Social and geographical mobility of migrants in European cities

Final Report
for EUROCITIES

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E.1.2 This report outlines the results of research aimed at understanding more fully the roles played by different cities in Europe in redistributing population across geographical space. In doing so, the report presents the results of a review of existing literature on migration and spatial mobility, and analyses current migration data in order to develop a typology of European cities. The focus of the research in this report is on horizontal, rather than vertical, aspects of mobility: on movements of people as they migrate to and from different cities, regions and countries.

E.1.3 In seeking to understand the uneven nature of migration to and from different cities, the research involved a European wide analysis of socio-economic, geographical mobility and migration indicators. This involved modelling the relationship between net migration over the period 2001-06 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 urban-rural typology.

E.2 Key findings

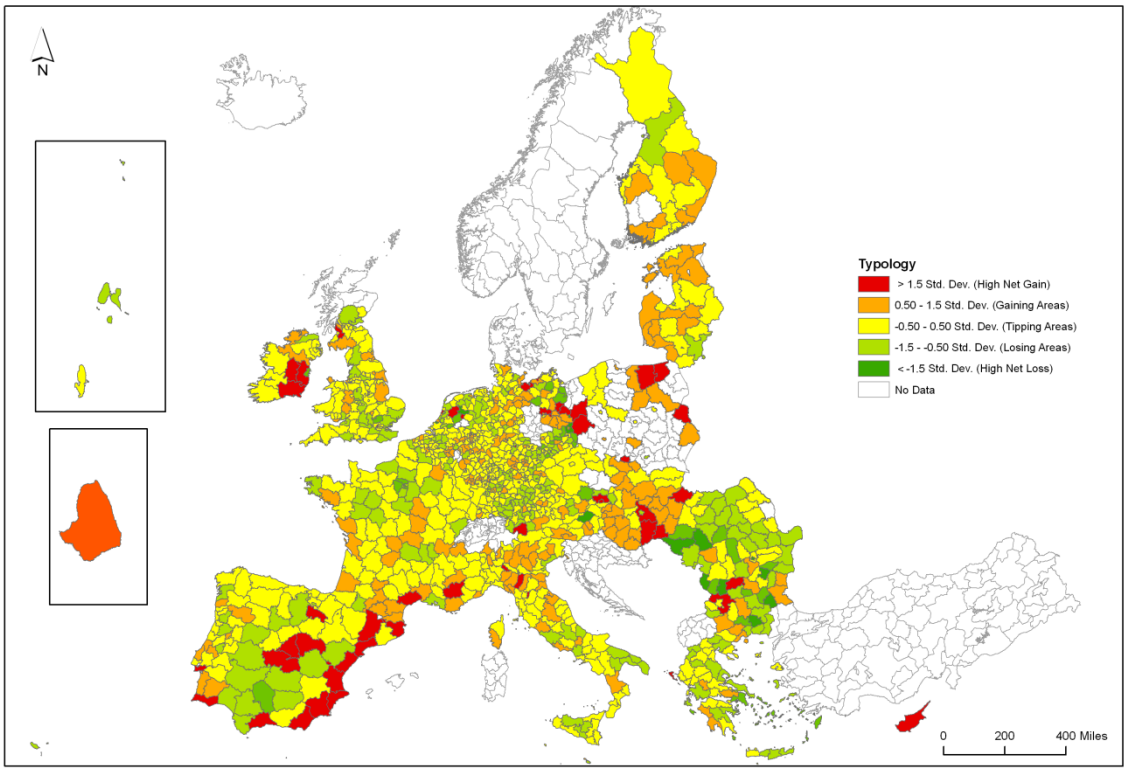
E.2.1 Analysis of net migration for the period 2001-06 – the most recent for which data are available – shows relatively large gains in urban areas southern France and north-east Spain and north Italy. This period also coincided with sustained economic growth in Ireland and across parts of the UK, reflected in concentrations of immigration in 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 migrant exodus or low levels of population growth (such as the Mediterranean coast) began to witness significant increases.

E.2.2 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.

E.2.3 Statistical modelling confirms that increases in net migration are 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.

E.2.4 Figure E.1 maps a migration typology developed on the basis of residuals from a regression model. Areas shown in red are those in which actual net migration levels are higher than predicted by the model; areas in green are those where actual levels of migration are lower than expected. This allows us to identify cities that depart from the standard relationship between economic circumstances and patterns of migration: areas in which net migration is higher or lower than might be expected in light of their underlying socio-economic characteristics.

Figure E.1: Net Migration Typology



E.2.5 For some cities, our 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 while the model overall explains a good proportion of the variance in net migration, also of note are the outliers from this general pattern: the cities where actual migration diverges most strikingly from levels predicted on the basis of local economic circumstances.

E.2.6 A number of the cities in which net migration is lower than predicted by the model are those in more affluent, traditional 'destination' regions. This includes dynamic urban economies or prosperous capital cities like Dublin, where observed levels of net in-migration were lower than predicted by wider economic conditions. Lower than expected volumes of immigration in such cities could reflect scale diseconomies associated with rapid economic growth, conceivably acting as a brake on future economic growth. For other cities too, there is evidence that relatively buoyant

economic circumstances are not reflected in correspondingly high level of net in-migration. Paris, for example, experienced net out-migration on a far greater scale than predicted by our regression model. The explanation here could be associated with a lack of affordable housing or high cost of living, resulting in migrants gravitating towards surrounding suburban areas.

E.2.7 By contrast, cities such as Madrid, West Inner London and Vienna 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 cities which have 'over performed' in terms of attracting migrants.

E.2.8 Other cities also echo this complex, variable relationship between migration and local economic circumstances. For the cities of Cottbus and Chemnitz in eastern Germany, for instance, net out-migration as a proportion of total population has been on a similar scale. 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. The experience of these cities suggests that the 'shrinking city' phenomenon may not be as clear-cut as sometimes implied.

E.3 Implications

E.3.1 Overall, the analysis highlights a number of key messages.

E.3.2 *Cities play a critical but variable role in relation to migration*: analysis of migration data suggests that urban areas are more likely than other categories of area to be associated with net in-migration volumes which exceed levels that might be expected given their socio-economic characteristics. That net in-migration volumes are relatively high may be unsurprising for cities with flourishing economies and unmet demand for labour. But higher than predicted in-migration is also a characteristic, our research suggests, of cities whose economic fortunes may be less auspicious: analysis of the relationship between urban socio-economic context and levels of net in-migration reveals areas where growth in migrant numbers is greater than expected. For these types of city, 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, where economic opportunities are more in evidence. There may be messages here about the need for tailored policy intervention to help support migrants in cities with higher than expected levels of migration, but which lack the kinds of economic opportunity to enable upward social mobility.

E.3.3 *The disparate nature of migration to cities*: while our analysis suggests that cities comprise a disproportionate fraction of those places in which in-migration levels are greater than predicted by urban socio-economic context, the research also implies that urban areas are over-represented amongst those places where net loss of population as a result of migration is higher than expected. The implication here is that although migration represents an important opportunity (and one that is already being harnessed) for some cities, for others it represents a significant threat. Population loss, as a part of a wider trend of counter-urbanisation, remains a characteristic associated with some cities in Europe.

E.3.4 *Distinguishing between different migratory flows*: recent policies on migration have tended increasingly to emphasise the attraction of skilled workers as a motor for

economic growth. This contrasts with earlier waves of migration, dominated by predominantly low skilled workers. The challenge for European cities is therefore to encourage more of the first type of migration (in competition with other countries), while improving the fortunes of the poorer migrants who dominate the second type. An overly exclusive focus on attracting skilled workers risks ignoring the plight of poorer migrants, and failing to capitalise upon their longer-term economic potential. Given greatly enhanced levels of individual mobility, and the likelihood that displaced populations will continue to seek refuge in European cities whatever preventative barriers are put in place, it is important that urban economic policy is alive to the needs and potentials of poorer immigrants.

E.3.5 *Giving cities more of a say in determining national migration policy:* control over immigration policy is largely the province of the national state, but our literature review suggests a recent and growing interest in a vertical reorganisation of responsibility for the management of migration. There may be a need for cities to target specific categories of migrants more effectively, particularly in the context of highly qualified migrants, and to gain influence over immigration policies, rather than remaining as passive recipients of policy applied at national and supra-national scale.

E.3.6 *Diversifying city economic development strategies*: there is merit in emphasising supply-side measures for cities with already buoyant economies in which labour shortages are a constraint on future growth. However, less propitious economic circumstances in some cities ought to mean greater emphasis in policy on stimulating demand, through support for firms in key sectors in the form of grants and loans, better business advice, help with external marketing or other interventions deemed appropriate to local circumstances.

E.3.7 *Ensuring the right national framework to govern inter-city and inter-regional labour mobility*: attracting skilled workers offers a relatively quick-win for cities struggling to (re)build human capital. For cities in which labour shortages are evident, a logical response may well be to harness enhanced labour mobility and attract workers from economically less buoyant cities. This, however, can have profoundly deleterious consequences on those donor cities. There may be a need, therefore, for a national framework that regulates worker spatial mobility in the interests of different types of city.

1. Introduction

1.1 Background to the research

EUROCITIES has commissioned research to review social mobility in European cities. This report explores previous research on the experiences of migrants in urban areas and assesses patterns of spatial mobility in Europe. The report summarises the results of a review of existing literature, discusses findings from analysis of migration data and suggests a typology of places based on their differing experiences of migration.

The research documented in the report follows in a long and rich tradition of efforts to assess the fortunes of migrants in major cities. Much of this has centred on three related themes. Recent research has focused, firstly, on the socio-economic circumstances of urban migrants (Breen, 2004; Ryan et al, 2008). This has included research on the experiences of migrants within the cities to which they have moved, focusing in particular on their status within labour and housing markets (Drinkwater et al, 2009), but also considering in broader terms the degree to which they have been included (or excluded) in (or from) host societies (Shubin, 2011). Some has also emphasised the disproportionately high levels of poverty which exist amongst particular groups or categories of migrant, 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 wider socio-cultural issues about assimilation and the preservation of ethnic and other identities (Vallet, 2007).

Alongside efforts to chronicle the socio-economic and socio-cultural circumstances of migrants, the second major strand of research has focused on economic issues connected to migration. Some of this has centred on migrants themselves, and at how far individually and collectively they have been able to derive economic benefit from migration (Peters, 2011).

More recent research in relation to economic dimensions of migration has tended to relate to a third theme, and to the underlying idea that both urban areas, and migrants themselves, benefit from increased social 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, it is argued, in some instances act as ‘escalators’, offering a host of important economic opportunities which can allow migrants to establish themselves and accumulate material and symbolic benefits (Price and Benton-Short, 2008). Crucially, such perspectives often view this as benefiting not only migrants themselves, but also urban economies more generally. The latter, it is argued, are said to benefit from an increased supply of labour at a general level, helping to propel new growth in declining cities, but also allowing already prosperous places to offset scale diseconomies associated with rapid development – ‘overheating’ – and thereby accommodate further growth.

The disparate nature of these issues linked to migration is also reflected in the variable form of policy intervention across Europe, and in its evolution over time (Kaneff and Pine, 2011). Attempts to combat poverty featured as an intrinsic part of the European Action Programme in the 1970s and 1980s. More recently, following the Lisbon Agenda policy has begun to place more emphasis on social cohesion, perceiving poverty reduction as important not just as an objective in its own right, but more broadly as a means of maintaining social integration and underpinning broader economic wellbeing.

Alongside efforts to address poverty, policy has also emphasised the contribution that migrants themselves make to broader economic competitiveness. Such a perspective is

most often articulated in relation to skilled migrants, for whom cities increasingly vie by developing an array of consumption services and opportunities designed in part to help attract particular types of migrant worker (Harvey 2012; Reese, 2012). There have also been efforts to develop policy to retain existing skilled workers and discourage their emigration, and to encourage European expatriates to return to their countries, regions or cities of origin. Some of these initiatives have been in response to problems associated with long-term change in demographic structures. An influx of relatively youthful migrants, it is argued, can offset ageing amongst the existing population, adding economically active workers and providing a more stable fiscal basis on which to deliver public services (see, for example, OBR, 2012).

In addition to policies at supra-national and national scales, and for individual cities and regions, to help attract and retain highly skilled migrants, European level policy has also tried to enhance geographical mobility more generally amongst existing citizens (Casas-Cortes et al., 2012). This has been linked to ongoing attempts to develop the EU as a single functional economic space, with harmonised policy arrangements across national borders in respect of areas such as competition, employment law and (more tentatively) spatial planning (Hipler 2010). It has also been designed as part of wider efforts to promote the flexibilisation of local labour markets, allowing workers to transfer more easily from areas where demand is contracting to those in which it is expanding.

The multiplicity of policies developed around worker migration and geographical mobility has also meant a series of important and unresolved contradictions. The most basic is between the many policies designed to attract migrants, on the one hand, and those intended to manage, limit or even prevent immigration, on the other hand. That the former apply more commonly to sub-national areas – cities and regions – and the latter have been developed nationally adds a further element to this dissonance.

1.2 Purpose of the research

This report draws on the major themes present in previous research, and on some of the related policy issues highlighted above. The focus of the research is on horizontal, rather than vertical, aspects of mobility: on movements of people as they migrate to and from different cities, regions and countries. The emphasis on socio-spatial (as opposed to social) mobility is partly a consequence of the limited availability of relevant quantitative data, but also – more importantly – because geographical mobility is an especially important issue for European cities, as they strive to limit the exodus of population and accommodate incoming migrants. In- and out-flows of migrants, in the context of enhanced international labour mobility, has often profound consequences for both economic competitiveness and social inclusion in European cities: two of the key priorities for EUROCITIES.

In light of this, the aim of the research is to understand more fully the roles played by different cities in Europe in redistributing population across geographical space. To meet this aim, the research reviews existing literature and analyses current migration data in order to develop a typology of migration categories for European cities.

The remainder of the report:

- provides a digest of some of the main themes covered in the existing literature on migration and geographical mobility (section 2);

- summarises the results of analysis of data on recent migration trends across Europe, (section 3);

- discusses the findings and the potential implications stemming from the research (section 4).

Appendices A and B of the report provide additional technical detail on the statistical analysis outlined in section 3.

2. Migration and European cities

2.1 The growing importance of migration for European cities

Migration has become an ever more important issue for European cities, linked to the intensification of economic globalisation, dislocation and displacement associated with conflict, and increased personal mobility related to more accessible mass transit and the shrinkage of real and perceived distance (Schmidtke 2012). Policy has sought in some instances to encourage migration, linked in the case of Europe to parallel efforts to enhance labour mobility and promote the integration of national economies within the single market. For individual cities too, there has been an increasing emphasis on capitalising upon increased numbers of migrants, and in particular attracting skilled workers (Beaverstock 2011). Equally, the growth in migration has presented significant challenges for cities, in accommodating increased inflows of migrants or offsetting (or managing) outflows of more mobile skilled workers.

