



# Department of Economics

## Undergraduate coursework evaluation form

Module code 331 Coursework item number \_\_\_\_\_  
 Student's name or ID number 9779091 Coursework item mark - 76  
 Tutor's name UW Date 11/8

**Key:** Your coursework can be evaluated using *some* or *all* of the criteria below. In most cases a grade is returned which shows that the criterion has been met to a standard described as follows:

- A  excellent *equivalent to a mark of* 70 or more
- B+  good 60-69
- B-  satisfactory 50-59
- C  needs attention 40-49
- D  unsatisfactory 39 or less
- NA  not applicable

### Structure

- Is there an introduction? Yes  No
- if yes, does it usefully explain the argument? A  B+  B-  C  D
  - Is the order of the argument clearly explained? A  B+  B-  C  D
  - Does the coursework avoid significant gaps or omissions? A  B+  B-  C  D
  - Does the coursework avoid significant irrelevant material? A  B+  B-  C  D
  - Is there a conclusion? Yes  No
  - if yes, does it accurately reflect the argument? A  B+  B-  C  D
- Is the coursework of appropriate length? Too short  About right  Too long

### Analysis

- Is there appropriate use of
  - significant concepts? A  B+  B-  C  D
  - analytical models? A  B+  B-  C  D
  - quantitative techniques? A  B+  B-  C  D
  - graphs and diagrams? A  B+  B-  C  D
- Is relevant evidence used to test hypotheses? A  B+  B-  C  D
- Are explanations clear and complete? A  B+  B-  C  D

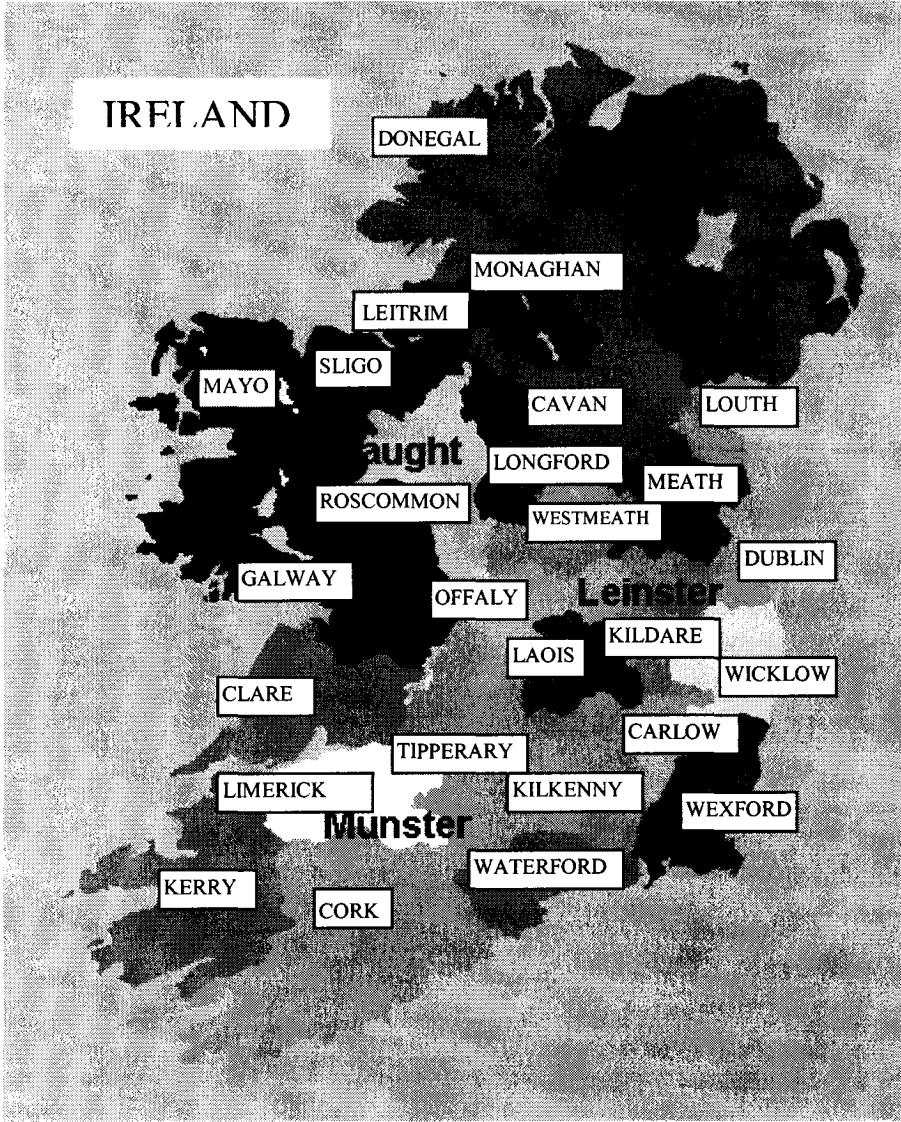
### Sources

- Does the coursework demonstrate wide reading? A  B+  B-  C  D
- Does the coursework avoid undue reliance on lecture notes? A  B+  B-  C  D
- Are arguments, quotes, and facts properly referenced? A  B+  B-  C  D
- Are items listed in the bibliography used effectively? A  B+  B-  C  D

### Style and presentation

- Does the coursework avoid
  - spelling mistakes? Good  Needs attent
  - mistakes of grammar? Good  Needs attent
  - overlong or unfocused paragraphs? Good  Needs attent
- Is the coursework clearly legible? Good  Needs attent

The Effect of Demographic and  
Socio-Economic Factors on the  
Level of Migration Across the  
Counties of Ireland.  
1981-1996



