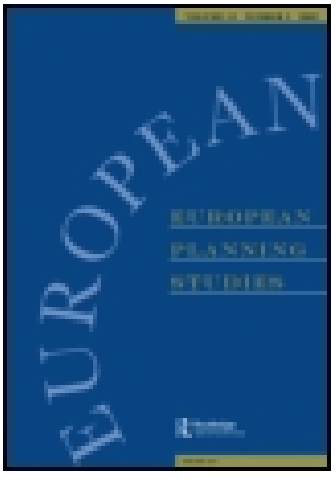

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Iain Deas[a] & Stephen Hincks[a]
[a] School of Environment, Education and Development, University of Manchester, Manchester, UK
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Migration, Mobility and the Role of European Cities and Regions in Redistributing Population

IAIN DEAS & STEPHEN HINCKS

School of Environment, Education and Development, University of Manchester, Manchester, UK

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Abstract *Increased policy interest in geographical mobility necessitates a fuller understanding of the uneven spatial patterning of migration in Europe. This paper reports on research exploring the experience of cities and regions in respect of migration, and the socio-economic factors associated with disparities in net migration across sub-national areas. This involved modelling the relationship between net migration over the period 2001–2006 and the underlying socio-economic circumstances across European cities and regions, and generating an area typology that captured variable experiences with regard to migration. The results of multivariate analysis suggest that urban areas are more likely than other types of areas to have net in-migration levels which exceed those expected given their socio-economic characteristics, both for places with flourishing economies and unmet demand for labour as well as those whose economic fortunes are less buoyant. The results also suggest that the experience of cities and regions is polarized, with large urban areas featuring prominently among the best and worst performing areas in respect of net in-migration. The potential implication of this complex pattern is that bespoke, rather than blanket, policy interventions are required to address the variable experiences of cities and regions in relation to migration.*

Introduction

Migration has become an ever-more important issue for European cities and regions, linked to a variety of factors including the intensification of economic globalization, dislocation and displacement associated with poverty and conflict, and increased personal mobility related to more accessible mass transit and the shrinkage of real and perceived distance (Schmidtke, 2012). At the same time, the desire to make national borders more permeable to labour and capital in line with the completion of economic and monetary union has seen policy actors actively promote enhanced personal mobility. The deregula-

Correspondence Address: Iain Deas, School of Environment, Education and Development, University of Manchester, Oxford Road, Manchester M13 9PL, UK. Email: iain.deas@manchester.ac.uk

tion of labour markets across many European member states, aimed in part at facilitating more rapid local adjustment to changed macroeconomic circumstances, has further acted as a stimulus for migration (Zaiceva & Zimmerman, 2008).

Growth in migration in response to these variable stimuli has presented significant challenges for cities and regions, in accommodating increased inflows of migrants and managing the wide-ranging social, economic and political implications of net migration. Critiques of labour market liberalization, for example, have highlighted concern about the social consequences of increased flows of migrant workers, given the disproportionate degree to which they engage in poorly paid and insecure employment (Kasimis *et al.*, 2003; Samers, 2004; Rye & Andrzejewska, 2010). Yet there is also evidence to suggest that urban economic fortunes are critically dependent upon the continued availability of migrant labour, whether to fill relatively low-paid employment in prospering cities (May *et al.*, 2007), or to underpin economic activity dependent on the attraction and retention of skilled workers (Beaverstock, 2011).

Reflecting both the increased scale of migration and raised levels of spatial mobility, and the often profound nature of the resultant challenges, much of the related discourse has been acutely politicized, often polarized and underpinned by a sometimes limited evidence base in relation to the empirical dynamics of migration. It is the latter that provides the rationale for this paper, augmenting some important research to date. There has been sustained research interest over many years in the socio-economic experiences of urban migrants (Breen, 2004; Ryan *et al.*, 2008), their status within labour and housing markets (Drinkwater *et al.*, 2009), and the degree to which they have been included (or excluded) in (or from) host societies (Shubin, 2012). Some of this has emphasized high levels of poverty amongst particular groups or categories of migrants, connected in certain cases to a wider socio-spatial detachment from host societies (Cohen, 2006). Longitudinal research has also explored intergenerational experiences amongst migrant communities, linked to broader sociocultural issues about assimilation and the preservation of ethnic and other identities (Vallet, 2004). Other research, emphasizing economic dimensions of migration, has centred upon the underlying idea that cities and regions, as well as migrants themselves, benefit from increased socio-spatial mobility. Research in this area has underpinned the influential argument that cities play an important role in absorbing flows of migrants and enabling them subsequently to advance "upwards" in terms of their position within labour markets. Cities and their regions, it is argued, in some instances act as "escalators", offering a host of important economic opportunities which can allow migrants to establish themselves (Fielding, 1992; Price & Benton-Short, 2008).

Whilst considerable attention has been devoted to these issues, there has been in comparison relatively limited research on issues of the uneven patterning of migration in Europe, the variable experience of cities and regions in relation to migration and the factors that help to explain the geography of migration across cities and other types of sub-national areas. It is upon these issues that the remainder of the paper focuses. The paper outlines the results of a recent study aimed at understanding more fully the roles played by different cities and regions in Europe in redistributing population across geographical space. In seeking to understand the disparities in migration to and from different cities and regions, the paper reports on a European-wide analysis of socio-economic, geographical mobility and migration indicators. This involved modelling the relationship between net migration over the period 2001–2006 and underlying socio-economic circumstances across European cities and regions. This in turn generated an area typology

(high net gain areas, gaining areas, tipping areas, losing areas and high net loss areas) that captured variable experiences with regard to migration. This was then adjusted to relate the categories to the 2008 European Union (EU) urban–rural typology. Subsequent sections of the paper detail this multivariate analysis and consider the resultant implications. Before doing so, we attempt in the next sections to explore the ways in which migration might best be conceptualized, and its dynamics captured via collation and analysis of relevant data.

Conceptualizing and Measuring Migration

Migration Dynamics and European Cities

Attempts to conceptualize migration are numerous and stem from different disciplinary traditions, covering theoretical frameworks developed in economics, sociology and geography (Arango, 2000). Human capital theories, for example, drawing upon assumptions of economic rationality, view migration as driven by investment decisions derived from individual and household readings of potential investment returns (such as wages) achievable in different locations (Stark, 1991). Studies in behavioural economics have tended to view migration, although again informed by economic stimuli, as driven also by non-economic values and expectations linked to personal, household and societal norms (Crawford, 1973).

Whilst economic perspectives focus on individuals or households, research studies from a sociological tradition more frequently recognize the collective nature of migration. Migration decisions are constructed and reinforced through societal mechanisms, including the state of the international political economy, shared language and culture, the desire for new and more stimulating life experiences and improved quality of life, aspirations for improved opportunities for children, and/or family connections and social networks (see, for example, Price, 1963; Burrell, 2010; De Haas, 2010; Moskal, 2011; Ryan, 2011).

