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ABSTRACT

Migration and Labour Market Differences: The Case of Wales*

The migration of labour can affect economies in several ways. This paper focuses on two of the economic impacts of migration in the context of the recent Welsh experience. Firstly, since migration is a key aspect of labour market flexibility, it is a mechanism through which local and regional labour market differences can be reduced. However, it is found that the most deprived parts of Wales have the lowest levels of migration and that both in and out-migration rates are negatively correlated with unemployment and sickness rates. Secondly, the characteristics of in and out-migrants have important implications for the current and future performance of local and regional economies. Using a variety of data sources, it is shown that people leaving Wales are younger and more educated than migrants to Wales. Furthermore, younger and more educated Welsh individuals appear to have a higher willingness to move than their counterparts living elsewhere in Britain.

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1. Introduction

Population migration has many economic implications and hence the economic analysis of migration has grown substantially in recent years (Borjas, 1994; 1999, Greenwood, 1997). At the individual level, migration can improve the welfare of the migrant and their family, particularly if they originate from a low wage or low employment area. At a more aggregate level, given that the migration of labour is a key component of labour market flexibility, it is a mechanism through which local and regional labour market differences can be reduced. Migration can also affect the population structure of local areas. For example, certain areas may lose a disproportional share of their younger and educated workers, whilst others may mainly attract retired individuals. These movements can thus affect the current and future prosperity of an area as well as the demand for and provision of local services and amenities.

In this paper we examine the trends in and implications of migration to, from and within Wales, as well as analyzing the characteristics of migrants and attitudes towards migration. Wales provides an interesting case study because it has historically seen periods of considerable in and out migration (Thomas, 1930; Daniel, 1940). This is most clearly demonstrated by the fact that of the four countries that constitute the United Kingdom (UK), Wales has by far the most diverse population, as measured by the percentage of individuals born outside the country. According to figures from the 2001 Census, around a quarter of the Welsh population were born outside Wales, compared to only 13 per cent of the English and Scottish populations and 9 per cent of the population of Northern Ireland. A high proportion of Welsh-born individuals also leave the country, with 22 per cent of the Welsh-born population who lived in the UK in 2001 residing outside the country of their birth. The respective percentages for the

Scots, Northern Irish and English born were 16 per cent, 14 per cent and 2 per cent. It is also found that migrants are not evenly distributed across Wales and that migration is highly correlated with labour market variables. However, rather than people from deprived areas being more willing to migrate, there appears to be a strong negative relationship between an area's in and out-migration rates and its unemployment and sickness rates.

The paper begins by reviewing the literature on the link between migration and labour market differentials. Section 3 contains an analysis of spatial labour market differences in the UK and recent trends in migration to, from and within Wales. This is followed by an examination of the characteristics of the different migrant groups, focusing specifically on age and human capital considerations. An econometric model of migrant status is then estimated to highlight differences between the migrant groups. An attempt is also made to identify the characteristics of those who are most likely to migrate by examining information on individuals' willingness to move varying distances. Section 5 contains a summary and some policy implications.

2. The impact of migration on regional labour markets

The principle market response for correcting local and regional economic disparities is migration. The migration that takes place could either apply to that of labour and/or of firms. Classical economic theory would predict that this mechanism should be effective in reducing regional imbalances. A movement of labour from a deprived to a prosperous area reduces labour supply in the former and increases it in the latter, thereby reducing wage and unemployment differentials. Alternatively, a movement of firms in the opposite direction would cause labour demand to increase in the deprived area, thus raising relative wages and employment in the deprived area.

These predictions also hold in a dynamic setting, as shown by Möller (2001), who develops a theoretical framework to analyse regional adjustment dynamics. The dynamic wage setting and unemployment equations for region r that Möller (2001) derives are:

$$\dot{w}_r = -\eta_1(w_r - p_r) + \eta_1(a_r + g_r) - \eta_2 u_r - \eta_3 q_r + x_r^w \quad (1)$$

$$\dot{u}_r = -(\lambda_1 + v_1)u_r + (\lambda_2 + v_3)(w_r - p_r) + v_1 l_r - v_2 y_r - \xi_1 q_r + (v_2 - v_3)a_r + \lambda_2 g_r + x_r^u \quad (2)$$

where w_r is the nominal wage, p_r is the price index for tradable production goods, a_r is total factor productivity, g_r is the price gap between the production and consumption wage, y_r is production, u_r is the unemployment rate, q_r is the participation rate and l_r is the potential labour supply. These are all endogenous variables, whereas x_r^w and x_r^u represent the influence of exogenous structural variables on wage setting and unemployment. The two equations refer to growth rates and can be approximated by log differences. The equations show that the dynamic development of unemployment in region r depends positively on labour supply and negatively on participation, whilst wage rate dynamics are negatively related to both unemployment and participation. This implies that a net out-migration of labour from a deprived region will raise relative wages and reduce unemployment.

However, the real world is far more complicated than the classical models would predict, mainly because they are based on several restrictive assumptions (Armstrong and Taylor, 2000). These include perfect competition, no barriers to mobility (e.g. no migration costs), perfect information, homogeneous factors of production and perfectly flexible factor prices. There are therefore many reasons to believe why both labour and capital will be relatively immobile across space. In particular, firms do not

appear to move to areas where labour is cheaper (Armstrong and Taylor, 2000). This can be explained by the strong geographical inertia displayed by firms as a result of location specific input-output linkages and key personnel.

Individuals may also be unwilling to move from one region to another even if other areas offer substantially higher wages or better employment prospects. Costs are very important in this respect since it is likely that the individual will incur both pecuniary and non-pecuniary costs as a result of their move and these may be large enough to outweigh the potential gains on offer. An important pecuniary cost of migrating is the cost of buying a house. For example, it is highly unlikely that an unemployed individual in the North East could afford to speculatively move their family to the South East where their employment opportunities and future earnings power are likely to be higher. Non-pecuniary or psychological costs are also likely to be large for individuals with a strong attachment to the area where they currently reside especially if all of their friends and family live locally. Search costs can also be important since individuals tend to be imperfectly informed about employment opportunities in other areas. However, information flows are likely to have improved in recent years with technological developments such as the advent of the internet.

If the market is unsuccessful in reducing regional imbalances then the government can play a role in assisting these movements, particularly firm relocation, through its regional policy.¹ However, regional policy in the UK has been dramatically scaled down over the past two decades. For example, Regional Selective Assistance (RSA) –

¹ Previous UK governments have also tried to stimulate labour migration. For example, the Industrial Transference Scheme, which was introduced in 1928, gave grants and loans to unemployed migrants. This was followed by a number of other schemes which tried to boost labour mobility but these were phased out because they were deemed not to be cost effective. For further details of these schemes and a history of regional policy in the UK, see Scott (2004).

the main domestic policy instrument over the period – was considerably lower in nominal terms in 1999/2000 than it was in 1990/1.² RSA also tends to focus more on attracting foreign direct investment rather than trying to induce domestic firms to relocate (Armstrong and Taylor, 2000). There has also been an increasing reliance on EU regional funding over the last two decades, with the current amount of EU funding currently more than double that of RSA.³ However, with the accession of ten relatively poor economies to the EU in May 2004, regional assistance to the current member states may not be so generous in future. This implies that despite the factors that inhibit the movement of the labour, it has been, and may increasingly be, left to the market to assume a more prominent role if local and regional inequalities are to be reduced.

There is also some debate over the degree of convergence between regional economies that actually results from increased migration. Barro and Sala-i-Martin (1991) and Blanchard and Katz (1992) do provide some evidence that migration has reduced regional income and unemployment differentials in the US. Despite the relatively large internal migration flows in the US, Borjas (2001) argues that these movements are insufficient to ensure the rapid elimination of income differentials and immigration can improve labour market efficiency since new immigrant workers will tend to locate in high wage areas.⁴ It follows that given the smaller volume of both internal and international migration in the UK then it will take far longer to remove regional differentials. Pissarides and McMaster (1990) argue that the adjustment process brought about by regional migration is slow and estimate that it takes over 20

² See Wren (1996) for a discussion of the reduction in regional assistance in the UK over a longer period.

³ See Drinkwater (2003) for further details.

⁴ Borjas (2001) estimates that the efficiency gain which accrues to US natives through the equalisation of the value of marginal products of workers in different labour markets as a result of immigration is substantial. His simulations suggest that this gain is in the order of \$5 billion to \$10 billion per annum.

years to remove a disequilibrium unemployment differential in a depressed region. Hughes and McCormick (1994) and McCormick (1997) find that migration had only a limited impact on reducing the north-south divide.⁵ Part of the explanation for these findings is that migration tends to be pro-cyclical, which implies that migration is not likely to be a very effective mechanism for reducing regional unemployment differentials, especially during recessions (Armstrong and Taylor, 2000). Decressin and Fatás (1995) find that for Europe, participation rates fall rather than there being a tendency for individuals to migrate in response to an economic shock.

From the above discussion, it can be seen that migration has a potentially important role to play in reducing spatial labour market differences. However, some of the empirical evidence suggests that the volume of migration seen in many developed countries is insufficient to narrow these differentials. Furthermore, the respective characteristics of those people moving to an area compared to those who leave should also be considered. Age and human capital are particularly important in this respect given that these factors are important determinants of both current and future economic performance. Therefore, the proceeding analysis not only considers the relationship between migration and labour market variables but also the characteristics of migrants, focusing in particular on their age and education.

