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The Impact of Ireland's Recession on the Labour Market Outcomes of its Immigrants

L'impact de la récession en Irlande sur le devenir de ses immigrés sur le marché du travail

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Abstract In the mid-2000s, Ireland experienced a large inflow of immigrants, partly in response to strong economic growth but also in response to its decision to allow full access to its labour market when EU expansion occurred in May 2004. Between 2004 and 2007, the proportion of non-nationals living in Ireland almost doubled, increasing from 7.7 to 13.1%. Between 2008 and 2009, Ireland experienced one of the most acute downturns in economic activity in the industrialised world, with a cumulative fall in Gross National Product of close to 14%. In this article, we assess how this downturn has impacted upon the employment outcomes of non-nationals relative to natives. We find huge job losses among immigrants, with an annual rate of job loss of close to 20% in 2009, compared to 7% for natives. A higher rate of job loss for immigrants is found to remain when we control for factors such as age and education. We also show how an outflow of non-nationals is occurring. The findings have many implications. In particular, the results point to economic vulnerability for immigrants. However, they also point to a potential macroeconomic benefit to Ireland in terms of a flexible labour supply adjustment.

Keywords Recession · Ireland · Immigration

Résumé Au milieu des années 2000, l'Irlande a connu un important afflux d'immigrés, en partie pour répondre à une forte croissance économique, mais aussi du fait de sa décision de permettre le libre accès à son marché du travail lors de l'élargissement de l'Union européenne en mai 2004. Entre 2004 et 2007, la proportion d'étrangers vivant en Irlande a presque doublé, passant de 7,7% à 13,1%. En

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2008 et 2009, l'Irlande a connu un effondrement de son activité économique parmi les plus spectaculaires du monde industrialisé, avec une baisse cumulée de son produit national brut de près de 14%. Dans cet article, nous évaluons l'impact de cet effondrement sur l'emploi des étrangers par rapport aux natifs. Une très importante perte d'emploi est observée parmi les immigrés, avec un taux annuel de perte d'emploi proche de 20% en 2009, contre 7% pour les natifs. Un taux plus élevé de perte d'emploi pour les immigrés persiste après contrôle de facteurs tels que l'âge et le niveau d'instruction. Nous démontrons également l'existence d'un flux de départ des étrangers. Ces résultats ont de nombreuses implications et soulignent plus particulièrement la vulnérabilité économique des immigrés. Cependant, ils peuvent aussi signaler un bénéfice macro-économique potentiel pour l'Irlande en termes de flexibilité de l'offre de travail.

Mots-clés Récession · Irlande · Immigration

1 Introduction

As with many of the world's economies, Ireland experienced an economic recession in 2008 and 2009. However, in the case of Ireland the recession has been more severe, and prolonged, relative to elsewhere. Gross National Product fell by 2.8% in 2008 and by a further 11.3% in 2009. The economy stabilised in 2010[1] but the cumulative impact of the downturn will be around 14%. One of the main consequences of the recession has been a rapid rise in the rate of unemployment: from an average of 4.6% in 2007, it rose to 8.6% by December 2008 and 13.1% by the end of 2009.

In the years preceding the downturn, Ireland had experienced a long period of strong growth. Between 1990 and 2007, growth had averaged 5.7% per annum, with just over 5% per annum in the latter part of this period, between 2003 and 2007. Partly as a result of this growth, Ireland experienced a significant migratory inflow, especially in the period after May 2004 when the EU admitted ten new member states. Between the third quarter of 2004 and the third quarter of 2007, the number of non-nationals (aged 15 and over) grew by 85%, and their proportion in the population aged 15 and over increased from 7.7 to 13.1% over the same 3-year period.

The purpose of this article is to assess how the economic downturn has impacted upon Ireland's immigrants, with a particular focus on changes in the employment rates of non-nationals over the recession. We do this in two broad ways. First, we use published data from Ireland's Central Statistics Office (CSO) to examine changes in the proportions of non-nationals who are employed, unemployed and inactive, relative to Irish nationals. Second, we use microdata, again from the CSO, to assess how the employment of non-nationals has changed over the recession,

[1] Gross national product grew by 0.3% in 2010.

using multivariate analysis where we control for other factors which would be associated with employment vulnerability, such as age and education.

There are two broad motivations behind our analysis. From a microeconomic perspective, we are interested in assessing the degree to which the recession may have further disadvantaged immigrants in the labour market. This theme was discussed in OECD (2009a) and led to the policy prescription that integration policy should possibly be strengthened in the recession as opposed to weakened. From a macroeconomic perspective, we are interested in exploring whether migration is acting as a shock absorber for the Irish economy, whereby the burden of adjustment to the downturn is being borne in part by a labour force that flowed in during the boom and which may now be exiting during the recession. To use Borjas' (2001) phrase, has immigration greased the wheels of Ireland's labour market?

