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BIG LANGUAGE MINORITY AND SMALL LANGUAGE MAJORITY: LANGUAGE SKILLS AND UNEMPLOYMENT IN LATVIA

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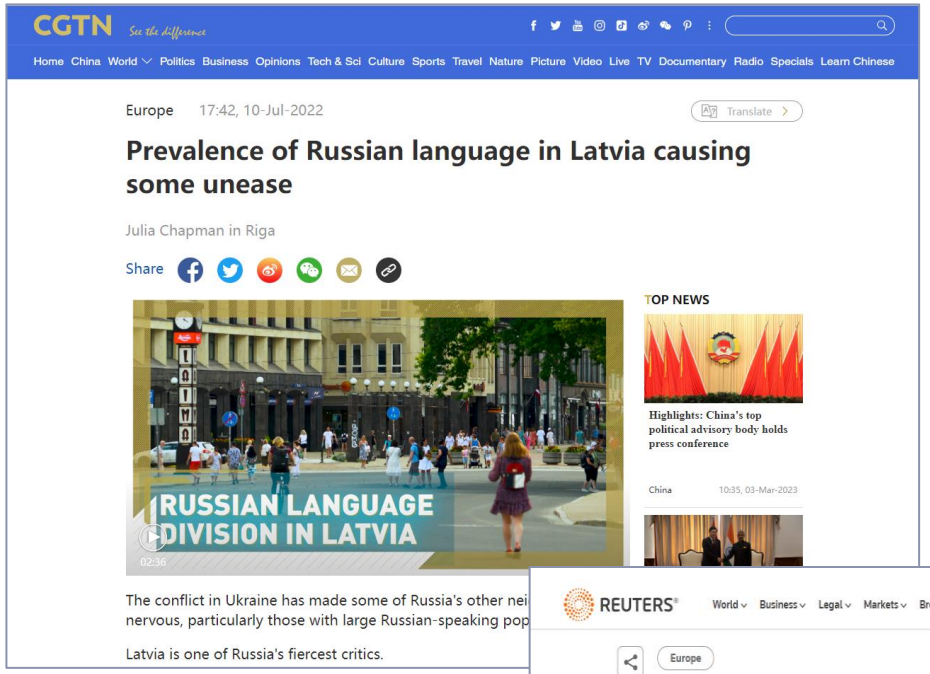
Latvia is a small bilingual country that hosts a large Russian-speaking minority.

Labor market outcomes in Latvia depend on skills in the three languages: Latvian, Russian, and English.

This study investigates the relationship between the unemployment of working-age men (25-62) and their language skills in Latvia by using linear/nonlinear and instrumented/non-instrumented estimators.

This study establishes that for Latvians and Russian speakers, the language skills in local languages (Latvian/Russian) and in English have an asymmetric relationship with employment status.

INTRODUCTION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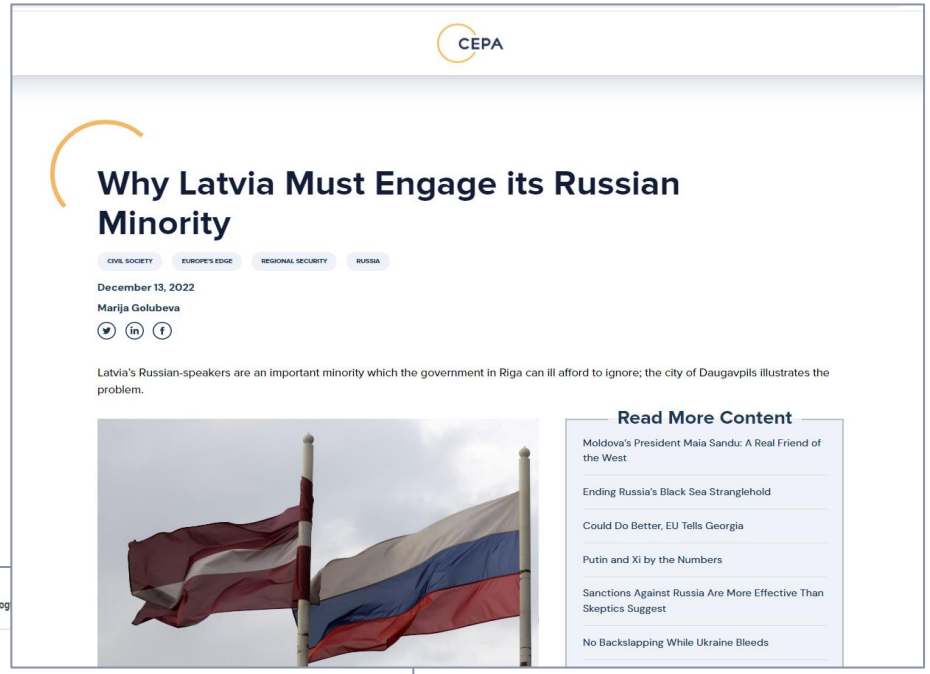
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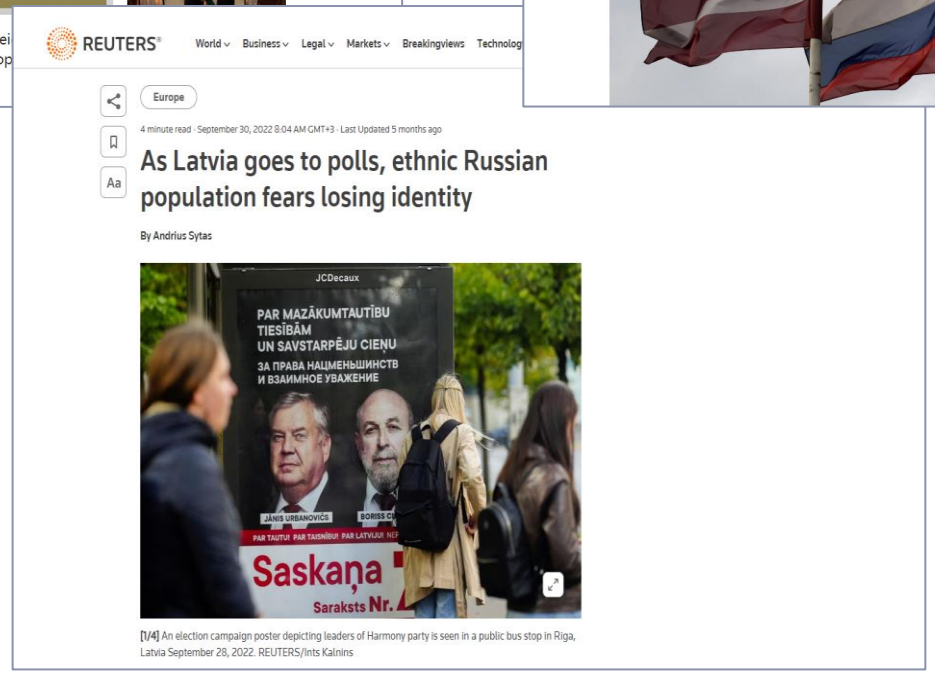
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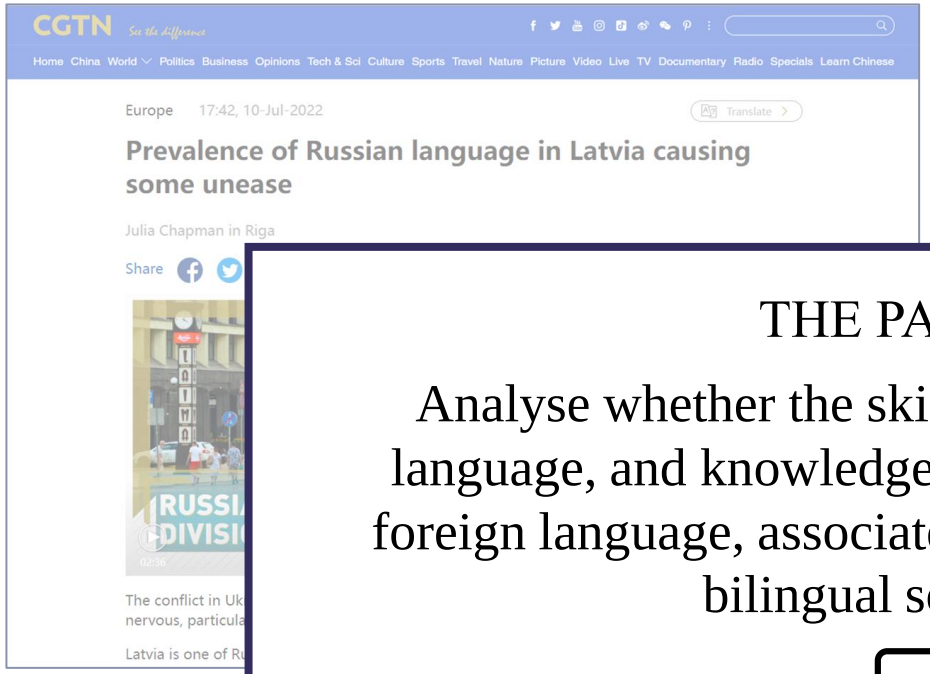
[1/4] An election campaign poster depicting leaders of Harmony party is seen in a public bus stop in Riga, Latvia September 28, 2022. REUTERS/Ints Kalnins