⁵ See Armstrong and Taylor (2000) for a summary of evidence from other countries.

3. Spatial labour market differences and migration to, from and within Wales

3.1 UK regional labour market differences

Spatial economic inequalities were present in the UK for the majority of the twentieth century. For example, Scott (2004) reports that in 1951 the unemployment rate in Wales was over three times as high as it was in the South East, whilst Gross Domestic Product (GDP) *per capita* in Wales was just 84 per cent of the UK average. Wide regional disparities continued to be observed at the end of the 1970s despite the relatively generous regional assistance that had been allocated to deprived areas in the preceding decades. There was also clear evidence of a north-south divide in earnings and unemployment during the 1980s, even after controlling for socio-economic and demographic factors (Blackaby and Manning, 1990; Blackaby and Murphy, 1995).

However, regional unemployment rates have converged since the early 1990s.⁶ The narrowing of regional unemployment rates is clearly demonstrated by the information presented in Table 1. In particular, the statistics indicate that regional unemployment differences are now very small. By 2002, the International Labour Organisation (ILO) unemployment rate for the UK had fallen to 5.2 per cent, with no region experiencing an unemployment rate in excess of 7 per cent. There has also been a convergence in the duration of unemployment spells across regions during the 1990s. Most notably, the percentage of claimants who were unemployed for more than one year in Northern Ireland was substantially lower, whilst in general, the remainder of the regions were clustered around the UK average.⁷

⁶ Martin (1997) discusses the evolution of regional unemployment rates in the UK since the 1960s and the reduction in the differentials that took place during the recession of the early 1990s.

⁷ See Drinkwater (2003) for further details.

However, despite the ILO definition being a more preferable measure of unemployment than the claimant count definition, the employment situation is not as healthy as the ILO figures would suggest. This is because even though the ILO captures an individual's willingness to work rather than whether they claim benefit, it does not capture hidden unemployment caused by inactivity, which is particularly high in some of the peripheral regions. With large numbers of unemployment benefit claimants transferring to invalidity benefit, the published unemployment figures can grossly underestimate the 'real' level of unemployment in some areas (Fothergill, 2001). It can be seen from Table 1 that employment rates (which measure numbers in employment as a percentage of the working age population) are particularly low in the North East, Northern Ireland and Wales, where less than 70 per cent of working age individuals were in employment in 2002, compared to over 80 per cent in the South East.⁸

Table 1 also reports wide regional variation in terms of earnings and income. In particular, the peripheral regions lag well behind those in the south in terms of average earnings, with these differentials tending to have increased over the 1990s. London stands out as the region with the highest earners, but earnings are also relatively high in the surrounding South East and Eastern regions. Cameron and Muellbauer (2000) argue that the Office of National Statistics (ONS) figures are even an underestimate of the true earnings differential. Although it should of course be acknowledged that prices, and house prices in particular, are much higher in London and the South East. Hence cost of living differences could remove a significant

⁸ It should be noted that the North East, Wales and Northern Ireland have historically experienced relatively high levels of unemployment.

proportion of the earnings advantage enjoyed by some of those living in London and the South East.

Due to the large number of individuals claiming state benefits in some regions and hence differences in the proportion of tax payers, *per capita* disposable household income may be a more appropriate indicator with which to consider regional income differentials. When this variable is expressed as a percentage of the national average, it is lower than the equivalent earnings figure for some regions, most notably the North East, where disposable household income is less than 83 per cent of the UK figure. In addition, disposable household income in Scotland and the South West fell relative to the national average during the 1990s. Linacre (2002) also reports substantial variation in the composition of household income across the UK. For example, the compensation of employees accounts for 62 per cent and benefits only 6 per cent of household income in Swindon, compared to 47 per cent and 17 per cent in the North of Northern Ireland and 41 per cent and 10 per cent in South West Wales respectively.

Regional income inequality is even more acute if GDP differentials are considered. For example, GDP *per capita* was 77.3 per cent, 77.5 per cent and 80.5 per cent of the UK average in 1999 in the North East, Northern Ireland and Wales respectively. The existence of deprived areas in the UK is further highlighted by the fact that several areas are now eligible for Objective 1 funding as a consequence of their GDP *per capita* being less than 75 per cent of the European Union (EU) average. From 2000, the areas that are able to attract this type of funding are Merseyside, South Yorkshire, West Wales and the Valleys, Cornwall and the Isles of Scilly.

3.2 UK inter-regional migration flows

Even though the peripheral regions have typically been net exporters of people over the period, it can be seen that by comparing the migration flows in Table 2 to the population figures reported in Table 1 that only a small proportion of individuals actually move region each year. The table also shows that London has the largest net population outflow in each of the years. The main recipients of this outflow have been the South West, South East and the Eastern region. The latter two regions have mainly benefited from the outward movement of London workers to the commuter belt, while the former has traditionally been a magnet for pensioners, The East Midlands has also seen quite a large level of net in-migration in recent years, while other English regions have typically experienced a small amount of net migration. Gordon and Molho (1998) document how these patterns have generally been observed over a longer time period and discuss the issues that arise in greater detail. However, London attracts a large number of immigrants, which offsets the out-migration of residents to other parts of the country. According to the ONS, immigration to London in 2000 amounted to 223,000, which accounted for around 45 per cent of immigrants who entered the UK in that year.

Wales is also a net importer of migrants from the rest of the UK. Table 2 shows that the inflow of migrants to Wales has grown considerably in recent years, from around 45,000 in 1981 to 64,000 in 2002. On the other hand, the number of out-migrants from Wales to other parts of the UK has remained around the 50,000 mark since the mid-1980s. Part of the reason for the net inflow of people into Wales is that its rural areas provide an attractive location for retirement. However, in 2000 there was also a net inflow of 1,200 and 4,000 individuals in the 25-44 and 45-64 age groups respectively. A more detailed analysis of the age composition of Welsh migration will

be undertaken in Section 4.1. It can also be seen from Table 2 that despite having a total population of less than 60 per cent of that of Scotland, the absolute amount of people entering Wales from other parts of the UK has typically been far higher than the respective figure for Scotland. In contrast, the numbers leaving Wales and Scotland for other parts of the UK have been roughly equal over the last couple of decades.

3.3 Spatial labour market differences within Wales

Some of the labour market trends that have occurred at the UK level are also observed when local labour markets within Wales are analysed. In particular, Table 3 reports that most Welsh Unitary Authorities (UAs) have unemployment rates that do not differ greatly from the Welsh average.⁹ Although unemployment rates have fallen considerably in the South Wales Valleys over the past two decades, the highest unemployment rates in Wales still tend to be found in this area. For example, three out of the four UAs with unemployment rates of 7 per cent or more in 2002 were located in the Valleys (Blaenau Gwent, Merthyr Tydfil and Neath Port Talbot), the other high unemployment area being Anglesey.

It was noted in the previous section that hidden unemployment due to high levels of economic inactivity is a particular problem in Wales and further evidence of this is provided in Table 3. Furthermore, it is again the South Wales Valleys where the lowest employment rates are to be found, with the three Valley UAs with relatively high unemployment suffering from extremely low employment rates since just over a half of the working age populations in these areas were in employment. The growth in inactivity rates has been greatest in traditional high unemployment areas and where

⁹ The geographic location of the Welsh UAs is shown in Figure 1.

employment growth has been slowest. The primary reason for the rise in inactivity rates in Wales is the large percentage of working individuals claiming invalidity benefits because of the relative generosity of these payments in comparison to unemployment benefits (Webster, 2000). Inactivity and long term sickness are highly concentrated in the former mining communities of the South Wales Valleys, with over 15 per cent of adults in Merthyr Tydfil defined as permanently sick and slightly lower percentages observed in Blaenau Gwent, Neath Port Talbot, Caerphilly and Rhondda Cynon Taff. One startling statistic from the 2001 Census summarises this problem. Of the 100 (out of the 8868) wards England and Wales with the highest incidence of long term sickness, 63 were located in Wales, including two out of the top three and ten out of the top twenty.

Table 1 showed that earnings in Wales were only 87 per cent of the national average in 2003 and even within Wales there is quite high variation. It can be seen from Table 3 that in this year wages were above the British average in only two Welsh UAs, Monmouthshire and the Vale of Glamorgan. Wages in the South Wales Valleys are well below the Welsh average, with Blaenau Gwent the only UA in 2003 where gross earnings were less than £9 an hour.

3.4 Migration to, from and within Welsh UAs

Table 4 reports migration rates within Welsh UAs, to the UA from other parts of the UK, from outside the UK and from the UA to elsewhere in the UK.¹⁰ It is noticeable that the Welsh UAs with the highest migration rates in 2001 were those in the rural west and north. Ceredigion in particular has a high migration rate, since it has the highest percentage of its population moving within its boundaries, as well as the

¹⁰ The percentage with no previous address is also recorded.

highest rate of inward and outward migration to and from other parts of the UK. Cardiff has the second highest migration rate and also attracts the highest percentage of its population of any Welsh UA from overseas. This is not surprising given the capital's relatively diverse population base and local economy. The least dynamic areas in terms of mobility are the Valley UAs of Merthyr Tydfil, Torfaen and Blaenau Gwent.