Over recent decades there have been major changes in the patterns of international migration. Firstly, the absolute number of migrants has increased. In 1960 about 32 million people lived outside their country of birth; in 2000 this figure had risen to 110 million. This increase conceals significant and growing international disparities. While less developed nations saw an increase in the number of foreign-born residents from 52 million to 65 million people between 1980 and 2000, the number in developed countries – while lower in absolute terms – doubled (Clark, 2007).

Secondly, patterns of migration within developed countries have shifted. For some European countries, the period since the 1960s has seen international migrants constitute an increasing proportion of total population. Despite such changes, however, migrants in European countries continue to represent a smaller proportion of overall population than in countries, such as Australia, New Zealand or Canada, with long-established traditions of immigration (Clark, 2007). According to a report by the Global Commission on International Migration, in 2001 an estimated 56 million international migrants lived in Europe (including the European part of the former USSR)[1]. Except for those migrants working in labour intensive agriculture, the first destination for many international migrants is typically larger urban areas (Buzar et al, 2007; Champion, 1994).

2.1.1 Motivations for migration

Alongside growth in the number of migrant workers, the range of types of migration has also multiplied, reflecting a variety of different migrant motivations. Economic migrants to cities can be separated into a number of categories, based on their different motivations and roles. Eade et al (2007), on the basis of a case study of the motivations underlying emigration from Poland to London, identify four categories: *storks*, *hamsters*, *searchers* and *stayers*. *Storks* are those seeking seasonal work and who move to a particular location for temporary employment to augment their traditional income, such as farmers or students, but then return to their home location. *Hamsters* are those who move to a new location for a defined period of time in order to acquire enough capital to return to invest in their traditional location and thereby improve their social standing. *Searchers* move to a new location to increase their economic and social capital in both their destination and origin; they are highly adaptable and flexible about whether they will stay in their new location. *Stayers* are those who migrate, intend to stay in their new location and are ambitious about increasing their social mobility within the host society.

[1] It is worth noting that there are discrepancies between some of aggregate figures quoted for total numbers of migrants, reflecting ongoing definitional and enumeration difficulties which are further complication by variable international practice.

Some European countries in the 1960s and early 1970s saw large scale recruitment of low-skilled labour to occupy relatively poorly paid jobs in public services and manufacturing industry. In former colonial countries like the UK, the Netherlands, Portugal and Belgium in particular, migrants came to a large extent from the former colonies, with decolonisation according special rights to settle on a permanent basis. By contrast, countries like Germany relied on a so-called *Gastarbeiter* (guest worker) programme, with the expectation that workers would ultimately return to their country of origin (Ellermann, 2011). But with unemployment rising, this programme ended in 1973, granting existing migrants the right to stay. This, however, did not slow down international migration and economic pressures and opportunities remain key driving forces for international migration.

The range of motivations for migration is a broad one, covering not only a desire to exploit economic opportunities. Numerous other reasons inform decision-making about migration, including a desire for new and more stimulating life experiences, the wish for a normal life (as opposed to a materially better one), the goal of an improved quality of life, or the aspiration of improved opportunities for children (Burrell, 2010). Family connections also play a role in determining migration patterns as chain migration, usually associated with younger migrant workers, sees individuals from the same family or social network follow earlier moves by family members (Moskal, 2011; Ryan 2011; Price, 1963).

2.1.2 Consequences of migration

The degree to which migrants are able to fulfil their aspirations and expectations is conditioned by multiple socio-economic and socio-cultural factors (The European Social Fund, 2010). There is extensive evidence, over many years, of friction between migrants and established residents (European Commission, 2006; Kalandides and Vaiou, 2012). In cases of international immigration, this is sometimes rooted in deeply embedded socio-cultural mores – of intolerance, mistrust and xenophobia. But across many categories of migrant worker, whether of different nationality or not, there is evidence of resentment towards outsiders on the grounds of the perceived economic threat they pose to established residents and their bargaining power within local labour markets. Highly skilled and mobile migrants might be seen as posing a particular threat, but this phenomenon extends across different segments of urban labour markets. Favell and Recchi (2011) argue that residents of a host city are sometimes wary of outside ambitious individuals with the flexibility to move elsewhere and thereby undercut existing citizens if they do not acquire appropriate reward in terms of income, security or status.

Political debates in some countries have demonstrated the real and perceived levels of discrimination that EU and international migrants potentially encounter. Recent research on political debates in Germany highlight a strong negative impression of immigrants, emphasising a range of negative stereotypes, including a lack of willingness to integrate into society, lack of respect for democratic institutions and issues related to acceptance of gender equality norms (Bauder and Semmelroggen, 2009). Similar debates in Britain in relation to refugees seeking asylum highlight the tension between citizenship, immigration and inclusiveness (Morris, 2009). The political emphasis on negative stereotypes has the potential to exacerbate discrimination and limit migrants' ability to improve their social mobility.

It is possible, in part, to counter these negative stereotypes and dislodge discriminatory sentiment (Institute for the Study of Labor and The Economic and Social Research Institute, 2012; Research voor Beleid, 2010). McLaren (2003) demonstrates how contact between non-immigrants and immigrants helps to reduce hostility. Challenging negative perceptions of immigration is important because of evidence that individuals and groups can quickly become detached from mainstream society, in social, cultural or economic terms (Licata,

2011 et al.; Honneth, 1996; Tajfel and Turner, 1986). This, in turn, has important implications for social mobility more generally, and for social cohesion and economic wellbeing in cities.

Easing immigrant integration, and aiding wider social cohesion, represents one challenge for European cities in respect of the development of policy. Another centres on how best to attract migrants – as a means of adding to the pool of skilled residents and boosting economic development, or as a way of combating population loss and ensuring that cities can maintain their fiscal integrity. These are issues which current research on migration and geographical mobility have focused, as the next section goes on to explore.

2.2 Managing migration and competition for highly qualified migrants

2.2.1 Competition for highly qualified migrants

Whereas over many years migration to cities was viewed largely in negative terms – focusing on problems or conflicts to be averted or resolved – contemporary perspectives highlight the benefits accompanying migration. Particularly influential has been academic-cum-policy-entrepreneur Richard Florida (2004), whose work argues – contentiously – that economically successful cities tend to be ones that can best retain and attract skilled labour. Central to this argument is the assertion that the attraction of the 'creative classes' – in the arts, science, architecture and so on – is critically dependent upon the asset bases of cities, and their appeal to highly skilled professionals, many of whom are internationally mobile. Such assets include the richness, vibrancy and diversity of cultural attractions, the availability of good quality affordable housing in 'liveable' neighbourhoods, and the range of consumption services on offer – all of which influence the ability to nurture and sustain a highly-skilled workforce. Assets are also said to include additional intangibles such as the sense of 'buzz' and excitement associated with living in a city, its socio-cultural diversity, its climate of inclusiveness and welcome to outsiders from different minorities, or its sense of tolerance towards diverse lifestyles. Economically successful cities, it is argued, are those characterised by diversity, allied to a wider appeal to youthful workers in creative industries, research and development and high-value manufacturing.

This is a thesis that has been subject to wide-ranging critique. It is said by some to be overly simplistic: to exaggerate the ability of cities to transform their attractiveness to what in reality is a disparate grouping of unconnected individuals rather than a single homogenous 'creative class'. Its logic, moreover, is seen as circular, in that it is already prospering cities that possess the economic fundamentals (as well as other intangible attractions linked to lifestyle and liveability) necessary to attract highly mobile skilled workers. Others have argued that the creative classes thesis concentrates to too great a degree on supply-side issues linked to place attractiveness, and devotes too little attention to more fundamental demand-side issues connected to long-term economic decline in urban economies previously dominated by manufacturing (see, for example, Peck, 2005, 2011). Even proponents of 'learning regions' as an appropriate model of economic development in mature economies like much of western Europe have argued that, for economically weak or declining cities, more emphasis needs to be placed on cultivating the demand for high-skill labour, alongside the supply-side measures on which policy has focused to date (Simmie, 2012).

2.2.2 Urban policy and the attraction of skilled workers

Such criticism notwithstanding, the creative classes thesis has been highly influential, exerting a powerful pull on policy-makers. Attempts to attract highly-skilled workers and facilitate the migration of skilled labour have been central to numerous urban economic development strategies. This continues to apply to efforts to promote interregional labour

mobility, extending a much longer trend. But whereas efforts in countries like the UK, dating back to the 1930s, have involved regional policy that has tried to promote territorial redistribution and encourage labour migration away from prosperous (and sometimes overheating regions), latterly there has been a turnaround in which distributive and equity concerns have been accorded much less priority. Instead, Britain has for a decade and more had a (city-)regional policy in which all areas, whether prosperous or lagging, seek to attract skilled workers, linked to a shared aspiration to become (or remain) 'world class' (Morgan, 2001; Robson et al, 2000).

A similar kind of turnaround is also evident in attitudes towards international migration. Until the 1970s, the focus of efforts to promote international migration was directed at attracting cheap low-skilled workers for labour intensive industries. More recently, echoing the creative classes credo, for some cities and regions the focus has instead been migrants with advanced skills. Some authors have argued that this turnaround is tied to the globalisation of economic activity and the accompanying rise of large global city-regions (Scott, 2001; Scott and Storper, 2003). One feature of these cities is their attractiveness for increasingly mobile international migrants, and in particular highly qualified workers whose locational choices are selective and based, for example, on perceptions of labour market conditions and liveability factors which range from the quality of tertiary education to the availability of affordable and attractive housing neighbourhoods (Benton-Short et al, 2005; Burkert et al, 2008).

As a result, the period since the late 1990s has seen many countries (as well as cities and regions therein) devote increasing effort to the attraction of highly qualified internationally mobile migrants, as a means of bolstering economic competitiveness (Mahroum, 2001). Countries with a legacy of immigration have established methods and processes for this, the best known of which is the US green card scheme. Such schemes until recently have been restricted to only a few countries. But as Kahanec and Zimmermann (2010) show, this has begun to change, with national policy increasingly geared towards the attraction of skilled workers, within a wider context of efforts to restrict or prevent the admission of other categories of immigrant worker. This has included the application of thresholds based on educational achievement or the possession of nominated skills as a determinant of eligibility to work in and/or settle in a given country. It has also meant assessment of labour market needs in order to pinpoint occupations or economic sectors where shortages apply, and to develop points-based systems to ease the immigration of relevant categories of worker (Kahanec and Zimmermann, 2010). Such approaches, moreover, are sometimes justified not just on economic grounds, but in relation to wider arguments about cohesion and assimilation of migrant workers. Greater selectivity in determining migrant eligibility on the basis of the relevance of the skills possessed, it is argued, can on occasion facilitate integration and improved social mobility by demonstrating to the wider population that labour shortages need urgently to be filled by facilitating (or easing restrictions on) migration (Joppke, 2012).

At supra-national scale too, there have been efforts to reform migration policy in order to promote the attraction and retention of skilled workers, while at the same time restricting aggregate international immigration. For the EU (excluding Denmark, Ireland and the UK), a 'blue card' scheme was developed to manage the immigration of high-skilled non-EU citizens (Luedtke, 2011). A host of allied provisions have also been developed to augment labour attraction and retention in specific sectors deemed to hold strategic significance for the competitiveness of the EU. One example relates to science, and the development of the Training and Mobility of Researchers programme in the 1990s, the subsequent emphasis on 'Improving human research potential' under the fifth framework, and later the Marie Curie scheme under FP6 and 7. These measures have attempted to promote intra-EU mobility of researchers, but also to encourage extra-EU immigration – the latter including efforts to reverse earlier 'brain drain' and encourage citizens of member states to return to the EU. Other examples of European schemes to enhance skilled worker mobility include the

Erasmus and Leonardo da Vinci programmes supporting exchange in higher education and vocational/apprenticeship training (European Migration Network, 2011a).

Alongside national and supra-national policies aimed at easing the immigration of highly skilled workers, European cities have also developed strategy to attract and retain labour with the appropriate skills and qualifications. While individual cities lack the authority directly and explicitly to ration the inflow of people based on their skills, a number of other mechanisms have been employed. A large part of the attempt by city policy-makers to attract and retain residents has comprised efforts to cultivate and market their 'offer': the range of assets which help determine place attractiveness. This has meant, for instance, ensuring the supply of a mix of housing stock of the type, quality and price appropriate to current and future demand from potential and existing residents. Urban regeneration initiatives across Europe have aimed at reviving inner city areas and contributing to a re-urbanisation of larger cities. Part of this has involved remodelling existing neighbourhoods – redeveloping and diversifying housing and improving stock in order that it meets the needs of current and future residents and thereby contributes to broader urban economic wellbeing (Haase et al, 2010).

In addition to housing-focused policies, cities have also embarked on a range of other strategies to lure highly skilled workers. This has involved investment in urban schools, in the knowledge that perceptions of the quality of education are a key determinant of resident locational choices. It has also involved emphasising other 'quality of life' assets that contribute to place attractiveness: the availability of good quality public services, provision of transport infrastructure, the supply of cultural opportunities or the existence of high quality urban green space. These assets can have major impact upon household decision-making about residential location.

Alongside these supply-related factors, cities have also embarked on a series of economic development strategies based on assumed retention or attraction of skilled labour. Drawing on the creative classes thesis, attempts to cultivate city knowledge economies have been central to contemporary urban economic development policy. Attracting 'knowledge workers' is viewed by many cities – and perhaps particularly those seeking new areas of growth in the wake of long-term industrial restructuring – as a way of promoting high skill and high value economic activity.

Urban policies of these kinds have applied both to cities in which economic circumstances are already buoyant, as well as to those seeking to reverse decline and promote new economic growth. In the former, the focus of urban policies, developed at both national scale and by individual cities, has been on attraction and retention of what are sometimes termed 'key workers'. Again, many are in high skill sectors in which labour shortages are acute. Equally, there have been some efforts to develop policy aimed at lower paid workers, especially in the public services, who struggle to compete for resources – notably housing – in a context of economic vibrancy. Raco (2007), for instance, documents the evolution of policy to aid key workers in London, working in public services like education, health and transport. A major challenge for London and other more prosperous cities has been ensuring an adequate supply of developable housing land, thereby offsetting acute development pressures and countering protectionist local policies constraining new house-building. Within London itself, for at least two decades there have been multiple efforts, by both central government and local authorities, to try to ensure an increased supply of affordable housing, in particular by using planning controls on development to compel or encourage house-builders to diversify the supply of housing in return for state sanction of new construction.

These kinds of approach find echo in many urban areas afflicted by problems associated with sustained bursts of economic growth. Elsewhere, local economic policy has also tried to lure skilled workers, but in a context not of overheating, but of prolonged population loss

over many decades linked to long-term counter-urbanisation and the suburbanisation of development. This has been a pattern repeated in many of Europe's established industrial cities, notably in north west Europe: in the Ruhr, in the English north and midlands, industrial northern France and Wallonia, urban central Scotland and elsewhere. It is also a pattern evident further east, in large parts of Eastern Germany and in the Polish industrial belt around Katowice, which saw significant out-migration in the decade following the opening of international borders in 1989 (Krzysztofik and Runge, 2010; Wolf, 2006). Across many of these different areas, place marketing strategies, and the goal of marketing their 'offer' to potential residents, have been intended to reverse the exodus of residents and thereby stem long-term decline in urban economic fortunes.