THE PAPER'S AIM:

Analyse whether the skills in the Latvian and Russian language, and knowledge of English as the most spoken foreign language, associate with employment status in the bilingual society in Latvia.

[1/4] An election campaign poster depicting leaders of Harmony party is seen in a public bus stop in Riga, Latvia September 28, 2022. REUTERS/Ints Kalnins

RESEARCH QUESTIONS

1. Do language skills in Latvian/Russian and in English have a link with unemployment probability?
2. Whether and how does the relationship between language skills and unemployment differ or resemble between the native Latvian and Russian speaking men, aged 25-62?

EMPIRICAL LITERATURE

LABOUR MARKET INTEGRATION

- ✓Investigates the labour market outcomes for the immigrant populations.
- ✓Mostly evidence on countries in which immigrants form a relatively newly established and small population group.
- ✓Most studies rely on survey cross-sections which do not allow to control for unobserved heterogeneity, only few observe individuals over time (e.g. Dustmann & van Soest, 2002; Hahm & Gazzola, 2022).
  - ✓Dustmann and van Soest (2002) however show that overestimation bias of language skills if unobserved heterogeneity is not controlled for is much smaller compared to underestimation bias arising from language skills measurement error.
- ✓Dominant evidence proves that host country language skills improve labour market outcomes: employment and labour income.

Dustmann, C., & van Soest, A. (2002). Language and the earnings of immigrants. *ILR Review*, *55*(3), 473-492.
Hahm, S., & Gazzola, M. (2022). The value of foreign language skills in the German labor market. *Labour Economics*, *76*, 102150.

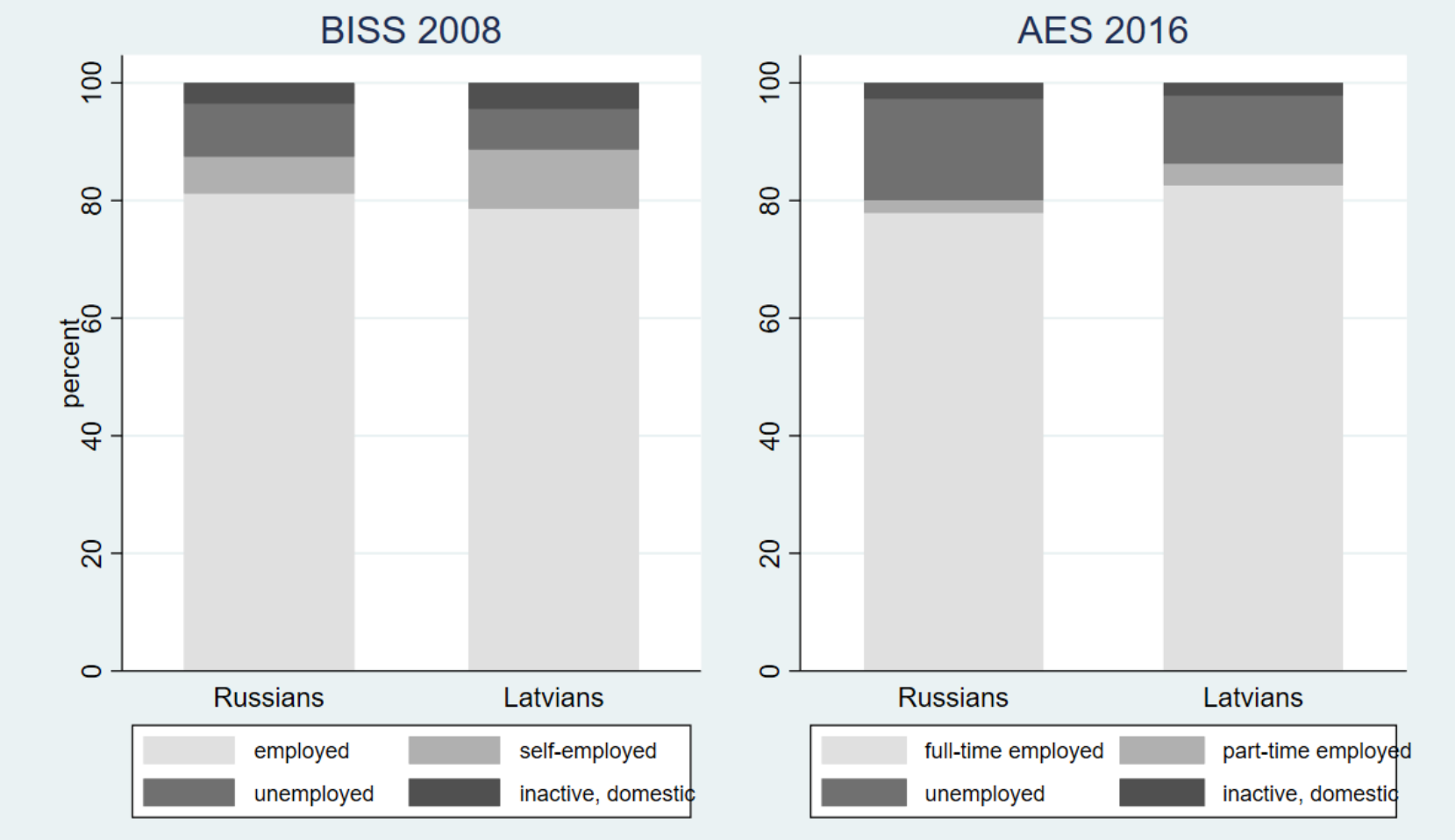
DATA AND METHOD

OVERVIEW OF THE DATASETS

✓Male participants aged 25 to 62 in employment, self-employment or unemployed.