Table 5 presents details of the composition of the population of Welsh UAs in terms of their country of birth. Information on the country of birth for the residents of England, Scotland and Northern Ireland in 2001 is also included for comparative purposes. The table shows that Wales has by far the most diverse population of the four countries that make up the UK in terms of country of birth.¹¹ Just over three-quarters of Welsh residents in 2001 were born in Wales, whereas over 87 per cent of the English and Scottish populations were born in those countries and more than 91 per cent of people living in Northern Ireland were born there. Over 80 per cent of the Welsh population born outside the country were born in England, with people born outside of the EU contributing the next highest proportion of immigrants to Wales. There has been a roughly proportional movement of the Welsh born to other parts of the UK since over 20 per cent of people born in Wales now live in England (ONS, 2004). On the other hand, people born in Scotland, Northern Ireland, the Irish Republic and the EU each accounted for less than 1 per cent of the Welsh population.

A further indication of the degree of cumulative migration (from outside Wales) can be obtained at the UA level using the country of birth data. It can be seen from Table 5 that in the UAs located in North East Wales such as Flintshire, Conwy and

¹¹ Giggs and Pattie (1992) discuss this issue in far greater detail, using data from the 1981 Census.

Denbighshire, the Welsh born only just out-number those born outside the country. All of these UAs are close to the English border, and around 40 per cent of the population in each of these areas were born in England. Similar percentages are found in Powys and Monmouthshire, which again border England. However, there is a much lower percentage of immigrants in other UAs in South East Wales such as Newport, Torfaen and Blaenau Gwent. Furthermore, some UAs in the far west of Wales, Ceredigion in particular, also have a relatively high percentage of immigrants. Again the majority of those born outside Wales came from England. The cumulative effect of the low migration rates from the South Wales Valleys can be seen by the fact that in these areas between 85 and 92 per cent of the population were born in Wales, which is much higher than the national average. Thus the areas where the proportions born in Wales are lowest are mainly rural areas. Only a small percentage of the population in each of the Welsh UAs were born outside England and Wales, with Cardiff the only part of Wales where more than 5 per cent of its population originates from outside the EU.

The statistical relationship between local labour market conditions and migration is tested in Tables 6 and 7. Table 6 reports correlations coefficients and p-values between labour market indicators and in and out-migration rates for the 22 Welsh UAs. It can be seen that areas with high unemployment and sickness rates i.e. the South Wales Valleys have the lowest in and out-migration rates as well as the highest proportions born in Wales, whereas areas with the highest earnings have high rates of in and out migration and non-Welsh populations. These relationships can be further examined at a more disaggregated level using ward data.¹² At this level, the

¹² Wards are the more disaggregated geographical area for which labour market statistics are released in the UK. There are 881 such areas in Wales.

percentage of the area's population born outside Wales is used as the sole migration indicator.¹³ This seems reasonable since migration rates are highly correlated with the percentage of an area's non-Welsh population. In fact, Table 6 reports that the correlation between the two migration variables and the percentage of population born outside Wales at the UA level is at least 0.7. Table 7 confirms that the relationships between labour market and migration variables observed in Table 6 are also present at the ward level. For example, areas with the lowest percentage of their population born outside Wales having by far the highest sickness and unemployment rates. There is also a positive and significant relationship between income levels and the percentage born outside Wales.

4. Characteristics of migrants and potential migrants

4.1 Age

In recent years, much debate has focused around the consequences of, and possible solutions, for an ageing population. Increased immigration is thought to be one way in which this problem can to some extent be ameliorated, at least in the short term, since immigrants are typically younger and have higher fertility rates (Zimmermann, 1995). Furthermore, Razin and Sadka (2000) show that immigration can be beneficial to all residents in an economy where pensions are paid on a pay-as-you-go basis. Kemnitz (2003) qualifies this finding when relaxing the assumption of competitive labour markets, showing that the low-skilled native population are harmed, but this effect is not large enough to outweigh the gains for other groups, resulting in an unambiguous gain for the population as a whole. In the current context, a net outflow of younger people from Wales to other parts of the UK will reduce the working population and increase the dependency ratio and a net inflow of older people into Wales can create

¹³ Ward level information on in and out-migration was not available at the time of writing.

pressure on particular social services. Therefore not only is the amount of migration important, but also the composition of migration flows, as this has implications for the age structure and hence the flexibility of local labour markets. Changes in the age structure of a labour market can have implications for employment, unemployment and activity rates as well as wage rates and the skills base. It also has implications for the ability of labour markets to respond to demand and supply shocks as older workers are seen as being less able to respond to change and are also less likely to migrate (Dixon, 2003).

Table 8 reports age-related migration inflows and outflows to and from each of the 22 Welsh UAs, as well as the net migration figure for each area. In terms of Wales as a whole, the only age group with a net out-migration is between the age group between 16 and 24.¹⁴ To some extent this may be due to a relatively large number of Welsh students attending English universities. Overall, however, there was a net in-migration of around 7000 individuals in the year 1999-2000, with the 45-64 year age group accounting for more than half of the net inflow. It is mainly the rural UAs such as Conwy, Carmarthenshire, Powys and Pembrokeshire that have the highest amounts of net in-migration for this age group.

The *Sample of Anonymised Records (SARs)*, which is a detailed sample (2 per cent) of micro data taken from the 1991 Census, can be used to compare the characteristics of migrants into Wales with those who have moved out, as well as with migrants moving

¹⁴ The only UAs which had a net in-migration of 16-24 year olds in 1999-2000 were Cardiff, Ceredigion, Gwynedd and Swansea and these areas contain the largest constituent parts of the University of Wales (Cardiff, Aberystwyth, Bangor and Swansea).

within Wales and those individuals who have not moved at all.¹⁵ Thus we are able to compare the characteristics of four migrant groups as well as one non-migrant group. Using the SARs data, Table 9 also shows that there was a small net inflow of people into Wales from the rest of the UK. As expected, around two-thirds of individuals moving to Wales from other parts of the UK were born in England. Interestingly, the Welsh born accounted for 23 per cent and 30 per cent of individuals moving to Wales from other parts of the UK and from outside the UK respectively.

It can be seen using the *SARs* that non-migrants were considerably older than each of the migrant groups in 1990-91. The biggest differences occur in the 16-30 age category, which constitutes over 36 per cent of each of the migrant groups, compared to only 16 per cent of the non-migrant group. The percentages in the over 50 age category are more or less reversed for migrant and non-migrant groups. Amongst the migrant groups, those moving to Wales from outside the UK were on average the youngest, followed by out-migrants from Wales to other parts of the UK, migrants within Wales and in-migrants from other parts of the UK. When just individuals of working age are considered the pattern changes somewhat, with the average age of migrants moving from Wales to the rest of the UK now being the lowest of all the migrant groups. Therefore the age of individuals leaving Wales is below that of those entering the country.¹⁶

¹⁵ The 1991 *SARs* are used since sample sizes in the *LFS* are too small to analyse Welsh migration because questions on migration are only asked in the Spring quarter each year and the 2001 *SARs* has yet to be released by the *ONS*.

¹⁶ To our knowledge, no information is available on the characteristics of Welsh migrants living outside the UK.

4.2 Human Capital

The skill composition of migration is also of vital importance for the future performance of both the sending and receiving economies. Within the receiving country, economic growth can be driven by the accumulation of human capital (Lucas, 1988). On the other hand, the outflow of human capital (i.e. a brain drain) has traditionally been thought to have a detrimental effect on labour exporting countries (Bhagwati and Hamada, 1974). However, more recent studies discuss certain situations where a brain drain can actually confer benefits on the sending country (Beine *et al.*, 2001; Commander *et al.*, 2002).

Table 10 presents information on educational differences between migrant groups by reporting the percentage of individuals of working age (excluding those who are currently students) in each of the migrant groups who possessed higher qualifications in 1990-91. It can be seen that the educational profile of non-migrants and those moving within Wales was fairly similar. In contrast, those individuals who moved from Wales to other parts of the UK were the most qualified, followed by those who moved to Wales from other parts of the UK and from outside the UK. These figures suggest, using a single cross section of data, that there has been a net brain drain from Wales.

To gain a more complete indication as to what extent a net brain drain has occurred over time, the most recent *Labour Force Survey (LFS)* data are examined.¹⁷ Table 11 contains information from the *LFS* for 2003 and reports the cumulative impact of the migration of the highly educated from Wales as it reports educational attainment by country of birth and residence for the population of working age. Most notably, it can

¹⁷ Information on country of birth within the UK only began to be collected in the LFS from 2001.

be seen that around a third of the Welsh born living in other parts of the UK have degrees, compared to around only a tenth of the Welsh born still residing in the country of their birth.¹⁸ Although Wales also attracts highly qualified migrants since 22 per cent of immigrants to Wales have a degree, this is not enough to compensate for the migration of the well qualified Welsh born. These differences also seem to be widening given that in 1991, the *SARs* indicates that 20 per cent of the Welsh born living in other parts of Great Britain were graduates compared to 12 per cent of the non-Welsh born living in Wales. The percentage of Welsh born living elsewhere in the UK with no qualifications is also 4 percentage points lower than corresponding percentage of the non-Welsh born living in Wales. Interestingly, by way of comparison, only 27 per cent of Scots living elsewhere in the UK have degrees, whilst 30 per cent of non-Scots living in Scotland are graduates.

