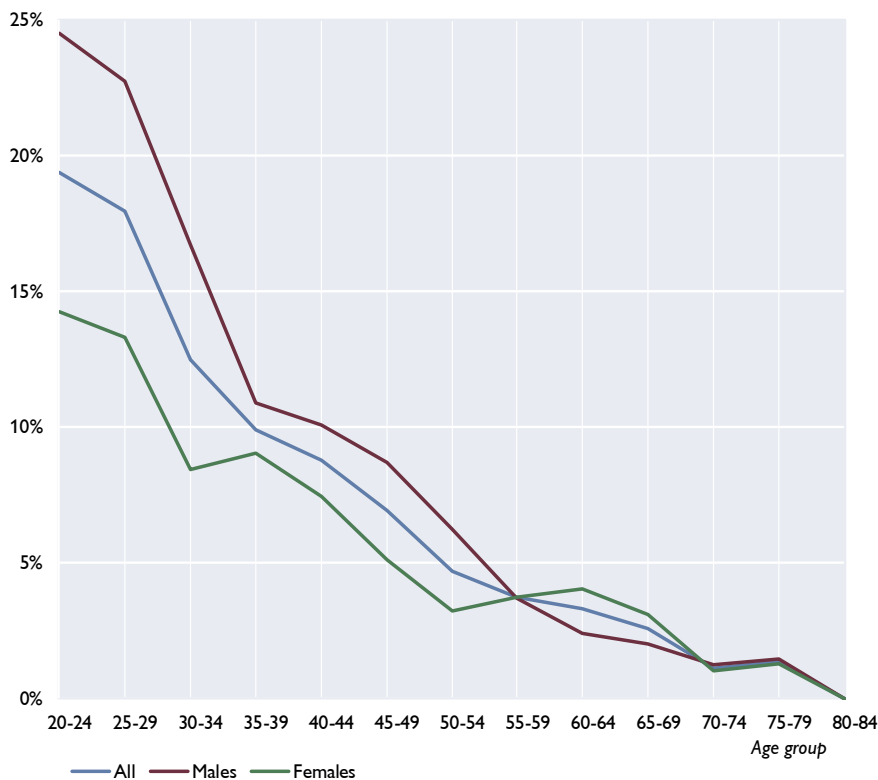
## Advantages of using data on intentions

- (Actual) Immigration depends on specific characteristics inherent to the host country; data on *prospective* migrants are less likely to suffer from this selection bias
- Liebig and Sousa-Poza (2004), Fouarge and Ester (2007, 2018), Zaiceva and Zimmermann (2008)

## Descriptive statistics: An average CESEE country

### CESEE average: Migration intentions by age and gender

Share of individuals with migration intentions (%)



Source: OeNB Euro Survey (2017).

- 8.3% of working age individuals (25 to 64 years) in CESEE intend to move abroad within the next year
- 13.3% of young working age individuals (25-39) intend to emigrate, only 5.4% of older working age individuals (40-64) do so

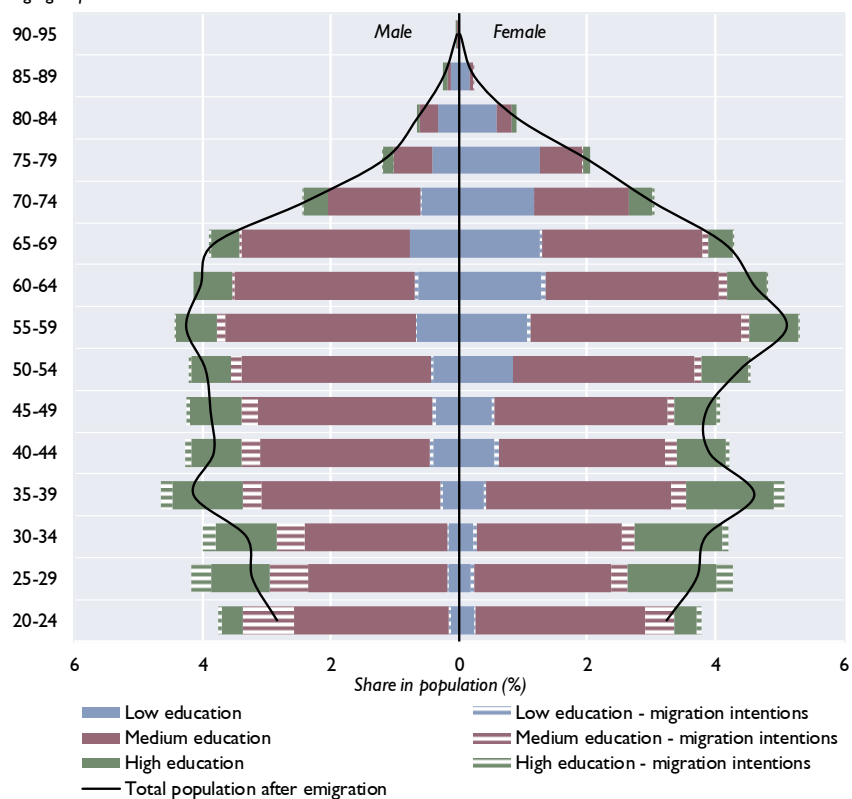
### Migration intentions...