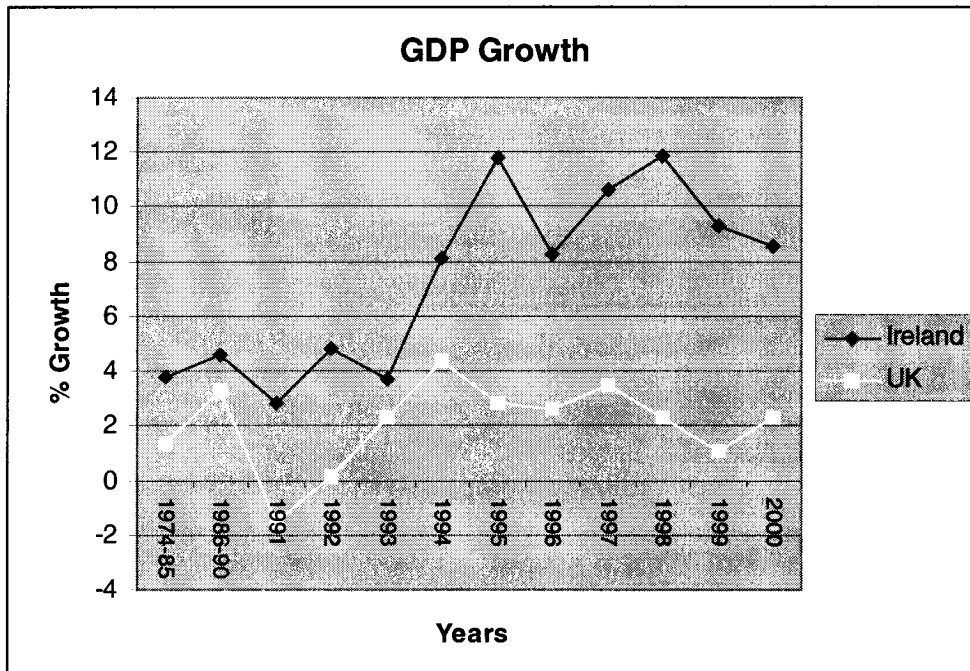
## **Introduction.**

Migration has for the past three hundred years been a prominent feature of Irish society and economy. While much research has been put into analysing the problem of emigration from Ireland in recent there has been little inquiry into how and such a major demographic change should have affected parts of the country very differently. The paper commences with a brief demographic history of the Republic of Ireland, (which for the remainder of the paper will simply be referred to as Ireland). It goes on show how the economy has changed so greatly in recent years and the effect this might have on net migration. The estimated net migration figures for the twenty seven counties was regressed against a variety of variables in separate equations for the three separate five year models cover the period from 1981 to 1996. Each of the variables tested are explained and analysed. While the 1980's were characterised by low levels of growth, high government borrowing and unemployment levels amongst the highest in the EU, the early 1990's marked a turning point in the Irish economy. Because of this the findings of each of the models varies considerably. This paper draws on the following data sources: the censuses of 1981, 1986, 1991 and 1996 and the Central Statistics Office Annual Statistical Abstract for 1980 to 1996. Data from the annual series of population and migration releases is also used. This series was first introduced in 1994 and covers the period since 1986.

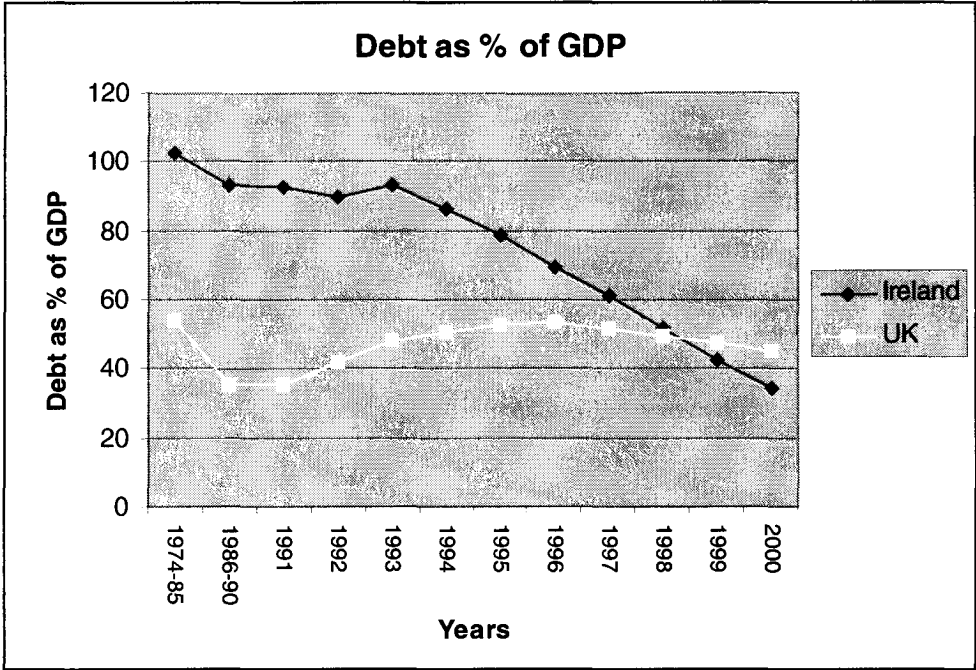
## **Irish Demography.**

Population developments in Ireland are virtually unique in a historical industrialised world context. In the mid nineteenth century the population of Ireland stood at over 6 million, while by 1996 the population has dropped to 3.7 million. The demographic effects of the 1845-1850 Irish Potato famine when, in the twenty year period that followed, almost two and a half million people emigrated from the island of Ireland in the have received a great deal of publicity and are understood at a fundamental level almost universally. However the continuing decline of the population into the twentieth century is less well acknowledged. The current population is only 15% above its level in 1919, immediately prior to independence. Over the same period population growth in other industrialised countries has been much stronger. Given that fertility rates in Ireland were generally much higher but death rates similar these divergent trends are explained by very high Irish emigration. It is only in recent years that the population decline that commenced in the 1840's has been arrested. The 1970's in particular in particular, marked a major reversal of previous trends, with a substantial natural increase combining with large population inflows of returning emigrants due to the sharp increase in economic prosperity. This generated an increase of over 16% between 1971 and 1981. This rate of increase diminished quickly until slipping into decline again in the mid 1980's. While the fertility rate is now rapidly approaching the EU average there population figures remain highly volatile due to the effects of migration.

In real terms Ireland had a lot of ground to make up due to stagnation in the 1980's. In 1980 Irish GDP per head at 1991 prices was \$3500 while the UK's was



\$5000. By 1996 the gap had closed to \$18300 and \$23100 respectively and nearing the end of the decade, due to continuing growth, Irish real GDP per head of population over took that of the UK. It is true that due to the level of foreign investment in the country much of the revenue generated in Ireland was later repatriated abroad. Regardless of this the Irish economy is booming. Since 1996 there has been a budget surplus and the national debt as a percentage of GDP has been halved since 1993, partly due to the afore mentioned rise in GDP but also through repayment. This can be seen and compared with that of the UK in the graph below.