2.2.3 Urban policy and geographical mobility across labour markets

In addition to efforts to attract high skill migrants, there have also been attempts to increase labour mobility within the EU. This is linked to the goal of making labour markets more flexible, and enabling economic equilibrium by facilitating the flow of workers between local areas with differing needs. The idea here is that local labour markets can adjust rapidly and efficiently to changed economic circumstances, in so doing bolstering both national and local competitiveness. But despite the emphasis on facilitating free movement of labour, and although overall geographical mobility at a global scale has increased over recent decades, the actual rate of migration between EU countries historically has been limited. One study demonstrated that in the order of 4% of Europeans have moved between EU member states and less than 3% to a country outside the EU (Vandenbrande et al, 2006). However, this has changed dramatically for some countries following the opening of the borders of the accession countries in 2004. Demand for both high and low skill labour explain the steady westward migration from eastern European countries, which is expected to continue, and perhaps even increase in the short-term, before eventually stabilising (Rye and Andrzejewska, 2010). The majority of this migration is to cities. In response, member states (with the exception of the UK, Ireland and Sweden) opted to apply temporary restrictions on migration from new accession countries (Anderson, 2011).

Alongside this framework of national regulation of labour migration, there have been attempts to develop international collaborative policy to manage cross-border flows of workers more effectively. This has included attempts to allow free travel and migration between certain countries, the most obvious of which is for the EU as a whole. The right to migrate and settle for EU citizens across the EU is part of the long-term commitment to a single, indivisible functional market area that underpins all European-scale policy. However, the extent to which this right to migrate is actually used by EU citizens, as we have seen, remains for the most part limited (European Migration Network, 2011b).

This offers a striking contrast to the United States. International migration rates between EU countries remain low in comparison to corresponding inter-state figures in the USA (Vandenbrande et al, 2006). Europe's diverse and elaborate cultural and linguistic geography, as well as inter-regional political, social and economic disparities, explain in part the much more limited levels of mobility in Europe in comparison to the more homogenous United States. But part of the trans-Atlantic contrast is also attributable to differences in social (as opposed to spatial) mobility, and the greater degree of fluidity in the United States. With the possible exception of countries like Sweden, structural status and class position in Europe have generally tended to be more static and less likely to be transformed, either through generational change or migration. As a result, "social mobility in Europe has occurred but at rates typically lower than in the US or other settler countries" (Favell and Recchi, 2011: 52). In Europe, generational and socio-spatial mobility most often occur as a result of younger individuals moving from more remote or rural locations (both inside and beyond the EU) to urban locations (Moch, 2003). It is this which provides a large part of the

rationale for continuing to develop urban policies which facilitate migration, to the benefit both of cities as well as individual citizens.

2.3 Migration and social mobility

2.3.1 Differential social mobility amongst migrants

The link between migration and social mobility is a complex one. Some interpretations of migration emphasise the potential for enhanced social mobility, and for migrants to improve their material wealth and social standing. Cities are sometimes viewed as providing an environment especially conducive to migrant advancement. Urban environments can accommodate newcomers, it is argued, through socio-cultural support offered by previous waves of migrants, and by the provision of a host of economic opportunities. For example Fielding (1992) argues that 'escalator' regions are those that can best offer to migrants the possibility of increased social mobility: areas which attract well-qualified young people by offering them opportunities to advance rapidly through career hierarchies, some of whom subsequently 'cash in' material or status benefits accrued as migrants by moving to other regions to take advantage of cheaper housing, or to capitalise on their enhanced professional standing.

The prospect of enriched social status – and, more concretely, the potential of tangible improvements in material wellbeing – is one of the key incentives driving migration to cities (Pollard et al, 2008). Conversely, there is a welter of empirical evidence pointing to straitened circumstances for some migrants, locked into poverty in their host cities. Fielding (2007), for example, notes that while intra-national geographical moves tend to be linked to upwards social mobility, international migration is more often associated with lower status occupations and manual work (Fielding, 2007). Much has been made of the inability of migrants in some European cities to integrate in socio-cultural terms, with specific difficulties related to religious accommodation. However, as a recent report for the Trans-Atlantic Council on Migration argues, while conflicts linked to religious affiliation have received extensive publicity, "the core cause of European integration problems may in fact be socioeconomic in nature rather than religious" (Joppke, 2012: 1). The argument here is that too much emphasis is placed on differences of religion, and too little on socio-economic circumstances, such as high levels of migrant unemployment, educational attainment and low income levels.

2.3.2 Labour market reform, social cohesion and migration

The socio-economic fortunes of migrant workers have been affected by reform of labour market policy across European cities. The deregulation of labour markets has created new opportunities and challenges in terms of social mobility. Increases in the mobility of labour are part of wider efforts in many EU member states and elsewhere to liberalise labour markets by, *inter alia*, loosening controls on pay and conditions, removing or reducing regulation of worker recruitment, deregulating worker protection, and more generally enhancing the flexibility of local labour markets. While this is said by proponents to allow local labour markets to adjust rapidly to changing economic circumstances and thereby sustain economic growth (or avert or limit decline), there have also been concerns about the social consequences. This has applied particularly to vulnerable individuals represented disproportionately amongst migrant workers, for whom there is evidence to suggest a raised susceptibility to lower levels of pay and reduced security of employment – especially within particular sectors (Rye and Andrzejewska, 2010; Samers, 2004; Kasimis et al, 2003). Vulnerable migrant groups include workers from the Global South, whether in formal (and sometimes lightly regulated) or informal (and unregulated) sectors of the economy (Datta et al, 2006). Yet there is also evidence that economic prosperity, not least in major cities like

London and Paris, is critically dependent upon continued availability of migrant labour to fill low-paid employment and thereby maintain levels of urban competitiveness (Wills et al, 2010).

There is a clear tension, then, between the increasing reliance of urban economies on flows of migrant workers within a context of deregulated labour markets, and concern about escalating levels of poverty amongst some migrants to cities as worker mobility increases. The latter is important because of a view that a minimum degree of social cohesion is necessary for the maintenance of economic competitiveness within cities (see, for example, Begg, 2002; Buck and Gordon, 2005). Atkinson and Davoudi (2000: 434) note that a desire to reconcile social cohesion and economic competitiveness objectives underpins many aspects of EU policy: the European social model "places considerable emphasis on maintaining social solidarity and ensuring that all individuals are integrated into, and participate in, a national social and moral order…[by combatting] social exclusion …processes which lead to the breaking of social ties and the marginalization of groups". The need to reduce social exclusion and promote social inclusion is a common element of EU policy (see, for example, Commission of the European Communities, 1992, 1998, 2011).

But despite the commitment to social cohesion, it is clear from a range of research studies that migrants often struggle to adjust to their new employment and living situations. In order to adjust and advance within a new society, many migrants are compelled or encouraged to adopt a range of tactics or 'coping strategies'. New migrants often find unique ways to manage their low-level labour market segmentation. These include microeconomic tactics designed to increase income through multiple employment, overtime and shift work. They also include responses to reduce household expenditure through the use of existing support networks as a substitute for commercial services (Datta et al, 2007). Migrant networks, particularly those related to ethnicity, also play a range of roles in facilitating migrant adjustment and advancement, not least of which is combating isolation by providing an alternative to host societies (Boyd, 1989; Janta et al. 2012). These networks consist of individuals from similar backgrounds and communities who can sometimes provide assistance with procuring work, housing and with language skills. In doing so they help to establish a particular sense of community and identity formation within cities (Castles, 2010).

2.3.3 Supporting migrants and managing the effects of migration

Local policies within urban areas deal with the consequences of international migration. Particularly in neighbourhoods with a large share of immigrant population, this can include tailored education policies. It can also mean specific labour market policies targeted at migrants suffering from rising structural unemployment in some cities and regions. Examples are those migrant groups with low initial qualification levels that came with the labour migration waves in the 1960s to northern Europe to work to provide manual labour in the primary and secondary sectors and to fill shortages in lower paid public service employment.

A central concern of local policies in this context is language. While the legacy of colonial era education may have left some migrants with the necessary language skills in countries such as the UK, Belgium or the Netherlands, migrants in many other countries (as with Germany's *Gastarbeiter* programme) often lacked sufficient linguistic knowledge to participate fully and productively in the economy of the destination country (Dustmann, 1994). This also had a profound impact on the potential for social mobility of these migrant groups within destination cities, both for first generation migrants and their descendants. A recent comparative study of first and second generation immigrants in France, Germany and the UK demonstrated that the labour market circumstances of this group compares unfavourably to the population in aggregate (Algan et al, 2010).

Migrant coping strategies can be important in dictating future wellbeing. Equally, it is important not to underestimate the degree to which variable national policy contexts play a key a role in determining the extent to which migrants move up the social ladder (Crul and Vermeulen, 2003). At the same time, there is also evidence that migrant coping strategies have changed and evolved over time. Anderson et al (2006) conclude that the opening of the EU labour market to Eastern Europe not only benefited migrants from the accession countries, but also helped to improve working conditions for their national counterparts already living in western European cities. Conversely, research comparing the experiences of post-war and post-accession Polish migrants in Manchester suggests clear differences in how migrants choose where to live, their establishment of a sense of place, their routines, and their use of media and networks. Post-war migrants were found to be more likely to be concerned with collective experiences that tied them to their Polish cultural roots, while post-accession migrants tend to be more individualistic, with a less direct connection to Polish culture and more of a concern with personal advancement (Bielewska, 2011).

The rise of a globally more connected world has helped post-accession migrants to maintain cultural and societal connections while at the same time pursuing ambitious personal social mobility agendas. This hybrid identity has led some to conclude that recent waves of migrants may be less likely to assimilate than was the case for earlier generations, who faced considerably greater challenges in order to maintain ethnic and national ties (Gans, 1992) (although there is also continued debate about whether post-war immigrants assimilated as easily as is commonly supposed, and in as uniform a fashion (Crul and Vermeulen, 2003)). Other studies have also noted that levels of social mobility vary by age within cohorts of recent international migration. Older migrants suffer disproportionately from lower incomes and restricted social mobility prospects, it is argued, because they are less likely than younger members of their cohort to possess relevant skills and language aptitude (Canadian Public Health Association, 1997).

2.3.4 Accommodating different categories of migrant: neighbourhood dimensions

The socio-economic position of migrants to cities is also complicated by the differing ways in which categories of migrant worker are treated. Some member states have put in place measures that have led to a civic stratification of rights which seeks to limit some individuals' privileges while strengthening others (Morris, 2002; Kofman, 2002). The aim is often to limit in-migration of people deemed to possess skills in areas of existing labour surpluses, and who might therefore counter economic competitiveness and exacerbate social tensions (Kofman, 2006). A compromise measure in response is sometime to grant temporary work permits for migrants in particular economic sectors, but with little opportunity subsequently to acquire permanent residency. This, in turn, limits the longer-term potential for social mobility of migrants categorised in this way.

Nevertheless, while there is empirical evidence of highly skilled migrants undertaking low-paying jobs (Pollard et al, 2008), a number of studies point more optimistically to a general trend towards improved economic integration and material well-being (Spencer et al, 2007; Metykova, 2007; Parutis, 2007). Even temporary low-paid employment is viewed by some highly-skilled immigrants on occasion as an acceptable and necessary part of the social mobility process – even if there is an expectation that better employment will follow at a later date (Eade et al, 2007).

In part, the degree to which this transition towards economic integration materialises is dictated by the ease with which migrants are embedded in urban socio-cultural milieu. This has long been an area of research interest. There is a well-developed tradition of research that links advancements in, and barriers to, social mobility to the neighbourhood in which an individual is raised. Musterd and Andersson (2006) summarise these perspectives by drawing on four key discussions in the literature. The first is the stigmatisation effect of living

in a highly deprived neighbourhood and its negative impact on employment opportunities. Several studies conclude that some employers are disinclined to recruit individuals from particular neighbourhoods (White, 1998; Molina, 1997; Friedrichs, 1998; Atkinson and Kintrea, 2001; Farwick, 2002). The second is the way that tightly confined social networks and socialisation processes within neighbourhoods limit opportunities by individuals to engage with external networks, and conversely provide inappropriate role models and behavioural norms which influence individual behaviour (Wilson, 1987; Leventhal and Brooks-Gunn, 2000). Andersson (2001) and Ellen and Turner (1997), however, note that these processes have the potential to work both ways, with certain forms of social networks working to help individuals within neighbourhoods improve their social mobility. The third discussion relates to the quality of local services and ability of individuals to access them, with arguments suggesting that poor access to neighbourhood-based services such as schools, childcare and recreation may limit social mobility. Fourth, Musterd and Andersson suggest that the level of exposure to crime and violence within a neighbourhood setting impacts upon social mobility through its effect on socialisation processes (Ellen and Turner 1997; Galster and Zobel, 1998; Galster, 2002).

While these neighbourhood characteristics can enhance or undermine social mobility, the composition of the residential areas in which individuals live is considered by some to have a minor impact on social mobility overall (Friedrichs, 1998; Andersson, 2001; Atkinson and Kintrea, 2001; Ostendorf et al, 2001, Whitehead, 2002; Andersson, 2004; Musterd, 2002). Many argue that neighbourhood effects are still poorly understood given the complexity of neighbourhood dynamics. Of much greater importance may be economic and labour market policies, which are viewed as being key to reducing long-term socio-economic integration problems. Specifically there is a need to customise economic and labour market policies to the needs of particular municipalities or neighbourhoods (Murie and Musterd, 2004). What is more widely accepted, however, is that it is the combination of national regulation of migration, local labour market characteristics and neighbourhood-based social dynamics that collectively impact upon levels of social mobility. The next section of the report goes on to attempt to embody this complex array of determinants of spatial mobility by looking in detail at migration patterns across European cities and regions.

2.4 Summary

It is clear, then, that migration (and migration policy) are topics that have attracted wide-ranging research attention. The literature, as a result, is disparate, but emphasises the increasingly mobile nature of labour, in the context of wider efforts to promote international economic integration within the EU, and parallel increases beyond Europe of flows of migrants. What is clear is that this has pronounced ramifications for European cities, as the scope for gaining (or losing) residents increases in line with raised levels of geographical mobility. The result is an uneven pattern of population gain and loss, as a result of migration, across urban areas. But what is less clear, however, is the precise nature of this unevenness, and the factors that might begin to help explain it. The next section therefore attempts to assemble quantitative data through which to *describe* the variable pattern of net migration across Europe (with a particular focus on the experience of cities), and to begin to *explain* this in the light of underlying urban social and economic characteristics.