Other attempts to conceptualize migration have tended to emphasize its inherently geographical character. In defining migration as the movement of people from one place to another "... for longer than visits or tourism ..." and which "... may involve either short-term/temporary or long-term/permanent relocations", King (2012, p. 136) contends that migration is a "space-time phenomenon", and the process of migration "intrinsically geographical". Migration modifies spatial patterns of urban development over time and has the effect of intensifying the positive or negative impacts of uneven development (Castles & Miller, 2009). The spatially variable effects of migration have been extensively explored by researchers, through work on social mobility and well-being (e.g. Fielding, 1992, 2007; Pollard *et al.*, 2008); research on labour market processes such as the "brain drain" (Docquier & Rapaport, 2011); analyses of the relationship between migration and the housing market (Forrest & Murie, 1992); and in relation to social and cultural integration (Joppke, 2012).

The broad message emerging from earlier research is that the causes and consequences of migration are complex and multifaceted. In trying to capture the complexities of migration, De Haas (2008) proposes a "transitional (dynamic) model" of migration that goes beyond traditional equilibrium and "push–pull" models that have long informed migration research. De Haas (2008, p. 43; emphasis in original) contends that:

> On theoretical grounds, it is not possible to comprehend the developmental impact of migration without understanding the structural, fundamentally *developmental* causes of migration. It has also exemplified the importance of linking theories on the developmental *causes* and *consequences* of migration, in order to create a single dynamic perspective approaching the migration-development relation as reciprocally related *processes*.

The model—linked to ideas of network migration theory (Castles & Miller, 2009)—recognizes that once a threshold level is reached, migration can become self-sustaining. Under these theoretical conditions, migration is regarded as one of a number of drivers of development and, concomitantly, an outcome that is reinforced by changing development conditions.

The conceptual framework proposed by De Haas (2008) is simple in structure, but powerful in the way it addresses the dynamic nature of migration. It contends that in unravelling the factors that underpin the interaction of development and migration, a series of distinctions can be made between: (i) the development context at the macro (national, international) level; (ii) the development context at the local (city/city-region) or regional level; and (iii) the factors related to the migrants and their social and economic context (De Haas, 2008, p. 43). A diagrammatic representation of De Haas's migration–development process is provided in Figure 1.

The framework comprises five core interactions (labelled a–e) underpinning the migration–development relationship (see De Haas, 2008, p. 44). In terms of the macro development context, the economic, social and political structures at this level (national, European) feed into, and ultimately affect, development at the local level (e.g. the city or city-region scale) (a). These determining factors can include, *inter alia*, legislation, social, economic or environmental policies, or taxation policy. It is at this macro-scale that opportunities for migration are determined through immigration or labour market policies (b). According to De Haas (2008, p. 44), "... such opportunity structures affect the magnitude, nature (undocumented, legal, labour, political, family migration), and the (initial) selectivity of migration". Likewise, propensity to migrate is said to be affected by a number of factors at the local level, including the aspirations that people have to migrate and their capability to migrate depending on financial, social and human capital factors (c). Through feedback interactions, the cumulative effect of migration is that it affects the local development context through the injection of different financial, social, economic and human capital features into the locality (d).

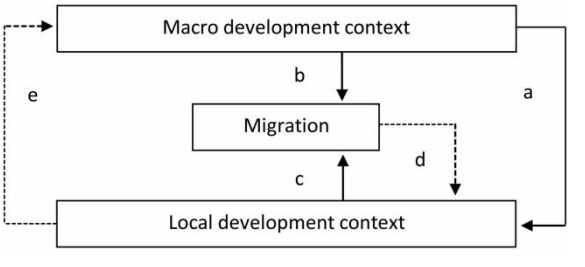

Figure 1. Conceptual framework: migration–development interactions.
Source: De Haas (2008, p. 44).

Reflecting the idea that migration is a space–time phenomenon, the framework recognizes that the processes and factors that drive migration and the impacts of migration behaviour are "... spatially heterogeneous" and are "... contingent on the characteristics of the local development context as set by the behaviour of previous actors" (De Haas, 2008, p. 44). These migratory processes serve to affect people's aspirations and capabilities to migrate (c), but it is also recognized that, through the development of migration networks, these movements of people from one place to another can become self-sustaining. Finally, the local development context changes as a result of migration and other social, economic, cultural and political processes. In turn, these effects can shape, albeit to a limited degree, the macro-level development context (e). The next section explores how these conceptual constructs might best be applied to the measurement of migration across European cities and regions.

Methods

Whilst considerable research interest has been directed at migration within and across Europe, much of it has tended to focus on country-level implications. This reflects in part the limited availability of robust sub-national migration data. The result is that much less attention has been devoted to migration trends at the sub-national level—particularly analyses that link migration patterns to underlying contextual information about the economic, demographic or social characteristics of places or their setting within urban or rural regions (interactions b and c in De Haas's (2008) conceptual framework). The following questions underpin the remainder of the paper: first, what is the spatial patterning of migration at sub-national level in Europe; second, to what extent do local socio-economic factors explain variations in net migration; and third, what roles do different cities and regions play in redistributing population across Europe?

A three-stage methodology was employed to address these questions. The first involved an audit of data drawn from a range of official sources, including Eurostat (the EU Commission's statistics directorate) and the European Observation Network Territorial Development and Cohesion programme, ESPON. The full list of candidate indicators, and the data source for each, is shown in Table 1. The indicators were assessed against two criteria: their availability at NUTS 3 level (Nomenclature of Territorial Units for Statistics, the standard multi-level geography employed for Eurostat and other data), and their geographical coverage (employing a threshold of at least 95% of the 25 countries which comprised the EU from 2004 to 2006, coinciding with the most recent period for which sub-national migration data was available). Although the NUTS 3 scale is intended to provide a means of analysing data using geographically comparable units across EU member states, in practice their variable size—as evident, for example, in the contrast between large areas in Sweden and Spain, and the much more narrowly drawn ones in Germany—necessitated some caution in interpreting the resultant geographical patterning of data. Nevertheless, subject to the need for interpretative caution drawing on the extensive literature on the difficulties posed by the modifiable area unit problem (see Openshaw & Taylor, 1979, and numerous others), the individual demographic, socio-economic and migration indicators (listed in Table 1) that met the two criteria provided a basis for further analysis across sub-national geographical units via two subsequent stages.

