



Brain Drain or Brain Gain?

Graduate Migration in Old Industrial Regions – Analysis of the Central Lower Rhine Area, Germany

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1. Introduction

2. Graduate Migration Patterns and Determinants

3. Discussion and Conclusion

1. Introduction

Academic literature tells us:

- Human capital is a key indicator of regional economic and innovation performance
 - Patterns of regional “brain flows” are key determinants for the development of the human capital level
- Migration is a well-analyzed research topic on a macro level
 - Additional information can be gained with graduate migration analysis on a small-scale regional level

1. Introduction

Study Region: Central Lower Rhine Area (CLRA)



ERSA 2012 Congress | 24th August 2012 | Angelika Jaeger, Fabian Kreutzer
Figure 1: adapted from *IHK Mittlerer Niederrhein*, 2012

1. Introduction

What are central characteristics of the Central Lower Rhine Area (CLRA)?

- Old Industrial region, structural changes
- Rather peripheral, close to the border
- On the rim of a congested urban area with several prospering metropolises → pull factor!

The CLRA faces diverse challenges

- Economic problems, above-average unemployment
- High municipal debts
- Below-average percentage of university graduates employed
- 38% of regional companies claim a shortage of skilled labour¹

→ A university is a vital chance for the region!

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2. Graduate Migration Patterns and Determinants

NR UAS Graduate Survey 2012, N = 1769 (max. 2 years after grad.)

	No Migration after graduation	Migration after graduation	Σ
Origin in CLRA	Non Migrants 15.0 %	Late Migrants 15.5 %	30.5 %
Origin in any other region	University Stayers 11.5 %	Repeat Migrants 58.0 %	69.5 %
Σ	26.5 %	73.5 %	100

→ **Brainflow Balance – 4.0 %**

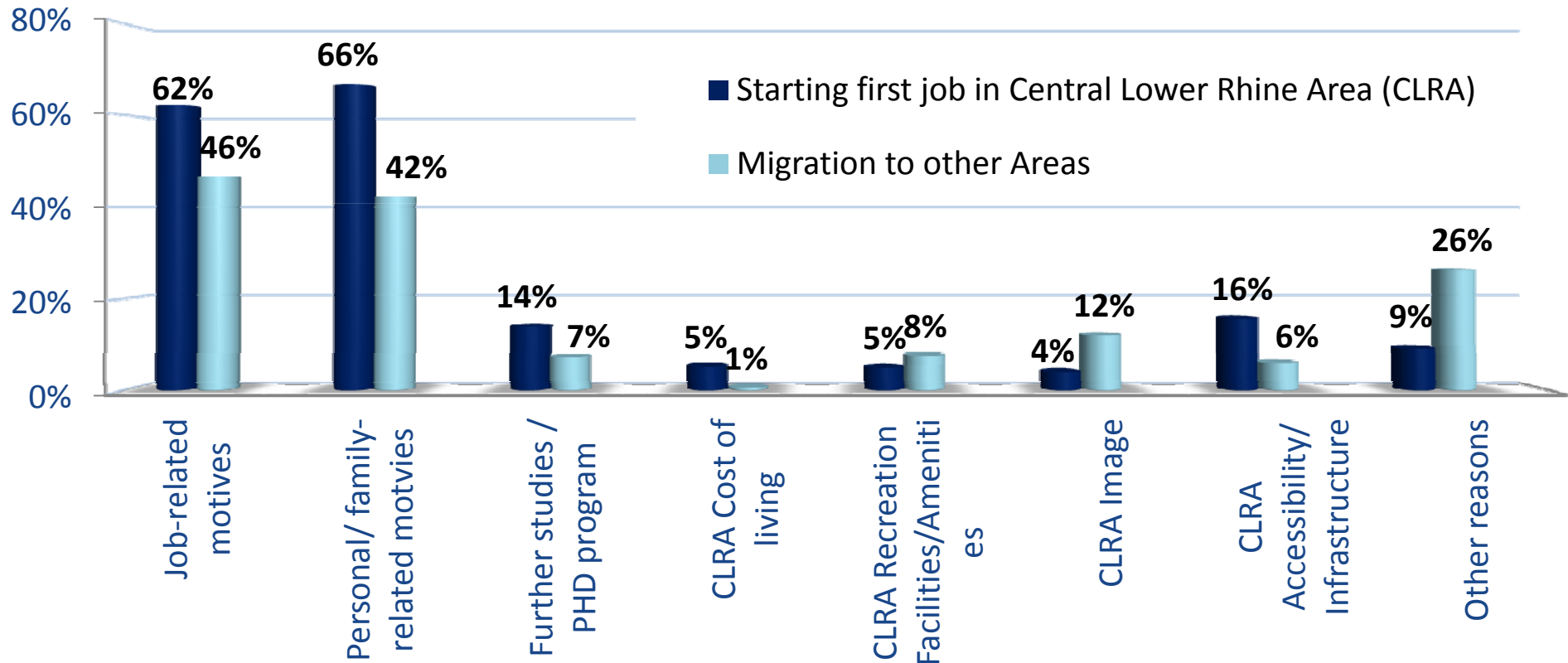
2. Graduate Migration Patterns and Determinants