The article is structured as follows. In the remainder of this introduction, we provide a brief review of what we had learned about the labour market outcomes for immigrants in Ireland prior to the recession as this provides a context for changes during the recession. In Section 2, we look at the information on immigrants' labour market experiences over the recession that can be distilled from the published data. In Section 3, we move onto the econometric analysis of these experiences. Finally in Section 4, we discuss the implications of our findings.

A number of papers on the labour market outcomes of immigrants in Ireland tended to show that they did less well relative to natives and that the apparent labour market disadvantages were particularly acute for immigrants from the EU's New Member States (NMS). Taking account of differences in socio-economic characteristics between immigrants and natives, Barrett and McCarthy (2007) showed that immigrants earned 18% less than comparable natives. However, the wage disadvantage was 45% for immigrants from the NMS. Barrett and Duffy (2008) found that immigrants were less likely to be in higher level occupations, again taking account of differences between non-nationals and nationals. For immigrants from the NMS, there was a 20% gap in the probability of being in higher level occupations relative to comparable natives. Barrett and Duffy (2008) also showed that this occupational disadvantage did not appear to be lower for immigrants who had been in Ireland for longer. Hence, they failed to find evidence of integration over time. Barrett et al. (2009) showed that immigrants were less likely to receive employer-provided training relative to natives.

These papers suggested that immigrants in Ireland were in less favourable labour market situations in the period before the recession. As a result, one might expect them to be particularly vulnerable to employment loss as a result of the economic downturn. The broader international literature on the employment situation of immigrants would suggest that such vulnerability would also be present elsewhere, especially for recently arrived immigrants. Chiswick (1978) was an early proponent of the theory that recently arrived immigrants lacked 'location-specific human capital' and that this would impact negatively on labour market outcomes, at least in the early stages of an immigrant's stay in the host country. Friedberg (2000) was a more recent example of this line of thought. She showed how human capital acquired outside of a host country was less valued than human capital acquired

within (the country in this case being Israel). As with Chiswick (1978), this resulted in poorer labour market outcomes for recently arrived immigrants.

Discrimination against immigrants has also been advanced as a possible source of labour market vulnerability. As discussed by Clark and Drinkwater (2008), studies which claim to find evidence of the existence of discrimination based on the estimation of wage equations or similar methods are often criticised for attributing poor labour market outcomes to discrimination when other possible explanations exist. Nevertheless, Blackaby et al. (2002), Clark and Lindley (2009) and Shields and Wheatley-Price (1998) all find evidence that is consistent with discrimination against non-white immigrants. More direct evidence for discrimination against immigrants in Ireland is found in McGinnity et al. (2009). In this study, a field experiment was conducted in which fake CVs were sent to employers, with names which would be readily associated with specific nationalities. Different rates of invitation for interview were interpreted as providing evidence of discrimination against immigrants.

The conclusion from both the Irish and international literature would appear to suggest that immigrants, especially recent arrivals, are often in weak labour market situations. We now explore if this translated into large employment losses relative to natives during Ireland's recent recession.

2 Immigrant Employment Outcomes over the Recession: Published Data

Each quarter, Ireland's Central Statistics Office (CSO) provides information on the numbers of non-nationals, aged 15 and over, who are employed, unemployed and inactive as part of their release on the Quarterly National Household Survey (QNHS). The QNHS, which is a nationwide survey of households in Ireland, is the official labour force survey and provides the official measure of unemployment.

In the following figures, which are derived from the QNHS, we trace the movement in the labour market from late 2004 through to the end of 2009.[2] It is important to stress at the outset that the data we use are essentially repeated cross sections and not a panel. As a result, changes over time could be the result of a changing mix of individuals as opposed to changes in the circumstances of individuals.

We begin with Fig. 1 in which we show the number of non-nationals living in Ireland from the third quarter of 2004 through the fourth quarter of 2009. The population of non-nationals grew from just under 250,000 in Q3 2004 (or 7.7% of the total population aged 15 and over) to a peak of 485,000 in Q4 2007 (14%). This was an increase of almost 100%. Since then, the numbers have declined. The figures for Q4 2009 show that there were 423,000 non-nationals aged 15 and over in Ireland. This represents a fall of 62,000 from the peak, or almost 13%.

In Fig. 2, we look at the population figures from a different angle and consider annual percentage changes in the population of both non-nationals and nationals. As can be seen, the non-national population had been growing at a remarkable rate

[2] All data relate to the population aged 15 and over.