- ... decline with age
  - 18.0% among 25-29 year-olds,
  - 12.5% among 30-34 year-olds,
  - < 10.0% among for those aged 35+
- ... are higher among men
- ... do not differ greatly with education



## Population pyramid for an average CESEE country

Population in CESEE: by gender, age, education and migration intentions  
Age group



Source: OeNB Euro Survey (2017).

The pyramid shows the

- gender,
- age,
- education, and the
- migration intentions

of individuals.

The black line indicates a **hypothetical population pyramid** that could be observed if all migration intentions were realized – immediately and contemporaneously, *ceteris paribus*.

## Empirical specification

We estimate simple probit regressions of the following form

$$m_i = \alpha_r + \sum_{j=1}^J X_j^S \beta_j^S + \sum_{k=1}^K X_k^E \beta_k^E + \sum_{l=1}^L X_l^R \beta_l^R + \sum_{m=1}^M X_m^N \beta_m^N + \sum_{p=1}^P X_p^T \beta_p^T + \epsilon_i$$

where

- $m_i$  is a binary variable indicating migration intentions,
- $X_j^S$  is a vector of  $J$  **socio-demographic** variables,
- $X_k^E$  is a vector of  $K$  **economic** factors,
- $X_l^R$  is a vector of  $L$  variables related to **regional economic development**,
- $X_m^N$  is a vector of  $M$  **network** variables, and
- $X_p^T$  is a vector of  $P$  factors approximating **trust in institutions**.

## (Polychoric) Principal Component Analysis

- To reduce the dimensionality of variables while keeping information content high
- Developed independently by Pearson (1901) and Hotelling (1933)
- A PCA finds linear combination of variables that accounts for greatest variance; a principal component is calculated as a weighted sum of the variables (*factor loadings*)
  - First component: exhibits largest variation
  - Second component: exhibits largest remaining variation
  - ...
  - All components are orthogonal to each other
- *Polychoric* PCAs accommodate discrete (binary and categorical) variables (Kolenikov and Angeles, 2004)

## Example: PCA for regional economic development

Table B2: Principal component analysis for regional economic activity

	Component 1	Component 2	Component 3	Component 4	Component 5	...
Regional unemployment	-0.27	0.22	0.38	0.18	0.00	
PSU unemployment	-0.19	0.17	0.37	0.73	0.01	
Log(PSU equiv. income)	0.33	-0.16	-0.35	0.30	0.07	
Log(regional equiv. income)	0.34	-0.18	-0.33	0.40	-0.05	
Log(light 5km)	0.38	0.09	0.36	-0.21	0.23	
Log(light 10km)	0.42	0.06	0.36	-0.14	0.11	
Log(light 20km)	0.43	0.01	0.28	-0.02	0.00	
Log(light NUTS 2)	0.33	-0.08	0.15	0.31	-0.24	
Growth light 5km	0.01	0.41	-0.25	0.11	0.63	
Growth light 10km	0.11	0.50	-0.17	0.03	0.17	
Growth light 20km	0.14	0.49	-0.16	-0.03	-0.24	
Growth light NUTS 2	0.09	0.44	-0.11	-0.07	-0.62	
Eigenvalue	<b>4.28</b>	<b>3.10</b>	<b>1.53</b>	0.81	0.68	
Cum. variation explained	0.35	0.61	0.74	0.81	0.86	
Description of component	<b>“Prosperous region”</b>	<b>“Developing region”</b>	<b>“Depressed region”</b>	Not included	Not included	...

## Explanatory variables

- **Socio-demographic factors**
  - Age, education, gender, large family (PPCA), size of town
- **Economic factors**
  - (log) equivalized household income (and sq.), unemployment, wealth (PPCA)
- **Regional development**
  - Income, unemployment, night light intensity at different levels of regional aggregation
- **Networks**
  - Remittances as proxy for direct networks, regional/indirect network (PPCA), modern communication device (PPCA)
- **Trust in institutions**
  - Trust in national institutions (PPCA; government, police, court,...), trust in EU (PPCA; EU, foreign banks)

## Empirical specifications: Caveats and limitations

- Migration intentions vs. actual migration behavior
  - Literature shows that intentions are good predictors for behavior
  - Intentions tend to overestimate real migration flows
  - But using *intentions* has advantages over observed behavior
  