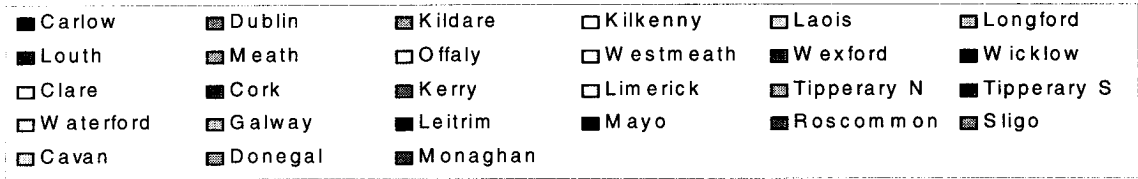
## **Data on Migration**

By definition, because emigrants have departed from Ireland it is not an easy matter to obtain information on them. Instead it is necessary to rely on the remaining people in the household to supply a limited amount of information on the person who has emigrated namely their sex, age group and country of destination. It is also a commonly used proxy to use the socio-economic characteristics of the remaining members of the household to describe the emigrant. This method is explored by Punch and Finneran in their 1999 paper on Irish migration. An alternative method as used by King and Shuttleworth is to use more detailed information taken from a sample group of emigrants. While the above papers have concentrated on the characteristics of migrants this paper explores the push and pull factors across the counties of Ireland, which affect peoples decision to migrate. It does not treat the phenomenon of emigration exclusively but combines it with inter-county migration. The following factors are considered: education, previous migration patterns, the proportion of females undertaking home duties, the male female ratio, the proportion of males retired, employment levels, the proportion of the workforce employed in agriculture. This paper draws on the following data sources: the censuses of 1981, 1986, 1991 and 1996 and the Central Statistics Office Annual Statistical Abstract for 1980 to 1996. Data from the annual series of population and migration releases is also used. This series was first introduced in 1994 and covers the period since 1986.

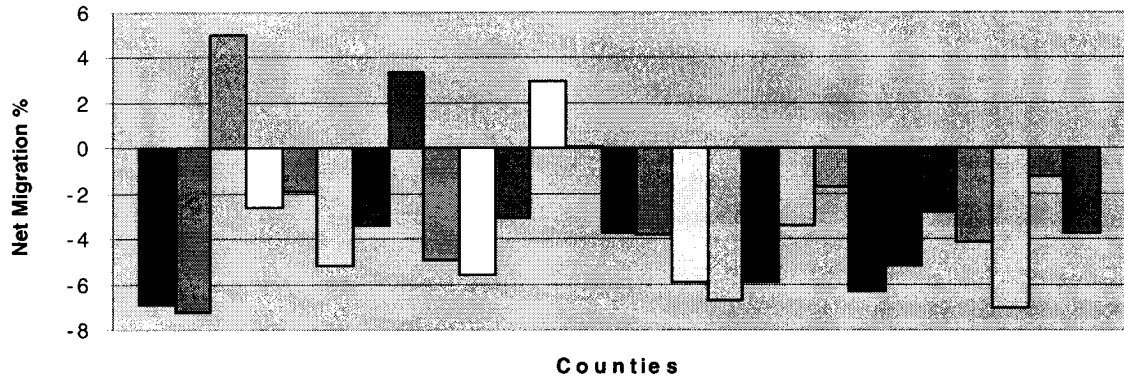
## **Irish Migration Patterns**

Irish migration patterns can be broken down into migration into or out of the country and internal migration. While the former, discussed above is affected by international effects such as the labour markets of the UK and the USA as well as domestic effects the latter is affected primarily by domestic factors (Fitzgerald and Kearney 1999). In fact some authors, for example Bains believe that migration between the UK and Ireland has more in common with internal migration than with external migration, especially as the two countries share a border. Inter-county migration is an important process of demographic change in contemporary Ireland. Approximately one-fifth of the 1986 population resided in a county other than their county of birth (Walsh 1988) and since 1986 it has been found that 2.1% of usual residents move from county to county on an annual basis (Punch and Finneran 1999). While allowing for inter-county movements gives a wider picture of demographic change in Ireland it still does not account for movements within counties which feature heavily in Irish demographic movements primarily due to ongoing urbanisation. Some authors such as Hughes and Walsh have treated the 5 county boroughs of Dublin, Cork, Waterford, Limerick and Galway separately from the counties in order to capture some of this movement. Unfortunately for the purposes of this paper this subdivision proved impossible because of the availability of information divided in such a way and so deals only with migration across counties or to and from the state. In this paper I consider push and pull factors which affect inter-county and external migration across Ireland. Ireland is divided into the four provinces of Leinster, Munster, Connaught and Ulster each divided into counties of which there are twenty-six over all.<sup>2</sup> Each county experiences migration varies considerably as can be seen from the graph below.