Table 1. Candidate context and migration indicators

Code	Description	Source	Time period
MIGPOPChg	Migration population change (migration 2006 to migration 2001/migration 2001)	EDORA Country Profiles, ESPON 2013 Programme	2001–2006
GDP	GDP per capita in Purchasing Power Standards	EDORA Typology, ESPON 2013 Programme	2006
GDPCHA	Annual average GDP change	EDORA Typology, ESPON 2013 Programme	1995–2006
DENCHange	Density change % (density 2006 to density 2000/density 2000)	EDORA Country Profiles, ESPON 2013 Programme	2000–2006
DEPENDrat	Dependency rate population (population 0–14 years + population 65+)/population 15–64 years * 100)	EDORA Future Perspective, ESPON 2013 Programme	2006
TERTED	Tertiary education level in thousands students (1000) (ISCED 5-6)	EDORA Country Profiles, Eurostat Database Regional Statistics	2006
EMPF1664	Employment rate, females, 15–64 years (females employed aged 15–64/females population aged 15–64 * 100)	EDORA Country Profiles, Eurostat Database Regional Statistics	2006
EMPM1664	Employment rate, males, 15–64 years (males employed aged 15–64/males population aged 15–64 * 100)	EDORA Country Profiles, Eurostat Database Regional Statistics	2006
EMPTERT05	Employed persons in tertiary sector (thousands employed (1000))	EDORA Country Profiles, Eurostat Database Regional Statistics	2006
NATINC0105	Natural increase rate (net migration 2001–2005/(total population/1000) 2006)	EDORA Future Perspective, ESPON 2013 Programme	2001–2005
UNEMPRATE	Unemployed persons per active population % (unemployed persons 2006/working-age population (15–64) * 100 2006)	EDORA Future Perspective, ESPON 2013 Programme	2006
ECONrat	Economic activity rate (share of economically active population/working-age population (15–65) * 100)	EDORA Future Perspective, ESPON 2013 Programme	2006
PRIED	Primary education level in thousands students (1000) (ISCED 0–2)	EDORA Country Profiles, Eurostat Database Regional Statistics	2006
SECED	Secondary education level in thousands students (1000) (ISCED 3–4)	EDORA Country Profiles, Eurostat Database Regional Statistics	2006
NATPOPinc	Natural population change in thousands (births alive—death between 2001 and 2005)	Demographic Trends and Migration, ESPON Territorial Observation No.1	2001–2005

(*Continued*)

Table 1. Continued

Code	Description	Source	Time period
POP_0-14Change	% Change in share of population aged 0–14 (2001–2006)	EDORA Country Profiles, Eurostat Database Regional Statistics	2001–2006
POP_15-64Change	% Change in share of population aged 15–64 (2001–2006)	EDORA Country Profiles, Eurostat Database Regional Statistics	2001–2006
TOT_Pop	Total population change between 2000 and 2005	Demographic Trends and Migration, ESPON Territorial Observation No.1	2000–2005
POPCHANGE65	Change in working-age population (15–64) as % of total population, 2000/2001–2006	Eurostat Database Regional Statistics	2000/2001–2006/
YDEPrte	Young dependency rate % (share of people aged under 15 years/ working-age population (15–65) *100)	EDORA Future Perspective, ESPON 2013	2006

Notes: Migration data are based on the period 2001–2006, and most of the potential independent variables relate to 2006. There is uncertainty with regard to lag-times, and the variable period over which socio-economic changes might be expected to impact upon demographic outcomes, including net migration. Given this, and the highly complex and variable nature of causal processes affecting net migration, data were collected as far as possible to relate to a consistent time period, thereby holding constant in a coarse way the effect of cyclical changes in local economic circumstances.

The second stage involved multiple regression analysis which was used to explore the relationship between net migration, over the period 2001–2006 (the most recent for which data were available at a sufficiently disaggregated scale), and a set of 14 socio-economic indicators. Diagnostic statistics were used to inform the decision about which independent variables to retain and which to discard. This involved applying Variance Inflation Factor statistics to test for multicollinearity between the dependent and independent variables, and correlation coefficient matrices to identify the relationships between independent variables. The regression analysis was used to measure how combinations of variables influence migration. The multiple regression equation is expressed as:

$$Y_i = (b_0 + b_1X_{1i} + b_2X_{2i} + \cdots + b_nX_{ni}) + \varepsilon_i.$$

The dependent variable (net migration) is denoted as Y and the predicator (independent variables, intended to capture area socio-economic context) is X. Each predicator has a regression coefficient b_i associated with it, and b_0 is the value of the outcome when all predicators are 0. In other words, the purpose of the regression was to assess the degree to which a range of socio-economic variables across NUTS 3 regions predict corresponding variations in levels of net migration.

In order to normalize the distribution of the dependent variable to allow the data to be subjected to multiple regression analysis, a net migration index was constructed,

expressed as:

$$\mathrm{MI} = \frac{(\mathrm{X}_{ij} - \min \mathrm{X}_i)}{(\max \mathrm{X}_i - \min \mathrm{X}_i)},$$

where MI is the level of net migration from the *i*th variable for NUTS 3 region *j*, X_{ij} is the value of the *i*th variable in the index for NUTS 3 region *j*, and Max and Min represent the extremes of the data range.

The third stage of the analysis involved cross-tabulation of two typologies which were used to help unpack trends in net migration and the roles played by different areas in the redistribution of the population. The first typology used was the European Commission's urban–rural typology (European Commission, 2010). The typology was developed based on the methodology used to classify regions by the OECD as part of their periodic regional economic analysis (see OECD, 2008). The EU typology classifies NUTS 3 areas into five categories: predominantly urban regions; intermediate rural regions, close to a city; intermediate rural, remote regions; predominantly rural regions, close to a city; and predominantly rural, remote regions. Categories are determined on the basis of population density (the percentage of a region's administrative units with fewer than 150 inhabitants per km^2), and a subsequent series of adjustments intended to take account of the variable size of the jurisdictions that comprise regions and their proximity to (or remoteness from) a city (the full sequence of steps involved in classifying regions is detailed in European Commission, 2010).