- Possible endogeneity → Results are conditional correlations, but not causal effects!
  - Network variable
  - Education variable
  - Trust in institutions
  
- No distinction between temporary and permanent migration possible

# Results



	(1)	(2)	(3)	(4)	(5)	(6)
	Socio-dem.	Economic	Wealth	Region	Networks	Trust
Age	-0.00330*** (-15.48)	-0.00319*** (-13.86)	-0.00320*** (-13.99)	-0.00320*** (-14.80)	-0.00302*** (-12.16)	-0.00292*** (-11.08)
Medium education	0.00845 (0.86)	0.0121 (1.33)	0.0107 (1.18)	0.0122 (1.34)	0.0129 (1.50)	0.00641 (0.76)
High education	0.00965 (0.88)	0.00509 (0.45)	0.00286 (0.24)	0.00243 (0.21)	0.00590 (0.54)	0.00395 (0.38)
Female	-0.0249*** (-4.81)	-0.0224*** (-3.57)	-0.0211*** (-3.41)	-0.0206*** (-3.26)	-0.0223*** (-3.63)	-0.0231*** (-3.46)
PPCA: Large family	-0.0134*** (-4.86)	-0.0135*** (-4.16)	-0.0150*** (-4.43)	-0.0153*** (-4.67)	-0.0153*** (-4.76)	-0.0150*** (-4.35)
Size of town	0.00199 (1.17)	0.00480*** (2.90)	0.00553*** (3.36)	0.00800*** (3.10)	0.00692*** (2.79)	0.00679*** (2.59)
Log(equiv. income)		-0.0502** (-1.97)	-0.0401 (-1.57)	-0.0416* (-1.66)	-0.0325 (-1.36)	-0.0251 (-0.87)
Log(equiv. income) sq.		0.00412* (1.66)	0.00273 (1.08)	0.00375 (1.51)	0.00275 (1.14)	0.00181 (0.66)
Unemployed		0.0468*** (4.84)	0.0495*** (5.26)	0.0369*** (4.45)	0.0374*** (4.55)	0.0403*** (5.13)
PPCA: Wealth			0.0117** (2.56)	0.0118*** (2.72)	0.00465 (1.20)	0.00554 (1.37)
PCA: Prosperous region				-0.0139*** (-3.40)	-0.0108*** (-2.65)	-0.00908** (-2.05)
PCA: Developing region				0.00744** (2.19)	0.00428 (1.28)	0.00497 (1.40)
PCA: Depressed region				0.0142*** (2.73)	0.00979* (1.96)	0.00659 (1.14)
Direct networks					0.0476*** (4.52)	0.0462*** (3.88)
PCA: Indirect networks					0.0158*** (4.58)	0.0160*** (4.29)
PPCA: Modern communication devices					0.00783** (2.38)	0.00870*** (2.59)
PCA: Trust in local institutions						-0.00422* (-1.67)
PCA: Trust in the EU						0.0117*** (3.89)
N	9545	7288	7193	7152	7106	6583

## Results – Marginal effects after probit estimations I

	(1)	(2)	(3)	(4)	(5)	(6)
	Socio-dem.	Economic	Wealth	Region	Networks	Trust
Age	-0.00330*** (-15.48)	-0.00319*** (-13.86)	-0.00320*** (-13.99)	-0.00320*** (-14.80)	-0.00302*** (-12.16)	-0.00292*** (-11.08)
Medium education	0.00845 (0.86)	0.0121 (1.33)	0.0107 (1.18)	0.0122 (1.34)	0.0129 (1.50)	0.00641 (0.76)
High education	0.00965 (0.88)	0.00509 (0.45)	0.00286 (0.24)	0.00243 (0.21)	0.00590 (0.54)	0.00395 (0.38)
Female	-0.0249*** (-4.81)	-0.0224*** (-3.57)	-0.0211*** (-3.41)	-0.0206*** (-3.26)	-0.0223*** (-3.63)	-0.0231*** (-3.46)
PPCA: Large family	-0.0134*** (-4.86)	-0.0135*** (-4.16)	-0.0150*** (-4.43)	-0.0153*** (-4.67)	-0.0153*** (-4.76)	-0.0150*** (-4.35)
Size of town	0.00199 (1.17)	0.00480*** (2.90)	0.00553*** (3.36)	0.00800*** (3.10)	0.00692*** (2.79)	0.00679*** (2.59)
Log(equiv. income)		-0.0502** (-1.97)	-0.0401 (-1.57)	-0.0416* (-1.66)	-0.0325 (-1.36)	-0.0251 (-0.87)
Log(equiv. income) sq.		0.00412* (1.66)	0.00273 (1.08)	0.00375 (1.51)	0.00275 (1.14)	0.00181 (0.66)
Unemployed		0.0468*** (4.84)	0.0495*** (5.26)	0.0369*** (4.45)	0.0374*** (4.55)	0.0403*** (5.13)
PPCA: Wealth			0.0117** (2.56)	0.0118*** (2.72)	0.00465 (1.20)	0.00554 (1.37)