Descriptive Analysis: Interesting results concerning migration determinants:

- Migration propensity differs considering **different fields of study**
- **A temporary stay abroad:** does not alter frequency of graduate migration, but generally raises the migration distance
- **Duration of Job Seeking:** Graduates, who stay in the region, find jobs faster
- **Starting salary:** A high starting salary seems to act as pull factor to other regions
- **Form of job contract:** below-average migration propensity for job contracts of lower attractiveness

2. Graduate Migration Motives

Only two important migration motives:



2. Graduate Migration Determinants and Motives Econometric Approach

$$\begin{aligned} \text{Migration} = & \beta_0 + \beta_1 \text{RegOrigin}_i + \beta_2 \text{UniversityEntrance}_i + \beta_3 \text{Apprenticeship}_i + \beta_4 \text{Gender}_i \\ & + \beta_5 \text{TempStayAbroad}_i + \beta_6 \text{JobSeeking}_i + \beta_7 \text{industry}_i + \beta_8 \text{retail}_i + \beta_9 \text{SME}_i \\ & + \beta_{10} \text{SelfEmployed}_i + \beta_{11} \text{PersonalReasons}_i + \beta_{12} \text{JobReasons}_i + \beta_{13} \text{Textile}_i \\ & + \beta_{14} \text{Economics}_i + \mu_i \end{aligned}$$

- *Migration*: dummy, 1 = graduate starts professional life in CLRA
- *RegOrigin*: dummy, 1 = university entrance diploma in CLRA
- *University Entrance*: form of university entrance diploma
- *Apprenticeship, Temporary stay abroad*: dummy, 1 = yes / 0 = no
- *Gender*: dummy, 1 = female
- Duration of *Job seeking* in months
- *Industry, retail* and *SME*: dummy, 1 = graduate started professional life in company operating in industrial branches, in retail industry, respectively as SME
- *SelfEmployed*: dummy, 1 = graduate is self-employed
- *Personal Reasons* and *Job Reasons*: dummy, 1 = graduate identified migration motive
- *Textile* and *Economics*: dummies, field of study (1 = graduate of corresponding faculty)

2. Graduate Migration Determinants and Motives Econometric Approach

Regression results for binomial model with random error term

Dependent variable: *Migration*, 1 = Graduate starting professional life in CLRA

*** denotes significance at the 0.01 level

	Coeff.	Std. Err.	P> z
Regional origin***	0.79	0,19	0,000
University Entrance diploma	0,33	0,58	0,574
Apprenticeship	-0,02	0,18	0,906
Gender: Female	-0,19	0,20	0,453
Temporary Stay Abroad	0,29	0,28	0,242
Job-Seeking	-0,05	0,03	0,102
Industry	-0,20	0,21	0,327
Retail Market	0,54	0,33	0,106
SME	-0,04	0,20	0,830
Self-Employed	0,00	0,30	0,998
Personal & Family-Related Reasons***	1,39	0,19	0,000
Job-Related Reasons***	0,73	0,20	0,000
Faculty Textile & Clothing Management	0,20	0,27	0,466
Faculty Business Administration & Economics	0,07	0,20	0,710
cons	-2,32	0,33	0,000
Participants: 369, alumni network survey		Prob> chi2 =0,000	
LR chi2 (14)= 93,76		Pseudo R2= 0,2637	

Database: Online survey of alumni network 2012, N = 475

2. Graduate Migration Determinants and Motives

Results of Empirical Analysis:

1. The **university catchment area** is very regionally oriented
2. NR UAS exhibits a **negative brainflow-balance**
3. The **propensity of migration** is much higher for external students
4. **Two important migration motives:** job-related and family-related/personal reasons
5. **Minor or no significance in the migration decision process:** graduate's international experience, self-employment, soft locational factors of the university region

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3. Discussion

The three roles of HEI:

1. HEI as source of academic knowledge

2. HEI as provider of academic education

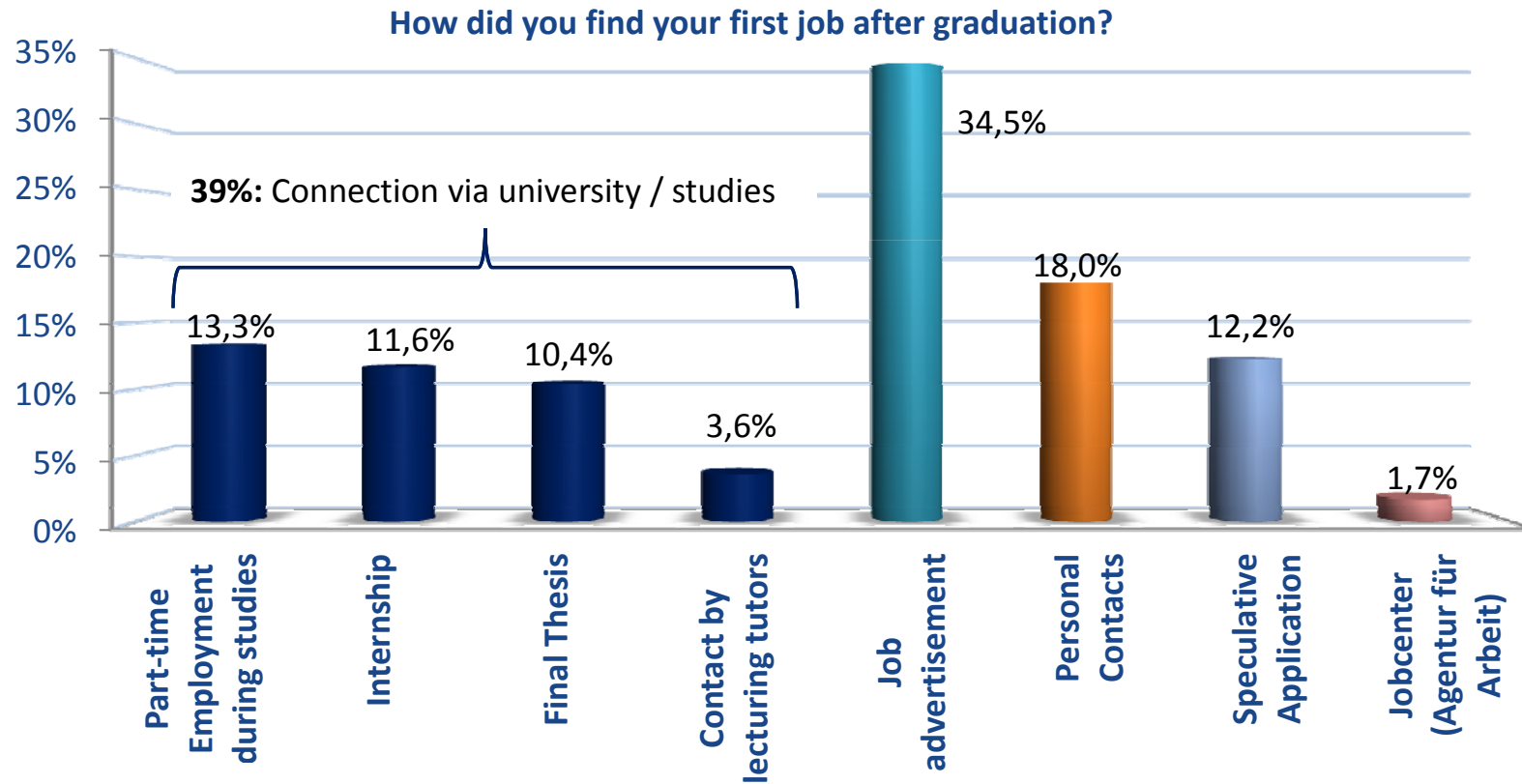
3. HEI as regional system builder

→ Especially important in old industrial regions facing economic challenges

→ Concerning graduation migration policy, how can NR UAS act as regional system builder?