The second typology, which captures trends in migration, classifies NUTS 3 areas using the residual values derived from the regression model developed in stage 2. By using the residuals—the difference between the actual level of net migration and that predicted by the model—it is possible to identify NUTS 3 areas where net migration is over- or under-predicted, and which differ from levels that might be expected given underlying socio-economic characteristics. By calculating the standard deviation, each NUTS 3 area was allocated to one of six groups based on its residual value. Six categories were identified:

- high net gain areas (>1.5 standard deviations);
- gaining areas (0.50–1.5 standard deviations);
- tipping areas (−0.50 to 0.50 standard deviations);
- losing areas (−1.50 to 0.50 standard deviations); and
- high net loss areas (<1.5 standard deviations)

Results: Tracking and Explaining Uneven Patterns of Net Migration

Net Migration Patterns

The patterning of net migration across the EU is shown in Figure 2. Over the course of the period 2001–2006, there is evidence of relatively large gains in southern France and north-east Spain and north Italy, linked to urban economic growth in cities like Barcelona and Parma and their regions. The period for which data are available also coincides with sustained economic growth in Ireland and across parts of the UK, again reflected in concentrations of immigration in places such as Dublin and London and their surrounding

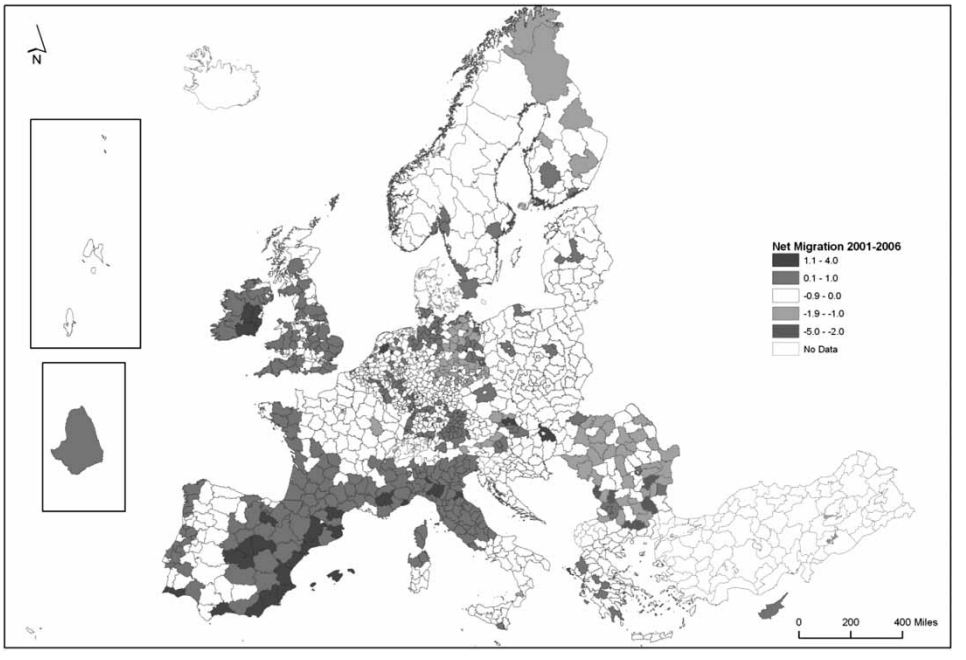

Figure 2. Net migration rate, 2001–2006.

regions. In some cases—notably Greater London—further net immigration represented a continuation of established trends, linked to longer-term economic growth.

For other areas, however, net growth in migrant numbers reflected a dramatic turnaround, as some cities and regions historically associated with out-migration or population stability began to witness significant growth. On the Mediterranean coast, for example, this reflected a combination of interrelated factors such as retirement migration, the raised economic prospects of the tourism sector in coastal areas, the ongoing integration of the European economy in the aftermath of the launch of the Euro and the subsequent eastward expansion of the EU. These factors—augmented by the more general growth in international migration beyond the EU's borders—helped transform some southern European cities from donor to recipient areas, thereby reversing long-term fortunes (Arango & Finotelli, 2009).

Net out-migration, by way of contrast, is most significant as a proportion of population across Eastern Europe and the east of Germany, particularly in remote rural areas. Limited job prospects in these more sparsely populated areas are the key push factor explaining net out-migration. However, there is a clear contrast here between the net loss of migrant population in evidence in more rural areas, and the growth characteristic of core cities such as Berlin, Prague, Poznan, Warsaw and Budapest and their surrounding city-regional hinterlands.

Development Context and Net Migration

The multiple regression model was developed with the aim of understanding the relationship between net migration and the development context (De Haas, 2008). Two

Table 2. Multiple regression results

Variable	Std. *B*	Exp(*b*)
GDP	−0.02	0.43
Density Change	0.69	0.00
DEPENDrat	0.13	0.00
ECOACT	0.05	0.05
TERTED	0.06	0.00
EMPPRI	−0.02	0.40
EMPTERT05	0.02	0.28
NATINC0105	−0.22	0.00
POP_0-14Change	0.10	0.00
POP_15-64Change	−0.13	0.00
UNEMPRATE	−0.01	0.75
GDPCHA	0.21	0.00
EMPM1664	0.23	0.00
EMPF1664	−0.24	0.00
Adjusted R^2	0.62	

Note: Table 1 lists variable definitions and data sources in full.

indicators—GDP for 2006 and GDP change for the period 1995–2006—were used as proxy measures of the macro development context (see Lin, 2003). The other 12 indicators were retained as proxy measures of the local development context. Table 2 captures the underlying statistics, including the coefficient and significance values, for each of the contextual indicators. The adjusted R^2 of 0.62 indicates that the independent variables in combination explain 62% of the variation in net migration.

The model suggests that increases in net migration are associated, as would be expected in most cases, with increases in population density: cities and their surrounding regions are popular destinations for migrants (Fielding, 1992). Analysis of actual trends in population density reveals that Ireland, particularly the areas around Dublin, together with London and southern England, Madrid and surrounding areas, northern Italy, large swathes of southern Spain and the Berlin-Brandenburg metropolitan area have all experienced comparatively high increases in population density. At the same time, population densities were found to be increasing in regions around some major cities in Eastern Europe, including the Central Bohemia area around Prague, Pécs near Budapest and the IIfov area around Bucharest.

Equally, increases in net migration are also related to a range of additional demographic shifts, including positive trends related to dependent populations (children and the elderly) and changes in population aged 0–14. Plane and Jurjevich (2009) note that migration patterns are age dependent, and that families with young children and elderly populations tend to gravitate to metropolitan fringe or suburban areas for quality of life reasons. According to the life-course model, migration levels are high in infancy and childhood and increase during retirement (Plane & Jurjevich, 2009). Analysis of the dependency ratio reveals high shares of population aged 0–14 and over 65 years across the UK and Ireland, northern France, Eastern Europe and the Netherlands. For the UK, Ireland and northern France, the highest concentrations of dependent age groups are found in NUTS 3 areas surrounding major cities (e.g. Dublin, London and Paris). In parts of Eastern Europe, this trend is even more pronounced. The lowest concentrations are found in northern Italy, northern Spain and East Germany.

The model also suggests that relatively high levels of net migration are related to labour market opportunities linked to the regulation of wider local economies (which Raghuram (2004) and others argue exerts a powerful influence on the engagement of males and females in the labour market). Raised levels of economic activity, high employment rates amongst males of working age, change in GDP and engagement in tertiary education were all found to be significant positive influences on migration (see Jennissen, 2003). The fact that net migration is negatively associated with changes in the working-age population would seem to reinforce the importance of economic factors in explaining the spatial redistribution of labour supply (see Morrison & Clark, 2011).