## Results – Marginal effects after probit estimations II

PCA: Prosperous region		-0.0139*** (-3.40)	-0.0108*** (-2.65)	-0.00908** (-2.05)		
PCA: Developing region		0.00744** (2.19)	0.00428 (1.28)	0.00497 (1.40)		
PCA: Depressed region		0.0142*** (2.73)	0.00979* (1.96)	0.00659 (1.14)		
Direct networks			0.0476*** (4.52)	0.0462*** (3.88)		
PCA: Indirect networks			0.0158*** (4.58)	0.0160*** (4.29)		
PPCA: Modern communication devices			0.00783** (2.38)	0.00870*** (2.59)		
PCA: Trust in local institutions				-0.00422* (-1.67)		
PCA: Trust in the EU				0.0117*** (3.89)		
N	9545	7288	7193	7152	7106	6583

t statistics in parentheses. \* p < 0.1, \*\* p < 0.05, \*\*\* p < 0.01.

The dependent variable is binary and takes a value of 1 if an individual has the intention to emigrate and 0 otherwise.

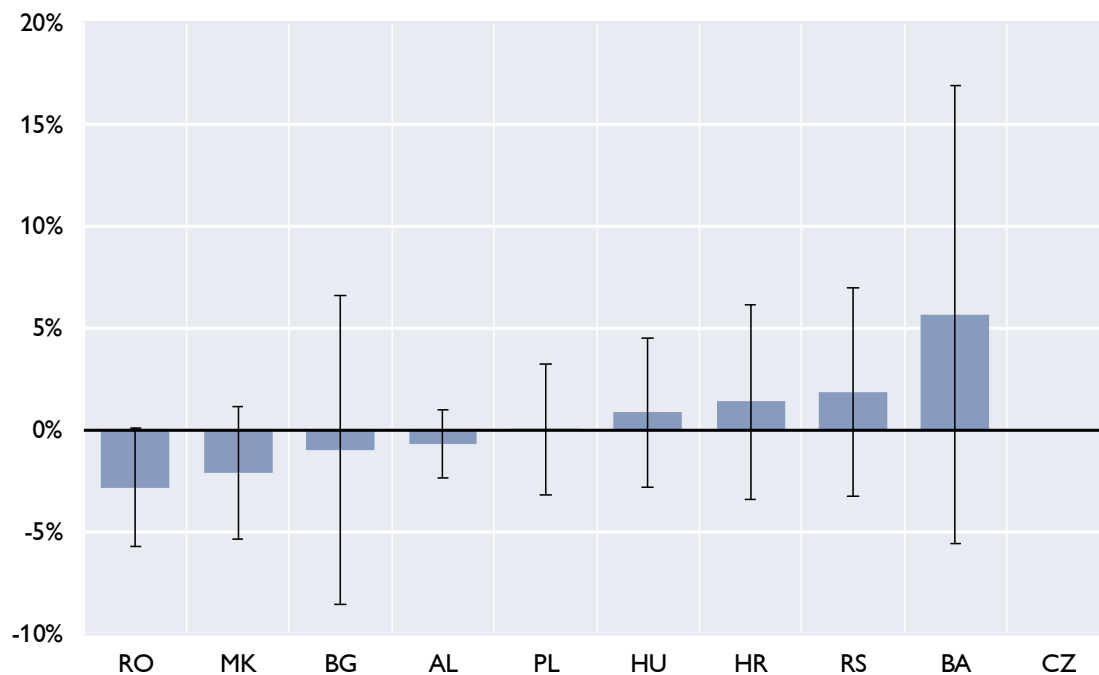
All specifications include a full set of country dummies, report standard errors clustered at the regional level and are estimated using survey weights.

The addition “(P)PCA” in a variable name indicates that the variable is a component taken from a (polychoric) principal component analysis.

## Heterogeneities of results – education and migration intentions

### Marginal effect of being highly-skilled

%; black bars indicate 95%-confidence interval



Source: OeNB Euro Survey (2017).

Note: The marginal effects are calculated based on probit estimations according to specification (6) in Table 1 using data for each country separately.