3. Analysing migration trends and patterns

3.1 Methodology

The previous section revealed the complex role that migration plays in redistributing population across geographical space, and its relationship to wider social mobility. The management of migration has become a sensitive issue across Europe because of the implications of large scale movements of people, both for places of origin and destination. It is clear from the review that different countries have tried to adopt a variety of strategies to encourage migration, in ways that satisfy their particular needs. What emerges from the existing research literature is a clear sense that the drivers and outcomes of migration are not uniform across space and vary over time. But while considerable research interest has been directed at migration within and across Europe, much of it has tended to focus on country-level analysis. By contrast, much less attention has been devoted to migration trends at 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.

This relationship between underlying area socio-economic context and patterns of migration forms an important element of our analysis. The findings presented here are based on a European wide analysis of socio-economic, geographical mobility and migration indicators for cities and their regions. A review and audit of data was undertaken, scrutinising data from a range of sources, including Eurostat and ESPON. The indicators were then assessed against two criteria:

- *availability:* the indicators needed to be available at NUTS 3 level; and
- *coverage*: the indicators needed to have at least 95% coverage across EU25 countries.

A four stage methodology was then adopted. The *first* stage involved mapping individual socio-economic and geographical mobility indicators which met the criteria above. This was undertaken to provide an initial profile of the spatial structure of the NUTS 3 areas. The initial list of candidate indicators is shown in Table 1. The patterning of indicators was then explored in more detail, as outlined in Appendix A.

The *second* stage involved factor analysis in order to explore the interrelationships between the contextual socio-economic data. Factor analysis is a statistical technique in common usage as a way of grouping indicators into related bundles or factors, thereby avoiding double-counting. Further technical information on this process is provided in Appendix B.

Table 1: Potential indicators for the study

Code	Description	Source	Time Period
MIGPOPChg	Migration population change (migration 2006-migration 2001/migration 2001)	EDORA Country Profiles, ESPON 2013 Programme	2001-2006
GDP	GDP per capita in Purchasing Power Standards (PPS)	EDORA Typology, ESPON 2013 Programme	2007
GDPCHA	Annual average GDP change	EDORA Typology, ESPON 2013 Programme	1995-2006
DENCHange	Density change % (density 2006-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	2007
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	2007
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	2007
EMPTERT05	Employed persons in tertiary sector (Thousands employed (1000))	EDORA Country Profiles, Eurostat Database Regional Statistics	2007
NATINC0105	Natural increase rate (net migration 2001-2005/(total population/1000) 2007)	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	2008
PRIED	Primary education level in thousands students (1000) (ISCED 0-2)	EDORA Country Profiles, Eurostat Database Regional Statistics	2007
SECED	Secondary education level in thousands students (1000) (ISCED 3-4)	EDORA Country Profiles, Eurostat Database Regional Statistics	2007
NATPOPinc	Natural population change in thousands (Births alive - Death between 2001 and 2005)	Demographic Trends and Migration, ESPON Territorial Observation No.1	2001-2005
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 2000-2005	Demographic Trends and Migration, ESPON Territorial Observation No.1	2000-2005
POPCHANGE65	Change in working age population (15-64) as % of total population, 2000/01-2006/07	Eurostat Database Regional Statistics	2000/01-2006/07
YDEPrte	Young dependency rate % (Share of people aged under 15 years / working age population (15-65) *100)	EDORA Future Perspective, ESPON 2013	2006

The *third* stage of the work involved developing a multiple regression model to explore the relationship between net migration over the period 2001-06 (the dependent variable, converted into an index in order to normalise its distribution, as set out in Appendix B) and a set of 14 socio-economic indicators selected from the initial list shown in Table 1. In essence, multiple regression provides a means of predicting the dependent variable (in this case net migration) across a sample of places, on the basis of variations in the independent variables (which measure wider socio-economic context). It also allows exploration of residuals: differences between the actual values for the dependent variable and those predicted by the model. The latter helps to identify outliers: areas where net migration is over- or under-predicted, and which differ from levels that might be expected given underlying socio-economic characteristics. Further information on the regression analysis is provided in Appendix B.

The residuals from the regression model (the difference between actual and predicted values for each place) were used in the *fourth* stage develop a typology that captures variable experiences with regard to migration. NUTS3 areas were allocated to one of six

categories on the basis of residuals from the regression model. Standard deviations were calculated to categorise the data and to determine the cut-off values for each of the groups:

- High net gain areas (>1.5 standard deviations)
- Gaining areas (0.50-1.5 standard deviations)
- Tipping areas (-0.50-0.50 standard deviations)
- Losing areas (-1.50-0.50 standard deviations)
- High net loss areas (<1.5 standard deviations)

The typology of net migration based upon the multiple regression was then adjusted on the basis of cross-tabulation with the existing the 2008 European Union urban-rural typology[2]. The latter groups NUTS 3 areas into five categories:

- Predominantly urban regions (Group 1)
- Intermediate rural regions, close to a city (Group 2)
- Intermediate rural, remote regions (Group 3)
- Predominantly rural regions, close to a city (Group 4)
- Predominantly rural, remote regions (Group 5)

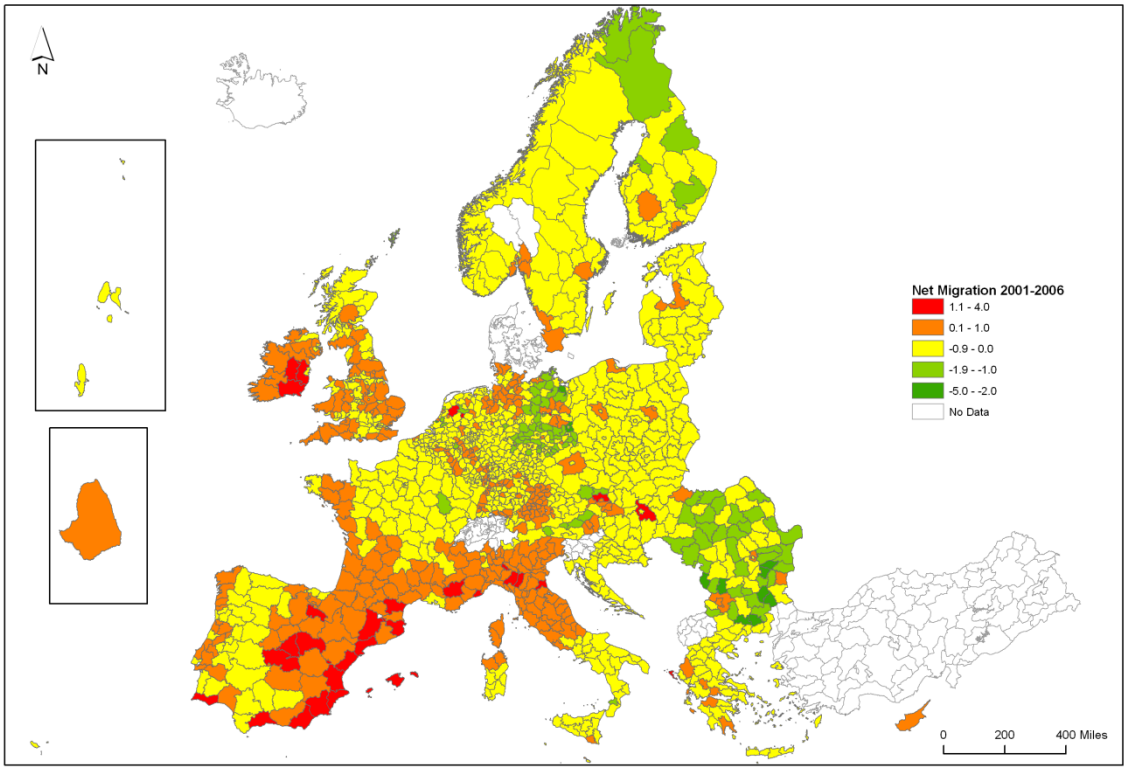
3.2 Net migration context

The patterning of net migration is shown in Figure 1. Over the course of the period 2001-06, 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. 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 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 migrant exodus 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 on-going 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 and 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.

[2] http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Urban-rural_typology

Figure 1: Net migration rate, 2001-06



Source: CUPS analysis

In light of this descriptive insight, further data analysis was carried out with the aim of devising a typology to characterise variations in the relationship between levels of migration and underlying area socio-economic context, using multiple regression analysis. To that end, data were assembled for one dependent variable: an index of relative net migration, based on total net migration data over the period 2001-06 as a proportion of the total population (see Appendix B). Analysis of the range of candidate independent variables used in the regression model is provided in Appendix A.

3.3 An area typology for migration

3.3.1 Multiple regression

Diagnostic tests resulted in 14 contextual indicators being retained as independent variables in the multiple regression analysis. 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 indicates that increases in net migration are associated, as would be expected in most cases, with increases in density. Equally, they are also unsurprisingly related to other demographic shifts: growth in dependent populations and changes in population aged 0-14. This reflects the characteristically youthful age profile of migrant groups. Increases in net migration are also associated with economic development: raised levels of economic activity, high employment rates amongst males of working age and change in GDP, as well as related factors like high levels of engagement in tertiary education.

Table 2: Multiple regression results

Variable	Std. *B*	Exp(*b*)
(Constant)		.000
GDP	-.020	.434
Density Change	.690	.000
DEPENDrat	.129	.000
ECOACT	.053	.047
TERTED	.062	.004
EMPPRI	-.017	.401
EMPTERT05	.024	.280
NATINC0105	-.223	.000
POP_0-14Change	.103	.000
POP_15-64Change	-.131	.000
UNEMPRATE	-.007	.747
GDPCHA	.206	.000
EMPM1664	.229	.000
EMPF1664	-.241	.000

The results demonstrate that positive trends in net migration are related to labour market opportunities linked to the strength of wider local economies. In addition, that net migration is negatively associated with changes in working age population reinforces the centrality of economic factors in explaining the spatial redistribution of labour supply. The multiple regression – supporting the results of factor analysis and the mapping of net migration trends (see Appendix B) – illustrates that, in broad terms, western European areas feature more prominently as instances of comparatively strong economic performance, and as areas of net in-migration. The question that this raises is how this relationship varies across different types of urban area, an issue to which the next section now turns.

3.3.2 Applying typologies to analyse migration trends

The final part of the analysis draws on different area and migration typologies to unpack trends in net migration and the role of urban areas in redistributing population. The cross-tabulation of the urban-rural classification (shown in Figure 2) with the categorisation of places by regression equation residuals (Figure 3) reveals a complex relationship between area type and net migration (Tables 3 and 4).

Figure 3 shows the migration typology, based on residuals from the regression model; areas in red are those in which actual net migration levels are higher than predicted by the independent variables; areas in green 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 under-performing 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 that depart from the standard relationship between economic circumstances and patterns of migration.

Figure 2: Urban-Rural Classification

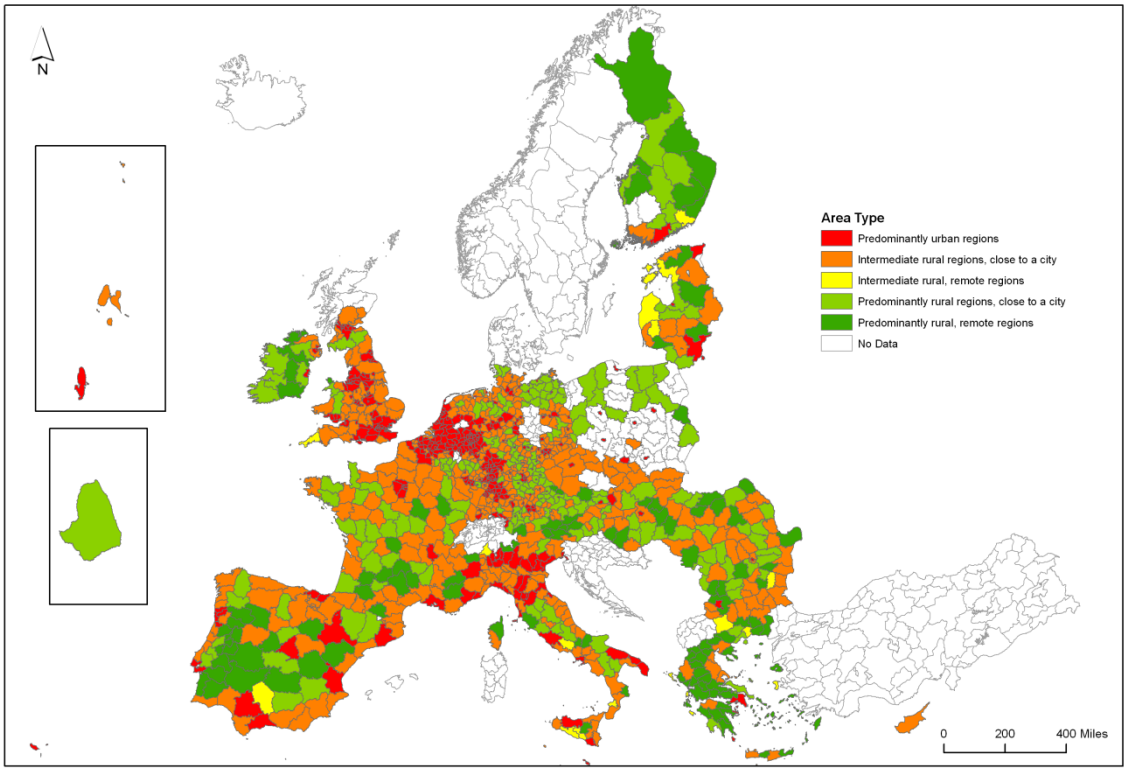
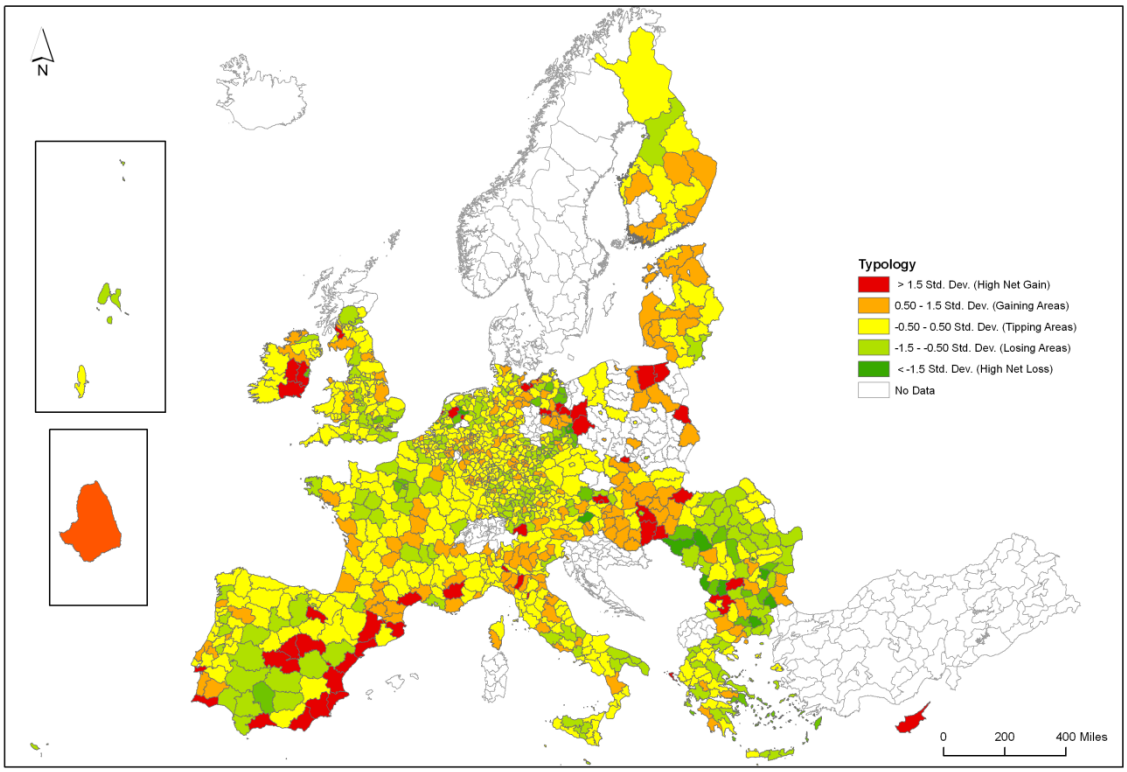


Figure 3: Net Migration Typology



For some cities, 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 while 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 where actual migration (as measured through our index of relative change) diverges most strikingly from levels predicted on the basis of local economic circumstances. Table 3 lists the most extreme outliers from the regression model: the ten cities most over- and under-predicted. What is interesting about the residuals is 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: for example, in dynamic urban economies or prosperous capital cities like Dublin or Paris. Some of these places (Oxford or Lecce, for instance), as we go on to explore, have even experienced net in-migration; the point, however, 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 located in less affluent regions that have tended historically to fulfil a 'donor' role.

