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## The immigrant earnings disadvantage across the earnings and skills distributions: The case of immigrants from the EU's new member states in Ireland

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## The Immigrant Earnings Disadvantage across the Earnings and Skills Distributions: The Case of Immigrants from the EU's New Member States in Ireland

**Alan Barrett<sup>1</sup>, Séamus McGuinness and Martin O'Brien**

*Abstract.* As the movement of population from the New Member States (NMS) of the EU to the older members is a relatively new flow, it is important to build up our knowledge of who is moving within Europe and how they are performing in their destinations. In this paper, we analyse the earnings of immigrants in Ireland from the NMS using a new large-scale dataset on employees in Ireland. In so doing, we add to the emerging strand in the literature on immigrant earnings that looks beyond average earnings differentials and considers variations in such differentials across the earnings and skills distributions. We do this partly by using quantile regressions and also by analyzing earnings differentials within educational categories. We find that the average earnings difference between immigrants from the NMS and natives is between 10 percent and 18 percent, depending on the controls used. However, the difference is found to be either non-existent or low for people with low skill levels and for people at the lower end of the earnings distribution. The difference is higher for those at the upper ends of the skills and earnings distributions. This suggests that the transferability of human capital is a crucial determinant of the immigrant-native earnings gap for NMS immigrants in Ireland.

*Key words:* Immigrant earnings; Ireland; New Member States; Quantile regression

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# **The Immigrant Earnings Disadvantage across the Earnings and Skills Distributions: The Case of Immigrants from the EU's New Member States in Ireland**

## **Section 1: Introduction**

On 1 May 2004, ten new member states (NMS) joined the European Union. Unlike most of the existing member states of the EU, Ireland, Sweden and the UK allowed full access to their labour markets to the citizens of the NMS from the date of accession. This resulted in a large inflow into Ireland and the UK from the NMS, although less so into Sweden. In 2002, there were less than 25,000 nationals of the NMS living in Ireland<sup>2</sup>. By 2006, this figure had reached over 120,000. As the total population of Ireland in 2006 was 4 million, nationals from the NMS made up 3 percent of the population in that year. According to Blanchflower et al (2007), approximately 500,000 migrants from A8<sup>3</sup> countries came to the UK between May 2004 and late 2006. While many of these would have stayed for only a short period, the large size of the inflow is still evident.

As this East to West movement within Europe is a relatively new flow, it is important to build up our knowledge of who is migrating from East to West within Europe and how they are performing in their destinations. In this paper, our primary aim is to analyse the earnings of immigrants in Ireland from the NMS relative to the native population using a new large-scale dataset on employees in Ireland. In so doing, we also want to add to the emerging trend in the literature on immigrant earnings that looks beyond average earnings differentials and considers variations in such differentials across the earnings and skills distributions. We do this partly by using quantile regressions and also by analyzing earnings differentials within educational categories.

Our interest in looking at the immigrant wage gap along the earnings distribution and across educational categories stems partly from a desire to build on earlier work.

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<sup>2</sup> The figure published by the Central Statistics Office for 2002 (23,105) refers to people from non-EU European Countries and so would have included people from countries other than the ten states that joined the EU in May 2004.

<sup>3</sup> A8 refers to the ten NMS less Cyprus and Malta who already had preferential access to the UK labour market.

Barrett and McCarthy (2007a and 2007b) have shown that there is sizeable wage gap between immigrants from the NMS and natives in Ireland. However, the small size of the samples used in those papers meant that it was not possible to get a clearer view of the factors underlying immigrant earnings differentials. For example, it could be the case that the average immigrant earnings disadvantage is heavily influenced by low skilled immigrants being exploited in secondary labour markets. However, it may also be the case that the average differential arises because high skilled immigrants are unable to access high paying jobs. This could be due to the greater importance of location-specific human capital at the upper end of the earnings and skill distributions or from a failure to have qualifications recognised. The dataset used here contains sufficiently large numbers for us to move substantially beyond the earlier papers.

The paper is structured as follows. In Section 2, we briefly review the emerging literature of East to West migration within Europe and also the literature on immigrant earnings across the earnings distribution. In Section 3, we describe the data and the methods employed. In Section 4, we present some descriptive statistics and the results from standard, mean-based analyses. Also in Section 4, we go on to the quantile regressions and to the regressions which focus on within-education category differences in the immigrant earnings differential. In Section 5, we offer some conclusions.

## **Section 2: Literature Review**

Starting with Chiswick's (1978) analysis of immigrant earnings, the literature on this topic has gone on to look at a range of issues, covering a spectrum of countries. For example, Bell (1997) looked at the interaction between immigrant status and skin colour in the UK and found that the largest wage differential was suffered by some groups of black immigrants. McDonald and Worswick (1998) showed how macroeconomic conditions at the time of arrival impacted upon subsequent wages for immigrants in Canada. Chiswick and Miller (2002) and Dustmann and Fabbri (2003) consider the impact of language fluency on the earnings of immigrants and find substantive differences in both the US and the UK.