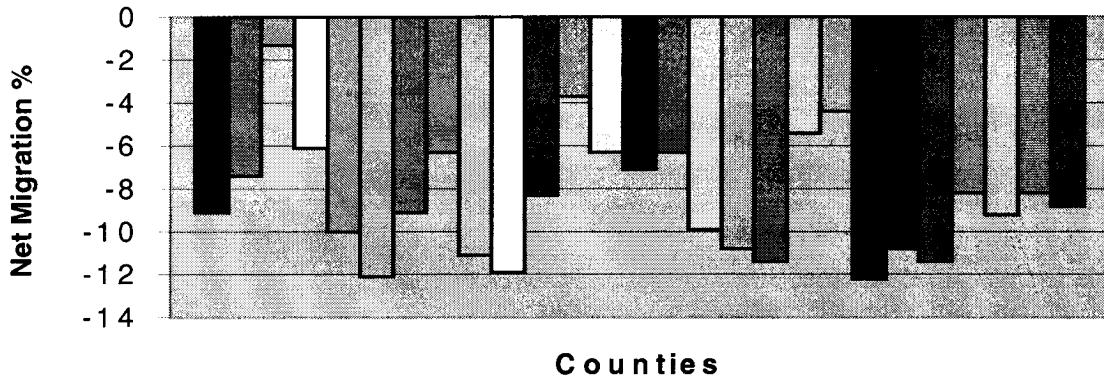




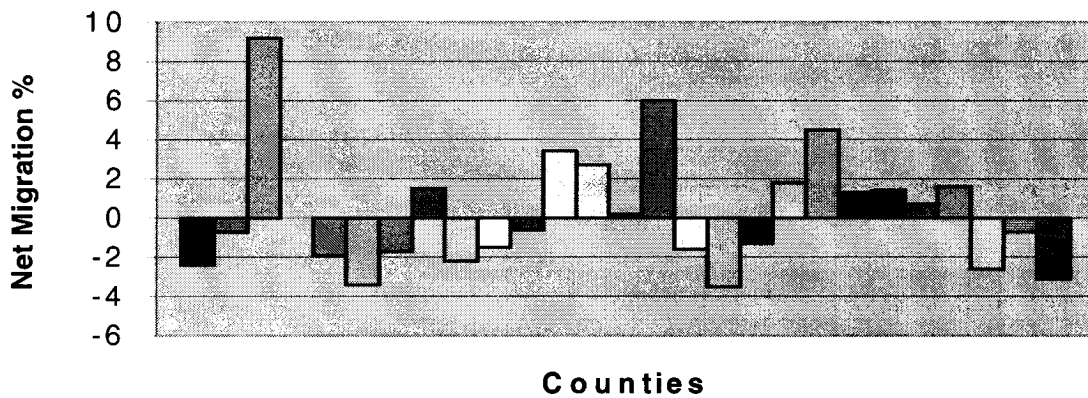
### 1981-1986 Net Migration



### 1986-1991 Net Migration



### 1991-1996 Net Migration



## The Models

Each of the three separate census time periods is analysed separately. This is primarily because of the lack of accurate migration data in the inter-census periods. As already mentioned an annual series of gross migration flow data from 1987 onwards was introduced in 1994. The estimates attempt to reconcile available data from a number of different sources. The main input into the annual migration estimates was the annual Labour Force Survey, now the Quarterly National Household Survey. Difficulties arise with this data, as it is not able to capture complete households that have emigrated as the question asked is: “Is there anyone who usually lived in the household in April 19XX who is now living abroad?”

This problem is lessened when the results of the continuous Country of Residence Survey of passengers conducted at airports and seaports and other data sources such as the Register of Electors and Child Benefit Scheme are also used. However there remain substantial differences in results of the Annual Migration Estimates and the Census data of 1991 and 1996 with the census data generally believed to be more robust.

The estimated net migration figures for the twenty-seven counties were regressed against a variety of variables in separate equations for each five-year period. The variables tested for their contribution to migration were as follows.

### *Migration in the Previous Period.*

In both Suttleworth's and Hazelkorn's microeconomic studies on the individuals decision to migrate, based on questionnaires, both commented on a “migration culture” effect.<sup>3</sup> This is the idea that the Irish, through decades and generations of migration has made the decision to migrate one of habit rather than necessity. “The path is followed as a matter of course without even looking for suitable employment in this country”<sup>4</sup> International contacts in the form of friends and family who have emigrated already were given as deciding factors in the questionnaire responses. Following a partner or a spouse would also fit in this group and would be relevant in both internal and external migration. The variable used for this is a measure of the percentage change in population in each county net of the natural demographic change.<sup>5</sup>

### *The Sex Ratio*

Although it would be expected that the birth rate of males and females would be almost identical in all counties it is not true that the male female ratio should be the same as the effects of migration and death rates change the demographic makeup of counties. Gender is a prime consideration in all studies of migration. Employment opportunities can differ hugely between the two genders. A visible example of this is the pattern of female migration from other counties in Ireland to Dublin where there a greater proportion of jobs in the service sector, which has traditionally employed more female workers than other sectors. However Irish male emigration has been higher than female for the past thirty years. Punch and Finneran show that there is a

---

<sup>3</sup> Ian Shuttleworth 1988 in King. Page 89.

<sup>4</sup> Ian Shuttleworth 1988 in King. Page 90

<sup>5</sup> 1981,1986,1991,1996 censuses Vol 4 Usual Residence , Migration and Birthplace.

larger proportion of female immigrants than male, especially among returned emigrants. These gender differences with respect to migration indicate that gender differences across counties might affect migration patterns. The variable used is the percentage of the population usually resident in the county, which are male.<sup>6</sup>

#### *The Marriage Rate*

It was found by Punch and Finneran that single people are more likely to emigrate than those who are married. It seems logical to assume that the independence of being single would be more conducive to migrating than being married. I would expect this relationship to hold to a greater extent when the decision to migrate is voluntary. That is when the person who migrates leaves or turns down a job. A married person is likely to be more risk adverse than a single person. In the analysis the variable used was double the marriages registered in each county as a percentage of the population of that county over 18 years of age.<sup>7</sup>

#### *Unemployment.*

As mentioned earlier only 50% of emigrants do so voluntarily. That is they leave a job or a job opportunity. That leaves an approximate 50% who emigrate when they are unemployed. Although this figure is lower for internal migration it is still high. Counties with high levels of unemployment could therefore be expected to have high levels of outward migration. However it has also been found that the short-term unemployed have a higher propensity to migrate than the long-term unemployed. Thus the ratio of long-term to short-term unemployment might be significant. Unfortunately the duration of unemployment is only measured in the Labour Force Survey and is not reported by county. The variable used for the analysis is the unemployed by county as a percentage of that county's labour force.<sup>9</sup>

#### *Females Employed in Home Duties.*

Ireland has one of the lowest female participation rates in the EU even though it has been rising steadily over the past twenty years. Females employed in home duties are less likely to re-enter the labour force than in other European countries. For that reason they are less likely to migrate because of employment opportunities and are more likely to have children and so adverse to the risk and disruption of migration. The variable used is the percentage of females, in that county, over the age of 16 employed in home duties.<sup>10</sup>

#### *Males Retired.*

There are two reasons why retired people might choose to or not to migrate which are quite different to the rest of the population. Firstly they might be less likely to migrate, as employment opportunities do not affect them. Secondly they may move to areas with lower costs of living or to improve their quality of life by moving out of cities.

---

<sup>6</sup> 1981,1986,1991,1996 censuses vol 1 Population and Vital Statistics.

<sup>7</sup> The marriages are doubled as each involves two people.

<sup>8</sup> 1981,1986,1991,1996 censuses vol 1 Population and Vital Statistics.

<sup>9</sup> 1981,1986,1991,1996 censuses vol 8 Education and Occupation.