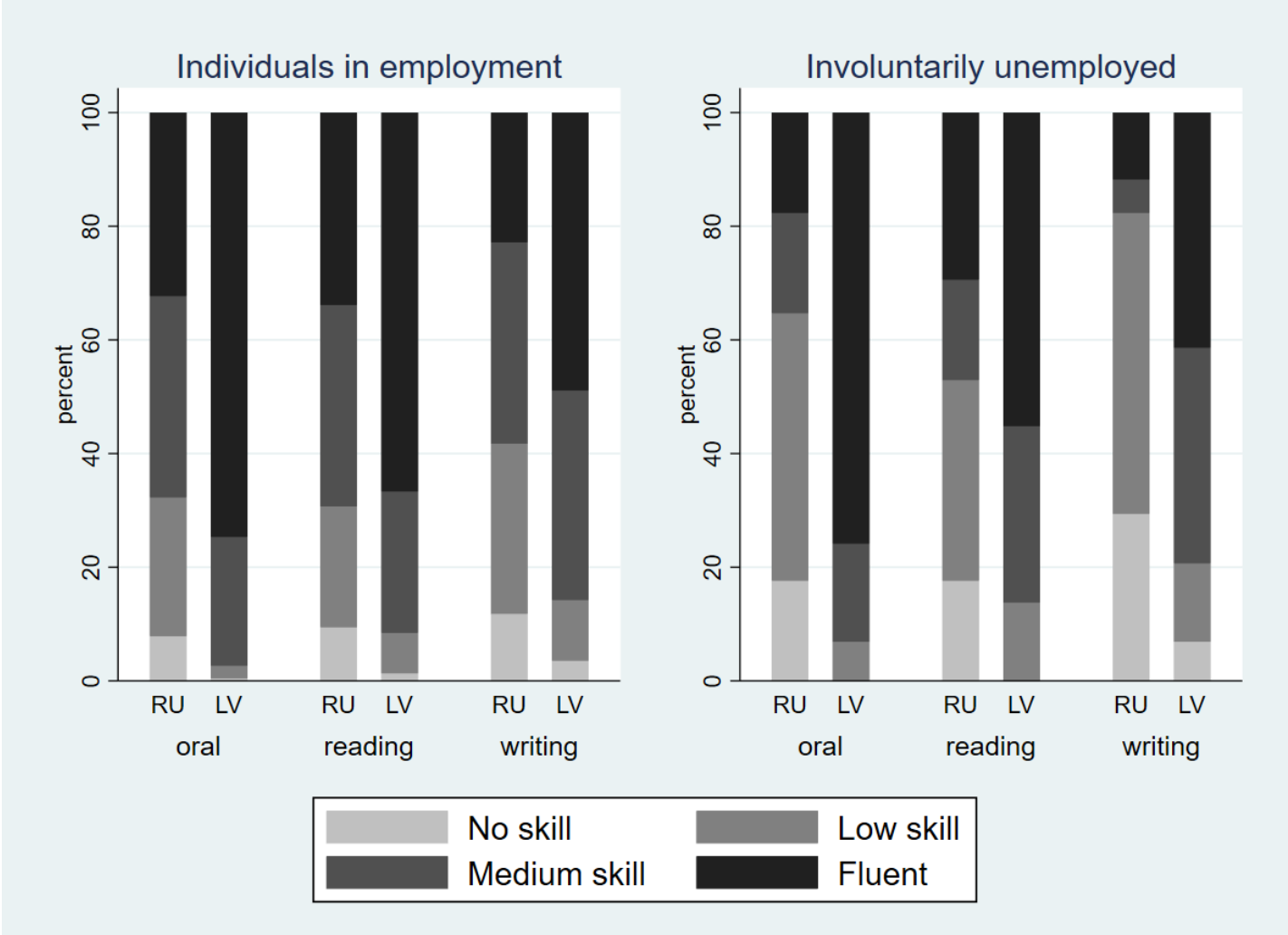
BISS 2008, N= 398	**AES 2016, N= 1,898**
+ Reports the type of language skills + Separates five Latvian regions where respondents live	+ Contains information on skills of other foreign languages including English + Information on number and age of children + Information on part-time work
- No information on skills in English or other foreign languages - No information on number and age of children - No information on part-time work	- No separation between receptive and expressive language skills - No information on region of residence

Employment status by nationality: BISS 2008 and AES 2016.