As noted in the Introduction, our specific interest is in the labour market experiences of immigrants from the NMS so we will provide a brief account of the studies of this

migratory flow. Given that the bulk of migrants from the NMS initially went to Ireland and the UK, most of the research seems to have come from these countries also. For the UK, Blanchflower et al (2007) and Gilpin et al (2006) focus on estimating the impacts on the UK economy and both conclude that the inflow was either beneficial or at least not harmful. Blanchflower et al (2007) focus in particular on how immigrants to the UK from the A8 increased supply within the economy more than they had increased demand. As a result, the migratory flow acted to dampen inflationary pressures. The focus for Gilpin et al (2006) was on whether the inflow had led to increased rates of unemployment. They concluded that this was not the case, as did Blanchflower et al (2007). Drinkwater et al (forthcoming) look at the experiences of the migrants themselves, as opposed to impacts. They find that most of the new arrivals have found employment in low-skill jobs, despite having high levels of education.

The work from Ireland has tended to focus, as with Drinkwater et al (forthcoming), on the experiences of immigrants. Barrett and McCarthy (2007a and 2007b) looked at the earnings of all immigrants in Ireland and found that immigrants from the NMS had the largest earnings disadvantage relative to comparable natives. The disadvantage was found to be in a range from 30 percent to 45 percent. From Barrett et al (2006) and Barrett and Duffy (forthcoming 2008), it appears that a portion of this earnings disadvantage is related to lower occupational attainment for immigrants from the NMS relative to both natives and to other groups of immigrants in Ireland.

In looking at the earnings of immigrants from the NMS we want to explore the possibility that any gaps in their earnings relative to natives may differ across the distribution of earnings. Both Butcher and Dinardo (2002) and Tannuri-Pianto (2002) show how *changes over time* in the immigrant/native wage gap can vary across the distribution of earnings, with Tannuri-Pianto (2002) using quantile regressions as part of her analysis<sup>4</sup>. However, the paper by Chiswick et al (2006) is closer in nature to ours in that their focus is on variations in the immigrant/native wage gap across the earnings distribution at a point in time, in both the US and Australia. They find that the wage gap seems to increase across the deciles in the US and argue that minimum

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<sup>4</sup> Butcher and Dinardo (2002) use non-parametric methods to estimate earnings distributions for natives and immigrants.

wages may compress wages at the lower deciles. For Australia, relative wages for immigrants and natives seemed to be compressed across the distribution, possibly by the administered wage system.

A further strand of the literature that can be seen as relevant to the analysis below is that element which looks at the transferability of human capital. In looking at the immigrant/native wage gap within educational groups, we will be assessing to a degree whether skills acquired outside of Ireland by immigrants are rewarded in the Irish labour market. Shields and Wheatley-Price (1998), looking at the UK, showed how a part of the immigrant earnings differential could be explained by different returns to human capital acquired outside of the UK. Friedberg (2000) showed how differences in the return to education and experience acquired outside of Israel could account for all of the immigrant/native wage gap there.

### **Section 3: Data and Methods**

The data used in this study comes from the 2006 National Employment Survey (NES). The 2006 NES is a workplace survey, covering both the public and private sectors, which was conducted by the Central Statistics Office (CSO)<sup>5</sup>. The information contained in the NES was collected from a matched employee-employer survey. The employer sample was drawn using the CSO Central Business Register (CBR). Selected firms were asked to draw a systematic sample of employees from their payroll. Approximately 8,000 enterprises<sup>6</sup> were contacted of which 4,845 responded resulting in employee information on 67,766 individuals. After the elimination of employees with missing earnings information, part-time students and also the restriction of our sample to those of working age, the final sample for this study was just below 50,000 employees. When analysing the employee sample, cross-sectional weights were applied to ensure that the data was representative of the general population of employees in employment.

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<sup>5</sup> While the NES survey was of enterprises with 3 plus employees, the results were calibrated to the Quarterly National Household Survey (QNHS) employment data for employees (excluding agriculture, forestry and fishing), which covers all employees.

<sup>6</sup> Only employers with more than three employees were surveyed and the data were collected at the enterprise level.

March 2006 was the reference period for the survey<sup>7</sup>. The employer questionnaire collected some limited information on firm size and sector that was incorporated into our models. Employees were issued with a separate survey within which they were asked to provide information on their age, gender, educational attainment, employment status (part-time or full-time), length of time in paid employment and also other job-related characteristics (for example, trade union membership, supervisory role, tenure with current employer). In terms of migration, each individual's country of origin was coded in a very detailed way that allowed us to separate out migrants into UK, Pre accession EU (other than UK), accession EU, non-EU English speaking country and Non-EU non English speaking country.

We should note at this point that we do not have information on the year in which immigrants arrived in Ireland. For many studies of immigrants this would be a significant problem but it is less of a problem here. As our focus is on immigrants from the NMS and as the vast majority of these immigrants arrived in Ireland in recent years, the group we will be looking at will be quite homogeneous in terms of time spent in Ireland. However, as we do include some comparisons of immigrants from the NMS and elsewhere, the fact that the NMS groups will contain a higher proportion of new arrivals should be kept in mind. Also, while the data at hand is rich and the wage information highly accurate, we must be mindful of the fact that it will generate upwardly biased estimates of the immigrant pay penalty if such persons are disproportionately excluded from the data on the basis that they are employed illegally at levels below the National Minimum Wage (NWA). Nevertheless, we do not believe this to be a major issue for NMS immigrants on the grounds that their legal entitlement to work implies that they will not be more heavily pressured to accept pay levels below the NWA.