3. Discussion

1. The university can embrace and support a role as „employment broker“:



3. Discussion

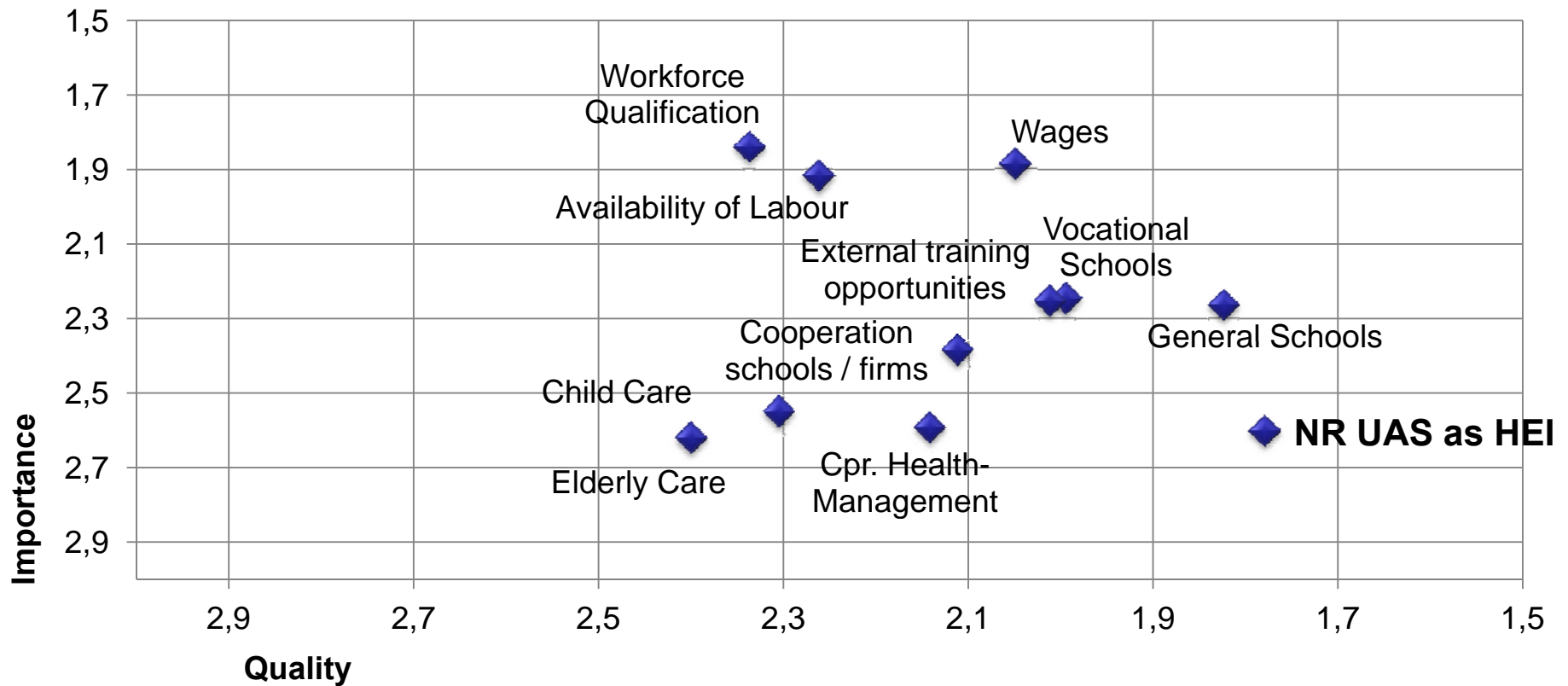
2. The university can improve graduates' knowledge about possible local employers

		Knowledge of local economy and possible future employers					
		Complete knowledge	2	3	4	No knowledge	Total
I would have stayed in the CLRA given a better job offer	Yes	14	128	159	138	62	501
	No	10	37	89	85	60	281
Migrating graduates		24	165	248	223	122	782

3. Discussion

3. The university needs to underline its importance for local companies

Local companies evaluate NR UAS as good, but unimportant location factor concerning „labour and qualification“



3. Conclusion

For old industrial regions facing economic problems...

