

Internal Migration in Germany between reunification and financial crisis: Changes in spatial patterns and sex ratios.

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Abstract

Existing analyses of net migration flows point to mass migration from the East to the West as the key driver of population decline across East Germany. But available migration statistics suffer from incompatibility over time, largely due to frequent county boundary changes since reunification in 1990. This research aims to gain a better understanding of contemporary internal migration patterns and how they drive population decline and gender imbalances in the East. I draw on the new German Internal Migration (GIM) database (Sander, 2013) to quantify the impact of East-West migration on Eastern States and their capital cities. The GIM database holds annual migration counts drawn from the population register for 397 regions with temporally consistent boundaries. The results show that in 1995-2004, East-West migration had a stronger impact on population decline in many eastern counties than movements within the East. But this pattern has changed. In 2010, less than half of all net losses from East German counties were to other counties in the East. Gender imbalances toward men in rural Eastern Germany are typically attributed to more young women than men moving from the East to the West. The results suggest, however, that gender imbalances arise primarily driven by movements of young females toward Berlin, Leipzig and Dresden.

Introduction

Internal migration has a strong impact on population growth and age-sex composition at the regional level, especially in the context of very low fertility and infant mortality. In Germany, strong concerns have been raised about population decline in less-densely populated rural areas and increasingly distorted sex ratios in eastern Germany. Both trends have generally been attributed to internal migration, especially the higher propensity of east-west migration among women compared to men (Kröhnert and Vollmer, 2012; Kröhnert et al., 2004). Consequently, long-distance migration from eastern to western German states is seen as the main agent of change in regional population structure, while much less attention has been paid to migration flows between counties within the same state.

This paper argues that the debate that ignited about internal migration and its consequences for Germany's rural populations should be based on a better understanding of the patterns and trends in internal migration and how these impact on regional population change. Although the federal population register holds annual migration statistics down to the municipality level, frequent boundary changes, especially in eastern Germany over recent decades impede the analysis of changes over time in migration flows. Hence, the lack of harmonised data goes some way in explaining the focus in the literature on state-level migration trends. By establishing a temporally consistent geography for the study of inter-county migration flows, this paper sheds light on fundamental changes in the spatial patterns of internal migration in Germany since the year 1995 and puts into perspective the intensity of east-west migration and its impact on regional population growth and age-sex composition.

Data

This paper departs from the common practice of focusing on net-migration or state-level flows by drawing on a first-of-a-kind set of harmonised annual inter-county migration flows developed by the author. Flow data for the period 1995 to 2010 kindly provided by the federal statistical agency Destatis were corrected for boundary changes over the 15-year period. This was achieved by adopting the "Update to contemporary zones" approach discussed in Blake et al. (2000). The resulting large interaction database holds migration counts for 15 annual intervals for 397 origins, 397 destinations, two sexes and six age groups.

Methodology

Drawing on a new dataset that holds harmonised inter-county migration flows on a harmonised geography for the period 1995-2010, this paper sheds light on changes over time in four key dimensions of the spatial structure of internal migration (Bell et al. 2002). The *intensity* of migration is analysed by age and sex to determine the degree of gender-selectivity. The *connectivity* of migration is studied to demonstrate how Munich, Hamburg and Berlin are stronger connected with other German regions through migration than other large cities. The *impact* of migration is substantially higher in eastern Germany due to the stronger unidirectedness of migration flows towards city centres, a pattern that has increased since the turn of the century. The *distance* of migration shows substantial age variation, with distance-decay affects being weakest for 18-24 year old migrants.

A set of spatial interaction models is used to analyse the drivers of place-to-place flows and to test the hypothesis of movements towards regions with economic prosperity and low rates of unemployment. Differences by age and type of move in the effects of GDP and unemployment on the size of country-to-country flows are also examined by adding explanatory variables to the negative binomial regression model.