Migration may only be part of the story though as well educated Welsh born people living just over the English border may commute to work in Wales, or vice-versa. For example, Hunt (2000) analyses commuting as well as migration to obtain a more complete picture of the extent of the brain drain from East to West Germany. She finds that commuters are less skilled than migrants, possibly because the costs of moving deters the less skilled from migrating. However, the information reported in Table 11 suggests that commuting does not alter the situation that much since although a relatively high proportion of commuters to Wales have degrees and very few have no qualifications, far greater numbers live in Wales but work elsewhere in the UK. This additional outflow of well qualified Welsh residents is a further cause for concern.

¹⁸ See also ONS (2004).

The social class (occupational) data on migrant groups mirrors the findings regarding higher qualifications in that non-movers and internal migrants within Wales were comprised of a much lower percentage of professional and managerial individuals than those who moved longer distances. The highest proportion of professional/managerial individuals could be found amongst immigrants to Wales from outside the UK. However, the percentage of migrants leaving Wales from the professional/managerial and skilled classes was again higher than the equivalent percentages for migrants to Wales from other parts of the UK. Therefore using this single cross section, the social class data confirms the notion that there has been a net brain drain from Wales.

4.3 Econometric estimates of migrant status

The previous analysis has provided details on a number of aspects of Welsh migration using a range of data sets and descriptive statistics. Therefore in order to control for the influence of other covariates, it is necessary to estimate an econometric model to isolate some of the differences discussed previously. In particular, Table 12 reports multinomial logit estimates for the propensity to be in each of the migrant groups for non-students aged between 18 and 55.¹⁹

Of most interest, it is found that migration decreases with age and is lower for those individuals with no higher qualifications. Both of these findings can be explained within a human capital framework. Younger people are more likely to migrate

¹⁹ 55 was chosen as the upper age limit because it is expected that individuals older than this are far less likely to move for job related reasons. Böheim and Taylor (2002) constrain their analysis of actual migration decisions to individuals aged between 16 and 55. 18 has been chosen as the lower limit so that the results can be compared directly with subsequent analysis.

because they have a longer period over which they can pay back any moving costs they may incur, they are also less likely to have acquired location specific human capital and should have a lower psychological attachment with the area that they currently reside than older individuals. Finally, more qualified individuals should be faced with a larger range of job opportunities, suffer lower psychic costs because they are already to have already left the family home and be better able to cover the financial costs of a move. Union wage bargaining and minimum wage rates should also reduce wage differentials amongst occupations that do not require higher qualifications.

Relative to the base category, which relates to those individuals who have moved from Wales to other parts of the country, individuals in all other migrant groups are older and have less higher qualifications. This is particularly true of non-migrants and those migrants who have not left Wales. In fact, the only significant differences between in and out-migrants to Wales are age and higher qualifications. Thus, using this particular cross section, it is clear that Wales loses a disproportionate share of its younger and more educated people, even after controlling for other personal characteristics, which is also consistent with the more recent evidence presented in Table 11.

In terms of other characteristics, marital status does not have a very important influence on migration, although those who are currently or have previously been married are slightly more likely to be non-movers. Non-movers and intra-regional migrants are also more likely to have dependant children. This is also consistent with the human capital model as partners and children are thought to tie an individual to their current area of residence, thereby increasing the cost of moving. Gender does not

have that strong an effect on migrant status. The unemployed are significantly less likely to be non-movers compared to those in employment. Ethnic minorities are less likely to be non-movers and more likely to migrate to Wales from abroad, although it should be noted that Wales only has a small non-white population.

4.4 Estimating the Willingness to Move

Not only is it important to investigate the characteristics of individuals who actually move in a given period but also which type of individuals are likely to move, especially over long distances. This can be done using the 1995 *British Social Attitudes Survey (BSAS)* since this survey includes a question on an individual's Willingness to Move (WTM) from their current location. The *BSAS* is an annual representative sample of adults aged 18 and over living in private households in Great Britain and contains details on a range of personal and area characteristics.²⁰ However, only around a third of the *BSAS* respondents were asked the WTM questions.²¹ Furthermore, as in Table 12, we constrain our data to include those individuals aged between 18 and 55. This reduces the useable sample to less than 700 individuals, of which under 50 are resident in Wales. Therefore we are unable to examine the Welsh responses to WTM questions separately but instead must analyse them in conjunction with the rest of the British sample.

Table 13 contains details of the sample respondents' stated WTM from their current area of residence. This information is collected over a number of different levels since respondents were asked how willing they would be to move away from their

²⁰ The achieved sample size in 1995 was 3633.

²¹ Each individual who was identified to take part in the survey was allocated to the A, B or C third of the sample. Only those individuals allocated to the A version of the questionnaire were required to answer the questions on national identity and migration (Lilley *et al.*, 1997).

neighbourhood, town/city, county, Britain and Europe if they could improve their living or working conditions.²² Responses were given on a five-point scale, which was recoded so that a higher value indicates a greater WTM.

Focusing on the averages for all respondents, it can be seen that an individual's WTM decreases as the distance of the prospective move gets larger. This is exactly what the human capital model (Sjaastad, 1962) would predict since migration over longer distances is much less attractive due to the increased financial and indirect costs of longer moves (Schwartz, 1973). The indirect or 'psychic' costs are caused by the separation from friends, family and familiar surroundings and may be very high for certain individuals. Search costs will also increase with distance.

Given that the *BSAS* also collects information on a range of personal characteristics this implies that the average WTM can be calculated for a range of demographic sub-groups. The table reports the average WTM split by different personal characteristics: gender, sex, economic position, area of residence and education, as well as those characteristics which previous studies on the WTM/movement intentions focus upon e.g. unemployment (Ahn *et al.*, 1999; Faini *et al.*, 1997) and housing tenure (Hughes and McCormick, 1985). The table also reports p-values, to indicate whether the WTM differences between two sub-groups are statistically significant.

It can be seen from Table 13 that males exhibit a higher WTM than females over all distances, although these differences are only significant for moves to another town/city or county and at the national level. This may suggest that males should be

²² The precise wording of the questions from which this information is derived can be found in the Appendix.

less tied to their area than females because of family considerations. In line with findings shown in Table 12, younger people are more willing to move than their elders and respondents with a higher education view moving a more attractive prospect than those who do not possess such qualifications. The differences between those with and without higher education become larger as the distance of the prospective move increases. In common with higher education graduates, non-manuals display a far higher WTM outside of their counties than those with manual occupations. A possible explanation for this finding is that professionals and managers are more likely than other occupations to operate within national rather than local labour markets.

Unemployed individuals appear more willing to move than those with jobs or inactive people, although the differences between the employed and unemployed are fairly small. In contrast, individuals who are currently inactive appear to be very reluctant to move far from their current location. In terms of housing tenure, private renters are the most willing to move, providing some support for the conjecture of Oswald (1996) that the lack of private rented accommodation impedes labour mobility. Furthermore, in line with the arguments of Hughes and McCormick (1981, 1985), there appears to be a reluctance on the part of social housing tenants to engage in long distance migration.

It might also have been thought that individuals living the north of England, Wales and Scotland would display a higher WTM than their southern counterparts. However, this pattern is not observed in the raw data, with the only significant differences found between Wales and the North of England for the WTM longer distances. The Welsh appear to be relatively reluctant to move from their neighbourhood – they have the

lowest average WTM of all four areas at this level – but relatively willing to move longer distances, especially overseas. It should be noted though that the sample sizes for Wales and Scotland are fairly small.

Econometric models of an individual's movement intentions or their willingness to move have been estimated by several authors, including Ahn *et al.* (1999) for Spain, Burda *et al.* (1998) for Germany, Faini *et al.* (1997) for Italy, Yang (2000) for China and Hughes and McCormick (1985) and Gordon and Molho (1995) for Great Britain. Econometric models have been estimated since there is strong evidence to suggest that individuals who have a more favourable attitude towards migration are more likely to move. For example, Böheim and Taylor (2002) examine longitudinal data from the *British Household Panel Survey* and find that the actual propensity for moving was around three times higher for respondents who had expressed a preference for moving than those who did not express a preference for moving in the previous wave. Gordon and Molho (1995) also report evidence from a survey of actual and potential British migrants in 1980 that at least 90 per cent of the potential migrants moved within five years, of whom around a half moved within a year.

Most of the studies cited above estimate dichotomous dependent variable (i.e. logit or probit) models, but given the categorical and ordered nature of the WTM variable, ordered probit models are estimated. Estimates are reported in Table 14 for an individual's WTM to another location within Britain at the five levels reported in Table 13 i.e. neighbourhood, town/city, county, country and continent. By examining both the estimates for the WTM country and continent, this should provide an indication of the factors that are important in determining the WTM over longer distances, which is useful since no question was asked on the WTM region. Two

specifications are reported for each distance of prospective move, one which does not include any interaction terms and another which does.

Focusing initially on specification 1, it is found for each of the models that females are less willing to move any distance from their current place of residence after controlling for other influences, although the gender difference is only significant at the 5 per cent level for moving to a different town/city or county. Age has a negative impact on an individual's WTM and this effect is significant at the 5 per cent level apart from the WTM town/city. This is consistent with the findings of other empirical studies of the determinants of individual migration decisions, which have typically found that younger individuals have far higher migration rates (Molho, 1987; Pissarides and Wadsworth, 1989; Thomas, 1994; Boheim and Taylor, 2002).