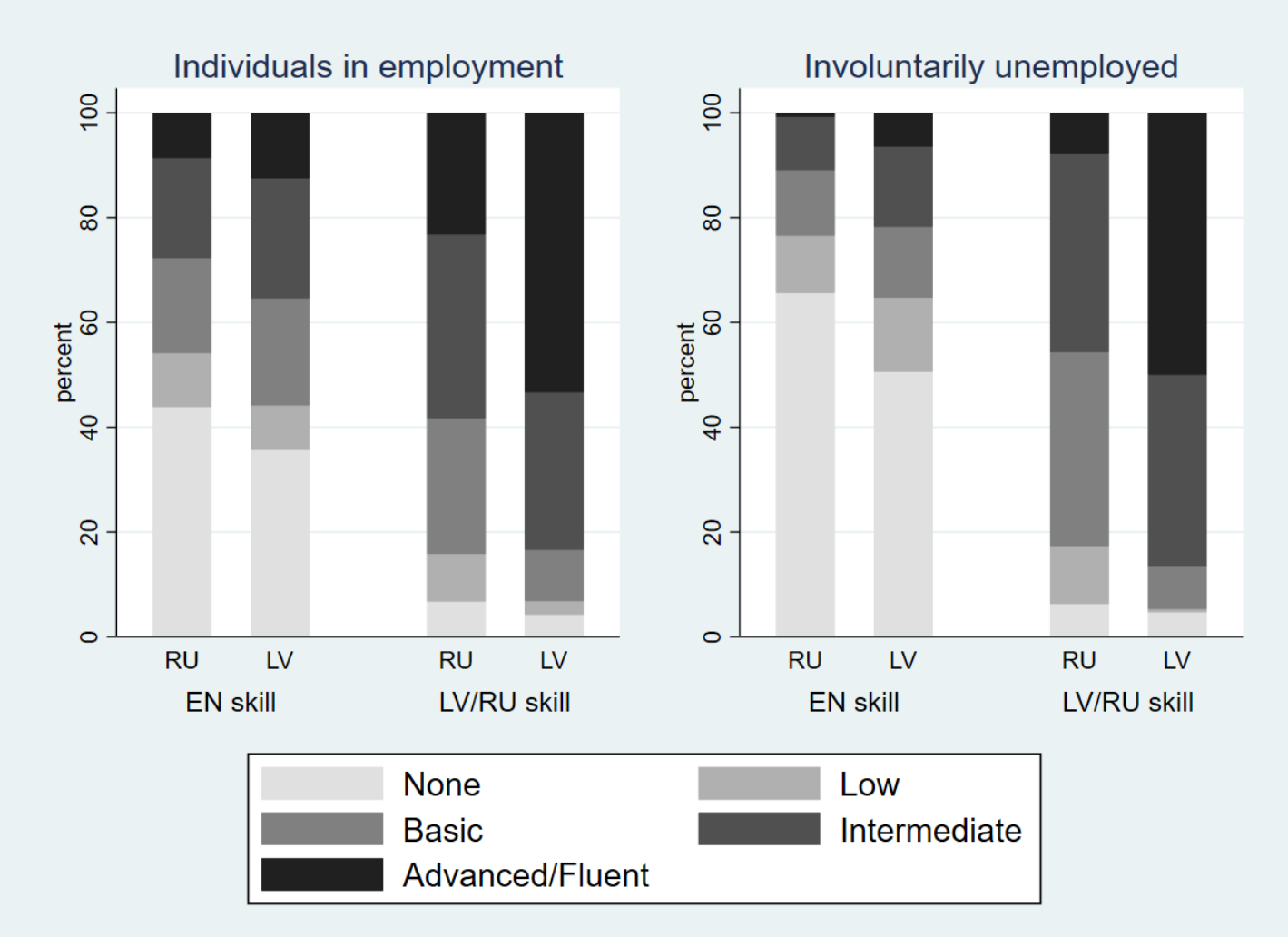
Source: Authors' calculations on BISS 2008 and AES 2016 Survey data
Notes: Survey weighted share of males, age 25-62. Excludes students, retired, disabled and in military service.

Language skills, by skill type, nationality and employment status, percentages: BISS 2008.



Source: Authors' calculations on BISS Language Survey 2008

Language skills in percentages by skill type, nationality, and employment status: AES 2016.



Source: Authors' calculations based on AES 2016 survey

ECONOMETRIC APPROACH

Main challenges:

- ✓Nonlinearity of estimation due to the main outcome variable being binary
- ✓Potential measurement error and endogeneity arising from self-assessed language skills
  - ✓ Absence of panel doesn't allow to control for unobserved heterogeneity (e.g. omitted ability bias)

Study employs linear/nonlinear and instrumented/non-instrumented estimators:

- ✓Linear probability OLS
- ✓Non-linear GLM probit model
- ✓Linear probability 2SLS with instrumentation for language skills
- ✓Non-linear conditional mixed process (CMP) simultaneous two-equation estimation with instrumentation for language skills

INSTRUMENTS FOR LANGUAGE SKILLS

Variable	BISS 2008		AES 2016	
	2SLS	Probit IV	2SLS	Probit IV
Adjusted R^2, first-stage	0.8573	0.3580	0.8137	0.5402
Internal instruments: retrieved from the survey	cohort dummies (babyboomer, genX, genY, genZ), gap reading/writing skills, skill types standard deviation.		cohort dummies (babyboomer, genX, genY, genZ), parent education, marriage dummy, dummies for children age≤13, age 14-24, dummy if parent born in Latvia, knowledge/count of major languages (English, German, Spanish, French, Italian), dummy for training in communicative jobs (e.g. education/health), interview mode (face-to-face, phone, internet), interview month (Jan/April)	
External instruments: retrieved from aggregate statistics	regions, share of Latvians, cohort share of born in Latvia		cohort share of born in Latvia	
Controls not subject to exclusion restrictions: included in unemployment equation	years in education, urban dummy, household size		years in education, urban dummy, household size	

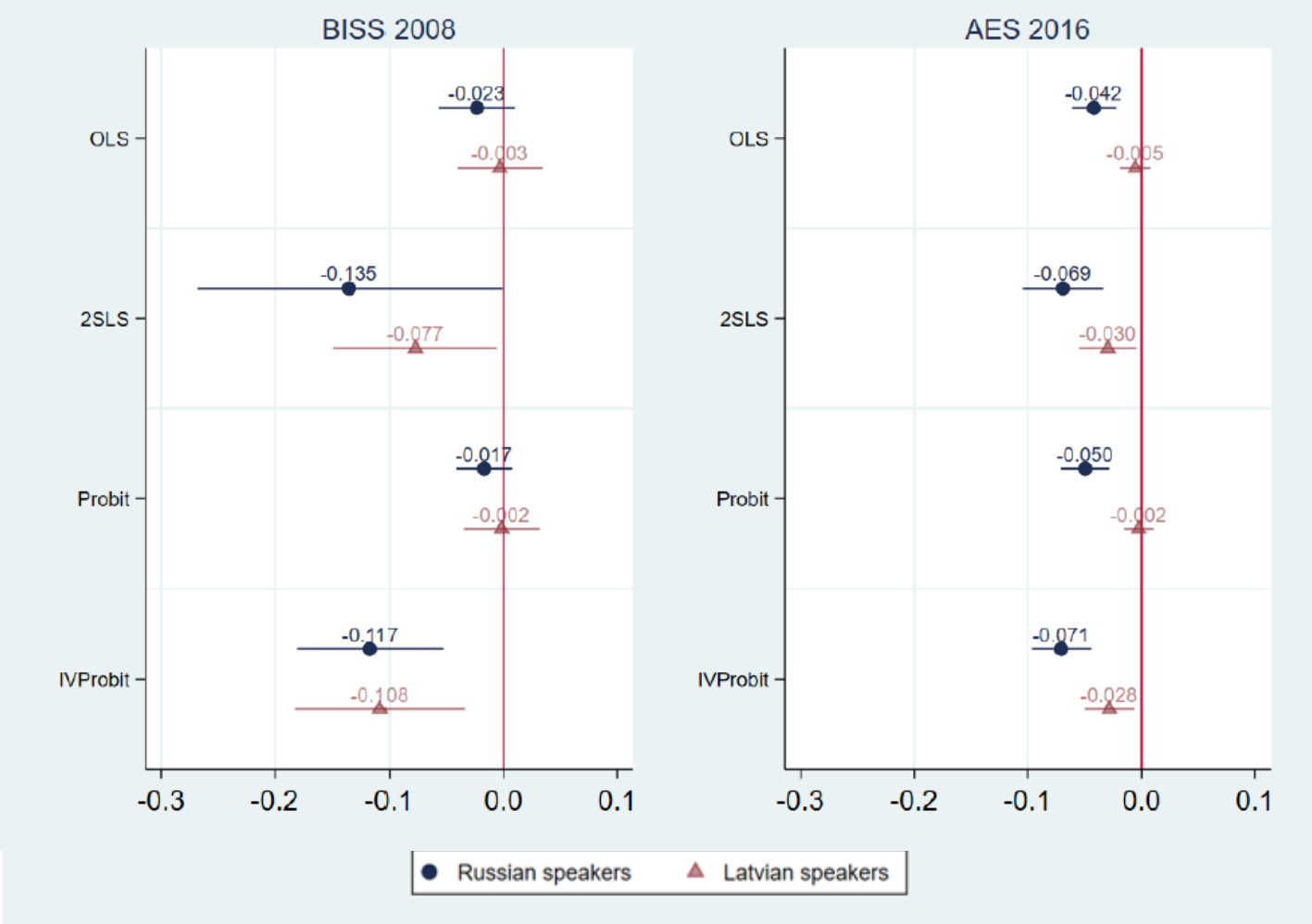
Source: Compiled by authors'