<sup>10</sup> 1981,1986,1991,1996 censuses vol 8 Education and Occupation

Because of the low participation rate of women in Ireland until recently it can be misleading to include retired females in this section. The variable used is the percentage of males in that county who have retired.<sup>11</sup>

#### *Labour force in Agriculture.*

Ireland has often been referred to as a dual economy. Originally this described the difference between the economy of Dublin in which approximately one third of the population resided in one urban area and the rest of the country which remained predominantly agricultural long after the rest of Europe industrialised. More recently the term has been used to describe the difference between the agricultural midlands and the more industrial coastal cities Dublin, Cork, Limerick, Galway and Waterford. As the earnings of agriculture change relative to urban wages, due to the market or to government or EU policy it would be expected that migration from agricultural counties would rise. Because of a change in the classification of urban and rural areas and because many agricultural workers in Ireland reside in urban areas, (with a population higher than 1000) the models do not use rural residency as a measure of how agricultural a county is. The variable used is the percentage of the workforce in each county that is employed in the agricultural sector.

#### *Education.*

For the purposes of this model education was divided into five different levels from A to E. 'A' refers to a primary school education which in Ireland usually ends at the age of twelve. 'B' refers to a lower secondary education, which includes the Irish Junior Certificate at the age of 15. However as full time education is a statutory requirement until the age of sixteen, which normally includes all or most of a non-academic fourth year, level 'B' includes this year. Level 'C' includes those who have ended their full time education between the ages of 17 and 19 when full time education is no longer obligatory. This level includes the Irish Leaving Certificate and its vocational equivalent. It also includes that number of student who progressed to third level but dropped out in the first year with no qualification. This occurs fairly often in Ireland, especially with the abolition for third level tuition in the early 1990's. Degree and diploma students who did not drop out in the first year are the basis of level 'D'. This covers the 20 to 22 age group. Level 'E' refers to post graduate students and mature students. To continue from and honours undergraduate degree to a Masters is far from unusual at most Irish universities and so the figures for this age group are fairly high. Included in these are mature and returning students but these are very much a minority group. This grouping method suffers from the problem that it is impossible to be certain at what level people concluded their full time education only the age at which they concluded it. However this was the best proxy to use as the Irish educational system changed quite drastically over the past thirty and so county breakdowns of at what level people concluded their full time education do not exist. The variables used for the analysis are the percentages of those of age 15 or older, who have finished their full time education, who finished at level A, then the same for level B, C, D, and E separately.

---

<sup>11</sup> 1981,1986,1991,1996 censuses vol 8 Education and Occupation

In each model a variety data for the above variables were tried.

- 1) Data from the census at the start of the inter-census period.
- 2) Data from the census at the end of the inter-census period.
- 3) An average of the figures from both censuses.

This approach was tried in case a variable was more significant at the start or end of the period in question.

### The 1981-1986 Model of Net Migration.

In carrying out the analysis the effect of all the variables described above in various combinations were tested. Very surprisingly the unemployment variable was highly insignificant as was any measure of level A education. Reasons for the former may be due to the problem of the balance of long-term unemployed and employed as mentioned earlier the balance of voluntary migration. Figures for finishing education at a primary level may not be significant to migration as it has been relatively rare over the past twenty years and it is people in this age group who are most likely to migrate. It was also found that Level D education was highly insignificant. This may be because of the broadness of the category or because, due to high levels of unemployment, most students with honours degrees, which distinguishes this group from Level C were continuing their education and so entering Level E. When these variables were excluded from the analysis an equation as below was tried.

$$\text{Net } M = \alpha + \beta_1 \text{Net } M_{79-81} + \beta_2 \text{Male } 81 + \beta_3 \text{Married } 81 + \beta_4 \text{F in HD } 81 \\ + \beta_5 \text{M Retired } 81 + \beta_6 \text{F in Agr} + \beta_7 \text{Av Lev C} + \beta_8 \text{Lev B } 81 + \beta_9 \text{Lev E } 81 \\ + e$$

Yet further analysis showed the percentage of males, the percentage of the labour force in agriculture and the percentage of males retired to be insignificant. This left the remaining variables in the following equation.

$$\text{Net } M_{81-86} = \alpha + \beta_1 \text{Net } M_{79-81} + \beta_2 \text{Married } 81 + \beta_3 \text{F in HD } 81 + \beta_4 \text{Av Lev C} \\ + \beta_5 \text{Lev B } 81 + \beta_6 \text{Lev E } 86 + e$$

A diagnostic breakdown of the model can be seen in Appendix A where it can be seen that all the variables are significant at both the 1% and 5% levels with the exception of level B education which, though less significant, is still significant at the 5% level.<sup>12</sup>

It is notable that the two variables other than those of education and previous migration, those of the marriage rate and the percentage of females employed in home duties, involve domestic choices. It is also interesting that while a high marriage rate has a negative effect on migration as expected, where there are many females employed in home duties the effect is positive. This perhaps is caused by a lack of employment opportunities for females in the area making migration involuntary. The education variables have various effects on migration in a way would seem to support the theory that migration in Ireland involves two distinct groups, the unskilled and the highly educated who contribute to the brain-drain effect. While the effect on

migration of the group who finished their education in lower secondary school, Level B, and those who went on and completed higher education, Level E, was positive and very strong for the latter, it was the opposite for those in Level C who's education had ended with the leaving certificate.

The coefficient of determination (shown as  $R^2$ ) is a goodness of fit measurement. It shows that the model explains 91.1921% of the difference of net migration across counties with its explanatory variables. This can be seen in Graph 1 of Appendix A. The model passes the test for heteroscedasticity ( $\chi^2$ ), and misspecification of the regression function or omitted variables (RESET) at both the 5% and 1% levels. It also passes the test for the normality of the error terms (Normality  $\chi^2$ ) which is particularly important for this model as with only 27 observations the central limit theorem is not effective.<sup>13</sup> Graphs showing these results are also included in the Appendix A.