Table 3: Top ten cities most under and over predicted by the multiple regression model

Top 10 Cities: actual net migration higher than predicted		
Rank	**City**	**Country**
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 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 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 cities which have 'over performed' in terms of attracting migrants.

In contrast, other administrative capitals like Paris experienced actual net out-migration – on a far greater scale than predicted by the regression model. The explanation here could be associated with a lack of affordable housing, high cost of living or barriers presented by national immigration policy. Equally, our analysis reveals that the NUTS 3 areas surrounding Paris – Val-de-Marne, Seine-Saint-Denis, and Hauts-de-Seine – had higher net-migration levels than were predicted by the model, possibly reflecting their appeal to residents deterred by the difficulties confronting migrants in accessing the pressurised 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. 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).

Other cities also echo this complex, variable relationship between migration and economic circumstances. For the cities of 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 might be seen as epitomising 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 cities, then, looking beyond crude net out-migration levels suggests a rather more complex pattern that straightforward counter-urbanisation, and that the 'shrinking city' phenomenon may not be as clear-cut as sometimes implied (see, for example, Bontje, 2004).

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

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). Effectively, each *column* should be read individually. The analysis suggests that in comparative terms, the NUTS 3 areas classified as being *predominantly urban regions* are dynamic and feature heavily 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 – the shaded columns in the table) 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 urbanised regions or in their immediate surrounds. The suggestion here is that although both urban and remote areas are prone to net outmigration, the scale of decline tends to be more marked in the latter.

Table 5: Cross-tabulation: urban-rural category by net migration category

Urban-Rural Class / Net Migration 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
High net gain areas	1.0%	1.5%	.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:

a. **the totals do not equal 100% exactly in each column due to the effects of rounding*
b. *Only those NUTS3 regions that were included in the area typology and net migration classification were included in this analysis.*

If we then cross-tabulate to compare net migration across the different area types, 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. Effectively, each *row* should be read individually.

Table 6: Cross-tabulation: net migration across urban-rural categories

Urban-Rural Class / Net Migration 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*
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.*

Those areas defined as being *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. Likewise 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* – what have become traditional commuting hinterlands for cities as a result of counter-urbanisation – the trends in net migration become even starker. Combined, *predominantly urban regions* and *intermediate 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 we combine the area-classification 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 through 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 the two 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 dynamic functionality of urban regions and the varied roles that cities and their hinterlands play in facilitating or hindering horizontal social mobility in Europe.

Table 7: Cross-tabulation: urban-rural categories and predicted net migration

Prediction Level	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
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%

3.4 Summary

What is clear from the analysis of the net migration and urban-rural typologies is that cities and their surrounding hinterlands 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 clear 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 working age population which 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 ten over- and under-predicted cities 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 do not 'perform' in terms of migration in ways that are predicted based on their socio-economic profile. Cities 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.

4. Discussion

Socio-spatial mobility and patterns of migration in Europe have undergone dramatic change over the last two decades. Geographical mobility has received increasing attention from policy-makers, through supra-national scale efforts to harmonise labour market regulations as part of wider attempts to regularise policy across a single, functionally integrated European economic space. The aim here has been to enable workers to transfer between areas in response to changing local market needs. Such innovations have been augmented at national scale by some countries' efforts to encourage greater flexibility in labour markets, part of which involves attempts to enhance worker mobility and encourage the redistribution of labour so that it better matches inter-area disparities in economic circumstances.

Paralleling this emphasis on enhancing spatial mobility (and partly explained by it), this report has discussed the ways in which migratory flows have also changed, sometimes in quite profound ways. The drivers here have included international conflict, poverty and the displacement of citizens of poorer countries in the Global South; the on-going global integration of economic activity and the resultant need for greater capital and labour mobility; the advent of more accessible international transport and the shrinkage of real and perceived journey times; and policy-maker efforts to erode the significance of national borders as a barrier to economic interchange. These pressures, in turn, have prompted intense political and popular interest in (and concern about) migration, further complicating efforts to manage and regulate migration and mobility.

Such changes are of especial importance for European cities, because, as we have seen, it is to urban areas that the overwhelming majority of migrants gravitate. Equally, enhanced labour mobility, and the uneven patterning of net migration across geographical space, means that cities are affected in quite different ways and to differing extents. This is of particular significance given the increased propensity of city policy actors to think and act competitively; as we have discussed, retaining and attracting skilled workers has become an ever more integral part of urban economic development strategies as cities seek to maximise their competitive standing in comparison to international peers.

Analysis of migration data, benchmarked against the review of existing literature on geographical mobility, helps to provide a clearer picture of the uneven distribution of migrants across different types of urban and rural area. The earlier analysis of quantitative data does this in two ways: first, by providing a descriptive account of variable levels of net migration across cities; and second, by attempting to explain these variations in the light of the underlying economic and social characteristics of different areas. The latter is particularly important because it allows us to identify cities in which net levels of in- and out-migration differ from the norm.

In light of our review of the existing literature and the subsequent quantitative analysis, we can draw six main messages.

1. *Recognising the key role played by cities in relation to migration*: analysis of migration data suggests that urban areas are more likely than other types of area to have net in-migration levels which exceed those that might be expected given their socio-economic characteristics. That net in-migration volumes are relatively high may be unsurprising for cities with flourishing economies and unmet demand for labour. But higher than predicted in-migration is also a characteristic, our research suggests, of cities whose economic fortunes may be less auspicious: analysis of the relationship between urban socio-economic context and levels of net in-migration reveals areas where migrants comprise a larger fraction of population than might be expected. For these types of city,

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 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. 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. There may be messages here about the need for tailored policy intervention to help support migrants in cities with higher than expected levels of migration, but which lack the kinds of economic opportunity to enable upward social mobility. In this way, a broader range of cities may be able to fulfil an *entrêpot* role for migrants more effectively.

2. *The disparate nature of migration*: Our analysis suggests that while cities comprise a higher than expected fraction 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 polarised; urban areas feature prominently amongst 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, for others it represents something of a threat. Population loss, as a part of a wider trend of counter-urbanisation, remains a characteristic associated with some cities in Europe.

3. *Distinguishing between different migratory flows*: The emphasis in European countries on attracting skilled workers is noteworthy because migration until recently has involved predominantly low skilled workers. The more recent emphasis on skilled migrants very much fits with the optimistic view, articulated by influential economists like Edward Glaeser (2011), which sees migration as a motor for economic growth. The challenge for European cities is therefore to encourage the attraction of skilled workers (in competition with other countries), while improving the fortunes of the poorer migrants. In emphasising the attraction of highly skilled migrants, however, there is a danger that the needs of other categories of migrant worker – and their economic potential – receive less in the way of policy attention. Research evidence confirms that there is a demonstrable need to address material dimensions of migrant poverty, but also, as Joppke (2012) has argued, simultaneously to challenge discrimination in order to allow migrants the opportunity to increase their social mobility free of negative social stigmas. An overly exclusive focus on attracting skilled workers risks ignoring the plight of poorer migrants, and failing to capitalise upon their longer-term economic potential. Given greatly enhanced levels of individual mobility, and the likelihood that displaced populations will continue to seek refuge in European cities whatever preventative barriers are put in place, it is important that urban economic policy is alive to the needs and potentials of poorer immigrants.

4. *Giving cities more of a say in determining national migration policy*: Control over immigration policy is largely or exclusively the province of the national state. This is unproblematic in countries where national migration policy is driven by a desire to attract overseas skilled workers, in which there is obvious potential for cities to benefit. Recent research has demonstrated that this applies in the case of countries like Canada and Australia, where policy on international migration has tended to emphasise to a much greater extent, and over a longer period of time, the need to promote selectivity in determining eligibility to enter, work and/or settle in the country (Wadhwa, 2012). Elsewhere, however, more restrictive national policies on migration have in recent times militated against efforts by cities to attract skilled workers, both in countries with long

traditions of welcoming migrants (notably the United States) as well as those whose emphasis on migration is more tentative and sporadic (such as Britain). Here, there may be a need to ensure better vertical coordination of policy: joining-up local urban and national migration policies more effectively (Guiraudon, 2000; Guiraudon and Lahav, 2000). One way of achieving this is by defining specific labour market needs on a local or regional scale, and tailoring national policy in light of variable intra-national economic circumstances (Burkert et al, 2008). In this way, it is argued, cities could target specific categories of migrant more effectively. Such thinking is currently in its infancy, but particularly in the context of highly qualified migrants, cities ought to try to gain more influence over immigration policies, rather than remaining as passive recipients of policy applied at national and supra-national scale.

5. *Diversifying city economic development strategies*: As we have seen, urban economic development policy in recent years has emphasised the need to lure highly skilled workers. But there is a compelling argument that one-size-fits-all policies are inappropriate given the breadth of economic circumstances across different urban areas. There is merit in emphasising supply-side measures – related to housing and amenities, for example – for cities with already buoyant economies in which labour shortages are a constraint on future growth. Elsewhere, however, as Simmie (2012) argues persuasively, less propitious economic circumstances in some cities ought to mean greater emphasis in policy on stimulating demand, through support for firms in key sectors in the form of grants and loans, better business advice, help with external marketing and so on. At present, the extent to which these kinds of support are provided, and their effectiveness, is variable. The risk here is that cities revert to the sometimes more straightforward option of focusing to too great a degree on supply-side factors that can be influenced more readily, at the expense of more rounded strategy aimed at demand-side issues.

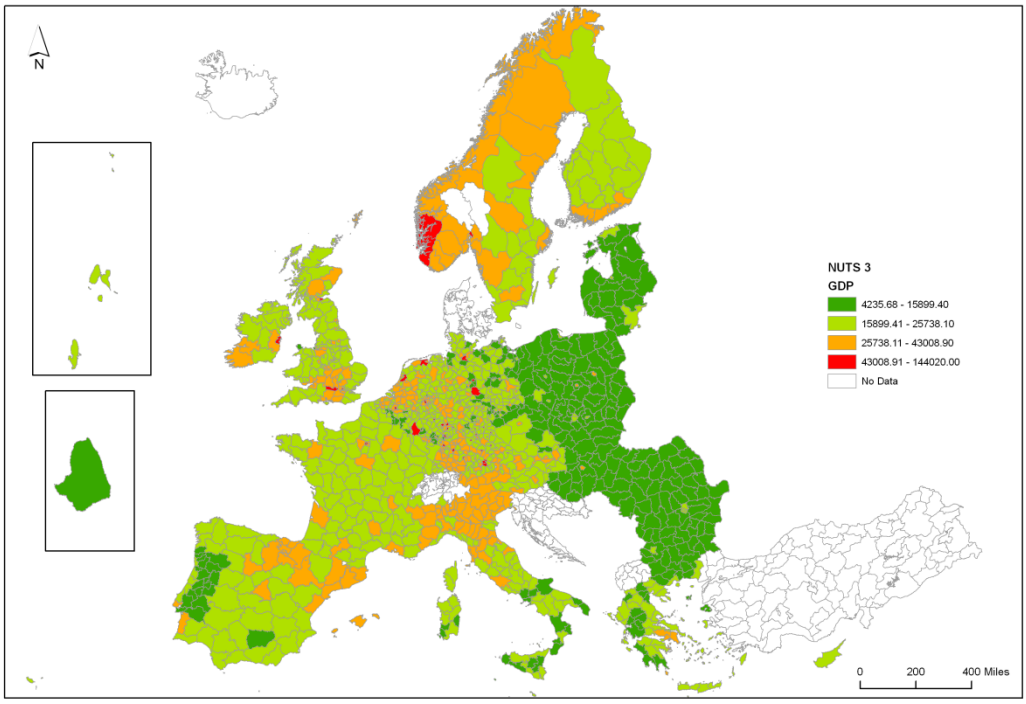
6. *Ensuring the right national framework to govern inter-city and inter-regional labour mobility*: Attracting skilled workers offers a relatively quick-win for cities struggling to (re)build human capital, especially in relation to advanced skills in key sectors of growth potential. The focus on developing knowledge economies – high value economic activity underpinned by advanced skills and rich research and development capability – is understandable in the context of the long-term decline associated with economic restructuring in some predominantly industrial cities. But it is also possible to argue that this is a zero sum game, and that attracting skilled knowledge workers can have damaging effect for donor areas. For cities in which labour shortages are evident, a logical response may well be to harness enhanced labour mobility and attract workers from economically less buoyant cities. But for the latter category of city, this can have profoundly deleterious consequences. Two implications stem from this. One is that cities may need to invest more in indigenous development, and in nurturing skills amongst existing residents. This, however, requires significant investment – particularly given evidence, for some cities at least, of disproportionately weak educational performance amongst urban schools (see, for example, Robson et al, 2009). It also requires persistence and patience, in view of the long gestation before improvements in the skills base become evident. Second, there is a need for national and supra-national institutions to be more alert to the consequences of inter-city competition over skilled workers, and to avoid policies which accommodate further growth in already successful cities at the expense of managed decline in weaker ones. There may be a need, therefore, for a national framework that regulates worker spatial mobility in the interests of these different types of city.