With respect to the methodology used to model the impact of migration on earnings, we begin with a standard Mincer type wage model that can be written as follows:

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<sup>7</sup> The earnings information collected in the 2006 NES represents the gross monthly amount payable by the organisation to its employees. This includes normal wages, salaries and overtime; taxable allowances, regular bonuses and commissions; and holiday or sick pay for the period in question (March 2006). It does not include employer's PRSI, redundancy payments and back pay.

$$\log w = \beta_1 + \beta_2 Ex + \beta_3 Ex^2 + \beta_4 S + \beta_5 X_1 + \beta_6 Mig + \varepsilon_i \quad (1)$$

where Ex is experience, S is schooling (highest qualification dummy), X is a vector of explanatory variables containing both employee and employer characteristics that relate to earnings and Mig is the migration variable discussed above. The coefficient on Mig provides an estimate of the earnings disadvantage of immigrants relative to natives evaluated at the mean. However, it is possible that the penalty associated migration status will not be uniform in nature. For example, it could be the case that the pay penalty will be more acute for more highly skilled and educated workers belonging to particular migrant groupings. A standard approach to investigate this issue is to interact the various migration variables with the education dummies that proxy skills. However, our large sample size enables us to split our sample according to educational level and estimate separate regressions for each level of attainment.

Nevertheless, the education specific approach is somewhat constraining in that it does not allow for the possibility that individuals with similar levels of ability and skills may possess differing levels of formal schooling i.e. education may be an inaccurate proxy for ability. On the basis that an individual's productivity level may be more accurately reflected by their position in the wage distribution, as opposed to their schooling level, we also estimate the migration penalty using quantile regressions. As the name suggests, quantile regressions allow us to estimate the consequences of migration within different quantiles of the earnings distribution by weighting observations appropriately across the entire sample. For the technique to be useful we require there to be sufficient variation in the levels of the exogenous variables across the various quantiles so that statistically significant returns can be estimated for each quantile. The empirical results suggest that the data used here is more than sufficient to meet this condition.

The quantile regression model can be formally written as follows (see Buchinsky, 1994).

$$\ln w_i = x_i \beta_\phi + u_{\phi i} \quad \text{with} \quad Quant_\phi(\ln w_i | x_i) = x_i \beta_\phi \quad (2)$$



where  $x_i$  is a vector of exogenous variables.  $Quant_\phi(\ln w_i | x_i)$  denotes the  $\phi_{th}$  conditional quantile of  $w$  given  $x$ . The  $\phi_{th}$  regression quantile,  $0 < \phi < 1$ , is defined as the solution to the problem:

$$\min \beta \varepsilon R^k \left( \sum_{i: y_i \geq x_i \beta} \phi |\ln w_i - x_i \beta_\phi| + \sum_{i: y_i < x_i \beta} (1 - \phi) |\ln w_i - x_i \beta_\phi| \right) \quad (3)$$

The above equation is usually written as:

$$\min \beta \varepsilon R^k \sum_i \rho_\phi(\ln w_i - x_i \beta_\phi) \quad (4)$$

where  $\rho_{\phi(e)}$  is the check function defined as  $\rho_{\phi(e)} = \phi e$  if  $\varepsilon \geq 0$  or  $\rho_{\phi(e)} = (\phi - 1)e$  if  $\varepsilon < 0$ .

It should be noted that the median estimator of  $\phi = 0.5$  is a special case of the quantile regression method. The method is most usefully thought of as providing a parsimonious way of describing the wage distribution and as such it has the potential to add significantly to any empirical analysis should the relationship between the regressors and the exogenous variables evolve across the conditional wage distribution.

While, in principal, the education specific and quantile regression approaches should be broadly equivalent, any differences that do arise could potentially highlight issues relating to either the equivalence of migrant credentials relative to those of natives and or the extent to which migrants are not gaining full access to certain domestic labour markets.

## Section 4: Empirical Results

### Descriptive Statistics

In the tables below we present some descriptive statistics from the data, distinguishing between the demographic and labour market characteristics of natives and immigrants

both at an aggregate level and broken down by various sub-categories. Of particular interest are the characteristics of immigrants from the NMS, those states that joined the European Union in May 2004. Immigrants account for 9.5 per cent of our sample, while those from the NMS make up 2.3 per cent of the sample. Census 2006 reported that 3 per cent of the population described themselves as being from the NMS, which suggests the data is broadly representative.