Results

This paper presents the first comprehensive study of nation-wide patterns in migration in Germany and how these have evolved over time. The results presented in Figure 1 reveal substantial shifts in

the patterns of migration. Urban cores changed from net loss to net gain of population through migration, while both their hinterlands and non-metropolitan regions recorded steadily decreasing gains or even changed to having net losses over recent years. Changing family size, increasing labour force participation among women, and altered timing of life-course events, such as birth of the first child or marriage may go some way in explaining these substantial shifts (Boyle et al., 2008; Mulder and Wagner, 1993).

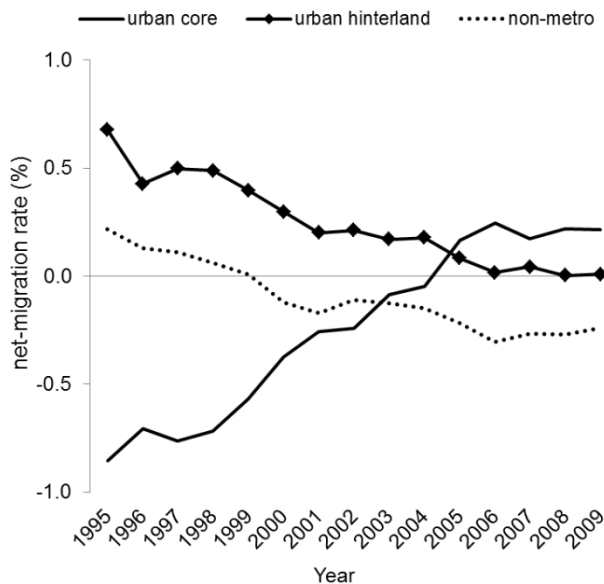


Figure 1. Net-migration (in %) by region type, 1995-2009

The shifts in the spatial patterns that indicate the growing attractiveness of the city as a place to raise a family are also reflected in changes in age selectivity of migration over time. The age-specific migration intensities shown in Figure 2 highlight the leftwards shift in the age profile with increasing propensities among 18-24 year olds and declining rates among ages 25-29, 30-49 and 0-17. It appears that the renewed growth of the cities is not only driven by decreasing out-migration of young families, but also by increasing in-migration among 18-24 year olds.

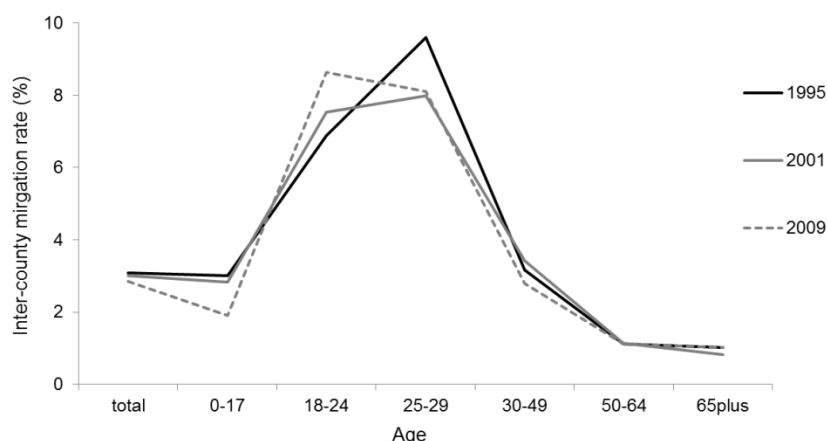


Figure 2. Inter-county migration rates by age group (in %), 1995, 2001 and 2009

The overall intensity of migration among 18-29 year olds increased over time for both males and females. Across all types of moves shown in Figure 3, women exhibit higher migration propensities than men. Intensities of movements originating in West German counties are higher than those of

movements from East German counties, with East-West migration declining substantially over the 10-year time period.



Figure 3. Inter-county migration rates by age group (in %), 1995, 2001 and 2009

The results from the spatial interaction modelling exercise do not confirm the hypothesis of movements towards regions with economic prosperity and low rates of unemployment. The estimated coefficients for differences between origin and destination county in (1) unemployment and (2) GDP were statistically significant at the one per cent level. However, contrary to earlier findings (eg Kontuly et al. 1997) the effect of unemployment is slightly positive, suggesting that many people aged 18-24 moved to regions where compared to the origin unemployment was higher. As expected, difference in GDP has a positive effect on migration, with young adults favouring destinations with higher GDP per capita.