Appendix A: Contextual variables

The first stage of the data analysis explored the geographical patterning of a larger number of the contextual indicators (Figures A.1-13). In so doing, we can begin to gain a better understanding of the ways in which the context for migration and mobility varies between cities and regions.

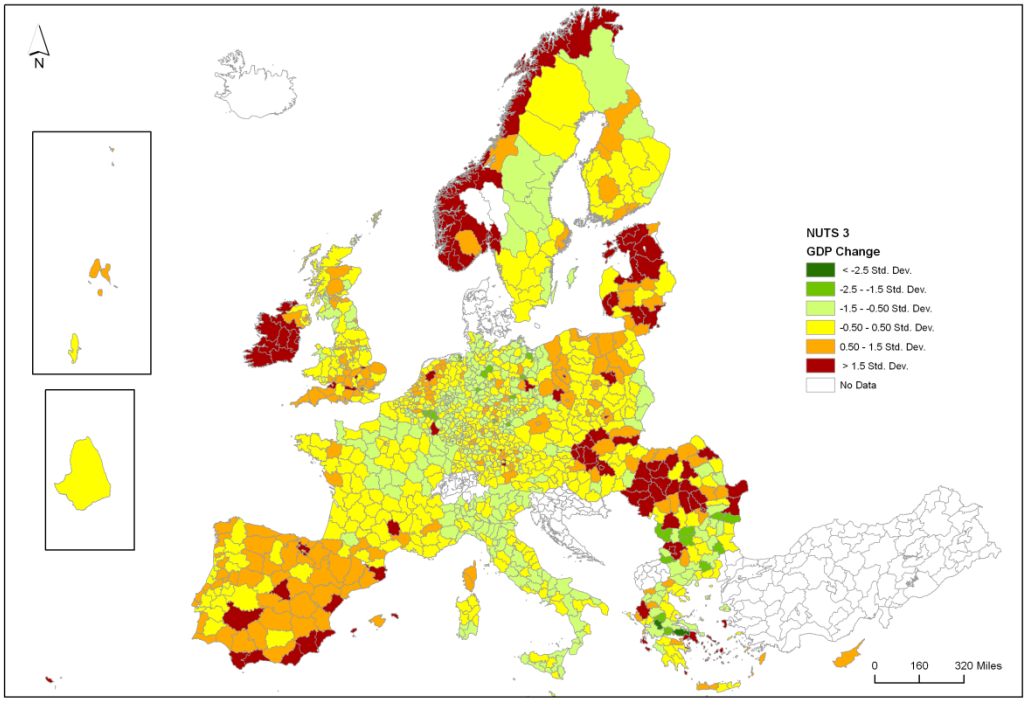
The NUTS 3 areas with the highest levels of GDP per capita are concentrated predominately around Europe's major cities (e.g. London, Brussels, Amsterdam and Paris) and across areas of former EU-15 countries (e.g. north Italy, west Austria and southern England) (Figure A.1). GDP is lowest in the accession areas of Eastern Europe. However, it is interesting to note that in terms of annual average change in GDP, Eastern European countries – due to their relatively low starting baseline positions – have experienced above average positive change in GDP (e.g. Budapest). So too have large parts of Spain (e.g. Madrid) and Ireland (e.g. Dublin), although the data predate the onset of macro-economic decline in the aftermath of the financial crisis of 2008, which impacted with particular severity on the two countries.

Figure A.1: Gross Domestic Product per capita, 2007



Source: EDORA typology, ESPON 2013 programme

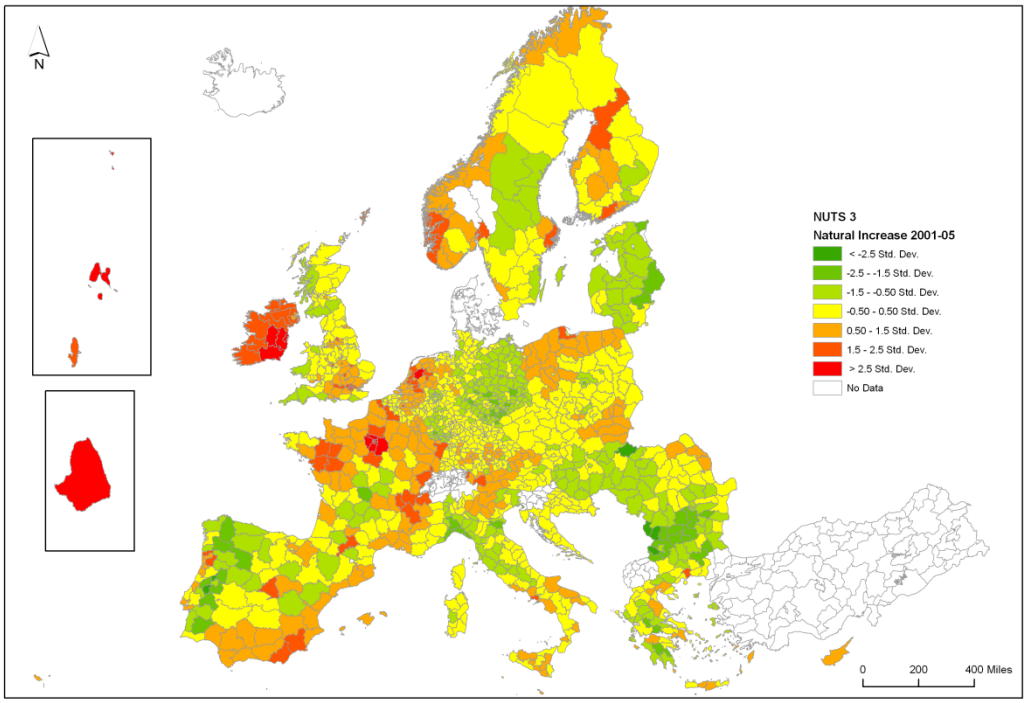
Figure A.2: Annual average change in Gross Domestic Product, 1995-2006



Source: EDORA typology, ESPON 2013 programme

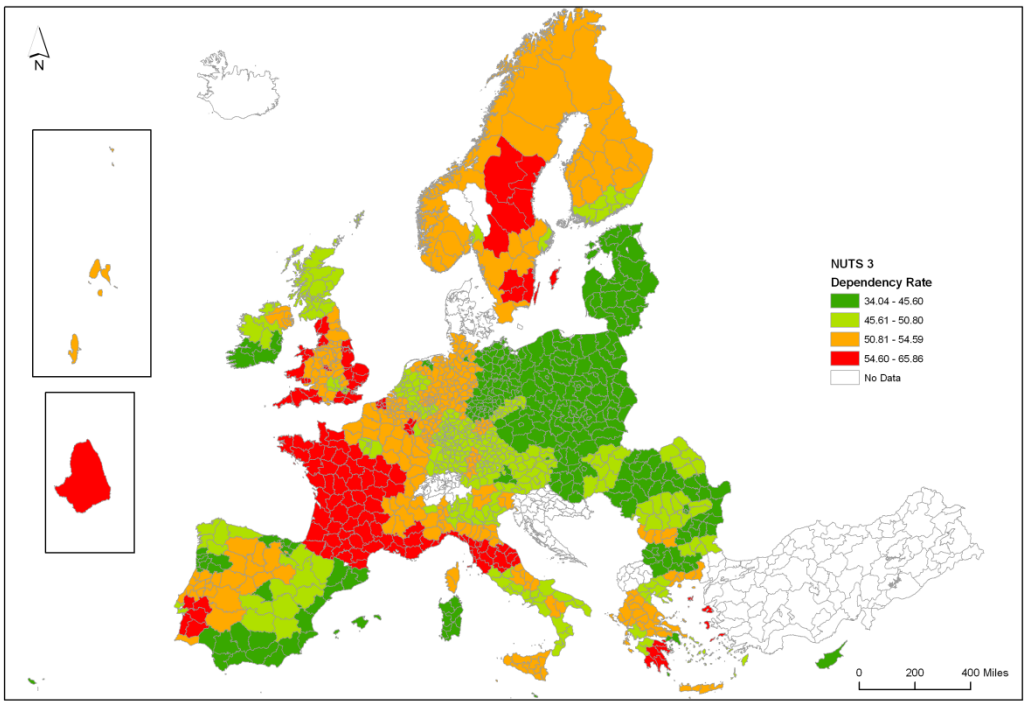
Figures A.3-5 group the different indicators of demographic context: density change, dependency ratio and natural increase. The highest natural increases in population were found across Ireland, particularly around Dublin, and London and Paris (Figure A.3). For all three, natural increase is in part associated with economic vibrancy and consequently high levels of net immigration, the latter involving disproportionately youthful demographic structures and fertility rates that, as a result, are elevated. Other notable natural increases in population can be found across northern France, southern Spain, the Netherlands and northern areas of Poland. In terms of dependency ratio (Figure 4), the analysis reveals high shares of population aged 0-14 and over 65 years across the UK and Ireland, northern France, Eastern Europe and the Netherlands – again associated in part with the demographic characteristics of migrant populations. This also explains why, 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 distribution of 16-64 year olds is skewed towards high concentrations in Sardinia, across Eastern Europe and central and north Germany.

Figure A.3: Natural increase rate, 2001-05



Source: EDORA future perspective, ESPON 2013 programme

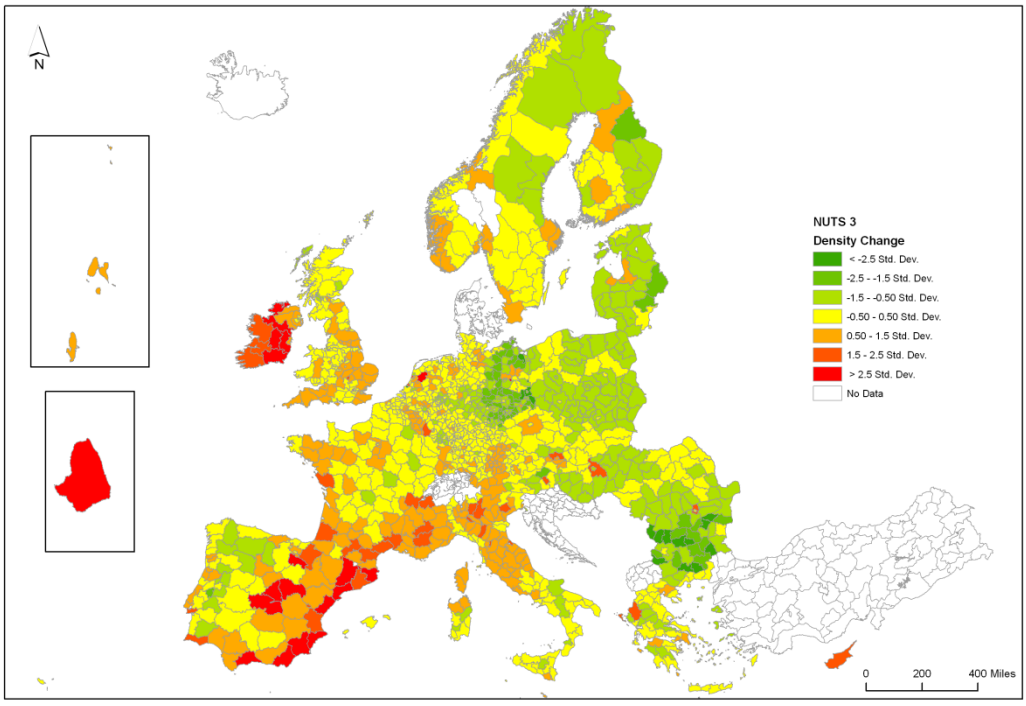
Figure A.4: Dependency ratio (children aged 0-14 and adults 65 and over as a percentage of population aged 16-64, 2006



Source: EDORA future perspective, ESPON 2013 programme

As a share of population, there are comparatively lower concentrations across the UK and France. It is interesting to note, however, that within these broad patterns, concentrations of working age population were far higher in cities across Europe (e.g. London, Dublin, Madrid, Seville, Amsterdam, Milan and Lisbon). When placed in the context of changing population density for the same time period (Figure A.5), it is apparent that Ireland, but 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. In addition, large parts of central and western Europe have remained relative stable in terms of population density. In contrast, large areas of Eastern Europe have experienced a decline in population density that was most pronounced in Bulgaria, with the exception of Sofia which had a relatively stable population density. It is also noteworthy, however, that 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 Ilfov area around Bucharest. The analysis of demographic structure would seem to reflect the suburbanisation of Europe on the one hand but the continued attraction of larger cities for economic reasons on the other.

Figure A.5: Change in population density, 2000-06



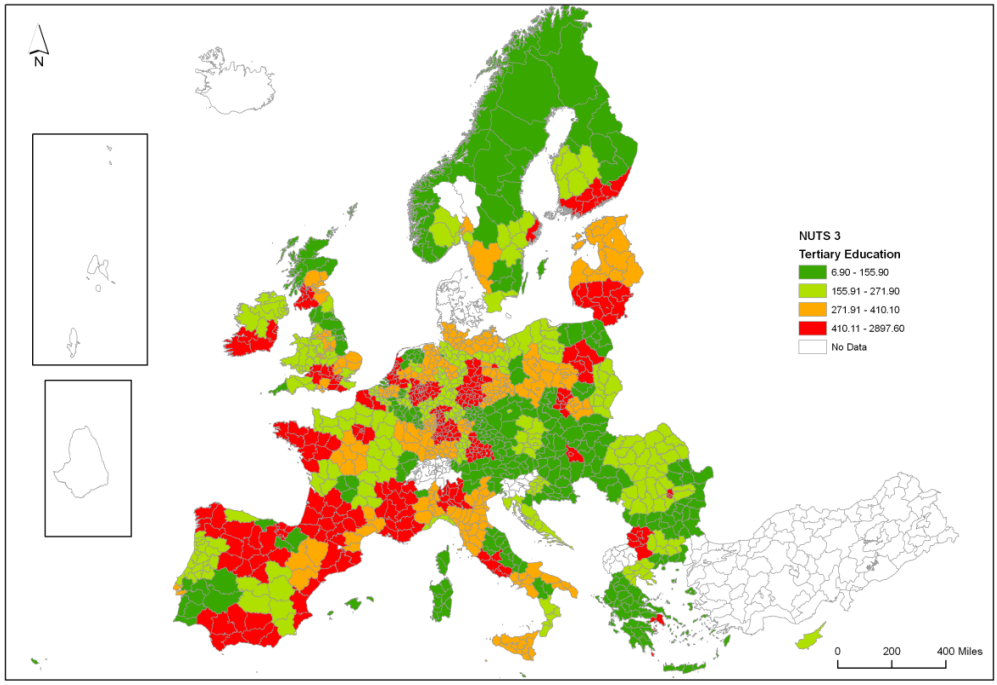
Source: EDORA country profiles, ESPON 2013 programme

In analysing the number of students engaged in tertiary sector education across Europe (Figure A.6), it is apparent that university towns and cities had the highest concentrations. London, Madrid, Barcelona, Rome, Paris, Warsaw, Budapest- Pécs and Sofia are just a few examples of this spatial distribution.