Tables 1 and 2 show the age and gender distributions of the natives and immigrants in our sample. Immigrants tend to be concentrated in the 25-29 and the 30-39 age groups whereas the Irish age distribution is broader and relatively more skewed in favour of the older age groups. When broken down into the various sub-categories the differences between immigrant and native distributions become more pronounced, particularly for immigrants from the NMS. Of the latter, 84.5 per cent in the sample are in the age groups covering 15-39 years old, compared to just over 50 per cent for the Irish in the sample. Immigrants from the NMS also show the highest proportion of people in the youngest age group (15-24 years) with 17.3 per cent. With regards to gender both native and immigrant groups have a higher proportion of males in the sample than females, although the difference is larger for the immigrant group. Again the largest disparity between the Irish and immigrant sub-categories is found for immigrants from the NMS.

[Table 1]

[Table 2]

Table 3 shows the distribution of highest educational attainment for both natives and immigrants in our sample. Immigrants have a greater tendency to be in the higher end of the distribution than natives, with 54 per cent of them having achieved some qualification at tertiary level or above, compared with 45.1 per cent of Irish nationals. However there are significant differences across the immigrant sub-categories, and again immigrants from the NMS stand out. They are the only immigrant sub-category in our sample which has a lower proportion of people with higher level qualifications than the native Irish.

[Table 3]

The sectoral and occupational distributions for natives and immigrants are presented in Tables 4 and 5. In terms of the sectors, three stand out for their discrepancy between the native and immigrant distributions: hotels and restaurants (NACE H), business services (NACE K) and public administration and defence (NACE L). Immigrants are approximately four times more likely to work in hotels and restaurants than the native Irish, whereas the reverse is true in the public sector. When we disaggregate the immigrants into the various sub-groups a more diverse picture emerges. Immigrants from the UK broadly speaking are found in the same sectors as natives, but there is a much higher tendency for EU13 and NMS immigrants to be in mining/quarrying and manufacturing (NACE C-D). The Non-EU/Non-English speaking sub-group has a distinct concentration of employees in the hotels and restaurants and in the health sectors. Together with their concentration in “other”<sup>8</sup> and professional occupations (Table 6) this suggests that within this sub-group there is an extreme distinction between skilled and unskilled workers.

Looking at the occupational distribution in detail, it is clear that the greatest difference between the natives and immigrants are found at the lower end of the distribution (UKSOC9), similar to the findings of Barrett and Duffy (forthcoming 2008). This is particularly the case for immigrants from the NMS. Almost 50 per cent of the NMS immigrants are found in the plant and machinery operative or “other” occupational category, whereas only 18.4 per cent of the native Irish are in these categories.

[Table 4]

[Table 5]

### OLS Regression Analysis

We now turn to the results from the analysis of immigrant earnings relative to that of natives. Our measure for earnings is the hourly rate of pay for each individual

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<sup>8</sup> This occupational category covers employees who are, for example, farm and builders labourers, involved in assembly-line type production, warehouse workers, waiters/waitresses, bar staff and cleaners.

employee as derived from their employer's responses to questions on employees gross monthly pay<sup>9</sup> in the reference period (March 2006), and their total work hours paid in the reference period.

The mean hourly earnings for our sample as a whole is €19.47 (see Table 6). For natives average hourly earnings are €19.86, compared to €15.63 for immigrants. Using a simple t-test this difference is highly statistically significant. Table 6 also presents a breakdown of average earnings by gender, which shows that both native and immigrant females earn significantly less than native males, consistent with Barrett & McCarthy (2007b).

[Table 6]

The simple mean based comparison strongly suggests lower earnings for immigrants compared to natives. But as usual, we need to conduct regression analysis to see if the pay difference remains when we control for the variety of factors that influence earnings other than immigrant status. Table 7 presents the results from the first stages of the analysis where we estimate three Mincer-type wage equations. The dependant variable in all cases is the earnings per hour discussed above expressed in logarithms.

In Model 1 we include a dummy variable to indicate those employees in the sample which are immigrants as well as a number of other controls for experience, education levels, gender etc. Before turning to the coefficient on the immigrant dummy we will briefly discuss the other coefficients. All coefficients in the model are highly statistically significant and the model as a whole provides a respectable fit with an adjusted-R<sup>2</sup> of 0.45. Of the continuous variables included two are measured in years. Tenure measures the length of service the employee has with their current employer while experience measure the length of time the employee has spent at work since their first regular job. The coefficients on these variables indicate there is an earnings advantage for each year of current service (1 per cent) and experience (2 per cent). As is standard we included a squared value for experience to account for diminishing

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<sup>9</sup> Gross pay is inclusive of normal wages/salary, overtime and benefits/commission before income tax (PAYE) and social insurance (PRSI) deductions. It does not include the employers PRSI contribution, redundancy payments or back pay.

returns, but this has no explanatory power. The third continuous variable is firm size, which is the log of the total number of employees in the firm. The results indicate that as firm size increases by 1 per cent earnings of employees in that firm increases by 4 per cent, *ceteris paribus*.

A number of dummy variables are included in Model 1. Supervisor is a dummy variable equal to one if the employee oversees the activities of one or more other employees. Unsurprisingly we find a 16 per cent earnings advantage for supervisors. Gender is a dummy variable set to one for males and the finding of a 14 per cent earnings advantage for men is consistent with other analyses. Similarly when one considers the coefficient on the dummy comparing full-time as opposed to part-time workers, full-time workers earn approximately 14 per cent more than comparable part-time workers. Other factors that have significant explanatory power in the model are shown by the coefficients on the professional body and public sector dummies. Membership of a professional body leads to a 21 per cent earnings advantage on average whereas workers in the public sector earn 12 per cent more than comparable private sector employees. Meanwhile union membership has a small negative impact on earnings in Model 1.