Notes: Parent education corresponds to the mother education (primary/lower secondary, secondary, tertiary), if mother education not available then father education.

RESULTS

FIRST PRICIPAL COMPONENT

Combined language skills and unemployment, unconditional marginal effects.



Source: Authors' calculations based on BISS 2008 and AES 2016

Results stronger and more consistent for Russian speakers.

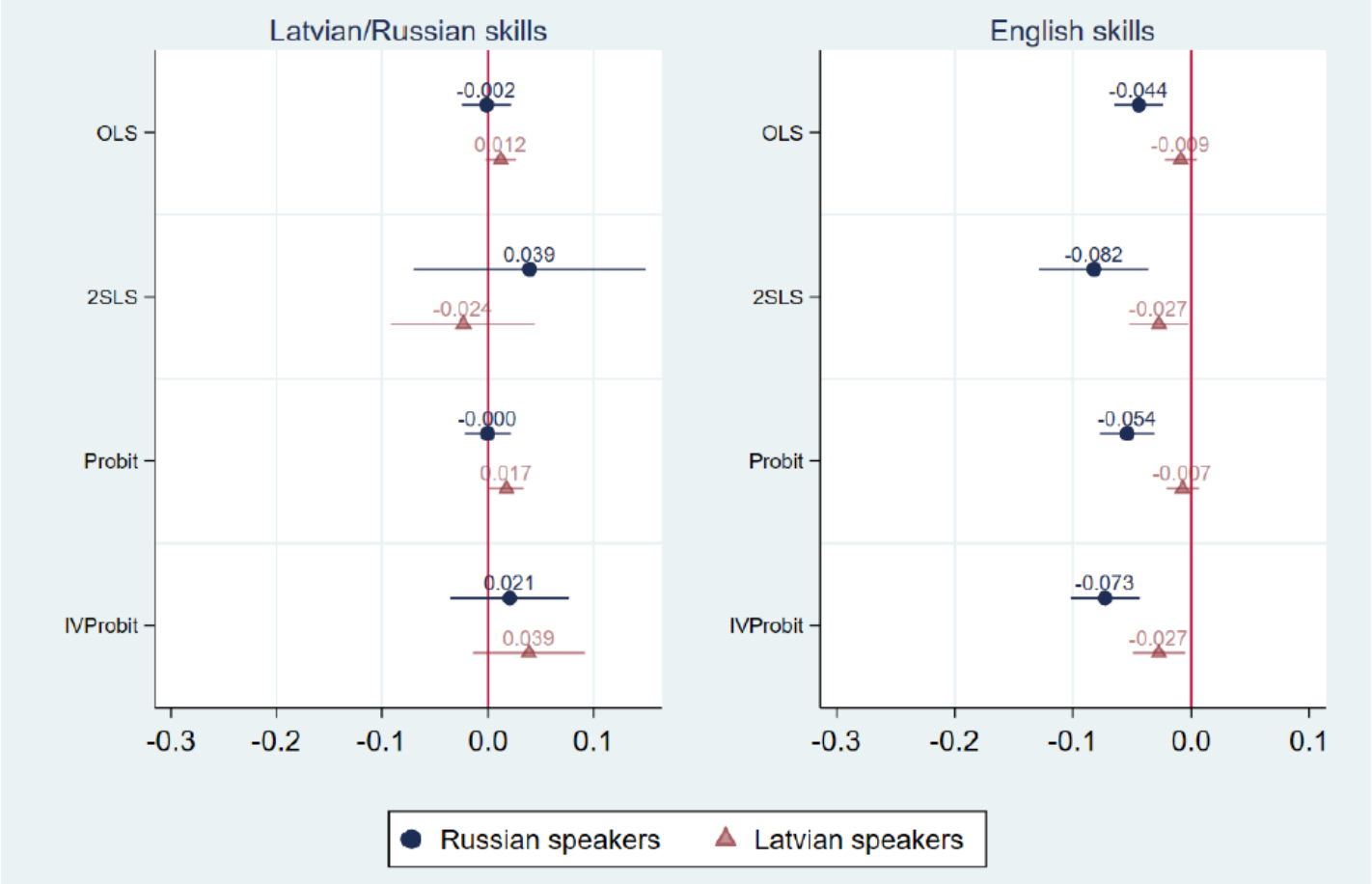
BISS 2008:
8-10 pp language gains for Latvian speakers
11 pp language gains for Russian speakers
AES 2016:
3 pp combined Russian and English gains
7 pp language gains for Russian speakers

Measurement issues non-negligible more so for BISS 2008 survey results.

Error in Russians Latvian skills may be smaller due to state language examinations/testing.

AES 2016

Language skills and unemployment, unconditional marginal effects.



Source: Authors' calculations based on AES 2016

Language skill effects arise from the knowledge of **English**.