There are high concentrations of males in employment, as a percentage of the working age population, across the UK and Ireland, north and east Spain, Portugal, the Netherlands, southern and north-west Germany, Austria and parts of north Italy (Figure A.7). Eastern European countries have lower levels of male employment, as do southern Italy and southern France. The proportion of females in employment was similarly depressed in Eastern Europe but relatively high across the UK, southern areas of Ireland, Austria,

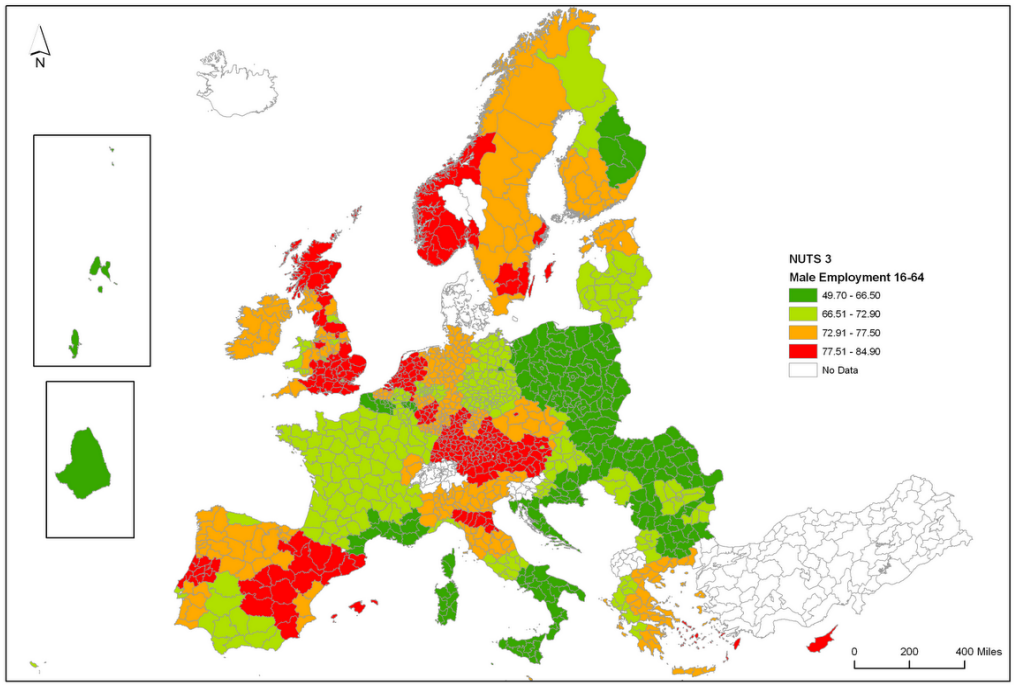
Germany, the Netherlands and Portugal (Figure A.8).

Figure A.6: Numbers of students in tertiary education, 2007



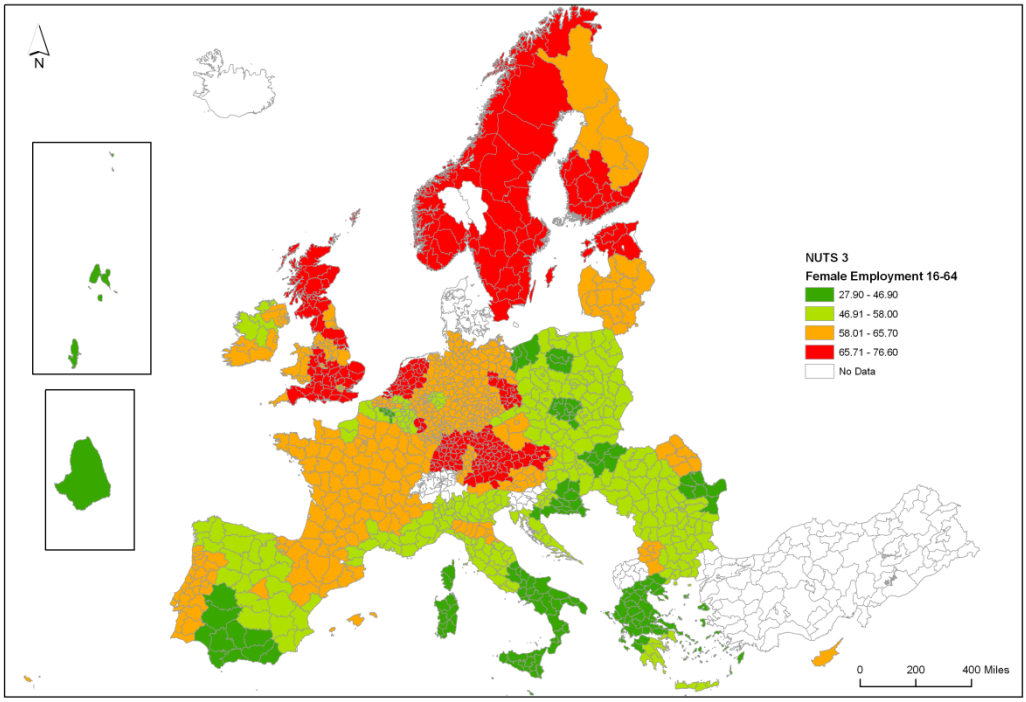
Source: EDORA country profiles, Eurostat database regional statistics

Figure A.7: Percentage of working age (16-64) male population in employment, 2007



Source: EDORA country profiles, Eurostat database regional statistics

Figure A.8: Percentage of working age (16-64) female population in employment, 2007

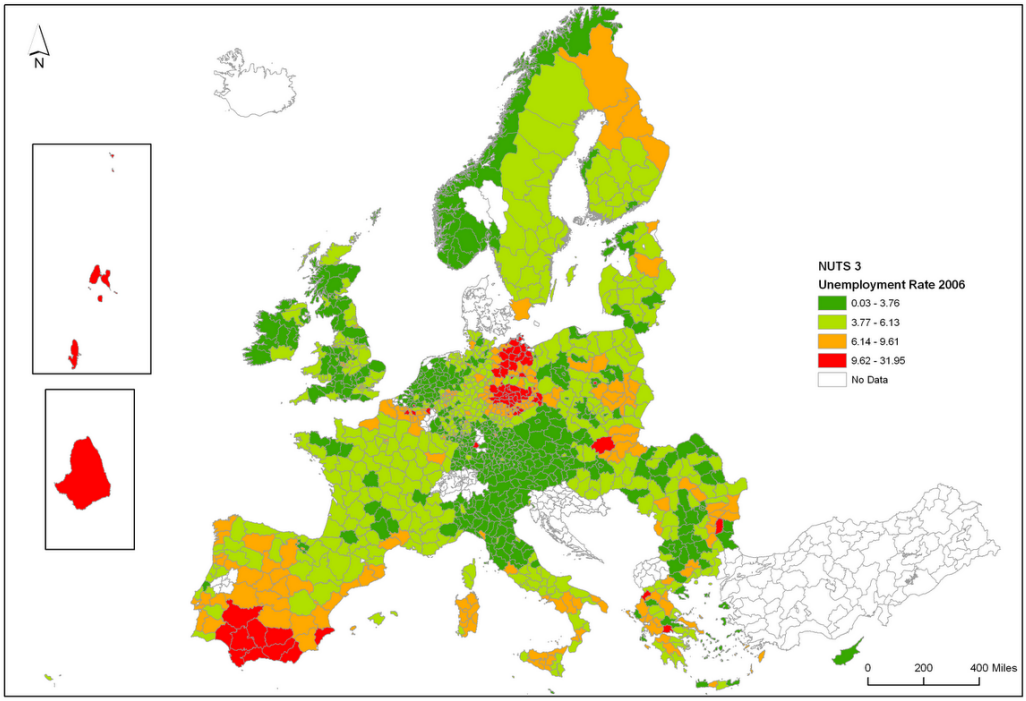


Source: EDORA country profiles, Eurostat database regional statistics

Recorded levels of unemployment are comparable across much of Europe (Figure A.9). However, the lowest levels of unemployment for the time period to which the data relates are found across the UK and Ireland, northern Italy, Austria and southern Germany. The highest levels are evident in East Germany (e.g. Leipzig), southern Spain (e.g. Seville) and pockets across parts of Eastern Europe.

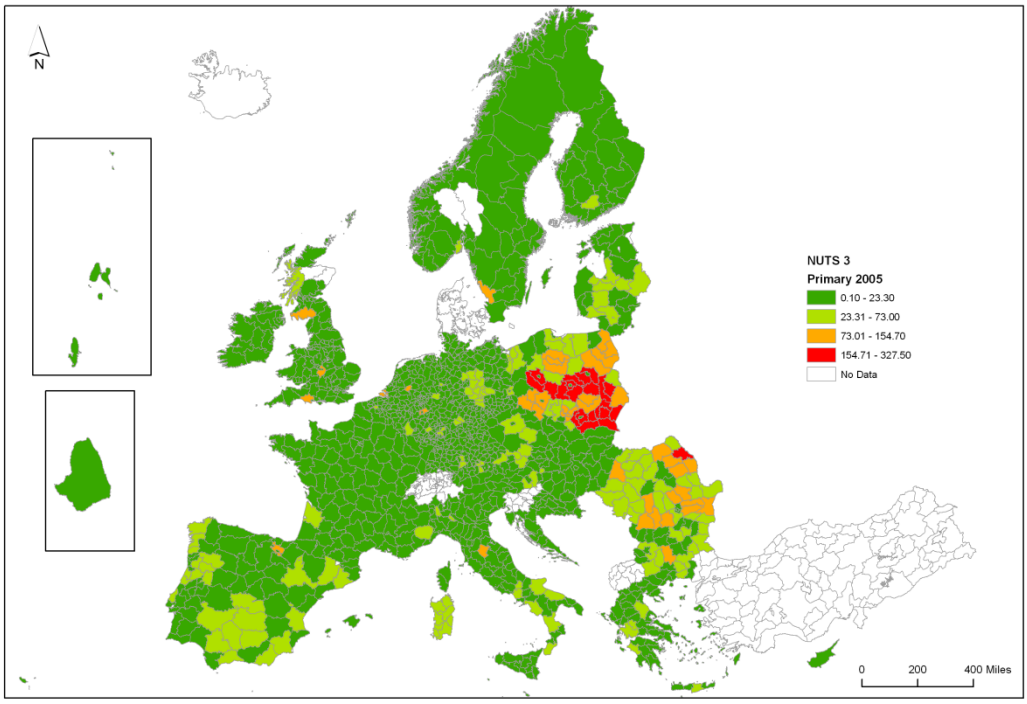
An analysis of sectoral employment trends reveals distinct spatial patterns in the employment structure of Europe. Employment in the primary sector – farming and forestry for example – is particularly concentrated in Poland, especially in NUTS areas surrounding Polish cities (e.g. Krakow and Poznan) (Figure A.10). This reflects the small-scale structure of Polish farms and the importance of the primary industries around Katowice. Western European countries had much lower concentrations of primary employment as a component of their economies. Employment in the secondary sector – construction and manufacturing – was also relatively low across western Europe, with the exception of Barcelona, Madrid and Milan. Parts of central Germany (e.g. Halle), southern Spain (e.g. Seville) and northern Italy (e.g. Turin) also retained relatively high concentrations of employment in the secondary sector. NUTS 3 areas surrounding Polish cities also have high levels of employment in the sector (Figure A.11).

Figure A.9: Unemployment rate, 2006



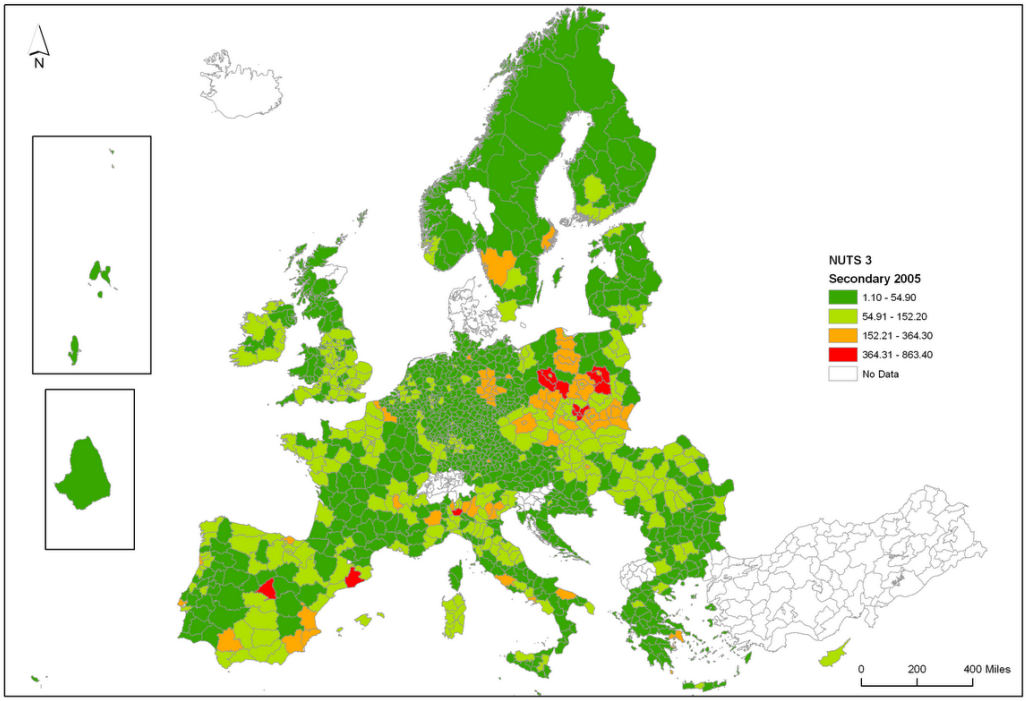
Source: EDORA future perspective, ESPON 2013 programme

Figure A.10: Employment in primary industries, 2007



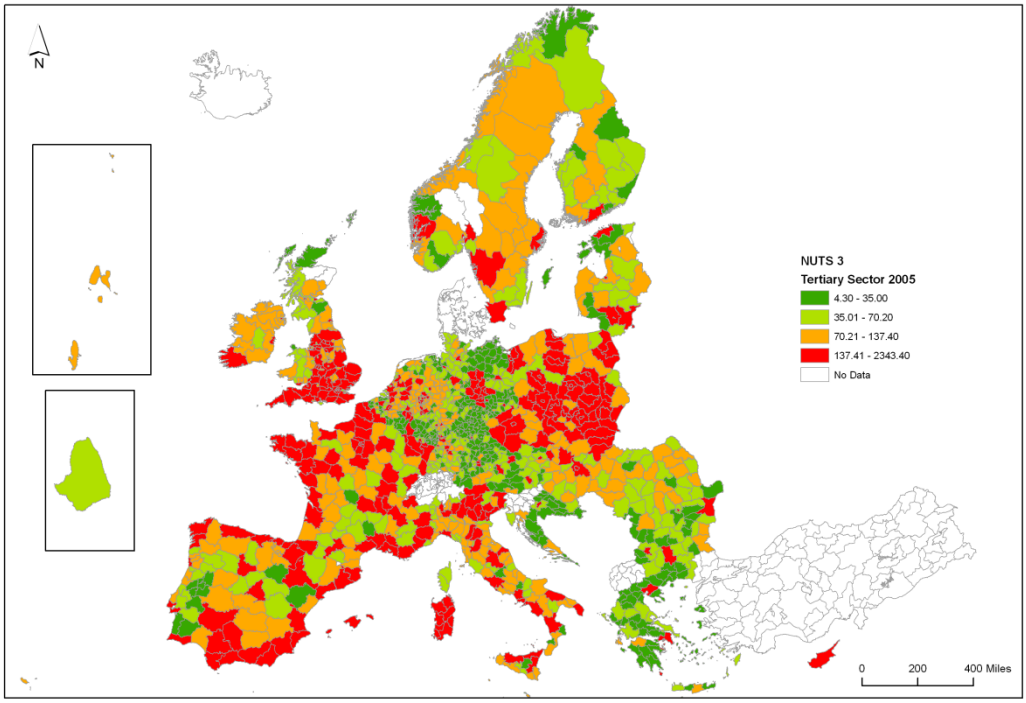
Source: EDORA country profiles, Eurostat database regional statistics

Figure A.11: Employment in secondary industries, 2007



Source: EDORA country profiles, Eurostat database regional statistics

Figure A.12: Employment in tertiary sector, 2007



Source: EDORA country profiles, Eurostat database regional statistics

Appendix B: Multivariate analysis methodology

B.1 Factor analysis

The initial list of candidate indicators was rationalised via factor analysis. Factor analysis offers a way of consolidating a dataset, reducing it from a group of interrelated variables to a smaller set of bundles of indicator, or 'factors'. These can then be used to understand the underlying structure of the dataset, and to avoid double-counting related phenomena and giving undue weight to particular indicators.