The analysis of individual indicators confirms that NUTS 3 areas with the highest levels of GDP per capita and economic activity are concentrated predominately around Europe's major cities (e.g. London, Brussels, Amsterdam and Paris) and across areas of former EU-15 countries (e.g. north Italy, west Austria and southern England). There are, of course, a number of acknowledged difficulties in interpreting sub-national GDP data, especially at more disaggregated scales. A number of these relate to the need for spatial units that are large enough to approximate to a real, functional regional economy, and which can therefore take account of commuting flows (see OECD, 2005, p. 124, for example, for an exposition of the consequences of variable regional delimitation for the interpretation of interregional disparities in GDP). With this caveat in mind, it is nonetheless evident that—reflecting their relatively low starting baseline positions—it is eastern European cities (such as Budapest) and their regions that have experienced the most pronounced annual average increases in GDP. The same applies, to a lesser degree, to large parts of Spain (e.g. Madrid) and Ireland (e.g. Dublin), although the data predate the onset of macroeconomic decline in the aftermath of the financial crisis of 2007–2008, which impacted with particular severity on the two countries.

Likewise, high concentrations of male employment are found across the UK and Ireland, northern and eastern Spain, Portugal, the Netherlands, southern and north-west Germany, Austria and parts of northern Italy. Given that cities have long sought to attract skilled migrants, it is not surprising to find that engagement in tertiary education was an important influence on net migration (see Jennissen, 2003). As expected, the analysis reveals high concentrations of engagement in tertiary education in the regions containing university towns and cities such as London, Madrid, Barcelona, Rome, Paris, Warsaw, Budapest-Pécs and Sofia.

Overall, the analysis illustrates that, in broad terms, western European areas exhibit comparatively strong economic and labour market performance and are characterized by relatively high levels of net in-migration. The analysis also suggests that although migration patterns in general reflect corresponding patterns of suburbanization, they are also indicative of the continued attractiveness of many larger cities for migrants. The question that this raises is how this relationship varies across different types of (urban) areas, an issue to which the next section now turns.

Area Types and Net Migration

The final part of the analysis draws on the two typologies to unpack trends in net migration and the role of urban areas in redistributing the population. The cross-tabulation of the urban–rural classification (Figure 3) with the categorization of places by the regression

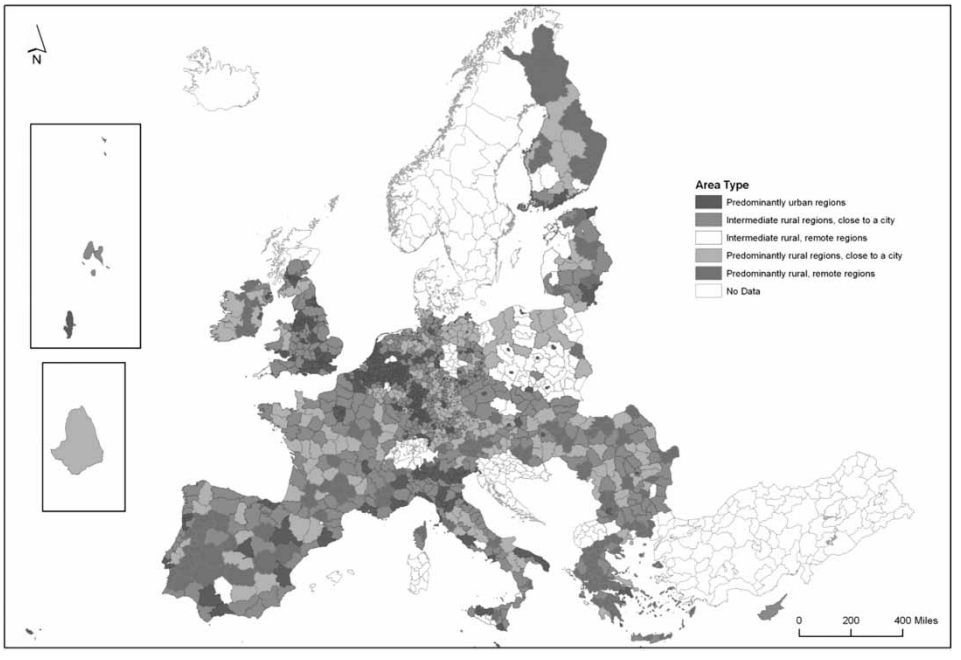

Figure 3. EU urban–rural classification.

residuals (Figure 4) reveals a complex relationship between area type and net migration (Tables 3 and 4).

Figure 4 shows the migration typology, based on residuals from the regression model; the darkest shading relates to areas in which actual net migration levels are higher than predicted by the independent variables; the next darkest areas are those where actual levels of migration are lower than predicted by the model. It should be noted here that this is not simply a map of variable levels of net migration. Indeed, some of the outliers may have relatively low or high actual levels of migration; the point is that these observed levels differ from those that are predicted by the model. Using this logic, even areas experiencing net out-migration may be viewed as performing well in that underpinning socio-economic conditions imply migratory losses that might be expected to be greater.

Similarly, some areas of net migratory gain may be seen as underperforming in that their social and economic characteristics are more commonly associated with higher levels of in-migration and/or lower levels of out-migration. Analysis of residuals therefore enables us to pinpoint cities and regions that depart from the standard relationship between socio-economic circumstances and patterns of migration.

For some cities and regions, the regression model provides a good predictor of actual levels of net migrant growth (as with Torino or Dresden, for instance) or decline (for example, Duisburg or Greater Manchester North). But whilst the model overall explains a good proportion of the variance in the relative index of net migration, what are perhaps more instructive are the outliers from this general pattern: the cities and regions where actual migration (as measured through the index of relative change) diverges most strikingly from levels predicted on the basis of local economic circumstances.

