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Gender differences in residential mobility: The case of leaving home in East Germany

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ABSTRACT

This paper investigates gender differences in the spatial mobility of young adults when initially leaving their parental home. Using individual data from 11 waves (2000-2010) of the SOEP we examine whether female home leavers in East Germany move across greater distances than males and whether these differences are explained by the gender gap in education. Our results reveal that female home leavers in East Germany are exceptionally mobile. This effect is attributable to their higher propensity of moving to West Germany. Education does not explain these gender differences.

JEL classification: C23, J61, R23

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INTRODUCTION

Since the reunification of East and West Germany in 1990 there has been an enduring interest in the increasing sex ratio (men per 100 women) in large parts of eastern Germany, especially in rural regions (Kröhnert/ Vollmer, 2012). Today, many East German areas are populated by more than 125 men per 100 women – one of the highest sex ratios in Europe.

This pattern particularly concerns young adults aged 18 to 30. In this age group, most young adults leave their parental home to obtain tertiary education, move in with a partner, or enter the labor market. Thus, high sex ratios in East Germany might be partly due to gender differences in these *initial* migration decisions. Specifically, women in East Germany are known to reach higher levels of educational attainment than men. This, in turn, might lead young women to move across greater geographical distances whereas their male counterparts might be more likely to relocate within the same local community. Although gender differences in education represent the most common explanation for high sex ratios in East Germany, this idea has not been addressed in empirical research.

The present study aims to close this gap by investigating gender differences in home leavers' moving distances. We use individual data on the spatial distances of more than 2,000 move-outs of the parental home between the years 2000 and 2010.

THEORETICAL CONSIDERATIONS AND PREVIOUS RESEARCH

Leaving the parental home represents an important step in the transition to adulthood. One critical aspect of young adults' residential decision is *where* to relocate (Leopold et al., 2012).

According to standard economic theory, highly educated individuals are more likely to move across greater distances to obtain further education or enter more specialized labor markets, thus receiving adequate returns to their human capital. Empirically, this contention is well supported as educational levels have been found to be positively related to spatial distances from the parental home (e.g., Lawton et al., 1994). In East Germany, young women reach considerably higher educational degrees than men (e.g., Kröhnert, 2009) do. Considering this educational advantage, the surplus of young males in Eastern regions might partly result from gender differences in geographical mobility after leaving the parental home.

This line of reasoning also prompts the question where young adults relocate after leaving economically disadvantaged Eastern regions. Demographic push–pull models of migration assume that individuals are pushed from declining areas and pulled to more attractive locations (DaVanzo, 1981). As the standard of living remains considerably lower in East Germany, it appears likely that many highly educated home leavers from the East will move to the West.

Research on migration flows between East and West Germany commonly uses aggregated data at district level. Kubis and Schneider (2007), for example, focus on the degree of urbanization and conclude that children from rural areas are generally pushed to big cities. They emphasize, however, that although this pattern is also observed in West Germany, it is far more pronounced in the East. In line with these findings, Kröhnert and Vollmer (2012) posit that high levels of education are mostly responsible for young women's migration from East to West Germany.

DATA AND METHODS

Since the year 2000, the German Socio-Economic Panel Study (SOEP) provides geo-coordinated data at household level allowing to calculate exact air-line distances of residential moves. Thus, information about spatial distances of move-outs of the parental home is available across 11 waves (2000 – 2010) of panel data. We select a sample of $N = 2,072$ young adults aged 16 to 30 who left their parental home within this window of observation. The spatial distance of these move-outs is calculated from geographical coordinates as the exact air-line distance in meters between the former (parental) household and the child's new household.

In addition, we use information about migration destination to distinguish between moves from East to West Germany or vice versa as well as internal migration within East or West Germany. Education is measured by dummy variables distinguishing between basic secondary school or less (up to 9 years of education), intermediate secondary school (10 or 11 years of education) and upper secondary school or higher (12 or more years of education)¹.