We also include a number of dummy variables indicating levels of educational attainment. The results shown in Table 7 refer to the earnings advantage people who hold secondary, post-secondary, tertiary and postgraduate qualifications have over and above those who only have a primary level education. As would be expected the returns to education are significant and increase consistently with education level.

We now focus on the coefficient on the immigrant dummy. In Model 1 the immigrant dummy is equal to one for all employees whose response to a question on their nationality was anything other than “Irish”<sup>10</sup>. Consistent with the simple comparison of means above, and other empirical studies (e.g. Barrett and McCarthy, 2007a and 2007b) immigrants earn significantly less than comparable natives, with an earnings disadvantage of 9 per cent on average.

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<sup>10</sup> Respondents whose answer to the question of nationality was left blank were excluded from our sample.

As shown in Barrett et al (2007a and 2007b) this finding for immigrants as a whole is likely to hide differences across different categories of immigrants. To account for this we modify Model 1 by replacing the single immigrant dummy with dummies indicating that each immigrant is from the following regions: UK, EU15, NMS, Non-EU/English speaking<sup>11</sup>, and Non-EU/Non-English speaking. The results are shown as Model 2 in Table 7. Immigrants from the NMS are shown to have the highest earnings disadvantage among the immigrant categories, earning 18 per cent less than comparable Irish employees. Of the other immigrant categories, immigrants from both the EU15 and from Non-EU/Non-English speaking countries experience an earnings disadvantage of 7 per cent and 14 per cent respectively. Meanwhile immigrants from the UK and Non-EU/English speaking countries suffer no disadvantage when compared to natives. In fact English speaking workers from outside the EU earn 6 per cent more than their Irish counterparts on average. Combined, these results indicate that not having English as a native language has a significant negative impact on an immigrants earnings in Ireland, similar to the findings of Chiswick and Miller (2002) and Dustmann and Fabbri (2003) for the US and the UK respectively.

As seen in Tables 4 and 5, the sectoral and occupational distributions of natives and of immigrants from the NMS and Non-EU/Non-English speaking countries are quite different. The concentration of employees from these immigrant categories in sectors such as hotels and restaurants (NACE H) and in “Other” occupations (UKSOC9) suggest that much of the earnings disadvantage may be explained by the fact that these immigrants have a higher tendency to be employed in sectors and occupations which are characterised by lower than average earnings. To control for this we include sector and occupation dummies in our specification. The results are shown as Model 3 in Table 7. The effect on the immigrant dummies is evident and, as would be expected, reduces the earnings disadvantage. In the case of EU15 immigrants the difference between their earnings and those of comparable Irish employees is now statistically insignificant. Non-EU/Non-English speaking employees face a 5 per cent earnings disadvantage on average when the sector and occupational controls are considered. However the earnings disadvantage of NMS immigrants remains the highest at 10 per cent.

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<sup>11</sup> This sub-category includes immigrants from the United States, Canada, Australia, New Zealand and South Africa.

[Table 7]

The trends highlighted above reveal the distinctiveness of the NMS immigrant experience in Ireland. This migratory flow is the most recent and concentrated in terms of its timing (mostly after May 2004) and scale. However the demographic and labour market characteristics of the NMS immigrants also stand out when compared to other immigrant sub-groups. Given the unique nature of the NMS immigrant experience in terms of the size of their earnings disadvantage in Ireland, and our aim to increase our understanding of the results of East to West migration in the EU, we now focus our discussion solely on NMS immigrants<sup>12</sup>.

#### Regression analysis by Education Level

As with other studies (Shields and Wheatley-Price, 1998; Friedberg, 2000; and Barrett and McCarthy, 2007a) it is likely that the earnings disadvantage of immigrants differs according to education or skill level, reflecting different returns to education depending upon the immigrant's nationality<sup>13</sup>. To confirm whether this is the case we estimate Model 3<sup>14</sup> separately for each level of educational attainment: primary, secondary, post-secondary, tertiary and postgraduate. Although we do not have information on where the immigrants received their education, it is likely that the vast majority of immigrants from the NMS will have acquired their educations before arriving in Ireland. This is because there were relatively few immigrants from these countries in Ireland before May 2004. Given this, what we are looking at here is, in part, the extent to which education acquired at home is transferable to Ireland. The results are shown in Table 8 for NMS immigrants.

The first point to note is that there is no evidence of an earnings disadvantage at the lowest level of educational attainment, as the coefficient on the NMS immigrant dummy is insignificant for the primary level specification. However, the earnings disadvantage generally increases with educational attainment, ranging from 6 per cent

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<sup>12</sup> The regression results that follow are all based on specifications that include the immigrant dummies for all sub-categories, but for reasons of space are not reported here.

<sup>13</sup> This assumes that immigrants acquire the majority of their education in their country of origin.