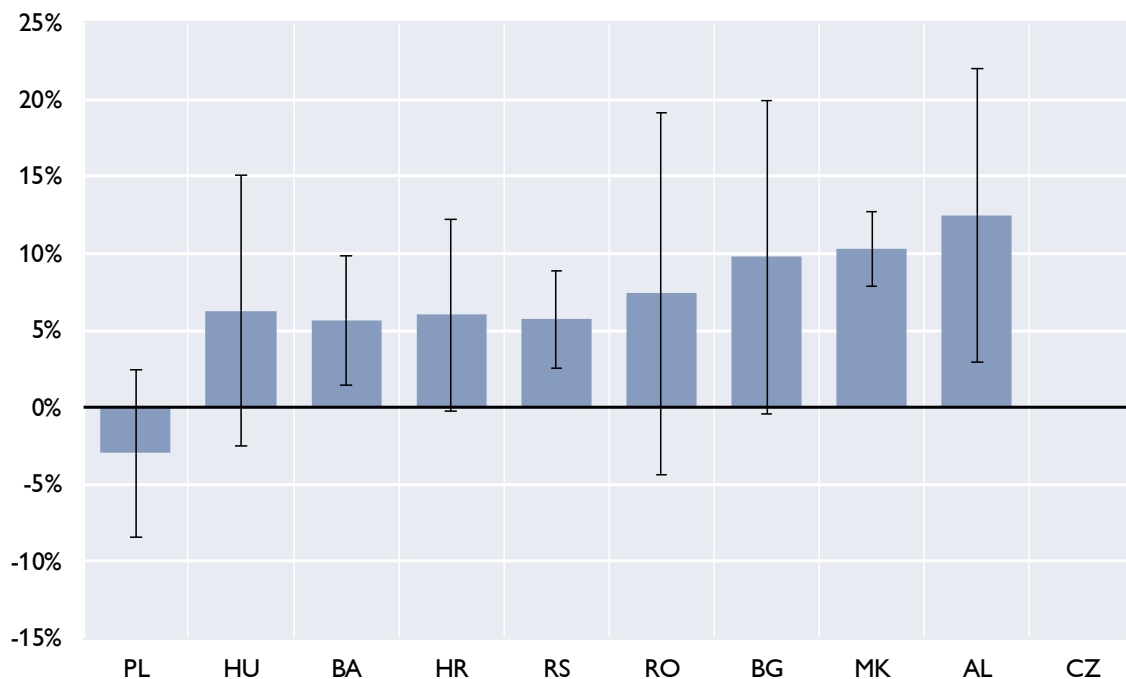
### The effect of education by country

- Highly-skilled individuals do not appear to have higher migration intentions than those with lower levels of education, *ceteris paribus*.

## Heterogeneities of results – unemployment and migration intentions

### Marginal effect of being unemployed

%; black bars indicate 95%-confidence interval



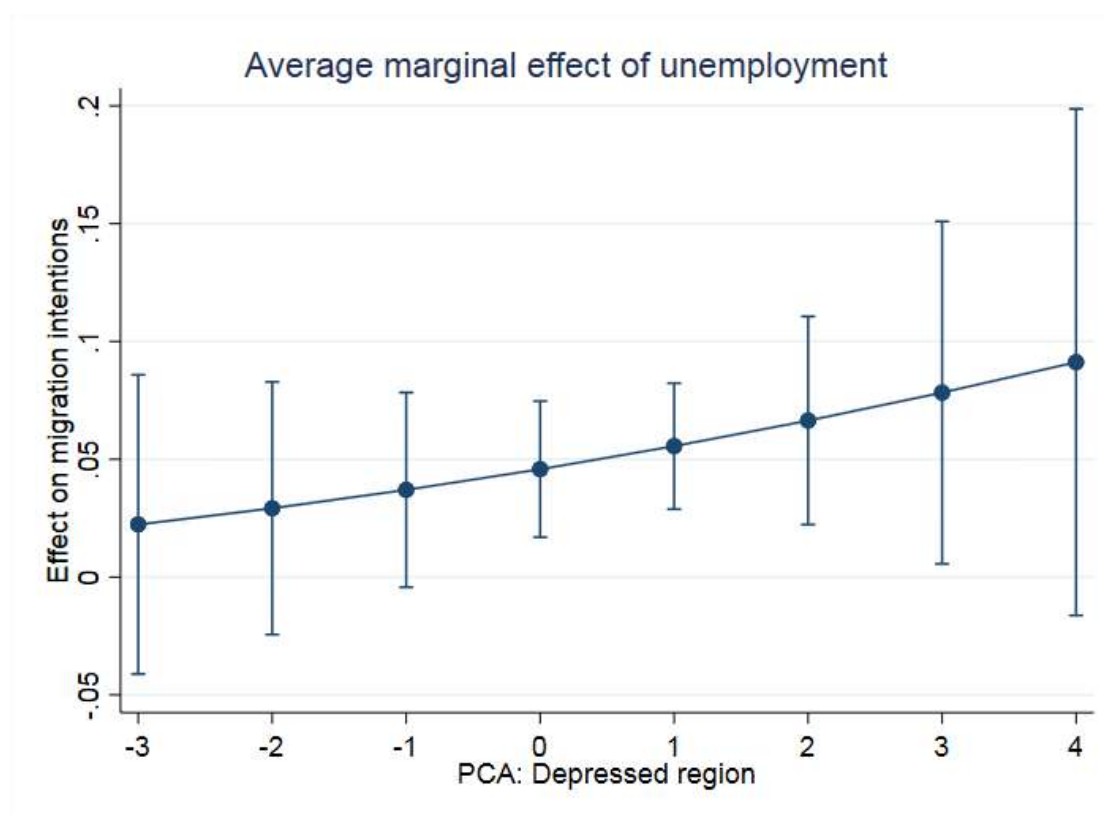
Source: OeNB Euro Survey (2017).