The higher education dummy is not significant for prospective moves away from the individual's neighbourhood or town. However, the coefficient on the dummy does increase as the distance of the prospective move increases and educational differences are significant for prospective moves to another county, country and continent. This indicates that those with qualifications are far more prepared to move long distances. In accordance with the raw figures reported in Table 13, unemployed people are more willing to move from their neighbourhood than employed people but less willing to move longer distances, although none of these influences are significant. On the other hand, inactive people are far less willing to move long distances, even after controlling for other personal characteristics.

Marital status does not exert a very important influence, although widows, divorcees and separated individuals do appear to have a higher WTM than those who are

married. However, there are no great differences between married and single people and the coefficient on the dummy variable for singles is negative in some of the models. This is again slightly surprising given that married individuals will usually have stronger ties to their area. Pissarides and Wadsworth (1989) and Boheim and Taylor (2002) find that marital status is important in determining whether or not an individual moves, with single persons having the highest migration probability. Mincer (1978) focuses on the family migration decision and argues that migration rates would be much higher if people were just concerned about their own circumstances, rather than taking into account those of others. Similarly, one would expect larger households (who will have more children) to be less willing to move their families. This coefficient attached to this variable is negative in each of the models but is only significant at the 5 per cent level in the WTM country and continent models. Ethnicity is not a significant determinant of the WTM in any of the models.

The country of residence dummies are not significant apart for prospective moves over longer distances. As was the case with the raw figures, it can be seen from Table 14 that inhabitants of Wales were slightly less willing to move from their neighbourhoods in 1995 than people living in England but the relative WTM of Welsh people increases as the distance of the prospective move becomes bigger. In particular, Welsh residents were significantly more willing to move abroad than either people from Northern England or Scotland.

Turning our attention to the models that estimate specification 2, which include the interaction terms, it can be seen that the interaction between age and the Wales dummy is negative and significant in each of the models. This indicates that young

people in Wales are more willing to move than comparable youngsters in other parts of Britain. The interaction between the higher education and Wales dummies is positive in each model, but is only significant at the 5 per cent level for prospective moves from the individual's own neighbourhood and town/city.²³ However, as mentioned previously, those with a higher education are far more willing to move longer distances. Thus, not only are well qualified Welsh youngsters prepared to move long distances, they also appear to be more prepared to move shorter distances than their counterparts from other parts of Britain.

5. Concluding Comments

Competitive theory suggests that spatial real wage and unemployment differentials should disappear as a result of the migration of labour and capital and so government intervention is unnecessary. Furthermore, the role of migration in reducing local and regional inequalities is likely to be more important now as a consequence of the reduction in regional assistance to deprived areas in the UK in recent decades, the prospect of reduced EU funding post-enlargement and the continued reluctance of firms to relocate. However, evidence presented in this paper suggests that this process, if working at all, is working very slowly. Indeed, alternative theories have been developed which emphasize virtuous and vicious circles of development rather than convergence to equilibrium. Given that labour mobility tends to be highest amongst the young and better skilled in Wales, migration is likely to lead to divergent development. This issue is of particular concern to areas such as the South Wales Valleys. It is also found that large income differences exist not only at the local level but which also appear to be widening at the regional level in the UK, with London and the South East pulling away from the national average. Given that further European

²³ This interaction is also significant at the 10 per cent level in the WTM county model.

integration is expected over the coming years, in particular if the UK becomes part of the European Monetary Union, these differentials are likely to widen yet further, with the prospects of the more deprived Welsh areas likely to further worsen without regional assistance.

The paper reports that there has been a net out-migration of younger people from Wales, which can have a negative impact on the national as well as the local economy, especially if the area mainly attracts retired people. The net out-migration of younger individuals and net inflow of older and retired individuals, which results in a general ageing of the workforce, can have dramatic implications for the dynamism of local labour markets. Whilst older workers are less likely to become unemployed once employed, they generally experience longer spells of unemployment and a greater tendency to become inactive than younger workers. They are also less likely to take part in formal education and workplace training. After the age of 25, relatively few individuals gain additional formal qualifications (Dixon, 2003). This can have implications for the flexibility of a local labour market and its attractiveness as a place to invest as these areas will be less able to respond appropriately to demand shocks and technological change as they become more dependant on older workers to meet developing skill needs (OECD, 1998).

Another of the main findings is that educated people actually move and are far more willing to move long distances. This can partly be explained by those with higher qualifications facing lower psychic costs as they have been to university or met people from different backgrounds and so have already cut some of their ties with their local communities. However, although education is conducive to producing a more mobile labour force, Wales has lost a disproportionate share of its highly qualified human

capital. Furthermore, highly educated young people living in Wales also appear to have a greater willingness to move long distances. This suggests that although the Welsh economy has been successful in the recent past in creating new jobs, greater attempts should be made to create high-value jobs and to implement development strategies which distribute such jobs across the country in order to retain and attract talented workers.

The evidence also suggests a need for increased migration among certain groups e.g. those with manual occupations and people from particular areas, especially the South Wales Valleys, since it is found that the most deprived parts of Wales have the lowest migration rates. This applies as much to in-migration as it does to out-migration since not only will this improve the fluidity of the Welsh labour market but also provides an injection of human capital into the Valleys. As well as educational initiatives in more deprived areas, reform of the housing sector could help to remove some of the impediments to mobility because of the important links that exist between housing and labour markets (Henley, 1998). For example, the movement of labour is restricted for social housing tenants by administrative restrictions on moving between local authorities, and for owner occupiers by high house prices, pre-contract uncertainties and the transactions costs that are associated with moving house. Improvements in job prospects, housing and local amenities would also encourage more people into the deprived areas. Whilst changes in the benefit system such as regularly assessing entitlement to invalidity benefits could also encourage migration away from areas where sickness rates are currently extremely high.

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TABLE 1
UK Regional Labour Market Statistics

	Population¹	Unemployment Rate²	Employment Rate³	Hourly Earnings⁴	Household Income⁵
North East	2515	6.9	68.5	10.17	82.9
North West	6730	5.5	72.0	11.08	93.0
Yorkshire and the Humber	4965	5.4	72.9	10.66	92.3
East Midlands	4172	4.2	76.5	10.97	92.7
West Midlands	5267	5.5	74.3	11.03	91.2
Eastern	5388	3.5	79.2	12.79	111.7
London	7172	6.6	70.9	15.55	119.4
South East	8001	4.0	80.1	13.62	111.6
South West	4928	3.6	79.0	11.28	97.5
Wales	2903	6.1	68.5	10.47	90.4
Scotland	5062	6.8	73.1	11.04	94.8
Northern Ireland	1685	5.6	67.5		85.9
United Kingdom	58789	5.2	74.1	12.04	100

Sources and notes:

1. 2001 *Census of Population* – figures are in thousands.
2. *Labour Force Survey (LFS)*, Spring Quarter 2002 – based on the International Labour Organisation (ILO)'s definition of unemployment.
3. *LFS*, Spring Quarter 2002 – Percentage of the working aged population who are in employment.
4. *New Earnings Survey (NES)*, 2003 – Gross average hourly earnings of full-time workers in pounds. No data available for Northern Ireland so the average relates to Great Britain rather than the UK.
5. Office for National Statistics (ONS), 1999 – Disposable household income *per capita* as a percentage of the UK average.

TABLE 2

UK Inter-Regional Migration Flows: 1981 - 2002

	Inflow										Outflow									
	1981	1986	1991	1996	1998	1999	2000	2001	2002	1981	1986	1991	1996	1998	1999	2000	2001	2002		
North East	31	36	40	39	39	39	39	40	43	39	46	41	45	44	44	43	43	41		
North West	102	112	96	105	104	105	106	106	109	122	138	123	114	116	115	111	110	108		
Yorkshire and the Humber	68	79	85	91	93	95	97	96	100	73	91	85	98	98	97	96	96	95		
East Midlands	77	102	90	102	108	111	112	115	120	72	85	81	94	97	96	95	96	97		
West Midlands	67	87	83	91	93	94	94	95	99	79	95	88	101	101	102	101	102	103		
Eastern	121	145	122	139	143	148	146	147	150	104	128	113	121	124	126	125	127	130		
London	155	183	149	168	171	163	163	160	155	187	232	202	213	218	228	232	244	262		
South East	202	243	198	228	226	229	224	224	229	166	204	185	199	207	209	210	216	220		
South West	108	149	121	139	139	143	140	143	146	88	103	99	110	111	111	111	111	111		
Wales	45	55	52	55	56	58	59	60	64	42	50	47	53	54	53	52	51	50		
Scotland	47	44	56	47	53	51	49	56	53	48	58	47	54	54	55	53	50	48		
Northern Ireland	7	9	12	11	12	12	11	13	11	10	15	9	12	12	12	12	11	11		