- ... a HEI is a vital chance for the development of human capital
- ... high importance of graduates who can be attracted to the region in the long run
- ... pull-factor of well-performing regions has to be faced
 - additional advantages have to be offered
 - regionally originated students are easier „to keep“ in the region

To improve the level of regional human capital, a HEI can...

- ... embrace and support a role as „employment broker“,
- ... improve graduates' knowledge about possible local employers
- ... needs to underline its importance for local companies



[Thank you for your attention!](#)

Hochschule Niederrhein
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NIERS

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Niederrhein Institute for
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Literature

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- Industrie- und Handelskammer Mittlerer Niederrhein: Wachstumsbremse Fachkräftemangel – eine Analyse des Arbeitsmarktes Mittlerer Niederrhein. IHK Schriftenreihe, Nr. 127/2010.

Appendix – Additional Information

Analysis based on three graduate surveys in 2012

1. Official university graduate survey

Online, Conducted in a biannual interval rythm, N=1700

2. Survey of Alumni networks

Online questionnaire, N=475

3. Survey of students in final semester

→ Possibility to compare migration plans with actual migration patterns, N = 225

2. Graduate Migration Patterns and Determinants

Online Survey of Alumni Network, N = 475 (no time limit after grad.)

	No Migration after graduation	Migration after graduation	Σ
Origin in CLRA	Non Migrants 12.4 %	Late Migrants 30.5 %	42.9 %
Origin in any other region	University Stayers 6.2 %	Repeat Migrants 50.9 %	57.1 %
Σ	18.6 %	81.4 %	100

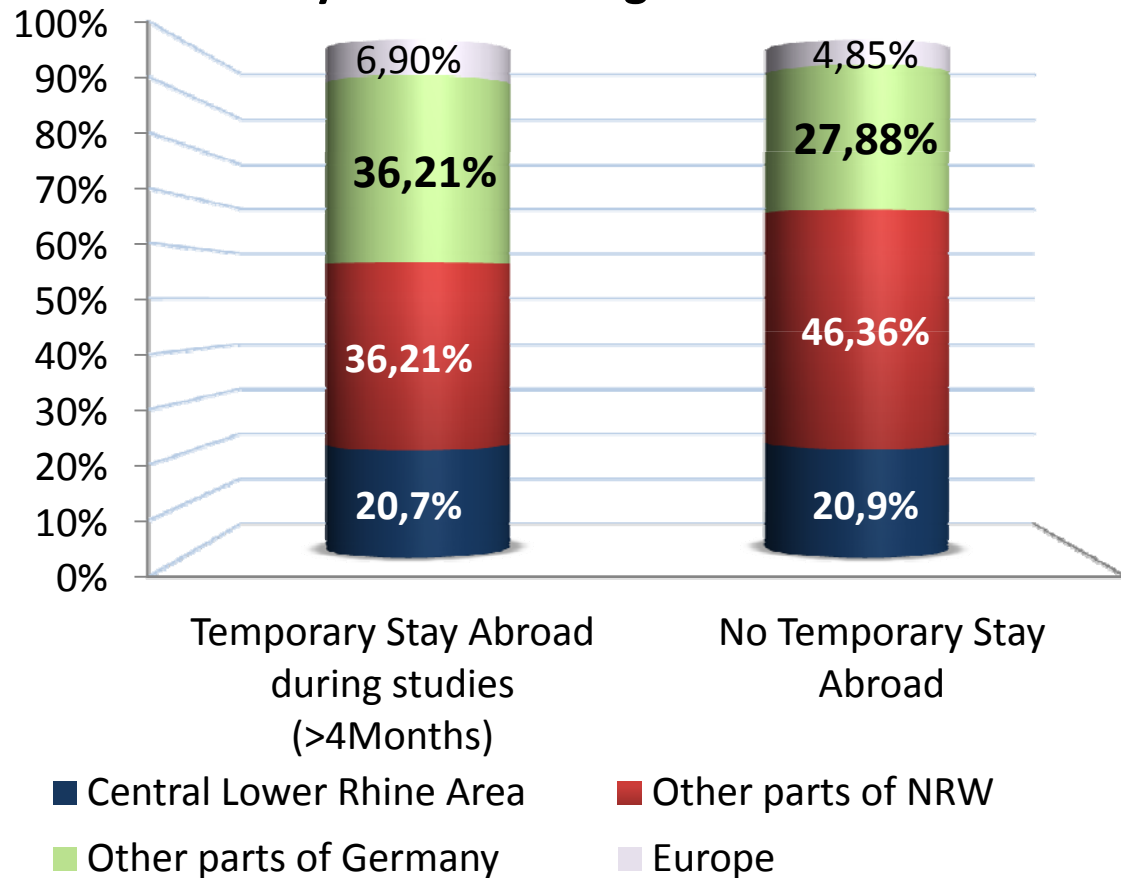
→ **Brainflow Balance – 24.3 %**

Appendix – Additional Information

International Experience...