Note: The marginal effects are calculated based on probit estimations according to specification (6) in Table 1 using data for each country separately.

### The effect of unemployment by country

- Migration intentions are considerably more likely among unemployed individuals, *ceteris paribus*.
  - Exceptions: PL, RO, HU

## Heterogeneities of results – Unemployment and regional development



### Interaction between unemployment and regional development

- The more depressed a region, the stronger the positive effect of individual unemployment on the likelihood of having migration intentions

Depressed regions are characterized by high unemployment, low income, moderate activity, and low growth in activity.

The marginal effects are based on interaction terms between regional development and unemployment, using the full specification, country dummies and all observations for CESEE.

## Conclusions I

- 8.3% of the individuals aged 25 to 64 intend to emigrate from CESEE
- 13.3% of the *young* individuals, aged 25 to 39, intend to emigrate from CESEE
  - Migration intentions decline with age
  - Migration intentions more common among men
  - Data show no evidence for above-average emigration of highly-skilled
- Migration intentions are higher in non-EU CESEE countries
  - Migration intentions among the young are highest in MK (23%), RS (18%), AL (17%)
  - Migration intentions among the young are lowest in CZ (3%), PL (8%)

→ The actual emigration of those with migration intentions would significantly alter the structure of the population: the remaining population would be smaller in size, older and there would be fewer men; the educational decomposition would remain similar

## Conclusions II

- Econometric results confirm the descriptive findings
  - Migration intentions decrease with age and they are higher among men
  - No evidence for higher migration intentions among the highly-skilled
  
- Strong predictors of having migration intentions are
  - Individual unemployment
  - Networks (direct as well as indirect)
  - Living in regions with low levels of economic development
  
- No evidence for relation between migration intentions and education or household income
- Influence of unemployment stronger when individuals live in less-developed regions

**Danke für Ihre Aufmerksamkeit**

**Thank you for your attention**

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## APPENDIX

## Descriptive statistics: Migration intentions by country

Table 1: Share of individuals aged 25 -39 with migration intentions

Country	All	Gender		Difference	Low	Education		Difference
		Male	Female	Male-female		Medium	High	Medium-high
Czech Republic	3.4%	2.4%	4.3%		0.0%	3.3%	3.9%	
Poland	7.8%	13.5%	2.4%	***	8.2%	8.1%	6.9%	
Romania	10.7%	18.8%	2.7%	***	0.0%	12.0%	8.8%	
Hungary	12.2%	13.3%	11.3%		0.0%	8.0%	23.1%	***
Bosnia and Herzegovina	13.1%	16.9%	9.4%	*	0.0%	11.9%	22.2%	**
<b>CESEE-average</b>	<b>13.3%</b>	<b>16.6%</b>	<b>10.2%</b>	<b>***</b>	<b>15.0%</b>	<b>12.4%</b>	<b>14.7%</b>	
Croatia	13.9%	19.0%	9.0%	**	12.3%	12.1%	18.9%	
Bulgaria	14.4%	18.6%	10.6%		17.5%	19.7%	4.7%	***
Albania	16.6%	19.1%	14.3%		0.0%	19.4%	15.7%	
Serbia	18.3%	19.6%	17.1%		31.6%	16.0%	20.4%	
FYR Macedonia	22.8%	25.0%	20.7%		28.8%	22.0%	20.0%	