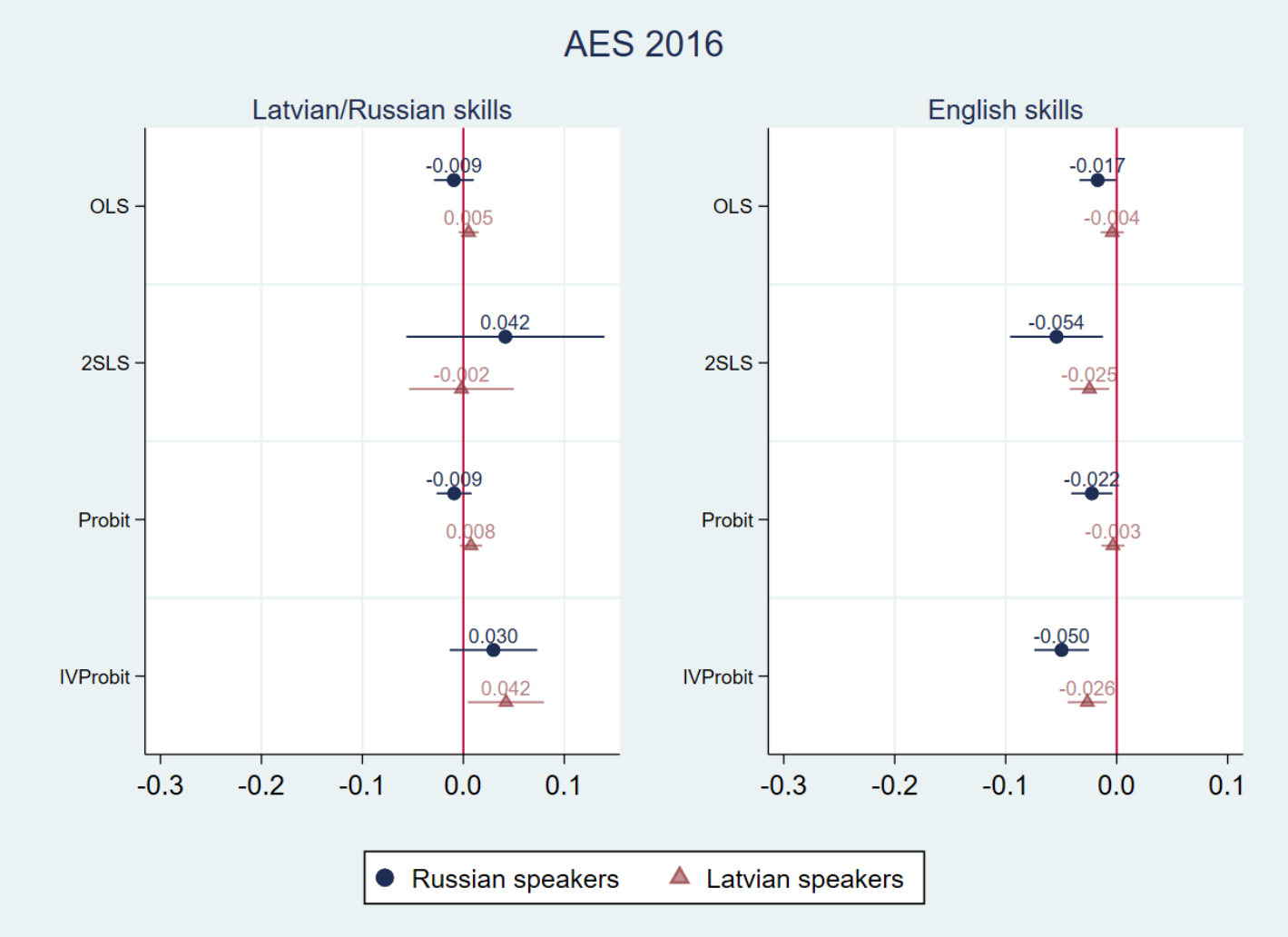
Latvians: 2.7 pp English language gains
Russians: 7-8 pp English language gains
Both: Absent gains from Russian/Latvian

Result in agreement with Toomet (2011):

- ✓ Significant English language gains for Russian speakers.
- ✓ No gains from knowing the local native languages in Estonia and Latvia.

Toomet, O. (2011). Learn English, not the local language! Ethnic Russians in the Baltic States. American Economic Review, 101(3), 526-531.

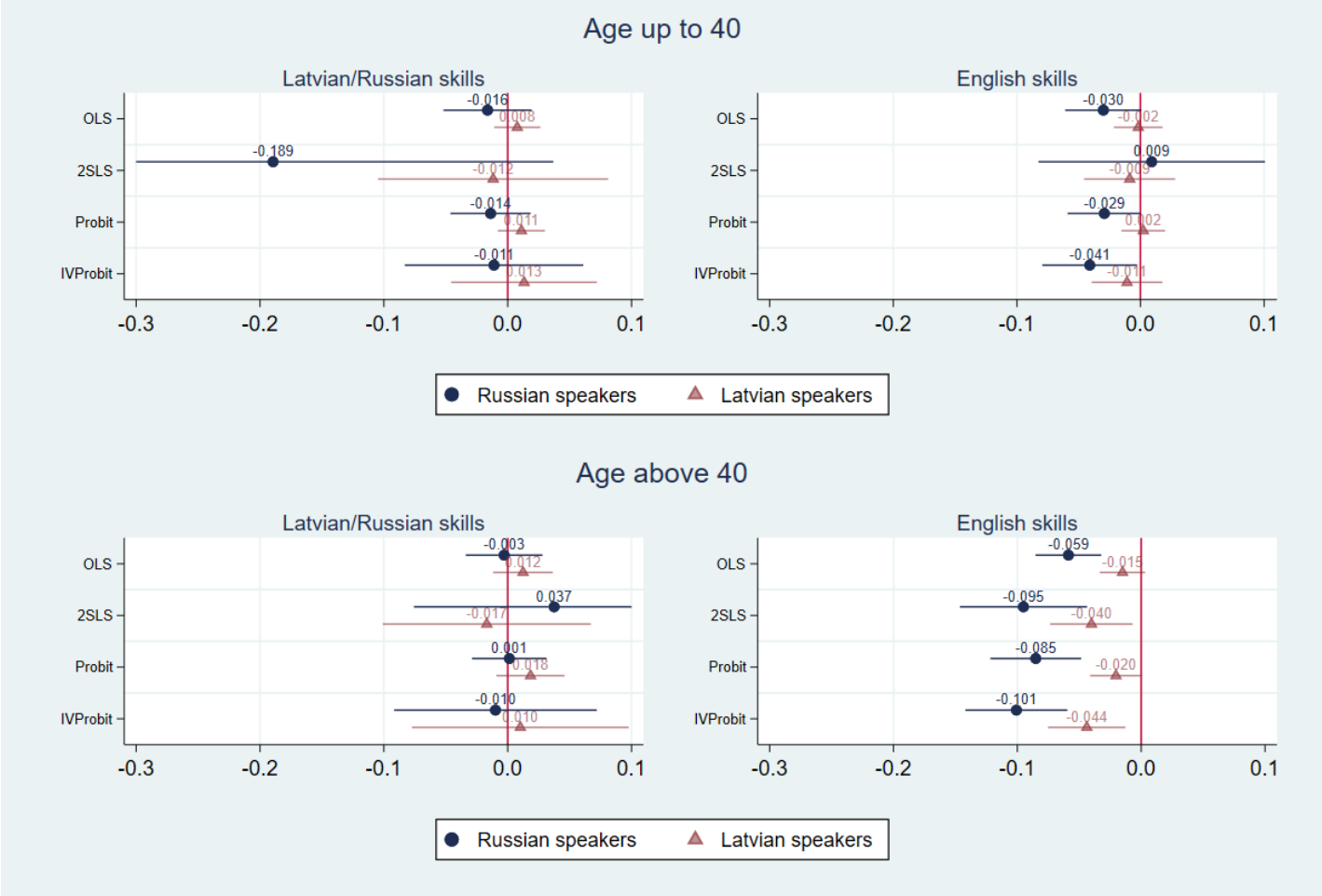
Language skills and 12 months or longer unemployment, unconditional marginal effects.