<sup>14</sup> In order to run this particular specification the educational attainment dummies are dropped from the RHS.

for those with second level qualifications to 14 per cent for those with postgraduate qualifications. This indicates that location-specific human capital is of greater importance at the upper end of the education/skills distribution and that it is this that drives the different returns to education between NMS immigrants and natives. However the immigrant wage gap does not fall consistently with education level, as is seen by the result for those with post-secondary qualifications. This group of NMS immigrants have the highest earnings disadvantage of 15 per cent. That the gap does not fall consistently with the level of educational attainment suggests some issue of equivalence, or the respondents (both employee and employer) perception of equivalence, between Irish qualifications and those awarded in the NMS<sup>15</sup>.

[Table 8]

#### Quantile regressions

Table 9 presents the results from quantile regressions run for each decile in the earnings distribution. The coefficients can be described as the earnings disadvantage for NMS immigrants conditional upon their position in the earnings distribution. As with the results across the educational distribution, the earnings disadvantage generally increases for NMS immigrants across the deciles. This finding is similar to that of Chiswick et al (2006) for immigrants in the US and Australia. The statistically significant earnings disadvantages of 4 per cent and 5 per cent at the 10<sup>th</sup> and 20<sup>th</sup> percentile are possibly bounded by the national minimum wage, which was €7.65 per hour at the time of the survey. The increase in the disadvantage is more consistent across the earnings distribution than across the educational distribution discussed above, with the highest disadvantage being at the 90<sup>th</sup> decile (16 per cent). This tends to confirm the notion of location-specific human capital being more important at upper end of the earnings distribution, which appears to be complementary to the findings for the education/skills distribution. However the fact that the disadvantage rises more consistently across the earnings distribution than the education distribution

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<sup>15</sup> A natural extension on the analysis would be to assess the extent to which relationships adjust with the inclusion of an overeducation variable as this would give us some measure of the component of the NMS immigrant pay gap attributable to occupational mismatch. Unfortunately the NES (2006) does not contain any subjective question relating to overeducation and the data proved insufficient to generate a reliable objective measure.



supports the view that there are actual or perceived differences in the equivalence of Irish and NMS qualifications<sup>16</sup>.

### **Section 5: Conclusions**

The period since May 2004 has seen significant inflows of people from the NMS to Ireland and the UK. Our main purpose in this paper has been to assess how the earnings of these people compare to those of native Irish employees. As with earlier work on this issue, our analysis has shown that immigrants from the NMS earn between 18 percent and 10 percent less than comparable Irish natives, depending on whether we control for occupation and sector. This earnings disadvantage is higher than that which is observed for other immigrant groups. This may be related to the fact that the NMS immigrants are generally the most recent arrivals.

When looked at across different educational categories and across the earnings distribution, a more varied picture of the earnings gap experienced by immigrants from the NMS emerges. For those immigrants with the lowest educational attainment, there is no pay gap. Similarly, those at the lower end of the earnings distribution experience only a modest pay gap (of 4 percent). The pay gap rises along with educational attainment and along the earnings distribution. Combined, these findings would tend to suggest that the pay gap for immigrants from the NMS is related to a failure to capture a full return on human capital and points to the importance of skill transferability in explaining the immigrant-native pay gap.

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<sup>16</sup> We re-ran the quantile regressions and included interaction terms between immigrants and females to see if the pattern differed by gender. Generally, this was not the case

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**Table 1: Age Distribution (%) and Average Age (yrs) of Natives and Immigrants (%)**

	<i>15-24yrs</i>	<i>25-29yrs</i>	<i>30-39yrs</i>	<i>40-49yrs</i>	<i>50-59yrs</i>	<i>60+yrs</i>	<i>Total</i>	<i>N</i>
Irish	7.6	13.8	28.7	24.3	18.7	6.9	100.0	45,079
Immigrants <i>of which</i>	8.2	21.8	37.6	20.4	9.1	3.0	100.0	4,729
UK	3.0	8.7	31.1	31.5	18.7	7.1	100.0	1,443
EU 13	6.8	22.6	46.5	16.2	5.8	2.1	100.0	735
EU 10	17.3	38.7	28.5	11.4	3.9	0.3	100.0	1,119
Non-EU/English speaking	3.0	17.3	39.5	25.1	11.1	4.1	100.0	365
Non-EU/Non-English speaking	8.2	21.9	49.0	16.9	3.3	0.7	100.0	1,067

**Table 2: Gender Distribution of Natives and Immigrants (%)**

	<i>Male</i>	<i>Female</i>	<i>Total</i>
Irish	52.0	48.0	100.0
Immigrants <i>of which</i>	59.0	41.0	100.0
UK	58.0	42.0	100.0
EU 13	52.5	47.5	100.0
EU 10	65.9	34.1	100.0
Non-EU/English speaking	49.3	50.7	100.0
Non-EU/Non-English speaking	61.1	38.9	100.0