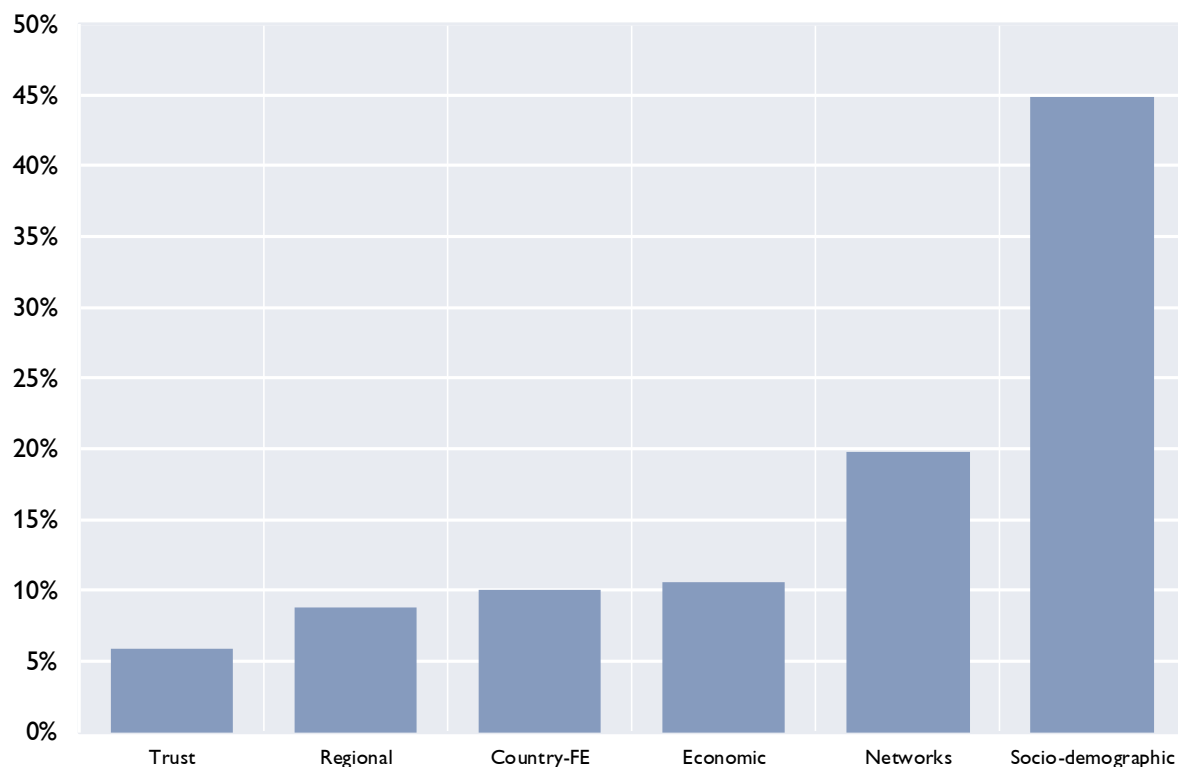
Source: OeNB Euro Survey (2017).

Note: Column 5 indicates whether the mean is statistically different between men and women, column 9 indicates whether the mean is statistically different between medium and high skilled. \*(\*\*)[\*\*\*] indicate a 10%(5%)[1%] level of significance.

## Contribution of variable groups to pseudo R-squared

### Shorrocks-Shapely decomposition

Contribution of variable groups to explained variation



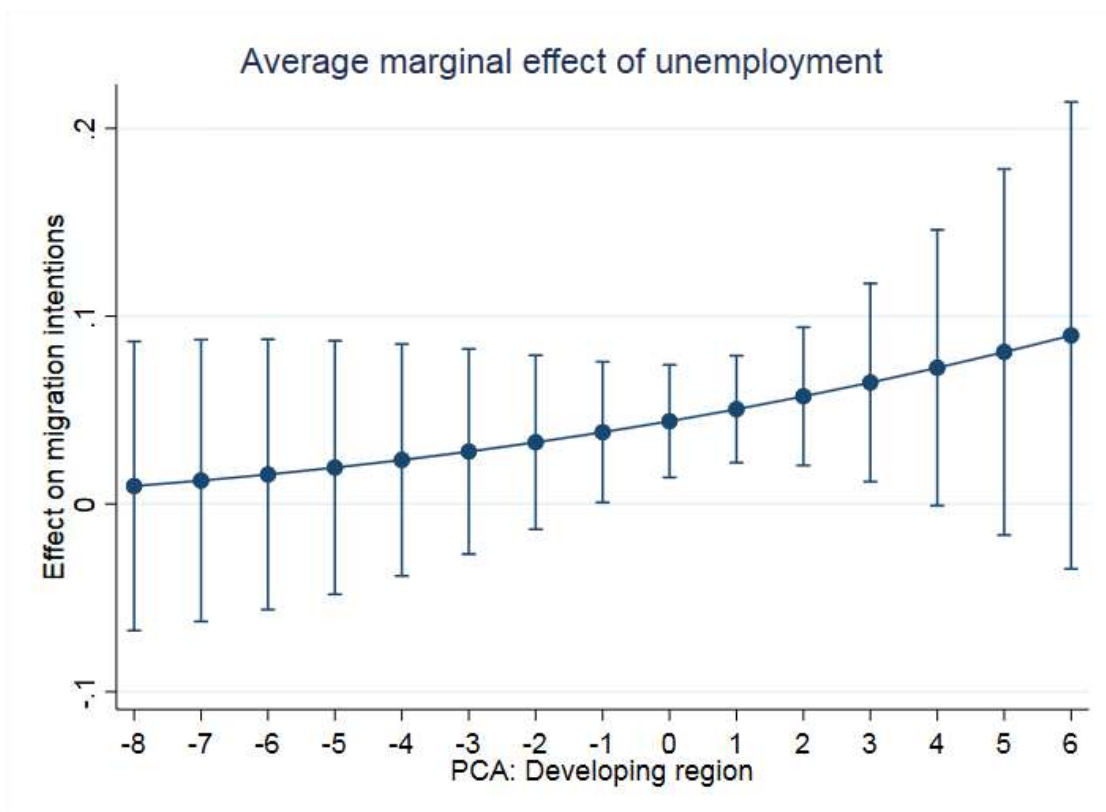
Source: OeNB Euro Survey (2017).