Table 1. Results of a negative binomial regression model for inter-county moves among 18-24 year olds, 2010

	Coef.	Std. Err.	P>z
neighbour	1.488	0.019	0.000
log(distance)	-1.444	0.005	0.000
log(origin population)	2.137	0.010	0.000
log(destination pop)	2.385	0.010	0.000
sex	0.106	0.006	0.000
difference in unemployment	0.005	0.001	0.000
difference in GDP per capita	0.012	0.000	0.000
constant	-14.901	0.069	0.000
/lnalpha	0.121	0.006	

Figure 4 confirms the weak relationship between unemployment and net migration rates. What appears to be a strong driver of migration among 18-24 year olds is the location of universities, as indicated by the size of university student populations. The larger the student population, the higher the county's net migration gain.

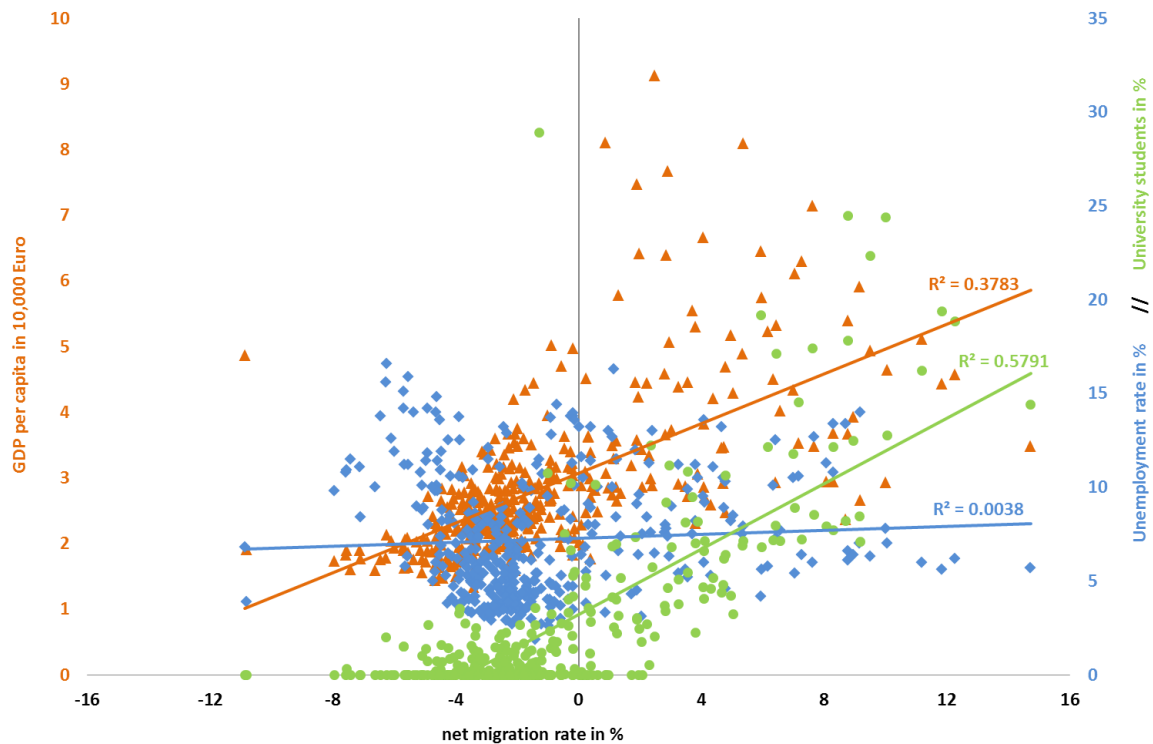


Figure 4. Inter-county net migration rates for 18-24 year olds (in %), GDP, unemployment rate and university students in % of population, 2010

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