### The 1986-91 Model of Net Migration.

In carrying out the analysis again the effect of all the variables described above in various combinations were tested. Again the unemployment variable was highly insignificant as was any measure of level A education. It was also found that Level E education was highly insignificant while level D was significant. This change from the previous model which measured an earlier period may be due to a change in the educational structure at the time which lowered tuition fees for degree courses while raising them for postgraduate study. It could also be due to the downturn in the Irish labour market towards the end of the period in which postgraduate degrees are almost necessary. The decision to emigrate replaced the decision to continue studies. It was at this time that economic theories about the brain-drain effect on Ireland became very popular with very high graduate emigration figures. Yet further analysis showed the percentage of males, the percentage of males retired, the percentage of females employed in home duties and the marriage rate to be insignificant. The change from the previous model where marriage and females involved in domestic duties were significant might be due to changes in the society of the period. Marriage rates dropped, as they often do in a recession, while cohabitation became more popular. The resulting model was as below.

$$\text{Net Mig}_{86-91} = \alpha + \beta_1 \text{Net Mig}_{81-86} + \beta_2 \text{LF in Ag}_{86} + \beta_3 \text{Lev B}_{91} + \beta_4 \text{Lev C}_{91} + \beta_5 \text{Lev D}_{91} + e$$

A diagnostic breakdown of the model can be seen in Appendix B where it can be seen that all the variables are significant at both the 1% and 5% levels with the exception of the percentage of the workforce employed in agriculture which, though less significant, is still significant at the 5% level.<sup>14</sup> The positive relationship between this variable and migration might be due to the over-borrowing fuelled by a belief in unstoppable expansion which led to a farm debt crisis in the middle of the 1980's.

---

<sup>13</sup> As the model is cross sectional the Durbin Watson, ARCH and AR tests have been excluded.

. The education variables again have the effect on migration that is consistent with the theory that migration in Ireland involves two distinct groups, the unskilled and the highly educated who contribute to the brain-drain effect and it also showed a negative relationship for those in Level C who's education had ended with the leaving certificate.

The coefficient of determination (shown as  $R^2$ ) is a goodness of fit measurement . It shows that the model explains 87.2178% of the difference of net migration across counties with its explanatory variables. This is lower than in the model for 1981-86 but then this has one less variable.

The model passes the test for heteroscedasticity ( $X_i^{\wedge}$ ), and misspecification of the regression function or omitted variables (RESET) at both the 5% and 1% levels. It also passes the test for the normality of the error terms (Normality  $\chi^2$ ) which is again particularly important.<sup>15</sup> Graphs showing these results are also included in the Appendix B.

### **The 1991-96 Model of Net Migration.**

In carrying out the analysis again the effect of all the variables described above in various combinations were tested. Again the unemployment variable was highly insignificant as was any measure of level A education. It was also found that Level E and level D education were highly insignificant. This change from the previous model which measured an earlier period may be due to another change in the fee structure as in the early 1990's tuition fees for degree courses were abolished. However this cannot explain why the effect of level B and level C have reversed since the model of the last period the period. This might be explained by the turnaround in the migration figures as illustrated in the graph above. In this model the percentage of males retired is significant. This might be due to the new strength of the economy allowing more people to retire earlier and to buy houses elsewhere as the value of their own home appreciated. Marriage rates rose again in the period with the economic prosperity and is significant again in this model with a negative relationship with migration as you would expect due to aversion to risk and disruption.. The resulting model was as below.

$$\text{Net Mig } 91-96 = \alpha + \beta_1 \text{ Net Mig}_{86-91} + \beta_2 \text{ Mar } 91 + \beta_3 \text{ M Retired } 91 \\ + \text{Lev B } 96 + \text{Lev C } 96 + e.$$

A diagnostic breakdown of the model can be seen in Appendix C where it can be seen that both net migration in the previous period and the percentage of retired males are significant at both the 1% and 5% levels while the marriage rate, and education levels B and C, though less significant, is still significant at the 5% level

The coefficient of determination (shown as  $R^2$ ) shows that the model explains 81.9259% of the difference of net migration across counties with its explanatory variables.

The model passes the test for heteroscedasticity ( $X_i^{\wedge}$ ), and misspecification of the regression function or omitted variables (RESET) at both the 5% and 1% levels. It also passes the test for the normality of the error terms (Normality  $\chi^2$ ) which is

---

<sup>15</sup> As the model is cross sectional the Durban Watson, ARCH and AR tests have been excluded.

again particularly important.<sup>16</sup> Graphs showing these results are also included in the Appendix C

### **Conclusion.**

This paper has shown how the volatile rate of migration across the counties of Ireland over the fifteen year period from 1981 to 1996 can be to an extent be explained by the major changes in the factors which affect migration. The pattern of migration from previous periods has been proven to be a very significant factor, as has education although its effects have varied. It has also found that for certain reasons over the three periods the marriage rate, the percentage of retired males, the percentage of the labour force employed in agriculture and the percentage of women employed in home duties have all affected the migration pattern across Ireland for specific periods. Migration will continue to be a major feature of Irish demography. However with the success of the Irish economy over recent years the focus turned away for the time being from the traditional preoccupation with emigration and switched instead to immigration. While emigration is likely to persist it is likely to be out weighed by immigration over the nation as a whole and will differ in a number of important respects from past emigration. The most important distinction is the voluntary nature of emigration undertaken now compared with the economic necessity of emigration in former times. Net emigration however is likely to persist in the case of many counties. In the few years since 1996 again the Irish economy has undergone huge changes. The economic turn-around, which took place in the period from 1991 to 1996, is continuing and Ireland is settling into its place as a high-income nation. The structural, social and demographic changes that have been highlighted by this paper will be even more evident in the 2001 census and as a result the Irish approach to migration will be forced to adapt.



## **Bibliography**

National Census of Ireland 1981, 1986, 1991, 1996. Dublin. Central Statistics

Population and Labour Force Projections 2001-2031. (1999) Dublin. Central Statistics Office.

Annual Series of Population and Migration Releases 1986-1996 Dublin. Central Statistics Office.

King, Russell. Ed (1991) Contemporary Irish Migration. Dublin. Geographical Society of Ireland.

Punch, A and Finneran, C. (1999) The demographic and socio-economic characteristics of Migrants 1986-1996. Dublin. Central Statistics Office.

Hazelkorn, E. (1989) Socio-economic profile of contemporary Irish emigrants and immigrants in the UK. Dublin. Dublin Institute of Technology working Paper.

Fitzgerald, J and Kearney, I. (1999) Migration and the Irish Labour Market. Dublin. Economic and Social Research Institute.

Quarterly National Household Survey.

Bains, (1994) European Labour Markets. Emigration and Internal Migration. Routledge.