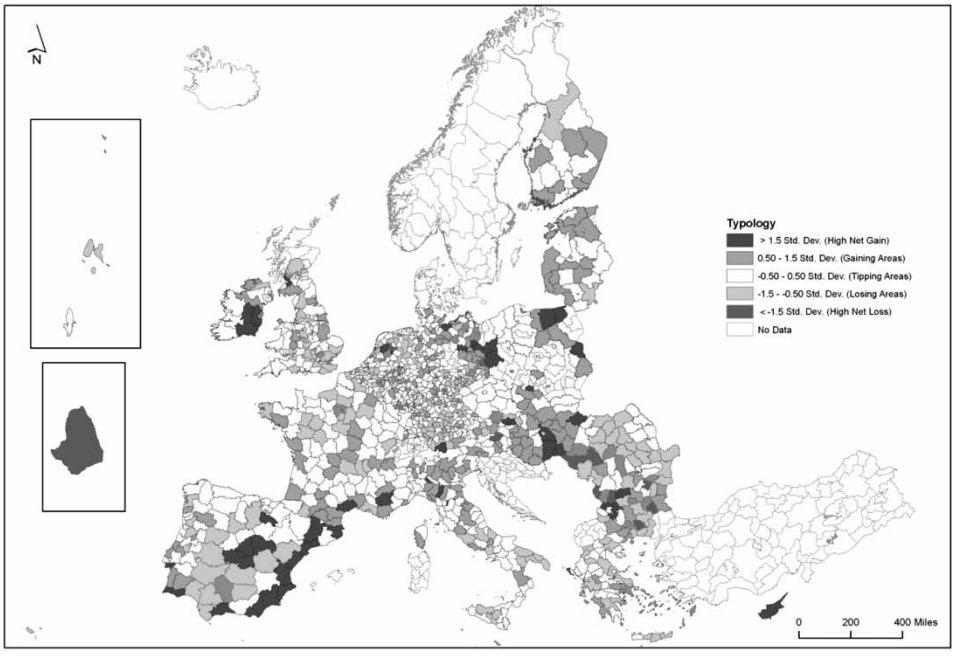

Figure 4. Net migration typology.

Table 3. Top 10 cities most under- and over-predicted by the multiple regression model

Rank	City	Country
Top 10 cities: actual net migration higher than predicted		
1	Potsdam	Germany
2	West Inner London	UK
3	Madrid	Spain
4	Rybnicki	Poland
5	Rostock	Germany
6	Vienna	Austria
7	Valencia	Spain
8	Prato	Italy
9	Leipzig	Germany
10	Mönchengladbach	Germany
Top 10 cities: actual net migration lower than predicted		
1	Delft	Netherlands
2	Frankfurt (Oder), Kreisfreie Stadt	Germany
3	Bucharest	Romania
4	Dublin	Ireland
5	Paris	France
6	Belfast	UK
7	Gera	Germany
8	Athens	Greece
9	Neubrandenburg	Germany
10	Schweinfurt	Germany

Table 4. Examples of observed and predicted net migration relationships

High net in-migration and positive residuals	*Low net migration, but positive residuals*
This category shows places with high actual net in-migration levels and high residuals	This category shows places with low actual net in-migration levels, but high residuals
Madrid (Spain)	Rybnicki (Poland)
West Inner London (UK)	Liverpool (UK)
Vienna (Austria)	Cottbus (Germany)
High net migration, but negative residuals	*Low net migration and negative residuals*
This category shows places with high actual percentages of net in-migrants, but negative residuals	This category shows places low actual net in-migration levels and low residuals
Portsmouth (UK)	Bucharest (Romania)
Zaragoza (Spain)	Riga (Latvia)
Livorno (Italy)	Belfast (UK)

Table 3 lists the most extreme outliers from the regression model: the 10 NUTS 3 areas most over- and under-predicted. What is striking about the residuals is that a number of the areas in which net migration is lower than predicted by the model are those in more affluent, traditional destination regions: for example, in dynamic urban economies or prosperous capital cities like Dublin or Paris and their regions. Some of these places (Oxford or Lecce, for instance) have even experienced net in-migration; the point here is that immigration levels might have been expected to be even higher in light of underlying socio-economic conditions. The reverse is true of some areas that have experienced net out-migration. Some of the areas in which migration is higher than expected are less affluent regions that have tended historically to fulfil a donor role.

Table 4 looks more closely at the relationship between actual and predicted levels of net migration. Drawing on a few examples, it is possible to identify cities and regions that exhibit observable contrasts between their actual levels of net migration and those predicted by the model. Madrid, West Inner London and Vienna, for example, have high levels of net in-migration that substantially exceed those predicted on the basis of the strength of their economies. In this sense, these can be deemed areas which have over-performed in terms of attracting migrants.

In contrast, other administrative capitals like Paris experienced net out-migration—on a far greater scale than predicted by the regression model. The explanation here could be associated with a host of potential agglomerative diseconomies, such as lack of affordable housing or high cost of living (see, for example, Launay, 2010). Support for this contention is provided by analysis of NUTS 3 areas surrounding Paris, which shows that some areas—Val-de-Marne, Seine-Saint-Denis and Hauts-de-Seine—had higher net-migration levels than predicted by the model, reflecting their appeal to residents deterred by the difficulties confronting migrants in accessing the pressurized urban core of Paris. For Dublin, too, even though the city (unlike Paris) experienced net in-migration, the observed levels were lower than predicted by wider economic conditions, again implying that scale diseconomies associated with rapid economic growth act as a blockage to potential migrants (see, for example, Norris & Winston, 2011). A degree of caution

has to be exercised in drawing inferences from the data for both Paris and Dublin, since out-migration from the core cities to surrounding areas beyond their respective NUTS 3 regions could reflect the artificially parsimonious way in which boundaries have been delimited—and therefore viewed as a redistribution of population within a functional city-region rather than a more deleterious exodus of residents. Notwithstanding the absence of richer migrant origin and destination data to enable a clearer picture of this kind of resident relocation, the issue here is that there are prosperous cities where suppressed levels of in-migration could conceivably act as a brake on further economic growth (or the avoidance of future economic decline) in the core cities if not also in their surrounding areas.

Other areas also echo this complex, variable relationship between migration and economic circumstances. For Cottbus and Chemnitz in eastern Germany, net out-migration as a proportion of total population has been on a similar scale. On first inspection, both appear to epitomize the "shrinking cities" archetype in which out-migration (and a failure to attract new in-migrants as compensation) is a phenomenon accompanying wider economic malaise. Viewed in the context of their respective economic bases, however, the two have actually had rather more divergent fortunes. Whereas Chemnitz has been a net exporter of migrants to a much greater degree than expected by the regression model, net out-migration levels in Cottbus have been lower than predicted given its economic base. For these places, then, looking beyond crude net out-migration levels suggests a rather more complex pattern than straightforward counter-urbanization, and that the shrinking city phenomenon is not as clear-cut as sometimes implied (see, for example, Bontje, 2004; Rieniets, 2009).

Extending the analysis further, Table 5 captures the percentage of each area-type (urban–rural categories) in relation to each net-migration category (from the migration typology, based on residuals from the regression model). In this table, each column should be read individually. The analysis suggests that in comparative terms, the NUTS

Table 5. Cross-tabulation: urban–rural category by net-migration category (in %)

	Urban–rural class				
	Predominantly urban regions	Intermediate rural regions, close to a city	Intermediate rural, remote regions	Predominantly rural regions, close to a city	Predominantly rural, remote regions
Net migration class					
High net gain areas	1.0	1.5	0.0	0.9	1.7
Gaining areas	3.5	2.7	11.1	2.8	5.0
Tipping areas	20.5	22.4	22.2	17.5	22.5
Losing areas	51.9	50.5	27.8	49.1	43.3
High net loss areas	23.2	22.9	38.9	29.7	27.5
Total	100.0	100.0	100.0	100.0	100.0

Notes: (1) The totals do not equal 100% exactly in each column due to the effects of rounding. (2) Only those NUTS3 regions that were included in the area typology and net-migration classification were included in this analysis.