Source: *National Health Service Central Register (NHSCR)*

Note:
Figures are in thousands

TABLE 3

Labour Market Indicators for Welsh Unitary Authorities

	Unemployment Rate ¹	Employment Rate ²	Hourly Earnings ³	Sickness Rate ⁴
Blaenau Gwent⁵	8.4	54.3	8.77	13.8
Bridgend	5.7	74.9	10.53	10.7
Caerphilly	6.0	68.2	9.92	12.1
Cardiff	4.9	72.8	11.35	6.6
Carmarthenshire	5.7	65.3	9.64	11.1
Ceredigion	5.0	62.4	10.56	6.9
Conwy	6.1	74.4	10.71	7.9
Denbighshire	5.5	72.6	10.74	8.6
Flintshire	4.4	73.6	10.84	6.5
Gwynedd	6.8	72.4	9.38	6.9
Isle of Anglesey	7.9	63.0	9.81	8.4
Merthyr Tydfil	7.4	54.6	9.62	15.9
Monmouthshire	4.0	76.8	12.55	5.8
Neath Port Talbot	7.0	56.6	10.49	13.6
Newport	6.2	77.7	10.85	7.9
Pembrokeshire	6.5	68.8	9.98	8.2
Powys	4.0	79.0	10.77	6.2
Rhondda;Cynon;Taff	6.2	63.9	9.69	13.0
Swansea	6.2	70.6	10.06	9.8
Torfaen	5.0	69.2	10.23	6.4
Vale of Glamorgan	5.6	69.4	12.32	10.2
Wrexham	5.1	74.3	10.19	8.0
WALES	5.7	69.6	10.47	9.2
UNITED KINGDOM	5.0	74.1	12.04	5.5

Sources and notes:

1. 2001 *Census of Population* – this measure of unemployment is based on responses to a question which asked the economic activity of the individual the week before the Census. This is compatible with the ILO's definition of economic status. The denominator is the economically active population (including economically active students). The resultant unemployment rate is very similar to that from the ILO definition (the UK rate was 4.9% and the Welsh rate 5.8% in Spring 2001), without suffering from the small samples that affect the accuracy of sub-regional statistics using the LFS.
2. *LFS*, March 2000-February 2001 – Percentage of the working aged population who are in employment.
3. *NES*, 2003 – Gross average hourly earnings of full-time workers in pounds. Figure for UK relates to Great Britain.
4. 2001 *Census of Population* – Percentage of population aged 16 and over described as permanently sick. Figure for UK relates to England and Wales.
5. Valley UAs in bold.

TABLE 4

Migration Statistics for Welsh Unitary Authorities and England: April 2001

	Pop.	% who are migrants	% moving within the area	% moving in from elsewhere in the UK	% moving in from outside the UK ¹	% with no previous address ²	% moving out to elsewhere in the UK
Blaenau Gwent³	70,064	9.05	6.88	1.40	0.06	0.71	1.79
Bridgend	128,645	9.97	6.70	2.41	0.22	0.65	2.44
Caerphilly	169,519	9.42	6.57	2.09	0.10	0.65	2.05
Cardiff	305,353	15.59	9.20	4.54	0.88	0.96	4.26
Carmarthenshire	172,842	10.50	6.56	3.00	0.24	0.70	2.52
Ceredigion	74,941	18.04	10.08	6.54	0.64	0.78	5.39
Conwy	109,596	11.71	6.91	3.84	0.27	0.69	3.17
Denbighshire	93,065	11.27	6.39	3.93	0.29	0.66	3.51
Flintshire	148,594	9.47	5.64	3.11	0.22	0.50	3.06
Gwynedd	116,843	12.02	7.34	3.66	0.33	0.69	3.46
Isle of Anglesey	66,829	10.02	6.03	3.13	0.27	0.59	3.28
Merthyr Tydfil	55,981	8.40	5.94	1.68	0.12	0.66	2.16
Monmouthshire	84,885	10.75	5.14	4.77	0.25	0.58	4.01
Neath Port Talbot	134,468	9.23	6.40	2.14	0.11	0.58	2.08
Newport	137,011	10.41	6.39	2.97	0.27	0.79	2.67
Pembrokeshire	114,131	12.03	7.68	3.30	0.34	0.72	2.96
Powys	126,354	10.67	6.04	3.73	0.34	0.56	3.40
Rhondda;Cynon;Taff	231,946	9.62	6.72	2.04	0.24	0.62	2.10
Swansea	223,301	12.19	8.10	2.81	0.53	0.74	2.88
Torfaen	90,949	8.48	5.96	1.83	0.08	0.61	2.16
Vale of Glamorgan	119,292	11.21	6.57	3.60	0.49	0.54	3.64
Wrexham	128,476	10.35	6.67	2.84	0.29	0.56	2.38
WALES	2,903,085	11.17	6.99	3.15	0.34	0.68	2.97
ENGLAND	49,138,831	12.24	10.49	0.20	0.73	0.81	0.21

Source: *Census of Population*

Notes:

1. This category includes UK - part not specified and Ireland - part not specified, the Channel Islands and the Isle of Man.
2. ONS note that responses in the 'No usual address one year ago' category were higher than expected. They also note that care needs to be taken when analyzing the migration into England and Wales from outside the UK.
3. Valley UAs in bold.

TABLE 5

Country of Birth of Residents in Welsh Unitary Authorities and Other Parts of the UK: April 2001

	% born in England	% born in Scotland	% born in Wales	% born in Northern Ireland	% born in Republic of Ireland	% born in other EU Countries	% born elsewhere
Blaenau Gwent	6.39	0.30	92.08	0.10	0.14	0.33	0.66
Bridgend	11.78	0.82	84.69	0.26	0.33	0.62	1.50
Caerphilly	7.75	0.51	89.94	0.18	0.19	0.49	0.93
Cardiff	16.26	0.90	74.95	0.32	0.63	1.47	5.47
Carmarthenshire	16.76	0.64	80.07	0.23	0.37	0.69	1.24
Ceredigion	36.43	0.98	58.58	0.33	0.55	1.13	2.00
Conwy	41.18	1.18	53.96	0.39	0.88	0.81	1.60
Denbighshire	37.85	1.13	57.90	0.37	0.50	0.69	1.56
Flintshire	44.71	1.23	51.14	0.36	0.47	0.87	1.22
Gwynedd	26.55	0.67	69.81	0.26	0.44	0.72	1.55
Isle of Anglesey	28.37	1.12	67.57	0.33	0.73	0.63	1.24
Merthyr Tydfil	6.01	0.46	91.96	0.12	0.24	0.33	0.88
Monmouthshire	33.80	1.36	61.30	0.34	0.40	0.92	1.88
Neath Port Talbot	7.92	0.58	89.49	0.16	0.39	0.47	0.99
Newport	13.43	0.79	81.12	0.26	0.59	0.90	2.91
Pembrokeshire	26.33	1.21	68.72	0.35	0.67	1.09	1.62
Powys	40.62	0.94	55.59	0.26	0.30	0.75	1.54
Rhondda;Cynon;Taff	7.57	0.46	89.92	0.15	0.25	0.59	1.05
Swansea	13.34	0.78	82.07	0.25	0.42	0.95	2.20
Torfaen	11.51	0.72	85.53	0.27	0.40	0.54	1.03
Vale of Glamorgan	18.97	1.29	75.66	0.39	0.41	1.07	2.22
Wrexham	24.46	0.86	71.92	0.30	0.35	0.74	1.37
WALES	20.32	0.84	75.39	0.27	0.44	0.82	1.92
ENGLAND	87.44	1.62	1.24	0.44	0.94	1.41	6.91
NORTHERN IRELAND	3.66	1.00	0.18	91.04	2.32	0.61	1.20
SCOTLAND	8.08	87.13	0.33	0.66	0.43	0.88	2.50

Source: *Census of Population*

Note:
Valley UAs in bold.

TABLE 6**Correlation Matrix Between Labour Market and Migration Variables for Welsh Unitary Authorities: 2001**

	Earnings	Unempl. Rate	Sickness Rate	In-mig. Rate	Out-mig. Rate	% Non-Welsh
Earnings ¹	1.000					
Unemployment Rate	-0.673 (0.001) ²	1.000				
Sickness Rate	-0.479 (0.024)	0.664 (0.001)	1.000			
In-migration Rate ³	0.544 (0.009)	-0.524 (0.012)	-0.549 (0.008)	1.000		
Out-migration Rate ⁴	0.549 (0.008)	-0.468 (0.028)	-0.650 (0.001)	0.971 (0.000)	1.000	
% Non-Welsh	0.438 (0.041)	-0.538 (0.021)	-0.761 (0.000)	0.700 (0.003)	0.737 (0.001)	1.000
N	22	22	22	22	22	22

Notes:

1. Residence based earnings data for 2003. For further details, see notes to Table 3.
2. p-values for the correlation coefficients are in parentheses.
3. In-migration rate is the percentage moving to the UA from elsewhere in the UK
4. Out-migration rate is the percentage moving from the UA to elsewhere in the UK.

TABLE 7**Correlation Matrix between Labour Market and Migration Variables for Welsh Wards: 2001**

	Income	Unempl. Rate	Sickness Rate	% Non-Welsh
Income ¹	1.000			
Unemployment Rate	-0.608 (0.000) ²	1.000		
Sickness Rate	-0.614 (0.000)	0.649 (0.000)	1.000	
% Non-Welsh	0.315 (0.000)	-0.331 (0.000)	-0.633 (0.000)	1.000
N	818	881	881	881

Notes:

1. Income data are based on ONS estimates produced for 1998. The sample size for income is lower because the ward boundaries are not exactly the same as those used in the 2001 Census, which meant that some wards could not be matched.
2. p-values for the correlation coefficients are in parentheses.