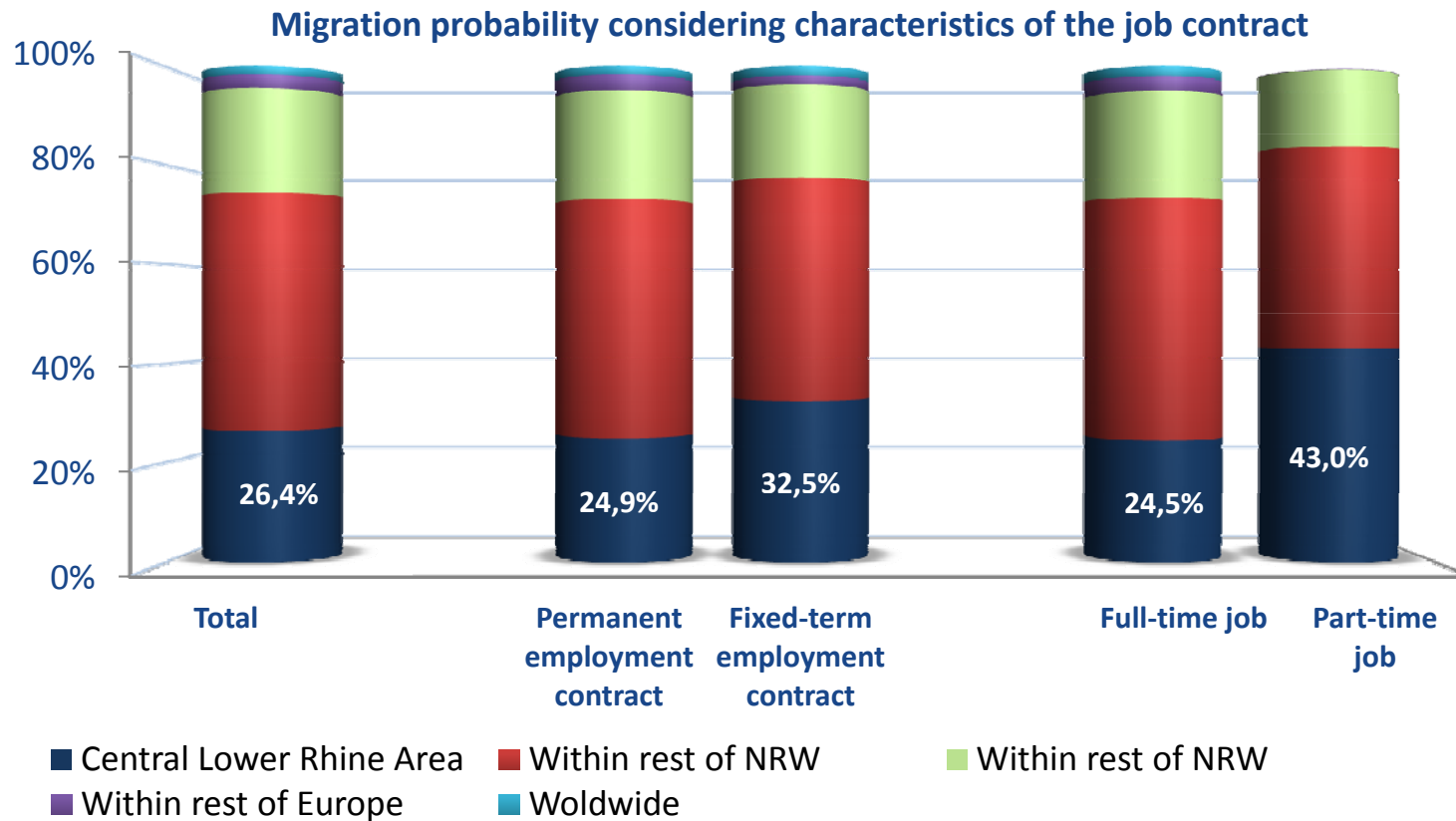
- has no influence on migration probability
- but raises the distance range of migrating graduates