3 areas classified as predominantly urban regions feature throughout all of the net migration categories. Of all areas defined as being predominantly urban regions, 1% were high net gain areas; 3.5% were gaining areas; 20.5% were tipping areas; 52% were losing areas; and 23.2% were high net loss areas.

Table 5 suggests something of a contrast between those categories of area close to a city (predominantly urban areas, and intermediate and predominantly rural areas close to a city) and more remote areas. Whereas high net migrant loss areas account for between 22.9% and 29.7% of places in the first category (which might be taken as broadly approximating to the functional city-region), the corresponding figures for intermediate remote and rural remote areas are 38.9% and 27.5%, respectively. This provides some evidence that the most acute net migratory losses have been associated more with remote areas than those close to a city. This is reinforced by the percentages for "losing areas", which are higher in the more urbanized regions or in their immediate surroundings. The suggestion here is that although both urban and remote areas are prone to net out-migration, the scale of decline tends to be more marked in the latter.

If the net migration and area-type categories are cross-tabulated, the dynamic nature of the predominantly urban region category becomes even more apparent. Table 6 captures the percentage of each net migration category in relation to each area-type. In the table, each row should be read individually.

Those areas defined as predominantly urban feature heavily throughout all of the net migration categories, from high net gaining areas to high net loss areas. Of all high net gain areas, 29% were predominantly urban. Similarly of all gaining areas, 36% were in the predominantly urban category. The same effect is also evident in the tipping area category (34%), the losing areas (36%) and the high net loss areas (32%). When combined with intermediate rural regions close to a city—which are likely to have become commuting hinterlands for cities as a result of suburbanization—the trends in net migration become even starker. Combined, predominantly urban regions and intermediate

Table 6. Cross-tabulation: net migration across urban–rural categories (in %)

	Urban–rural class					
	Predominantly urban regions	Intermediate rural regions, close to a city	Intermediate rural, remote regions	Predominantly rural regions, close to a city	Predominantly rural, remote regions	Total*
Net migration class						
High net gain areas	28.6	42.9	0.0	14.3	14.3	100
Gaining areas	35.9	28.2	5.1	15.4	15.4	100
Tipping areas	34.2	37.9	1.6	15.2	11.1	100
Losing areas	36.3	35.8	0.9	18.0	9.0	100
High net loss areas	32.3	32.3	2.4	21.6	11.3	100

Notes: (1) The totals do not equal 100% exactly in each column due to the effects of rounding. (2) Only those NUTS3 regions that were included in the area typology and net-migration classification were included in this analysis.

rural regions close to a city make up 71% of areas defined as high net gain areas; 64% of gaining areas; 72% of tipping areas; 72% of losing areas and; 65% of high net loss areas.

When the area-classification is combined with an analysis of the degree of prediction captured by the regression model (Table 7), it is apparent that 53% of areas had their migration trends over-predicted by the regression model, compared to 47% which were under-predicted. The analysis reveals that the regression model had a greater degree of over-prediction of net migration levels in two of the categories (predominantly urban regions, and intermediate rural regions close to a city), but a greater degree of under-prediction in the other three categories. The analysis illustrates that both over- and under-prediction is clustered in the predominantly urban regions, and intermediate rural regions close to a city, to a much greater extent than is the case in the intermediate or predominantly remote rural region categories. This reflects the more dynamic (and on occasion volatile) nature of socio-demographic change in urban areas, linked in part to the important role cities and their surrounds play in facilitating or hindering socio-spatial mobility in Europe.

What is clear from the analysis of the net migration and urban–rural typologies is that cities and their surrounding catchments face diverse challenges in addressing migration-based effects. By understanding the composition of different area-types according to their net migration trends (Table 5) and the distribution of net-migration trends across different area types (Tables 6 and 7), the complex scenarios facing policy-makers in addressing the effects of migration become even more apparent. In particular, it is evident from the regression analysis that positive trends in net migration are related to labour market opportunities linked to the strength of wider local economies. In contrast, net migration is negatively associated with changes in the working-age population, a phenomenon that reinforces the centrality of economic factors in explaining the spatial redistribution of labour supply. The analysis demonstrates that western European areas feature more prominently as instances of comparatively strong economic performance, and as areas of net in-migration.

These insights are further strengthened through the ranking of the top 10 over- and under-predicted cities and regions through the regression model. The analysis of observed and predicted trends in net migration along with the cross-tabulation of urban and rural categories with the net-migration typology demonstrates that many cities and regions do not perform in terms of migration in ways that are predicted based on their socio-economic

Table 7. Cross-tabulation: urban–rural categories and predicted net migration (in %)

	Predominantly urban regions	Intermediate rural regions, close to a city	Intermediate rural, remote regions	Predominantly rural regions, close to a city	Predominantly rural, remote regions	Prediction level totals
Prediction level						
Over-predicted	18.6	21.1	0.7	8.0	4.4	52.8
Under-predicted	16.1	14.1	0.9	10.2	5.9	47.2
Area–type totals	34.8	35.2	1.5	18.2	10.3	100.0

profile. Cities and regions with similar socio-economic profiles can have dramatically different experiences of migration. Understanding local context is vitally important when trying to identify the redistributive role of a particular city within the wider European city network.

Conclusion

This paper has attempted to advance the understanding of the experiences of cities and regions in Europe in respect of net migration, building on two principal stimuli. First, European policy debates around migration have tended to focus on macro-level analyses that often overlook the nuances of migration patterns and impacts at sub-national levels (see, for example, Galgóczi *et al*., 2009). Second, European migration policy, in tandem with wider sociocultural and economic changes, has given rise to fundamental shifts in the way that people move within and around Europe. These policy processes have significant socio-spatial implications, yet the evidence-bases underpinning policy debates about migration and spatial development are relatively limited. Beginning to understand the uneven spatial patterning of migration in Europe, the role played by different types of cities and regions in influencing the geography of migration and the factors that help to explain the disparate experience of migration across cities (and other types of areas) is therefore important in contributing to debates in and around the European territorial policy agenda.