All NUTS 3 regions (that had data) were included in the analysis. The candidate socio-economic indicators were analysed initially by calculating correlation coefficients in order to identify underlying relationships between variables. Variables were retained if there was not a substantial distribution of correlation coefficients for a particular variable <0.2. Where correlation coefficients were >0.8, one of the highly correlated variables was removed.

The end result was the retention of six independent variables (Table B.2), to show the variable context across NUTS 3 areas and against which two dependent variables could be calibrated. Principal Component Analysis (PCA) was then undertaken on all retained independent variables, and Eigenvalues > 1 were used to derive factors. Two standard diagnostic tests were also applied:

- KMO – Measure of sampling adequacy; and
- Bartlett's Test of Sphericity.

The purpose of the factor analysis was to develop a context for analysing migration across the NUTS 3 regions by developing a simple classification of areas based on socio-economic characteristics.

Factor analysis provides a way not only of consolidating an overall array of variables (in order to understand their interrelationships and to avoid double counting), but also of grouping similar areas on the basis of their broad socio-economic context. The latter was measured via the six variables retained following initial analysis of the full list of 20 potential indicators. Table B.1 shows the components extracted and the individual and collective variance they explain.

Two points are noteworthy here. First, the level of 'fit' is good, in that the first three components jointly explain 71.3% of the overall variance in the dataset.

Second, for each of the three components, it is possible to attach tentative descriptive labels as a means of capturing in summary their underlying characteristics. This was undertaken on the basis of the correlations between each of the six independent variables used in the analysis, and the three components derived from Principal Component Analysis. The relevant columns are the final set in Table B.1, with strongest positive and negative correlations shown in bold. The resultant descriptive labels are shown in Table B.2, and the geographical distribution of NUTS3 areas that relate to each component can be seen in Figures B1-3.

Table B.1: Total Variance Explained (Extraction Method: Principal Component Analysis)

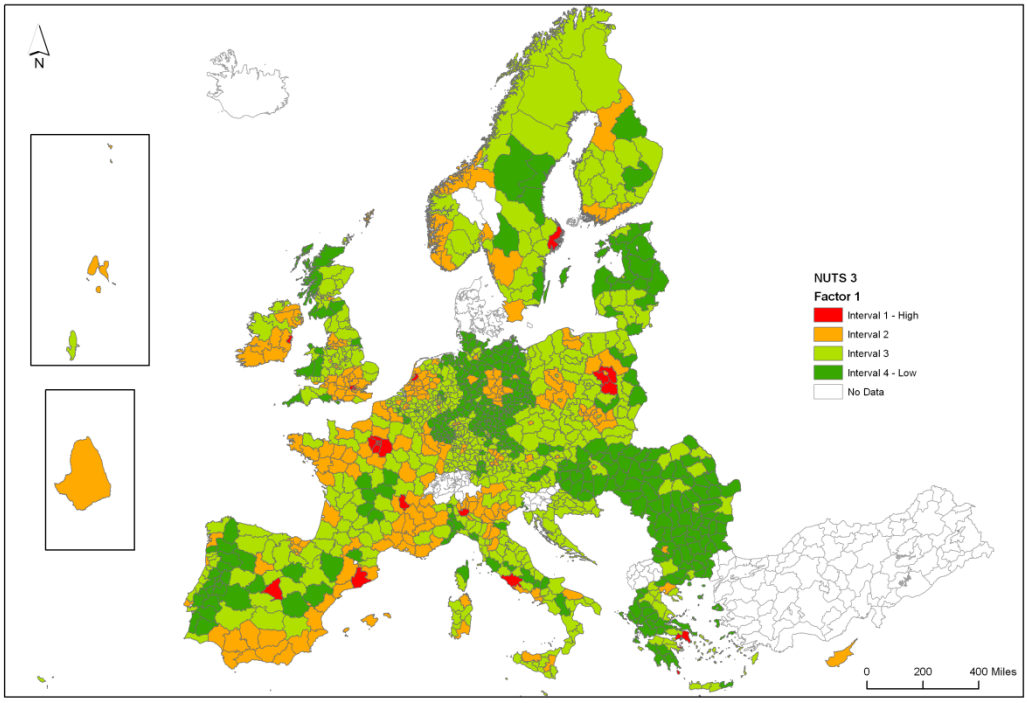
	Initial Eigenvalues			Extraction Sums of Squared Loadings			Components Derived from the PCA					
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	GDP	terted	empter t05	natinc0105	opch65	Unemprate
1	1.81	30.18	30.18	1.81	30.18	30.179	**.468**	**.631**	**.727**	**.727**	**.368**	-.044
2	1.34	22.34	52.51	1.34	22.34	52.514	**-.663**	**-.361**	.144	.170	.847	.053
3	1.13	18.80	**71.32**	1.13	18.80	71.319	-.223	.259	**.341**	**-.310**	-.115	**.887**
4	.72	12.05	83.37									
5	.65	10.84	94.20									
6	.35	5.80	100.00									

Note: Component values greater than 0.3 or less than -0.3 are shown in bold.

Table B.2: Factor descriptions: initial classification of NUTS3 areas

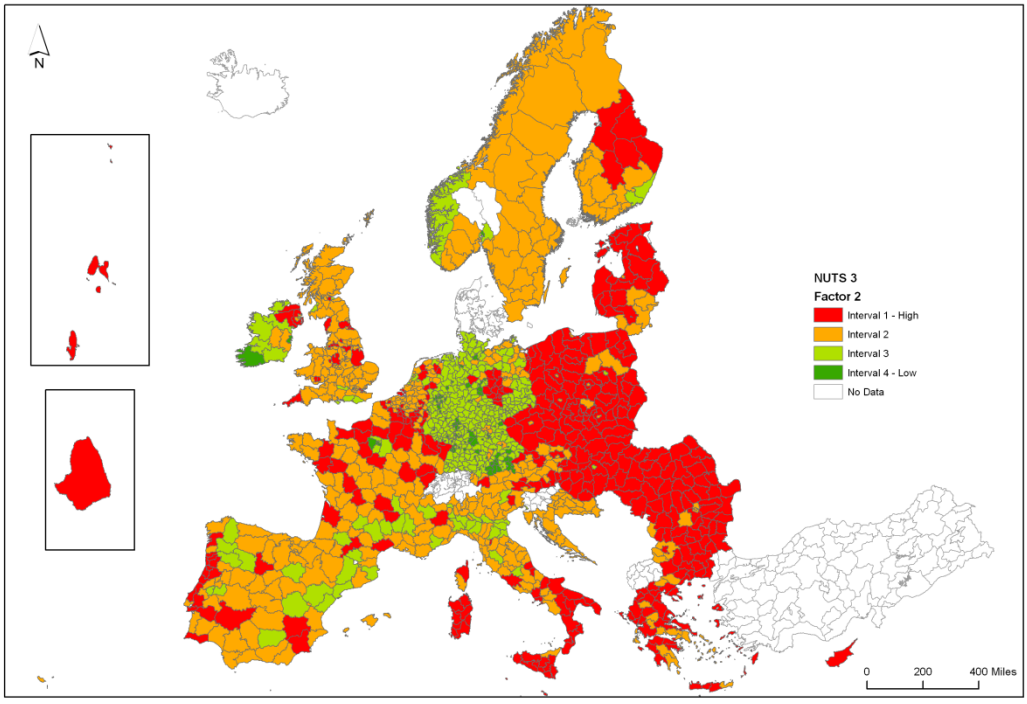
Factor	**Descriptive label**	**Main characteristics**	**Examples of relevant areas**	**Related map**
Factor 1	*Buoyant Areas*	Strongly positive factor scores for GDP, tertiary education, employment in the tertiary sector, natural increase in population, and working age population change. A small negative factor score was recorded for unemployment.	Dublin, Amsterdam, Rome, Milan, Paris, Madrid, Barcelona, Athens, Stockholm, London and the areas surrounding Warsaw	Figure 1
Factor 2	*Transitioning Areas*	High positive factor score for working age population change. Negative scores for GDP and tertiary education. This factor describes the dynamic process of potential labour force redistribution across Europe.	High factor scores were recorded across eastern European countries (donors) and western European countries (recipients). The factor captures changes based on potential labour force redistribution.	Figure 2
Factor 3	*Areas of Opportunity*	High positive factor scores for unemployment and employment in the tertiary sector and a moderate negative factor score for natural population increase. This factor describes difficult economic environments across different types of locations	Areas (e.g. Madrid) that have polarised experiences of 'buoyancy', as well as areas experiencing less favourable development trends (e.g. parts of east Germany). This reflects the challenging socioeconomic contexts facing these areas but acknowledges the potential for further evolution in their socioeconomic structure.	Figure 3

Figure B.1: 'Buoyant areas'



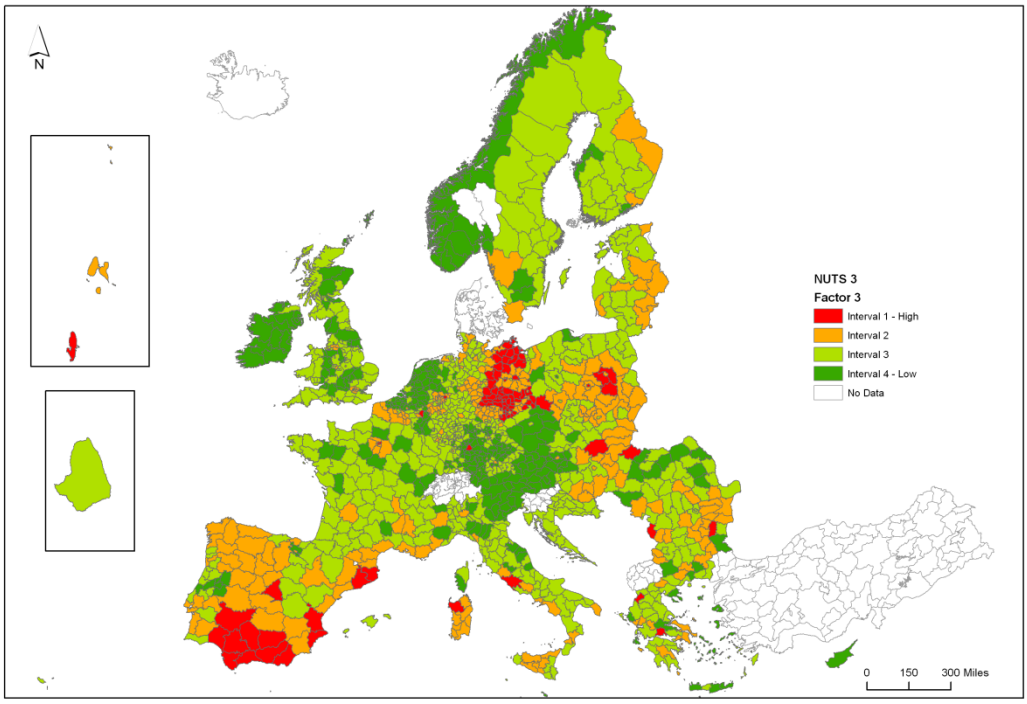
Source: CUPS analysis

Figure B.2: 'Transitioning Areas'



Source: CUPS analysis

Figure B.3: 'Areas of Opportunity'



Source: CUPS analysis

B.2 Multiple regression

Multiple regression is a statistical technique that takes an outcome variable (also known as the dependent variable) and seeks to predict the effect of two or more variables (known as independent variables) on it. In the context of this research, linear multivariate regression was used to measure how combinations of variables influence spatial mobility and how different places perform against a standard statistical benchmark defined by the 'best fit' line resulting from the regression equation. The multiple regression model can be expressed as:

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

Here, the outcome (the dependent variable) is denoted as Y and each predicator (independent variable) is denoted 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.

Net migration, recorded between 2001 and 2006, was the dependent variable used in the regression analysis. In order to normalise the distribution of this variable, an index was calculated as:

$$MI = \frac{(Xij - \text{Min } Xi)}{(\text{Max } Xi - \text{Min } Xi)}$$

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 *ith* variable in the index for NUTS 3 region *j*

Max and Min represent the extremes of the data range.

The initial audit of data quality revealed that the index has 92% coverage of all NUTS 3 regions in Europe (1213 included out of a total of 1317).

The remaining indicators originally collected in stage 1 were potential candidates for inclusion in the regression analysis as independent variables. Correlation coefficients were calculated to identify independent variables highly related to one another. The inclusion of highly correlated variables is problematic in regression because these reduce the explanatory power of the model. Diagnostic statistics were used to identify highly correlated variables and to inform the decision as to which variable should be retained within the regression analysis as independent variables, and which should be discarded. The outcome of the regression analysis involves two elements. Firstly, a global model is produced which predicts the effect of each contextual factor on the dependent variable, net migration. Second, the model produces as part of the process a 'residual' statistic for each NUTS 3 area. A residual is the difference between the actual and predicted value of the dependent variable. The residuals in this study were used to develop a typology that captures net migration trends.

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