Migration probability after a temporary stay abroad during the studies



Appendix – Additional Information

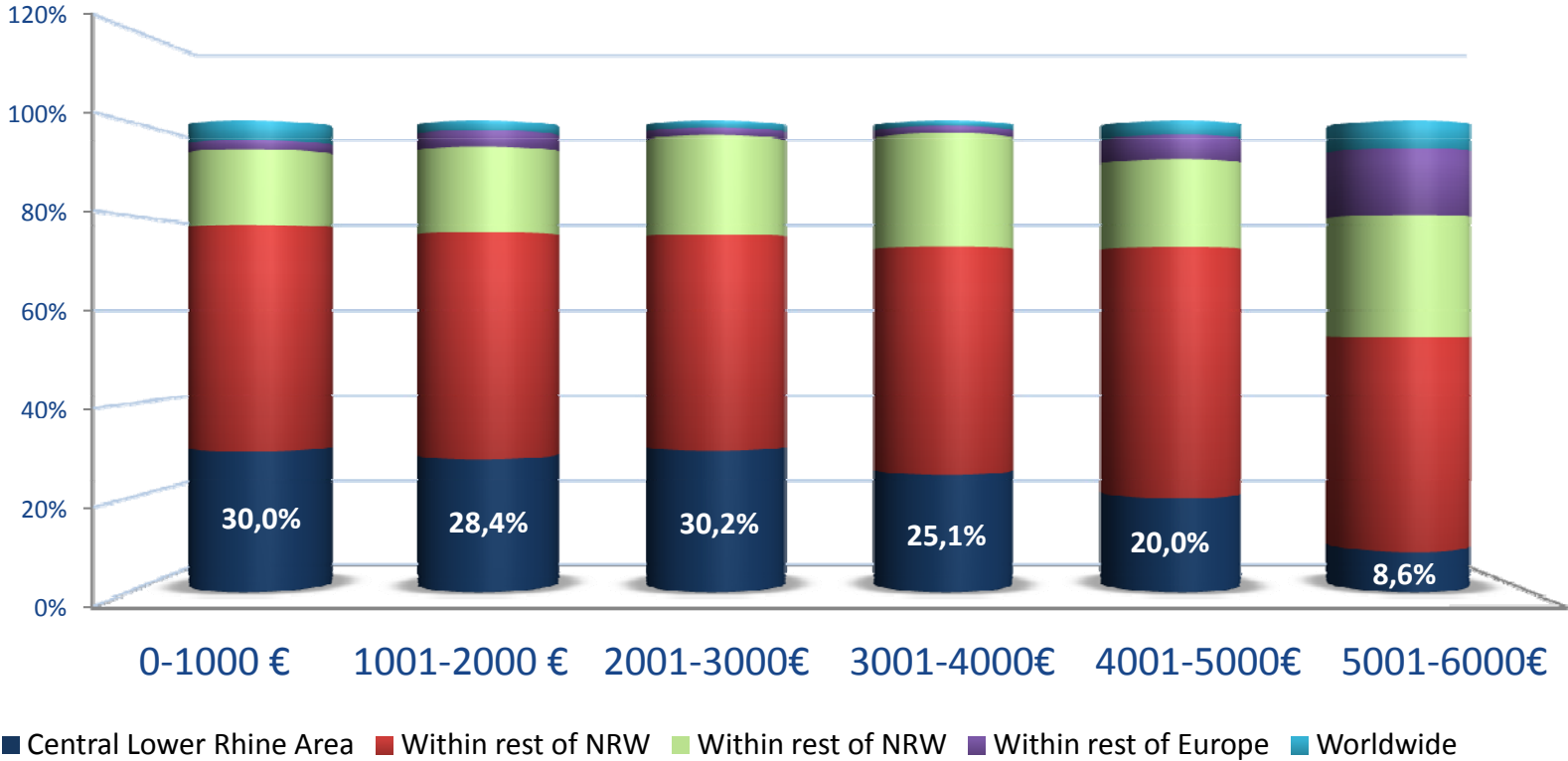
Graduates accept contracts of lower attractiveness to remain in the region