**Table 3: Distribution of Educational Attainment for Natives and Immigrants**

	<i>Primary</i>	<i>Secondary</i>	<i>Post Secondary</i>	<i>Tertiary</i>	<i>Postgrad</i>	<i>Total</i>	<i>N</i>
Irish	7.6	37.1	10.2	35.5	9.6	100.0	45,079
Immigrants <i>of which</i>	6.5	24.2	15.3	39.9	14.1	100.0	4,729
UK	6.0	29.8	14.4	36.6	13.2	100.0	1,443
EU 13	5.0	18.1	10.7	41.8	24.4	100.0	735
EU 10	6.8	27.6	28.2	28.4	8.9	100.0	1,119
Non-EU/English speaking	2.7	19.7	6.6	52.1	18.9	100.0	365
Non-EU/Non-English speaking	9.1	18.8	9.1	51.1	11.9	100.0	1,067

**Table 4: Native and Immigrant Employment Distribution by NACE Sector (5)**

	<i>Irish</i>	<i>Immigrants</i>	<i>Immigrant group:</i>			<i>Non-EU/English speaking</i>	<i>Non-EU/ Non-English speaking</i>
			<i>UK</i>	<i>EU 13</i>	<i>EU 10</i>		
Mining/Quarrying, Manufacturing, Electricity Gas & Water Supply	18.03	20.5	18.0	24.0	29.0	13.5	14.7
Construction	5.4	5.0	5.5	3.4	8.7	2.7	2.3
Wholesale & Retail Trade	13.6	11.2	11.5	5.7	16.1	8.8	10.2
Hotels & Restaurants	3.2	12.1	5.1	7.8	13.9	7.1	24.2
Transport, Storage & Communications	6.8	7.5	8.0	10.9	9.7	7.4	2.4
Financial Intermediation	6.8	3.8	5.6	6.4	2.1	4.4	1.1
Real Estate, Renting & Business Activities	11.8	17.0	17.9	24.6	12.7	18.9	14.5
Public Admin & Defence	11.8	3.3	6.2	2.2	0.4	9.0	1.1
Education	8.6	5.0	7.4	6.8	1.6	7.9	3.0
Health & Social Work	10.6	11.9	11.9	6.5	2.9	17.5	23.1
Other Community, Social & Personal Services	3.0	2.8	2.9	1.6	3.0	2.7	3.3
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Sample Size	45,079	4,729	1,443	735	1,119	365	1,067

**Table 5: Occupational Distribution of Immigrants and Natives (5)**

	<i>Irish</i>	<i>Immigrants</i>	<i>Immigrant group:</i>				
			<i>UK</i>	<i>EU 13</i>	<i>EU 10</i>	<i>Non-EU/English speaking</i>	<i>Non-EU/Non-English speaking</i>
(1) Managers and administrators	9.6	6.5	11.9	7.5	1.5	11.0	2.2
(2) Professional	21.3	19.5	22.2	24.8	5.2	32.9	22.7
(3) Associate professional and technical	9.7	9.5	12.1	12.7	3.5	13.7	8.8
(4) Clerical and secretarial	21.8	15.5	17.3	28.0	9.7	20.3	8.8
(5) Craft and related trades	6.9	7.1	4.9	1.8	15.3	2.2	6.7
(6) Personal and protective services	5.9	7.7	5.0	4.1	8.3	3.6	14.6
(7) Sales	6.4	5.5	5.8	3.7	7.0	4.7	5.0
(8) Plant and machine operatives	9.4	11.9	10.8	6.3	22.3	4.4	8.7
(9) Other	9.0	16.9	10.0	11.3	27.3	7.4	22.5
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<b>N</b>	45,079	4,729	1,443	735	1,119	365	1,067

*Note:* Occupational disaggregation as per the UK Standard Occupational Classification 2000 (UKSOC), with minor modifications to reflect the Irish labour market

**Table 6: Average Earnings per hour (€) for Natives and Immigrants by Gender**

		<i>Total</i>	<i>Male</i>	<i>Female</i>
Irish		19.86	21.15	18.48
	<i>sd</i>	15.40	16.90	13.46
	<i>N</i>	45,079	23,435	21,644
Immigrants		15.63	15.85	15.34
	<i>sd</i>	12.15	13.09	10.75
	<i>N</i>	4,729	2,792	1,937
<i>of which</i>				
UK		19.62	20.82	18.24
	<i>sd</i>	15.48	17.94	11.91
	<i>N</i>	1,443	837	606
EU 13		17.10	17.77	16.41
	<i>sd</i>	13.91	16.38	10.76
	<i>N</i>	735	386	349
EU 10		11.40	11.99	10.48
	<i>sd</i>	4.47	4.42	4.39
	<i>N</i>	1,119	737	382
Non-EU/English speaking		22.39	24.14	20.48
	<i>sd</i>	19.29	19.74	18.65
	<i>N</i>	365	180	185
Non-EU/Non-English speaking		13.81	13.09	15.04
	<i>sd</i>	8.02	7.49	8.73
	<i>N</i>	1,067	652	415