The contribution of this paper relates to the analysis structured around three research questions. The first sought to analyse trends in migration and to understand which local development factors affect migration patterns. Analysis of net migration for the period 2001–2006—the most recent for which data are available across Europe—showed relatively large gains in urban areas in southern France and north-east Spain and north Italy. This period also coincided with sustained economic growth in Ireland and across parts of the UK, reflected in concentrations of immigration in the regions containing cities such as Dublin and London. In some cases—notably London—further net immigration represented a continuation of established trends, linked to longer-term economic growth. For other areas, however, net growth in migrant numbers reflected a dramatic turnaround, as some cities and regions historically associated with net out-migration or low levels of population growth (such as the Mediterranean coast) began to witness significant increases. By contrast, the analysis revealed that net out-migration is most significant as a proportion of population across Eastern Europe and the east of Germany, particularly in remote rural areas. However, net loss of migrant population in these more rural areas stands in contrast to the growth evident in urban areas like Berlin, Budapest, Poznan, Prague or Warsaw and in their surrounding regions.

These variable experiences of net migration can be better understood with reference to the second issue explored in the paper: the extent to which local socio-economic factors explain variations in net migration. Multiple regression analysis found that increases in net migration were associated with high relative levels of economic development: raised levels of economic activity, high employment rates amongst males of working age and high levels of participation in tertiary education. For some cities and regions, the model provides a good predictor of actual levels of net migrant growth (as with Torino or Dresden, for instance) or decline (for example, Duisburg or Greater Manchester North). But whilst the model overall explains a good proportion of the variance in net migration, the analysis illustrated the potential benefits of identifying outliers from this

general pattern: cities and regions in which actual migration diverges most strikingly from levels predicted on the basis of local economic circumstances.

This analysis indicated that whilst cities comprise a higher-than-expected proportion of those places in which in-migration levels are greater than predicted by urban socio-economic context, urban areas are also represented to a disproportionate extent amongst those areas where net loss of population as a result of migration is greater than implied by underlying economic and social conditions. The experience of cities, in this respect, is polarized; urban areas feature prominently amongst the best and worst performing areas in respect of net in-migration. The implication here is that although migration represents an important opportunity (and one that is already being harnessed to a striking degree) for some cities and regions, for others it continues to represent something of a threat. Population loss, as part of a wider trend of counter-urbanization, remains a characteristic associated with a number of European cities.

The third question sought to analyse the roles played by different cities and regions in redistributing population across Europe. This involved the cross-tabulation of two typologies—a migration-based typology developed on the basis of residual values from the regression model, and the official 2008 EU urban–rural typology. The analysis revealed that a number of the cities in which net migration is lower than predicted by the model are those in more affluent, traditional destination regions. These included dynamic urban economies or prosperous capital cities like Dublin, where observed levels of net in-migration were lower than predicted by wider economic conditions. Follow-up research might usefully explore the degree to which lower-than-expected volumes of immigration in such areas reflect scale diseconomies associated with rapid economic development—not least since it is conceivable that the latter could constrain future growth prospects. For other cities and regions too, there was evidence that relatively buoyant economic circumstances are not reflected in correspondingly high levels of net in-migration. Paris, for example, experienced net out-migration on a far greater scale than predicted by the regression model. Here again there may be potential explanations—a lack of affordable housing or high cost of living, for example, resulting in migrants gravitating towards surrounding suburban areas—which could form the basis for future research. The same is true, conversely, of urban areas such as Madrid, West Inner London and Vienna, where high levels of net in-migration in excess of those predicted by the regression model may also merit further investigation around potential explanatory factors.

Other cities and regions also echoed this complex, variable relationship between migration and local context. For Cottbus and Chemnitz in eastern Germany, for instance, net out-migration, as a proportion of total population, in both was at similar levels. Viewed in the context of their respective economic bases, however, the two have experienced divergent fortunes. Whereas Chemnitz has been a net exporter of migrants to a much greater degree than expected by the regression model, net out-migration levels in Cottbus have been lower than predicted given its economic base. The experience of these areas suggests that the "shrinking city" phenomenon may not be as clear-cut as sometimes implied (Pallagst, 2010).

The cross-tabulation of the two typologies suggested that urban areas are more likely than other types of areas to have net in-migration levels which exceed those expected on the strength of their socio-economic characteristics. That net in-migration volumes are relatively high may be unsurprising for cities and regions with flourishing economies and unmet demand for labour. But higher-than-predicted in-migration is also a character-

istic of areas whose economic fortunes may be less auspicious: an analysis of the relationship between urban socio-economic context and levels of net in-migration revealed areas where migrants comprised a larger fraction of population than might be expected. For these types of cities, there are arguments that relatively suppressed demand for labour may militate against migrant socio-economic advancement to a greater extent than is the case for more prosperous urban economic contexts. This is important because it has long been accepted that cities and their regions play a key role as receptors of new migrants, providing in some cases an environment which acts as a springboard in terms of the social and economic advancement of generations of migrants (see, for example, Fielding, 1992). This confluence of social and spatial aspects of migration—with migrant horizontal or geographical moves to urban areas allied to upward vertical or socio-economic advances—has long been central to arguments about the benefits of migration to cities and their regions.

The data on which the analysis presented in this paper is based relate to a narrow time period, which pre-dates the macroeconomic instability that emerged after the onset of the financial crisis of 2007–2008. As French *et al*. (2009) demonstrate, the form, depth and severity of subsequent recession and recovery varied across geographical space. In respect of the geography of migration specifically, the effect of macroeconomic upheaval, as Fix *et al*. (2009) note, may have been to suppress flows of migrants to the major receptor cities and regions, but also to limit the scope for migrants to respond to straitened economic circumstances in their adopted cities and regions by returning to their areas of origin. Release of future net migration data will enable finer grained assessment of the extent to which this pattern is repeated across cities and regions over successive years. This is important because the analysis presented in this paper suggests significant variability in city performance in respect of net migration, which may or may not be repeated in the subsequent period.

The variable relative experiences of different cities and regions suggest that developing bespoke, rather than blanket, policy intervention is necessary as cities respond to changing migration patterns and social and economic contexts. The challenge for the European territorial cohesion agenda lies in it capturing the positive social and economic gains of migration whilst at the same time addressing the negative consequences of migration such as social exclusion and the weakening of social solidarity. However, because of subsidiarity, the EU has no specific competence for urban affairs (Atkinson, 2001; Dühr *et al*., 2010). The future urban agenda at the European level remains uncertain, but the "urban dimension" is likely to continue to feature heavily in territorial cohesion and emerging programmes in the near future (European Commission, 2011). However, fiscal conservatism and the austerity drives that have been evident in many member states since the onset of the 2007–2008 global financial crisis have eroded specific urban policy initiatives operating at national levels (Deas, 2013). In light of this, EU territorial cohesion policy is likely to face significant challenges in terms of its capacity to respond to urban and regional migration processes and to the contextual drivers and outcomes of migration at least in the short-to-medium term.

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