### Shorrocks-Shapely Decomposition

Decomposition of pseudo R-squared to see relative contribution of variable groups

Socio-demographic factors and networks account for 2/3 of explained variation

## Heterogeneities of results – unemployment and regional development



### Interaction between unemployment and regional development

- The effect of individual unemployment on migration tends to be higher in developing regions

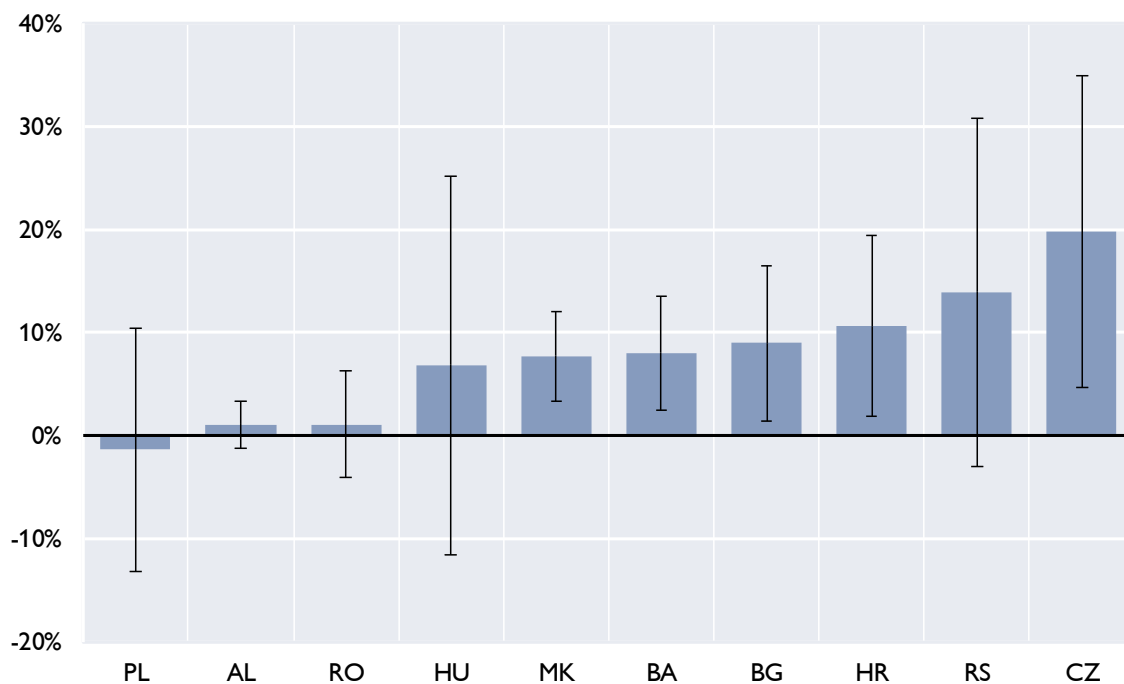
Developing regions are characterized by high unemployment, low income, moderate activity, but high growth in activity

The marginal effects are based on interaction terms between regional development and unemployment, using the full specification, country dummies and all observations for CESEE.

## Heterogeneities of results – networks and migration intentions

### Marginal effect of having direct networks

%; black bars indicate 95%-confidence interval



Source: OeNB Euro Survey (2017).

Note: The marginal effects are calculated based on probit estimations according to specification (6) in Table 1 using data for each country separately.

### The effect of direct networks across countries

- The effect of direct networks, approximated by the receipt of remittances, varies in magnitude across countries.

In CZ, the share of remittance-receiving households is less than 4% and thereby lowest.

In AL, approx. 33% receive remittances.