**Table 7: OLS wage regressions, dependant variable: log of hourly earnings**

	<i>Model 1</i>		<i>Model 2</i>		<i>Model 3</i>	
	<i>Coef.</i>	<i>S.E.</i>	<i>Coef.</i>	<i>S.E.</i>	<i>Coef.</i>	<i>S.E.</i>
Constant	<b>1.85</b>	0.01	<b>1.86</b>	0.01	<b>2.17</b>	0.01
Immigrant:	<b>-0.09</b>	0.01				
UK		0.00	-0.01	0.01	-0.01	0.01
EU13		0.00	<b>-0.07</b>	0.02	-0.03	0.02
NMS		0.00	<b>-0.18</b>	0.01	<b>-0.10</b>	0.01
Non-EU/English Speaking		0.00	<b>0.06</b>	0.02	<b>0.05</b>	0.02
Non-EU/Non-English Speaking		0.00	<b>-0.14</b>	0.01	<b>-0.05</b>	0.01
Tenure	<b>0.01</b>	0.00	<b>0.01</b>	0.00	<b>0.01</b>	0.00
Supervisor	<b>0.16</b>	0.00	<b>0.15</b>	0.00	<b>0.10</b>	0.00
Secondary <sup>^</sup>	<b>0.08</b>	0.01	<b>0.08</b>	0.01	<b>0.05</b>	0.01
Post-Secondary <sup>^</sup>	<b>0.17</b>	0.01	<b>0.17</b>	0.01	<b>0.12</b>	0.01
Tertiary <sup>^</sup>	<b>0.35</b>	0.01	<b>0.35</b>	0.01	<b>0.21</b>	0.01
Postgraduate <sup>^</sup>	<b>0.51</b>	0.01	<b>0.51</b>	0.01	<b>0.31</b>	0.01
Experience	<b>0.02</b>	0.00	<b>0.02</b>	0.00	<b>0.02</b>	0.00
(Experience) <sup>2</sup>	<b>0.00</b>	0.00	<b>0.00</b>	0.00	<b>0.00</b>	0.00
Full-Time	<b>0.14</b>	0.01	<b>0.14</b>	0.01	<b>0.08</b>	0.00
Professional body	<b>0.21</b>	0.01	<b>0.21</b>	0.01	<b>0.12</b>	0.01
Gender	<b>0.14</b>	0.00	<b>0.14</b>	0.00	<b>0.14</b>	0.00
Union	<b>-0.01</b>	0.00	<b>-0.01</b>	0.00	<b>0.01</b>	0.00
Public Sector	<b>0.12</b>	0.01	<b>0.11</b>	0.01	<b>0.09</b>	0.01
Firm size	<b>0.04</b>	0.00	<b>0.04</b>	0.00	<b>0.03</b>	0.00
Sector Controls Added					X	
Occupation Controls Added					X	
N		49,301		49,301		49,301
Adj-R <sup>2</sup>		0.45		0.45		0.53

*Notes:* Omitted category is <sup>^</sup>Primary education. Coefficients in bold are significant at the 5 per cent level or below.



**Table 8: OLS wage regressions by education level, dependant variable: log of hourly earnings**

	<i>Primary</i>	<i>Secondary</i>	<i>Post-Secondary</i>	<i>Tertiary</i>	<i>Postgraduate</i>
Immigrant: NMS	-0.02 <i>0.04</i>	<b>-0.06</b> <i>0.02</i>	<b>-0.15</b> <i>0.02</i>	<b>-0.10</b> <i>0.02</i>	<b>-0.14</b> <i>0.04</i>
N	3,558	17,707	5,247	17,794	4,995
Adj-R <sup>2</sup>	0.36	0.41	0.39	0.54	0.55

*Notes:* Model 3 (Table 7) estimated by level of educational attainment. Coefficients in bold are significant at the 5 per cent level or below.

**Table 9: Quantile regressions, dependant variable: log of hourly earnings**

	<i>q = .1</i>	<i>q = .2</i>	<i>q = .3</i>	<i>q = .4</i>	<i>q = .5</i>	<i>q = .6</i>	<i>q = .7</i>	<i>q = .8</i>	<i>q = .9</i>
Immigrant: NMS	<b>-0.04</b> <i>0.01</i>	<b>-0.05</b> <i>0.01</i>	<b>-0.07</b> <i>0.02</i>	<b>-0.07</b> <i>0.02</i>	<b>-0.09</b> <i>0.02</i>	<b>-0.12</b> <i>0.02</i>	<b>-0.11</b> <i>0.02</i>	<b>-0.13</b> <i>0.02</i>	<b>-0.16</b> <i>0.03</i>
N	49,301	49,301	49,301	49,301	49,301	49,301	49,301	49,301	49,301
Pseudo R <sup>2</sup>	0.27	0.32	0.35	0.36	0.37	0.37	0.37	0.36	0.33

*Notes:* Model 3 (Table 7) estimated by quantile. Coefficients in bold are significant at the 5 per cent level or below.

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              Choices of the Pharmaceutical Industry in Europe  
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              *Frances P. Ruane, Xiaoheng Zhang*
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              Participation: Evidence from Ireland  
              *Tim Callan, A. Van Soest, J.R. Walsh*
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              in Seven European Countries  
              *Tim Callan, Tim Smeeding and Panos Tsakloglou*