We focus on gender differences in moving distances and destinations of young adults. As noted, we expect greater geographical mobility and higher propensities to move to the West among East German women. According to theoretical considerations and previous research, this effect should be attributable to the gender gap in education. To test these hypotheses, we estimate two sets of models: First, we use ordinary-least squares regression models (OLS) to estimate moving distances that occur when young adults leave the parental home. Subsequently, we estimate logistic regression models to analyze the migration destination using a binary outcome variable indicating move-outs from East to West

¹ As there was a considerable amount of missing data, we imputed missing values using a background model that included all variables from the multivariate model and a number of auxiliary variables at family level (for details, see Leopold et al., 2012).

Germany. Both estimations proceed in two steps: First, we specify a model including only gender and controls; then we add young adults' education to the equation. All models control for a variety of factors at individual, family, and community level (for details on the variables, see Leopold et al., 2012)².

RESULTS

Descriptive Results

Table 1 shows distributions of spatial distances of move-outs. The left column presents the overall distribution of moving distance. The conditional distributions separate the sample by the gender of home leavers and whether their migration originated in East or West Germany. In West Germany, we find no gender differences in moving distances. In contrast, the distributions in East Germany show a sizable gender gap: Young women from East Germany move across greater distances than men. For instance, the 50 and 75 percentiles of women's moving distances are to approximately three times the distance of their male counterparts. Whereas male home leavers from the East do not differ markedly from the western sample, *young women from East Germany move by far across the greatest distances.*

--- Table 1 about here ---

To further investigate these findings, we calculated the distribution of moving distances in East and West Germany taking into account the migration destinations (results

² Because some of the move-outs originate in the same household, we calculate robust standard errors.

not shown). These analyses revealed that there are neither gender differences in moving distances among East German home leavers who relocated in East Germany nor among East German home leavers who move to West Germany. Instead, young women in East Germany are simply more likely than men to *move to the West*. Obviously, these moves involve greater spatial distances. In our study population, only 12.7 % of the East German men (37 of 291) relocate in the West – compared to 24.1 % of East German women (77 of 320).

Multivariate Results

Are these two descriptive findings, East German women move farther and more often to West Germany, explained by the gender gap in education? To answer this question, we estimate four regression models presented in Tables 2 and 3.

Table 2 shows linear estimates predicting young adults' moving distance separately for East and West Germany. In line with the descriptive findings, Models 1a and 2a indicate greater moving distances of women in the East and no gender differences in the West.

To test whether the gender effect in the East is explained by higher educational attainment of women, we control for education in Model 1b. As expected by human capital models, we find a positive effect of education on spatial mobility in both East and West Germany. Education, however, does not explain the gender difference in moving distance between East German home leavers.

--- Table 2 about here ---

As our descriptive findings indicated that the gender gap in moving distances is due to women's higher propensity of moving to West Germany, we focus only on East German home leavers in Table 3 and present log-odds predicting migration to West Germany. Model 1 resembles the descriptive finding: East German women move more often to West Germany. As analyses based on aggregate data have argued that this pattern is related to their higher educational achievement (e.g., Schneider/ Kubis, 2010), we control for education in Model 2. Similar to the previous models for moving distance, education promotes spatial mobility, increasing the likelihood of moves to West Germany. Once again, however, the gender effect is not explained by education.

--- Table 3 about here ---

DISCUSSION

This paper used individual data to shed light on gender differences in the spatial mobility of home leavers in East Germany.

Our results are consistent with the expectation of higher spatial mobility among young women in East Germany. Furthermore, the findings reveal that this gender gap results from a higher proportion of women moving to West Germany. Previous research using aggregated data speculated that such a pattern is explained by the gender gap in education among young adults in East Germany (e.g., Schneider/ Kubis, 2010). We find that education increases the likelihood of moving across greater distances and from East to West Germany, corroborating human capital models as well as previous research that found a brain drain from East to West Germany (Arntz, 2010; Brücker/ Trübswetter, 2004; Hunt, 2004). However, our individual

data reveal that the gender effect is robust to controls for education and other relevant covariates.