TABLE 8

Age Related Migration Statistics for Welsh Unitary Authorities: 1999-2000

	Age 0-15			Age 16-24			Age 25-44			Age 45-64			65 and over			All ages		
	I ¹	O ²	Net	I	O	Net	I	O	Net	I	O	Net	I	O	Net	I	O	Net
Blaenau Gwent³	0.3	0.4	-0.1	0.3	0.3	-0.1	0.4	0.5	-0.1	0.2	0.2	0.0	0.1	0.1	0.0	1.2	1.5	-0.3
Bridgend	0.7	0.8	-0.1	0.6	0.8	-0.2	1.3	1.4	-0.1	0.5	0.5	0.1	0.4	0.3	0.0	3.5	3.9	-0.3
Caerphilly	1.0	0.9	0.1	0.8	1.0	-0.2	1.7	1.5	0.2	0.5	0.5	0.0	0.2	0.2	0.0	4.2	4.1	0.2
Cardiff	1.6	2.1	-0.6	7.5	5.0	2.6	5.0	5.8	-0.8	1.0	1.3	-0.3	0.5	0.6	-0.2	15.6	14.8	0.8
Carmarthenshire	1.3	1.0	0.3	1.1	1.7	-0.6	2.0	1.8	0.3	1.3	0.7	0.6	0.6	0.4	0.2	6.3	5.5	0.8
Ceredigion	0.7	0.6	0.2	2.6	2.4	0.2	1.3	1.5	-0.3	0.9	0.5	0.4	0.4	0.4	0.0	5.8	5.4	0.4
Conwy	1.2	0.9	0.3	0.8	1.2	-0.4	1.9	1.7	0.2	1.5	0.7	0.8	0.8	0.6	0.3	6.2	5.0	1.2
Denbighshire	1.2	0.8	0.4	0.8	0.9	-0.1	1.7	1.4	0.3	1.0	0.6	0.4	0.6	0.4	0.1	5.3	4.2	1.1
Flintshire	1.3	1.0	0.3	1.0	1.1	-0.2	2.4	1.8	0.5	0.8	0.7	0.1	0.4	0.4	0.0	5.8	5.1	0.7
Gwynedd	0.9	0.9	0.0	2.0	1.9	0.1	1.7	1.8	-0.2	1.1	0.7	0.4	0.5	0.5	0.0	6.2	5.9	0.3
Isle of Anglesey	0.5	0.6	-0.1	0.4	0.7	-0.3	0.8	1.0	-0.2	0.6	0.5	0.1	0.3	0.3	0.0	2.6	3.1	-0.5
Merthyr Tydfil	0.3	0.3	0.0	0.2	0.3	-0.1	0.4	0.5	-0.1	0.2	0.2	0.0	0.1	0.1	-0.1	1.1	1.4	-0.3
Monmouthshire	1.0	0.7	0.3	0.7	1.0	-0.3	1.9	1.3	0.5	0.8	0.6	0.1	0.4	0.3	0.1	4.7	3.9	0.8
Neath Port Talbot	0.9	0.7	0.2	0.7	0.9	-0.2	1.4	1.3	0.2	0.5	0.4	0.0	0.2	0.3	0.0	3.7	3.6	0.2
Newport	1.0	0.9	0.1	0.9	1.2	-0.3	1.8	1.8	0.0	0.6	0.5	0.0	0.3	0.3	0.0	4.6	4.7	-0.2
Pembrokeshire	1.0	0.8	0.3	0.7	1.1	-0.5	1.4	1.0	0.4	1.0	0.5	0.5	0.4	0.4	0.0	4.6	3.8	0.8
Powys	1.2	0.9	0.3	0.8	1.3	-0.5	1.8	1.6	0.2	1.3	0.8	0.5	0.7	0.5	0.2	5.8	5.1	0.6
Rhondda;Cynon;Taff	1.0	1.0	0.0	1.7	1.9	-0.2	2.0	2.2	-0.3	0.6	0.7	0.0	0.3	0.4	-0.1	5.6	6.2	-0.6
Swansea	1.0	1.0	0.1	3.2	2.8	0.5	2.3	2.6	-0.3	0.7	0.6	0.0	0.3	0.3	0.0	7.6	7.3	0.3
Torfaen	0.6	0.4	0.1	0.4	0.5	-0.1	0.8	0.8	0.0	0.3	0.3	0.0	0.1	0.1	0.0	2.2	2.2	0.0
Vale of Glamorgan	1.2	0.8	0.4	0.8	1.0	-0.2	2.0	1.6	0.4	0.8	0.5	0.2	0.5	0.3	0.2	5.4	4.4	1.0
Wrexham	0.7	0.7	0.0	1.0	1.1	-0.1	1.5	1.3	0.2	0.6	0.5	0.0	0.3	0.2	0.1	4.1	3.9	0.2
WALES	-	-	2.5	-	-	-1.4	-	-	1.2	-	-	4.0	-	-	0.8	-	-	7.0

Source: *NHSCR*

Notes:

1. I = Inflow from areas outside the UA; O = Outflow to areas outside the UA; Net = Net migration.
2. Figures are in thousands.
3. Valley UAs in bold.

TABLE 9

Age Structure of Welsh Migrant Groups: 1990-91

	All Ages				Working Age			
	0-15	16-30	31-50	>50	Ave.	N	Ave.	N
Non-mover	20.95	16.11	27.45	35.48	40.01	50101	39.64	28660
Moved within Wales	21.26	42.83	21.52	14.39	29.82	3495	30.48	2404
Moved in from elsewhere in Britain	18.31	39.54	26.46	15.69	30.97	650	33.08	488
Moved in from outside Britain	23.87	36.77	27.10	12.26	28.35	155	32.66	111
Moved from Wales to other parts of Britain	17.63	49.42	21.25	11.70	28.74	607	29.29	453

Source: 1991 *Sample of Anonymised Records (SARs)*, 2% individual sample

Notes

1. Table reports the percentage in each age category and the mean age for all individuals, whereas only the average age is reported for working age individuals (i.e. those aged 16-64 for males and 16-59 for females).
2. Those individuals who stated that their main economic position was a student are excluded.

TABLE 10

Human Capital Characteristics of Welsh Migrant Groups: 1990-91

	Higher qualifications			Social Class		
	None	One	Two or more	Prof./Man.	Skilled	Partly/Unskilled
Non-mover	86.80	8.13	5.07	28.24	45.01	26.75
Moved within Wales	85.94	9.23	4.83	26.11	46.29	27.59
Moved in from elsewhere in the UK	70.29	19.06	10.66	44.63	32.94	22.43
Moved in from outside the UK	73.87	18.02	8.11	51.32	38.16	10.53
Moved from Wales to other parts Britain	62.91	23.40	13.69	49.73	35.56	14.71

Source: *SARs*

Notes:

1. Table reports the percentage of individuals with no, 1 or 2 or more higher qualifications and in each social class for working age individuals, other than current students.
2. Higher qualifications are post-school qualifications e.g. degree, vocational and professional qualifications.

TABLE 11

Highest Educational Qualification by Country of Residence and Country of Birth: 2003

	Welsh born living in Wales	Non-Welsh born living in Wales	Welsh born living in other parts of UK	Non-Welsh born living in other parts of UK	Works in Wales and lives elsewhere in UK	Lives in Wales and works elsewhere in UK
Degree	11.06	23.47	33.15	15.88	30.77	23.31
Higher education	7.97	9.34	12.08	8.59	9.23	11.02
A Level	22.90	24.28	20.44	23.85	23.08	24.15
GCSE/ O Level	24.97	19.32	16.71	21.95	16.92	21.19
Other	12.49	10.45	8.36	13.69	13.08	10.17
None	20.62	13.13	9.26	16.05	6.92	10.17
N	4341	1713	1101	115484	130	236

Source: *LFS*

Notes:

1. Table reports column percentages using unweighted data.
2. The data are obtained by pooling four quarters of the LFS from December 2002- November 2003. Only those respondents in their first or last wave are included in the table.
3. The table consists only of people of working age.

TABLE 12

Multinomial Logit Estimates of Migration: 1990-91

	Non-mover	Moved within Wales	Moved in from other UK	Moved in from outside UK
Female	-0.002 (0.02)	0.037 (0.32)	0.064 (0.44)	-0.086 (0.37)
Age	0.084 (11.48)	-0.001 (0.19)	0.026 (2.69)	0.038 (2.59)
Higher qualifications	-1.773 (14.95)	-1.427 (10.83)	-0.486 (3.01)	-0.619 (2.25)
Unemployed	-0.434 (2.63)	-0.143 (0.82)	0.185 (0.84)	0.617 (1.86)
Inactive	-0.188 (1.12)	0.108 (0.61)	-0.045 (0.20)	0.506 (1.61)
Married	-0.064 (0.45)	0.196 (1.27)	-0.012 (0.06)	-0.032 (0.10)
Divorced / Widowed	-0.462 (2.05)	0.433 (1.82)	0.092 (0.31)	-0.528 (0.97)
1 or more dependant children	0.850 (6.90)	0.356 (2.67)	0.034 (0.20)	0.211 (0.80)
Non-white	-0.867 (2.61)	-0.352 (1.03)	-0.045 (0.10)	1.068 (2.27)
Constant	1.620 (8.14)	1.921 (9.01)	-0.600 (2.20)	-2.575 (5.75)
N	24108	2232	413	96

Source: *SARs*

Notes:

1. Table reports coefficients and heteroscedastic consistent t-statistics in parentheses.
2. The table consists of only individuals aged between 18 and 55, who are not students.
3. Reference individual is an employed, white, single, male with no higher qualifications or dependant children.
4. The base category is moved to outside Wales. The sample size for this category is 382.