Source: Authors' calculations based on AES 2016

AES 2016: AGE GROUPS

Language skills and unemployment by age groups.



Source: Authors' calculations based on AES 2016

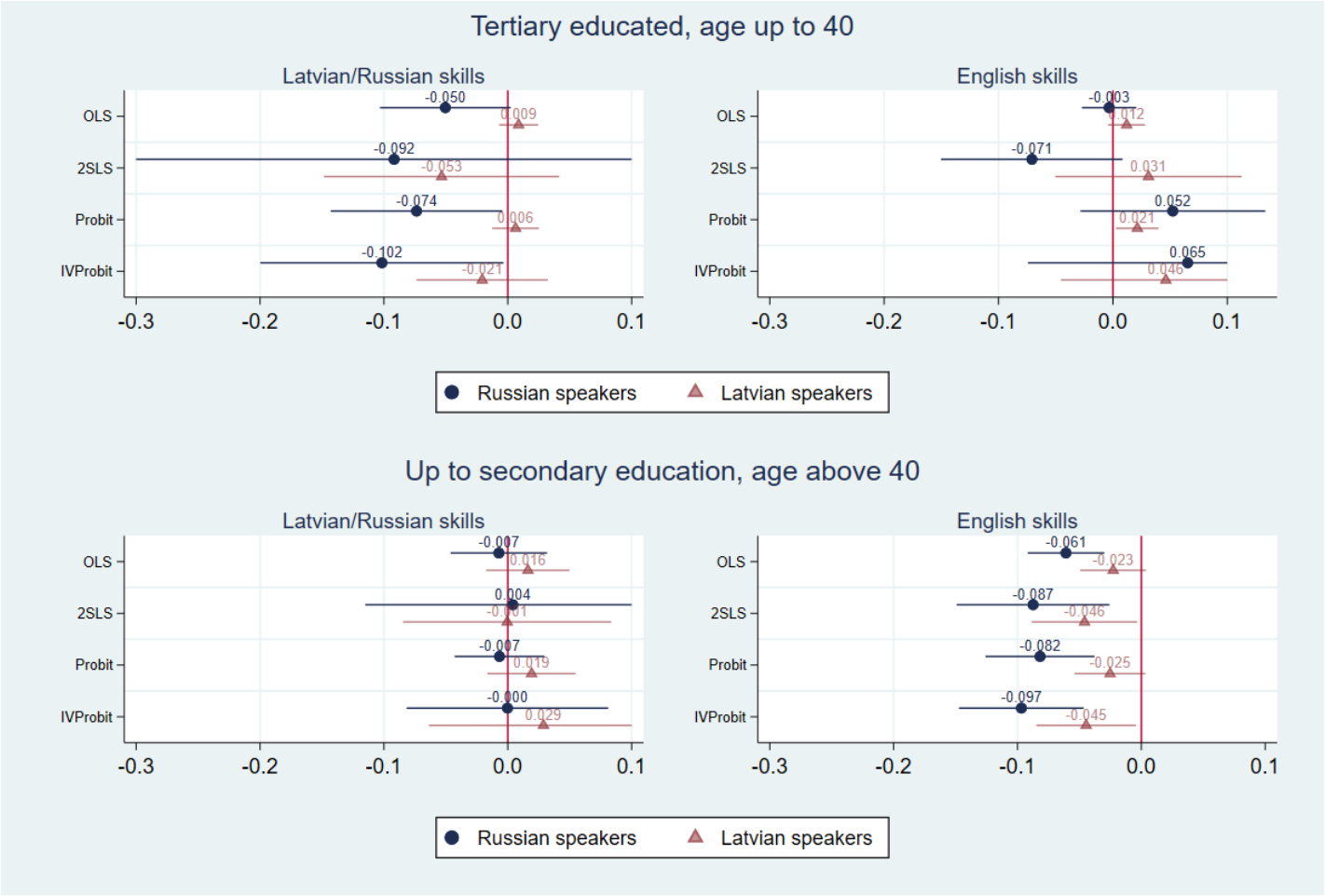
Latvians:
2-4 pp English language gain for above 40

Russians:
3-4 pp English language gain for below 40
6-10 pp English language gain for above 40

Both:
Absent gains from Russian/Latvian

AES 2016: AGE AND EDUCATION SUBGROUPS

Language skills and unemployment by age and education groups.



Latvians:
2-4.5 pp English language gain for above 40 without tertiary degree

Russians:
5-10 pp Latvian language gain for below 40 with tertiary degree
6-10 pp English language gain for above 40 without tertiary degree

Source: Authors' calculations based on AES 2016

CONCLUSIONS

The **asymmetricity** in language skills between native Latvians and Russian speakers in Latvia is still evident after 17 and 25 years past the collapse of the Soviet Union.

Bormann et al. (2019) similar finding on language skills asymmetry from Estonia with respect to Estonian/Russian and English language skills.

The English benefits dominate and more so for the Russian speakers.

The Latvian language benefits arise only for the younger tertiary educated Russian speakers.

Russian language benefits remain absent for native Latvians.

The instrumental variable estimators give stronger and more precise parameter estimates, which suggests that self-reported language skills suffer from the measurement bias. This finding confirms the results of Dustmann and van Soest (2002).

Bormann, S. K., Ridala, S., & Toomet, O. (2019). Language Skills in an Ethnically Segmented Labour market: Estonia 1989-2012. *International Journal of Manpower*, *40*(2), 304-327.
Dustmann, C., & van Soest, A. (2002). Language and the earnings of immigrants. *ILR Review*, *55*(3), 473-492.

EXTRA MATERIALS

MODEL

The linear (latent) model for the unemployment can be expressed as:

$$U_i = \boldsymbol{x}_i'\boldsymbol{\alpha} + \boldsymbol{z}_i'\boldsymbol{\beta} + D^{Nat} \times (\boldsymbol{x}_i'\boldsymbol{\alpha} + \boldsymbol{z}_i'\boldsymbol{\beta}) + D^{Nat} + \varepsilon_i, \quad \text{for all } i = 1, \dots, N$$

where

U_i - employment status of the individual (1 if unemployed, 0 if in employment),

x_i- $p \times 1$ vector denoting endogenous language skills variables,

z_i- $q \times 1$ vector standing for the constant and the control variables deemed to be exogenous,

D^{Nat}- language group dummy variable,

ε_i- the idiosyncratic error term.

For the non-linear probit and conditional maximum likelihood (simultaneous) estimations the latent linear model is transformed onto probability scale using the standard cumulative normal distribution function.