Appendix – Additional Information

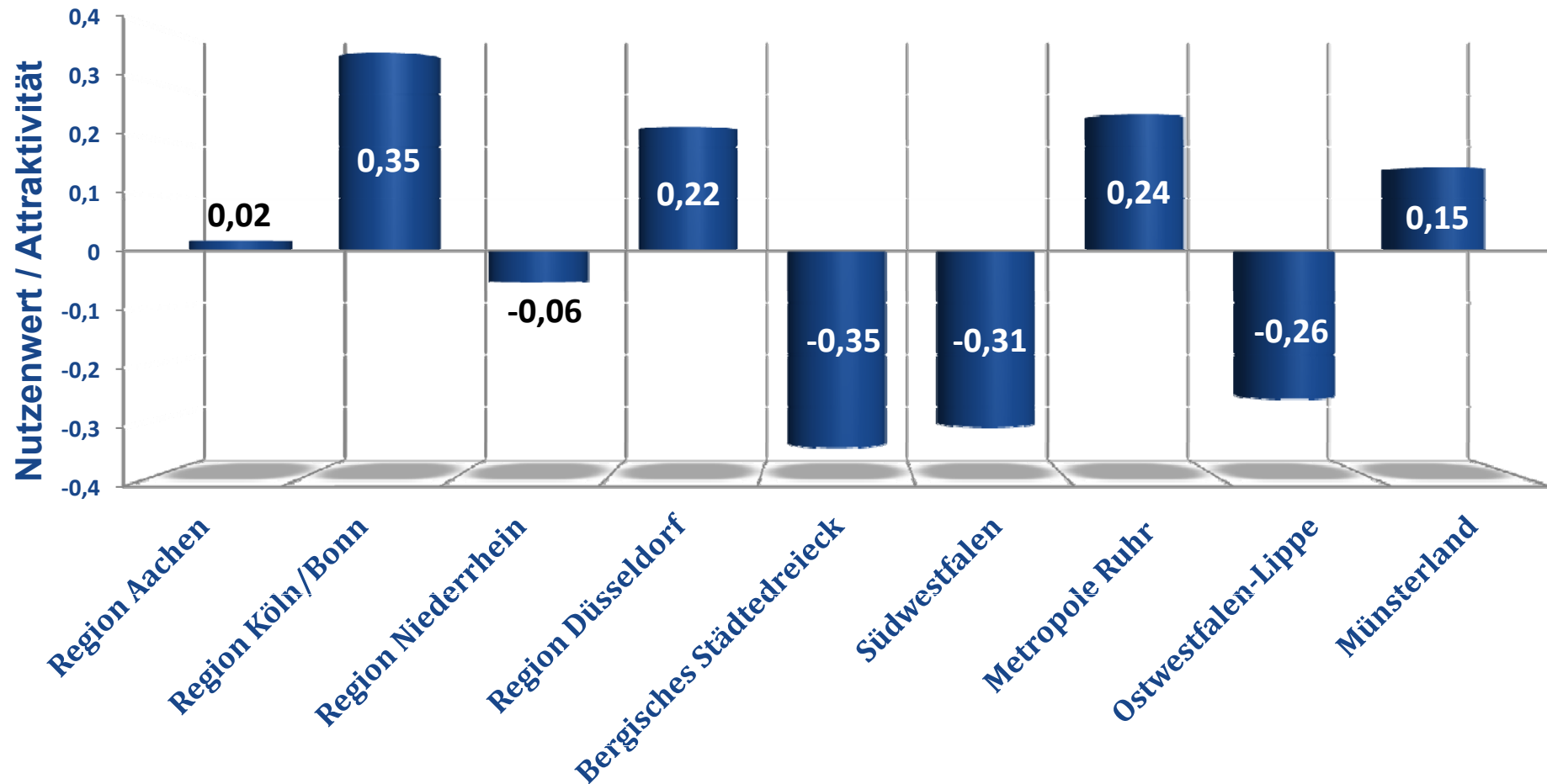
High Starting Salaries are a Pull Factor

Migration Probability considering the starting salary of graduates



Appendix – Additional Information

Attractiveness of economic regions in North-Rhine-Westphalia based on a survey of MINT graduates



1. Introduction

Universities induce expenditure effects, knowledge spillovers, produce human capital

To support the University Region → Importance of local focus