TABLE 13

Average Willingness to Move by Demographic Sub-Group, Britain: 1995

	Neighbour- hood	Town/ City	County	Country	Continent	N
Gender						
Male	3.63	3.39	3.08	2.60	2.35	262
Female	3.57	3.18	2.83	2.37	2.20	371
p-value (male/female)	0.549	0.050	0.023	0.050	0.179	631
Age						
18-35	3.78	3.32	3.03	2.58	2.42	325
36-55	3.41	3.21	2.83	2.34	2.09	308
p-value (18-35/36-55)	0.000	0.303	0.064	0.032	0.004	631
Qualifications						
Higher education	3.60	3.36	3.15	2.80	2.53	179
No higher education	3.59	3.23	2.85	2.33	2.15	454
p-value (higher/none)	0.939	0.269	0.017	0.000	0.003	631
Occupation						
Non-manual	3.64	3.30	3.05	2.59	2.39	363
Manual	3.57	2.26	2.81	2.30	2.10	246
p-value (non-man./man.)	0.523	0.753	0.034	0.014	0.014	607
Economic position						
Unemployed	3.79	3.49	3.04	2.62	2.28	53
Employee	3.63	3.32	3.00	2.57	2.38	437
Inactive	3.39	2.99	2.64	1.98	1.82	143
p-value (unemp./emp.)	0.364	0.360	0.852	0.809	0.658	509
p-value (unemp./inact.)	0.080	0.034	0.096	0.006	0.034	173
p-value (inact./emp.)	0.073	0.015	0.011	0.000	0.000	578
Housing Tenure						
Private renting	3.72	3.53	3.29	2.97	2.79	76
Social housing	3.64	3.25	2.70	2.22	2.09	132
Owner occupied	3.56	3.23	2.94	2.44	2.21	425
p-value (renting/social)	0.668	0.159	0.005	0.001	0.001	206
p-value (renting/OO)	0.306	0.071	0.043	0.003	0.001	499
p-value (social/OO)	0.513	0.883	0.076	0.107	0.359	555
Area						
Wales	3.43	3.45	2.95	2.75	2.60	40
North England	3.65	3.27	2.84	2.35	2.12	256
South England	3.60	3.29	3.06	2.55	2.36	281
Scotland	3.46	3.09	2.73	2.34	2.18	56
p-value (Wales/North England)	0.313	0.415	0.499	0.091	0.041	294
p-value (Wales/South England)	0.405	0.454	0.480	0.422	0.330	319
p-value (Wales/Scotland)	0.892	0.212	0.476	0.190	0.170	94
Great Britain	3.60	3.27	2.93	2.46	2.26	633

Source: *British Social Attitudes Survey (BSAS)*

Notes:

1. The table only includes those observations in which the individual answered all of the WTM questions.
2. The regional identifier in the *BSAS* is a Standard Statistical Region. North England = North West, North East, Yorkshire & Humberside, East and West Midlands. South England = South East, South West, London and East Anglia.
3. p-value refers to a two-tailed test of the difference between the two mean WTM values in parentheses. N in this instance gives to the number of degrees of freedom used in the test.

TABLE 14

Ordered Probit Estimates of the Willingness to Move, Britain: 1995

	Neighbourhood		Town/City		County		Country		Continent	
	1	2	1	2	1	2	1	2	1	2
Female	-0.056 (0.63)	-0.064 (0.71)	-0.187 (2.09)	-0.199 (2.21)	-0.196 (2.16)	-0.209 (2.30)	-0.081 (0.88)	-0.090 (0.99)	-0.029 (0.30)	-0.036 (0.37)
Age	-0.016 (3.42)	-0.014 (2.93)	-0.007 (1.45)	-0.005 (0.92)	-0.013 (2.69)	-0.010 (2.11)	-0.013 (2.60)	-0.010 (1.93)	-0.013 (2.52)	-0.010 (1.88)
Higher	0.017 (0.19)	-0.025 (0.26)	0.064 (0.68)	0.022 (0.23)	0.232 (2.45)	0.203 (2.08)	0.315 (3.30)	0.299 (3.05)	0.230 (2.27)	0.214 (2.12)
Age*Wales	-	-0.036 (2.24)	-	-0.040 (2.50)	-	-0.044 (2.91)	-	-0.053 (3.32)	-	-0.050 (2.71)
Higher*Wales	-	0.911 (2.03)	-	0.826 (2.46)	-	0.615 (1.75)	-	0.402 (1.09)	-	0.236 (0.60)
Unemployed	0.106 (0.69)	0.126 (0.83)	0.096 (0.60)	0.118 (0.75)	0.002 (0.01)	0.021 (0.12)	-0.026 (0.14)	-0.005 (0.03)	-0.154 (0.89)	-0.136 (0.79)
Inactive	-0.109 (0.95)	-0.100 (0.88)	-0.087 (0.75)	-0.083 (0.71)	-0.097 (0.83)	-0.088 (0.74)	-0.355 (2.88)	-0.350 (2.84)	-0.372 (2.86)	-0.373 (2.85)
Widowed/Divorced	0.122 (0.88)	0.117 (0.85)	0.155 (1.07)	0.151 (1.04)	0.111 (0.83)	0.110 (0.83)	0.021 (0.14)	0.028 (0.19)	-0.099 (0.65)	-0.090 (0.59)
Single	0.025 (0.21)	0.019 (0.16)	-0.002 (0.02)	-0.002 (0.01)	-0.182 (1.48)	-0.182 (1.48)	-0.009 (0.07)	0.000 (0.00)	0.010 (0.08)	0.023 (0.19)
Number in household	-0.027 (0.82)	-0.028 (0.85)	-0.035 (1.07)	-0.035 (1.05)	-0.059 (1.72)	-0.060 (1.73)	-0.069 (2.00)	-0.068 (1.98)	-0.081 (2.25)	-0.076 (2.21)
Non-white	0.010 (0.05)	0.007 (0.03)	0.100 (0.50)	0.122 (0.61)	0.080 (0.33)	0.097 (0.41)	0.123 (0.57)	0.134 (0.63)	0.133 (0.62)	0.139 (0.67)
South England	-0.068 (0.75)	-0.066 (0.72)	0.007 (0.08)	0.009 (0.10)	0.155 (1.72)	0.156 (1.73)	0.171 (1.85)	0.169 (1.82)	0.193 (2.01)	0.189 (1.97)
Wales	-0.202 (1.09)	0.961 (1.55)	0.183 (1.03)	1.495 (2.36)	0.156 (0.86)	1.645 (2.64)	0.369 (2.11)	2.193 (3.54)	0.457 (2.55)	2.193 (3.24)
Scotland	-0.186 (1.11)	-0.180 (1.07)	-0.167 (1.03)	-0.160 (0.97)	-0.136 (0.82)	-0.129 (0.78)	-0.027 (0.15)	-0.022 (0.13)	0.030 (0.17)	0.032 (0.18)
N	674	674	658	658	651	651	647	647	640	640

Source: BSAS

Notes: 1. t-statistics are in parentheses and are calculated using heteroscedastic consistent standard errors.

2. Reference individual is an employed, white, married male with no higher qualifications living in the North of England.

FIGURE 1

Unitary Authorities in Wales



- | | |
|--------------------|------------------------|
| 1 Isle of Anglesey | 12 Neath & Port Talbot |
| 2 Gwynedd | 13 Bridgend |
| 3 Conwy | 14 Vale of Glamorgan |
| 4 Denbighshire | 15 Cardiff |
| 5 Flintshire | 16 Rhondda Cynon Taff |
| 6 Wrexham | 17 Merthyr Tydfil |
| 7 Powys | 18 Caerphilly |
| 8 Ceredigion | 19 Blaenau Gwent |
| 9 Pembrokeshire | 20 Torfaen |
| 10 Carmarthenshire | 21 Monmouthshire |
| 11 Swansea | 22 Newport |

Appendix

The WTM questions asked in the *BSAS* were:

- If you could improve your work or living conditions, how willing or unwilling would you be to move to another *neighbourhood or village*?
 1. Very willing (recoded as 5)
 2. Fairly willing (recoded as 4)
 3. Neither willing nor unwilling (coded as 3)
 4. Fairly unwilling (recoded as 2)
 5. Very unwilling (recoded as 1)

- If you could improve your work or living conditions, how willing or unwilling would you be to move to another *town or city* within this county?
 1. Very willing (recoded as 5)
 2. Fairly willing (recoded as 4)
 3. Neither willing nor unwilling (coded as 3)
 4. Fairly unwilling (recoded as 2)
 5. Very unwilling (recoded as 1)

- If you could improve your work or living conditions, how willing or unwilling would you be to move to another *county*?
 1. Very willing (recoded as 5)
 2. Fairly willing (recoded as 4)
 3. Neither willing nor unwilling (coded as 3)
 4. Fairly unwilling (recoded as 2)
 5. Very unwilling (recoded as 1)

- If you could improve your work or living conditions, how willing or unwilling would you be to move outside *Britain*?
 1. Very willing (recoded as 5)
 2. Fairly willing (recoded as 4)
 3. Neither willing nor unwilling (coded as 3)
 4. Fairly unwilling (recoded as 2)
 5. Very unwilling (recoded as 1)

- If you could improve your work or living conditions, how willing or unwilling would you be to move outside *Europe*?
 1. Very willing (recoded as 5)
 2. Fairly willing (recoded as 4)
 3. Neither willing nor unwilling (coded as 3)
 4. Fairly unwilling (recoded as 2)
 5. Very unwilling (recoded as 1)