PRICIPAL COMPONENTS

Principal component results for local language skills: principal components' coefficients.

Variable	BISS 2008		AES 2016	
	PC1	PC2	PC1	PC2
Local language skills: Latvian/Russian				
Spoken language	0.5366	0.7786		
Reading skills	0.5860	- 0.0663		
Writing skills	0.6072	- 0.6241		
Local language skills: Latvian/Russian			0.2417	0.9703
English skills			0.9703	- 0.2417
Eigenvalue	2.2123	0.2543	2.1484	1.1764
Cumulative Variation	0.8526	0.9506	0.6462	1.0000

Source: Authors' calculations on BISS 2008 and AES 2016 survey data

BACKGROUND CHARACTERISTICS I

Age-employment relationship weakly estimated.

Educational level has a negative association with unemployment probability.

- ✓ BISS 2008: Education has a negative sign with respect to unemployment probability, but coefficients remain mostly statistically unsignificant.
- ✓ AES 2016: One notch higher ISCED education level associates with about 3-4 pp lower unemployment probability for native Latvians.

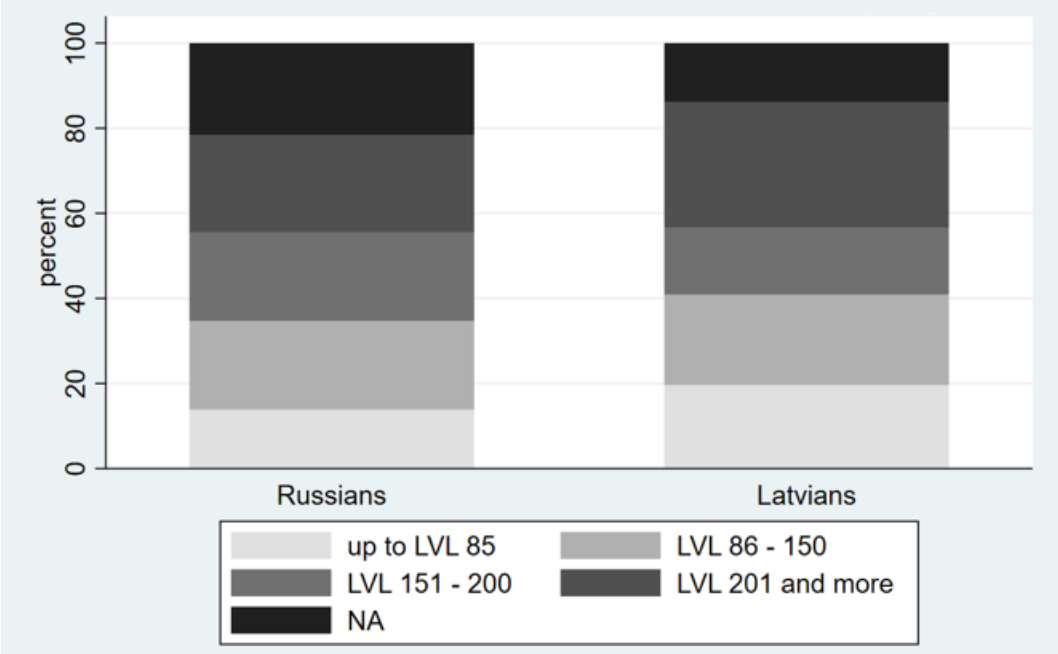
Household size (the number of household members) has mixed results, significant coefficient estimates arise mostly for Russian speaking group.

- ✓ BISS 2008: The household size has a U-shaped relationship with unemployment- likelihood of unemployment is the highest for single-member households and for the large households.
- ✓ AES 2016: U-shaped pattern between household size and unemployment arises only for the Russian speakers.

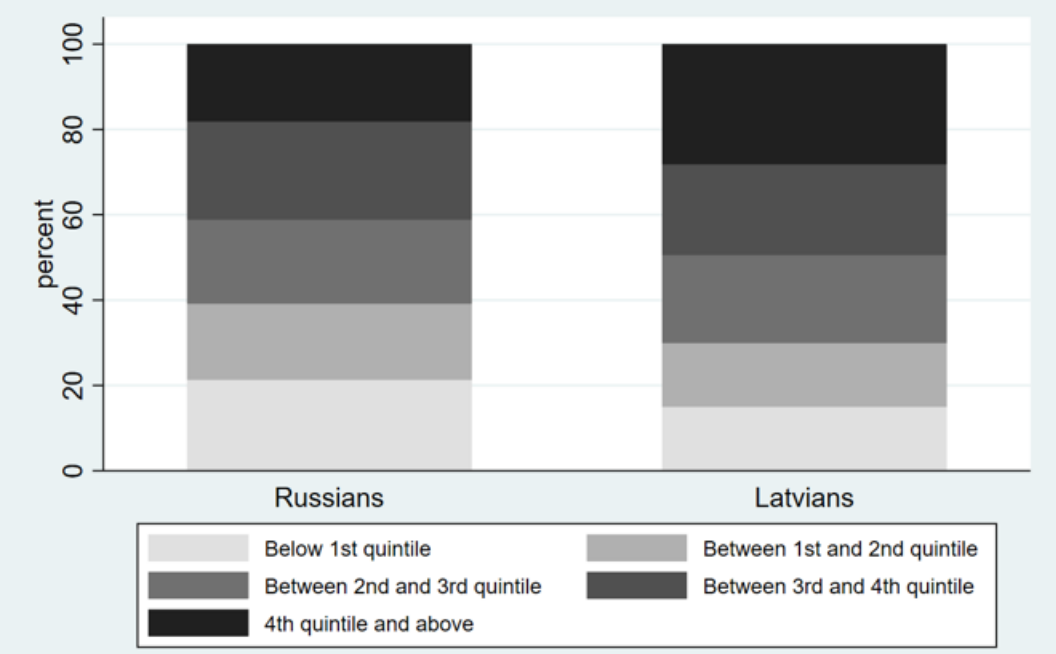
BACKGROUND CHARACTERISTICS II

The **household monthly income** distributions of the two groups had no consistent difference in BISS 2008. 2016 AES survey data indicates a stronger economic status of native Latvians who take disproportionately higher share in the upper parts of the income distribution.

Household monthly income (net of taxes) distribution by ethnicity, BISS 2008 (left) & AES 2016 (right).



Source: Authors' calculations based on BISS 2008 Language Survey



Source: Authors' calculations on AES 2016 Survey

BACKGROUND CHARACTERISTICS III

The **urban environment** effect on unemployment did not have any significant effect based on AES 2016 data.

The **regional unemployment level** that was only possible to control for BISS 2008 survey showed opposite signs for native Latvians and for the Russian speakers.

Region's unemployment rate had a positive, though insignificant linkage with employment propensity for Russians, however the sign was negative and highly significant for Latvian speakers.

Strong structural unemployment

Individuals with Latvian skills are in high demand or of short supply in certain Latvian regions, which witness high structural unemployment.