MacLaughlan, (1994) Ireland. The Immigrant Nursery and the World Economy. Cork. Cork University Press.

Shuttleworth, I. (1981) Graduate Emigration from Ireland: A Symptom of Peripherality? in King, Russell. Ed (1991) Contemporary Irish Migration. Dublin. Geographical Society of Ireland.

]

Appendix A.

Modelling Net Migration 1981-1986 by OLS

The present sample is: 1 to 27

Variable	Coefficient	Std.Error	t-value	t-prob	PartR <sup>2</sup>
Constant	-0.024132	0.0068431	-3.526	0.0021	0.3834
Net M 7981	0.52363	0.047116	11.114	0.0000	0.8606
% Mar 81	-0.92794	0.29576	-3.137	0.0052	0.3298
% F HD81	0.055869	0.011061	5.051	0.0001	0.5606
Av_Lev_C	-0.036744	0.010255	-3.583	0.0019	0.3910
lev_E_86	0.22024	0.059637	3.693	0.0014	0.4054
Lev_B_81	0.013826	0.0057258	2.415	0.0254	0.2257

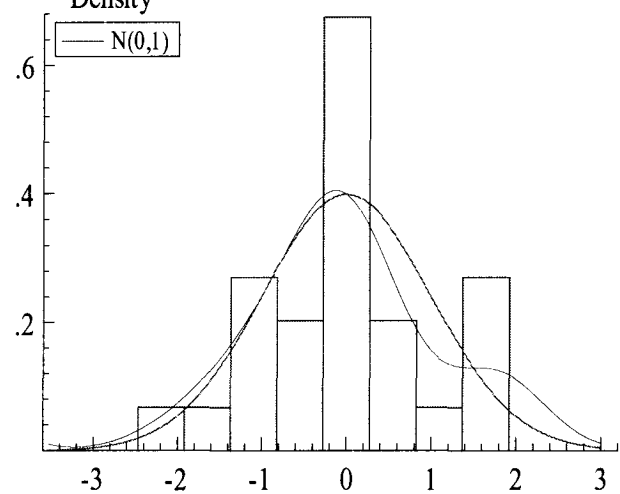
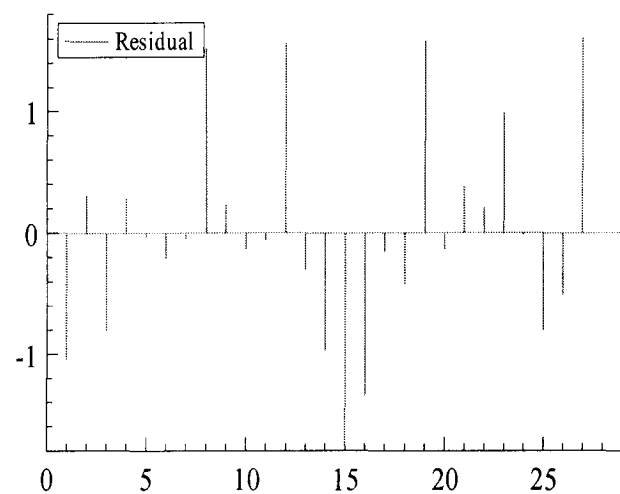
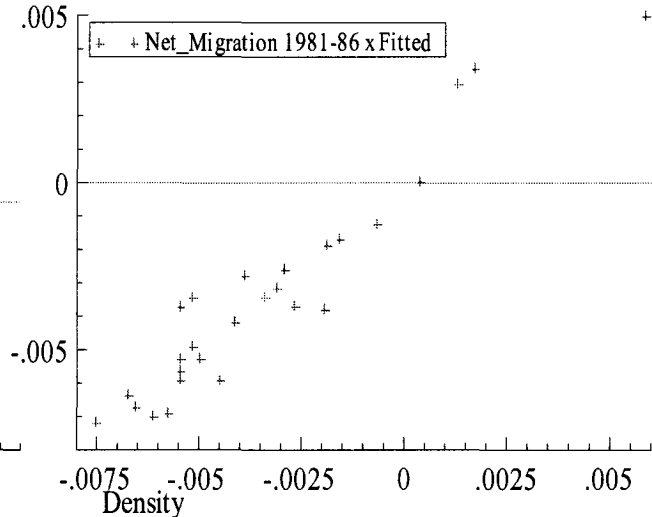
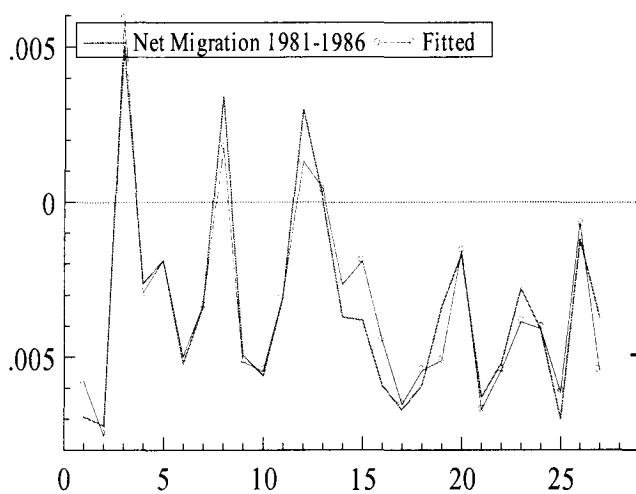
R<sup>2</sup> = 0.911921 F(6,20) = 34.512 [0.0000] \sigma = 0.00108413

RSS = 2.350696463e-005 for 7 variables and 27 observations

Normality Chi<sup>2</sup>(2) = 0.71208 [0.7004]

Xi<sup>2</sup> F(12, 7) = 0.60813 [0.7858]

RESET F(1, 19) = 0.0003746 [0.9848]