This suggests that there must be other factors attracting young East German women to make the (often long-distance) move to West Germany. One possible explanation are local partner markets. As women prefer partners who have at least the same educational level, they might lack adequate options due to gender differences in educational attainment. This idea is supported by empirical research showing that East German women are more likely to enter unions with men from West Germany than vice versa (Kröhnert/ Klingholz, 2007). Another factor might be the traditionally high female labor market participation in East Germany. Many East German women favor employment over family formation (Adler, 2004). Because demand in professions preferred by women is often low, particularly in rural areas of East Germany, they might consider moving to areas which offer them better occupational opportunities. With regard to their high educational attainment, the availability of universities might also influence young women's decisions to move to Western regions.

One limitation of this research is that we did not consider different pathways out of the parental household (i.e., to enter the labor market, to move in with a partner, to obtain further education, etc.) which might be related to gender as well as moving distances and destinations. We also consider it worthwhile to link individual data with a more comprehensive set of structural information (e.g., gender-specific local labor markets, availability of universities, local partner market) to understand why young women in East Germany are more mobile than their male counterparts. Finally, from a life-course perspective it would be interesting to follow up home leavers and analyze their subsequent migration history. Are those who leave the region gone for good or do they return later in life?

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Table 1: *Distributions of Moving Distance in East and West Germany^a*

Percentiles	Total <i>N</i> = 2,072	West Germany		East Germany	
		Men <i>n</i> = 670	Women <i>n</i> = 791	Men <i>n</i> = 291	Women <i>n</i> = 320
5%	184	183	217	106	172
10%	456	427	527	346	530
25%	1,637	1,654	1,737	1,132	2,292
50%	8,580	8,118	8,060	6,657	19,363
75%	58,814	53,540	40,848	57,024	152,012
90%	230,498	206,766	179,111	233,911	323,222
95%	351,161	316,994	293,087	382,421	387,236

Note: SOEP, release 2011, own calculations. Analyses based on 30 sets of imputed data.

^aDistance of first move-out of the parental household (in meters).

Table 2: *Ordinary Least Squares Regressions of Logarithmic Moving Distance*

Variables	East Germany				West Germany			
	Model 1a		Model 2a		Model 1b		Model 2b	
	B	SE B	B	SE B	B	SE B	B	SE B
Female (ref.: <i>male</i>)	.88	.25***	.70	.25**	-.06	.14	-.16	.13
Education ^a (ref.: <i>low</i>)								
Intermediate			.20	.33			.31	.18 [†]
High			1.18	.37**			1.32	.19***
Control variables ^b	Yes		Yes		Yes		Yes	
<i>N</i>		611		611		1461		1461
<i>R</i> ²		.09		.12		.09		.14
<i>Adjusted R</i> ²		.07		.10		.08		.13

Note: SOEP, release 2011, own calculations. Analyses based on 30 sets of imputed data.

^a low = basic secondary school; intermediate = intermediate secondary school; high = upper secondary school.

^b Control variables include: age, age squared, relationship status, migration background, father's education, per-capita income of the parental household, per-capita income squared, living with only one parent, birth order, having an own child, being pregnant, having moved from place of childhood, district's youth unemployment rate, district's degree of urbanization.

Number of clusters: 474 in East Germany; 1091 in West Germany.

Significance: [†] $p < 0.1$, * $p < .05$, ** $p < .01$, *** $p < .001$

Table 3: *Logistic Regression of Migration Destination: Moving from East to West Germany*

Variables	Model 1		Model 2	
	B	SE B	B	SE B
Female (ref.: <i>male</i>)	.92	.24***	.82	.25**
Education ^a (ref.: <i>low</i>)				
Intermediate			.79	.43 [†]
High			.98	.45*
Control variables ^b	Yes		Yes	
<i>N</i>	611		611	
<i>McFadden's Pseudo R</i> ²	.07		.08	

Note: SOEP, release 2011, own calculations. Analyses based on 30 sets of imputed data.

^a low = basic secondary school; intermediate = intermediate secondary school; high = upper secondary school.

^b Control variables include: age, age squared, relationship status, migration background, father's education, per-capita income of the parental household, per-capita income squared, living with only one parent, birth order, having an own child, being pregnant, having moved from place of childhood, district's youth unemployment rate, district's degree of urbanization.

Number of clusters: 474.

Significance: [†] $p < 0.1$, * $p < .05$, ** $p < .01$, *** $p < .001$