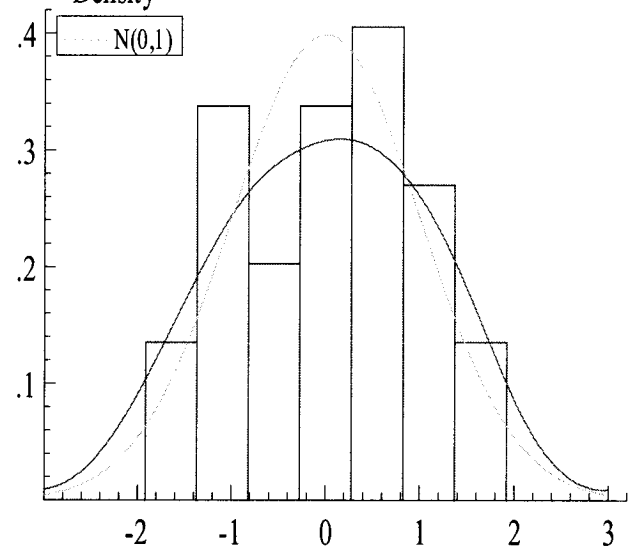
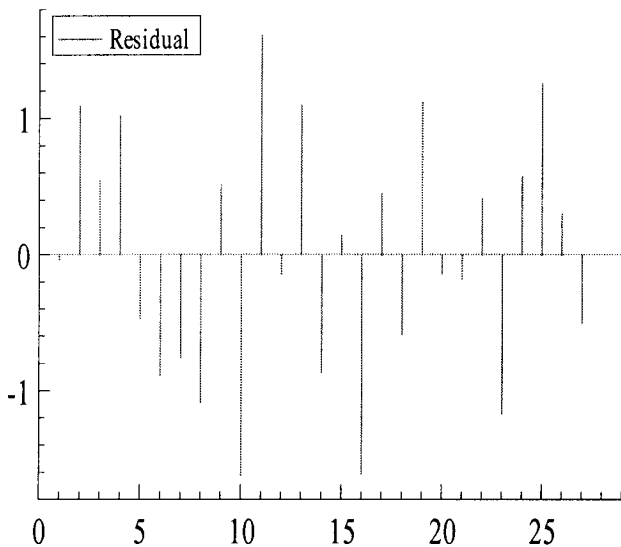
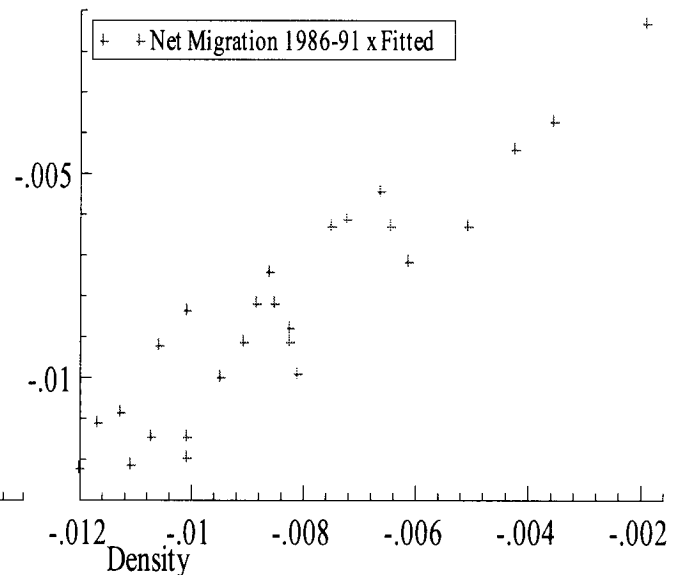
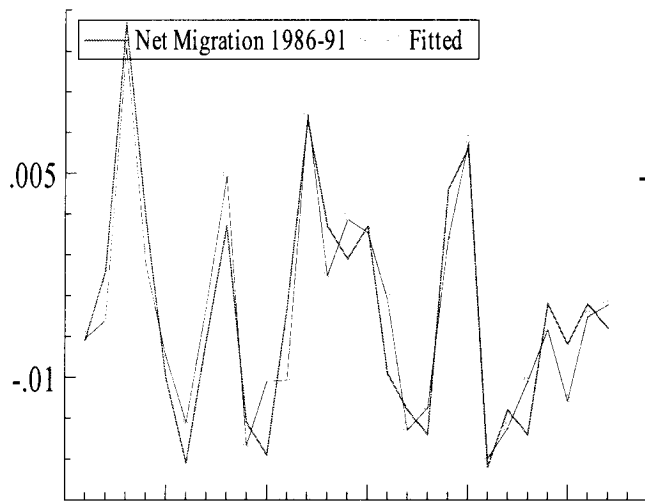


Appendix B  
 Modelling Net Migration 1986-1991 by OLS  
 The present sample is: 1 to 27

Variable	Coefficient	Std.Error	t-value	t-prob	PartR <sup>2</sup>
Constant	-0.033666	0.0059085	-5.698	0.0000	0.6072
Net_M_8186	0.31159	0.081624	3.817	0.0010	0.4097
%_LF_Agr_86	0.012630	0.0051389	2.458	0.0228	0.2234
Lev_B_91	0.061290	0.014590	4.201	0.0004	0.4566
Lev_C_91	-0.044890	0.011256	-3.988	0.0007	0.4310
Lev_D_91	0.22702	0.036492	6.221	0.0000	0.6482

R<sup>2</sup> = 0.872178 F(5,21) = 28.658 [0.0000] \sigma = 0.00111043  
 RSS = 2.589417429e-005 for 6 variables and 27 observations

Normality Chi<sup>2</sup>(2) = 0.76282 [0.6829]  
 Xi<sup>2</sup> F(10, 10) = 0.21439 [0.9885]  
 RESET F( 1, 20) = 0.060451 [0.8083]



Appendix C  
 Modelling Net Migration 1991-1996 by OLS  
 The present sample is: 1 to 27

Variable	Coefficient	Std.Error	t-value	t-prob	PartR <sup>2</sup>
Constant	0.0050941	0.0076088	0.670	0.5105	0.0209
Nt_M_8691	0.95212	0.12532	7.597	0.0000	0.7332
m%_Mar_91	-0.75450	0.28270	-2.669	0.0144	0.2533
%_M_Rt_91	0.066613	0.019877	3.351	0.0030	0.3485
lev_B_96	-0.025352	0.012530	-2.023	0.0560	0.1631
lev_C_96	0.025512	0.010903	2.340	0.0293	0.2068

R<sup>2</sup> = 0.819259 F(5,21) = 19.038 [0.0000] \sigma = 0.00142285  
 RSS = 4.251432254e-005 for 6 variables and 27 observations

Normality Chi<sup>2</sup>(2) = 3.4284 [0.1801]  
 Xi<sup>2</sup> F(10, 10) = 0.65853 [0.7396]  
 RESET F( 1, 20) = 0.084271 [0.7274]