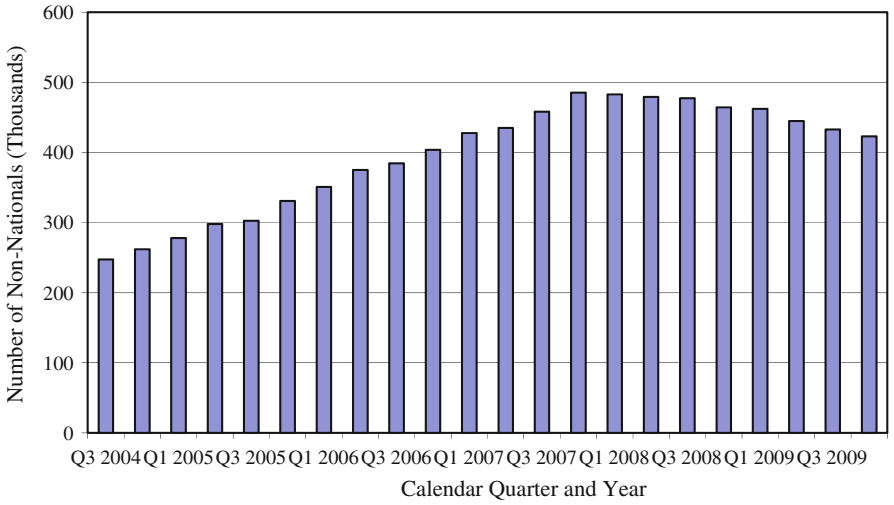

Fig. 1 Number of non-nationals aged 15 and over (thousands). *Source* Constructed with data from the Quarterly National Household Survey (2004–2009), Central Statistics Office

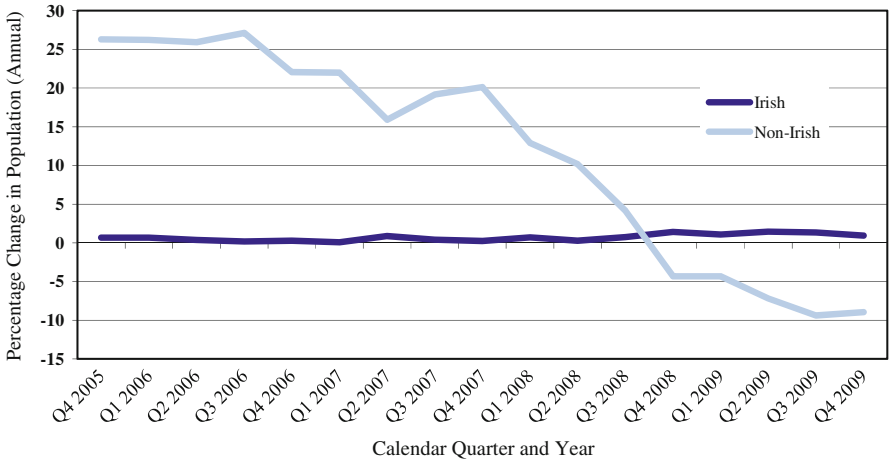

Fig. 2 Percentage change in population aged 15 and over (annual). The percentage change is calculated as the difference in the stock in Qt minus the stock in Qt of the previous year, divided by the stock in Qt of the previous year. For example, the percentage change in Q4 2005 is calculated as (Q4 2005–Q4 2004)/Q4 2004. No seasonal adjustment is needed as quarter on quarter changes are not calculated. *Source* Constructed with data from the Quarterly National Household Survey (2005–2009), Central Statistics Office

(on an annual basis) right up until the end of 2007, at which time the annual growth rate was 20%. The rate of growth then fell sharply and turned negative in Q4 2008. For Q3 and Q4 2009, the annual rate of decline in the non-national population was close to 9%.

In Fig. 3, we look at the trend in employment growth for nationals and non-nationals and striking differences are immediately apparent. While the pattern is potentially similar to that of Fig. 2, it is important to look at employment separately from population as immigrants could remain out of employment as a result of unemployment or remain out of the labour force entirely. In 2005 and 2006, the annual rate of growth in employment for non-nationals was 30% or higher. Although the pace of growth slowed in 2007, it was still running at 20% or above. The rate of growth for non-nationals continued to decline through 2008, but one interesting point to note is that the annual rate of change in the numbers employed became negative for nationals before this occurred for non-nationals. In Q2 2008, the number of nationals employed fell by 1.1% relative to the same period 1 year earlier. The corresponding figure for non-nationals was still positive at this point. However, from Q3 2008 the annual rate of decline in the numbers of non-nationals employed exceeded that of nationals: in Q3 2009, the rate had reached close on 20% for non-nationals, compared with a 7% fall for nationals. Just as the national/non-national comparison showed stark differences in the earlier period, the comparison is almost as stark in the period of the recession.

The employment falls among non-nationals which we see in Fig. 3 were large and so we would expect them to be reflected in the unemployment rate of immigrants. In Fig. 4, we track the unemployment rates of Irish nationals and non-national from 2004 to 2009. We also look at immigrants from the EU's accession states as a separate category, although they are included in the non-national category too.

For the period between 2004 to the end of 2007, the rate of unemployment for Irish nationals was largely unchanged and hovered just below 5%. For immigrants in total, there was a fall in the rate of unemployment between 2006 and 2007, and for immigrants from the accession states this was strongest. There appeared to be a convergence between their rate of unemployment and that of the native population.

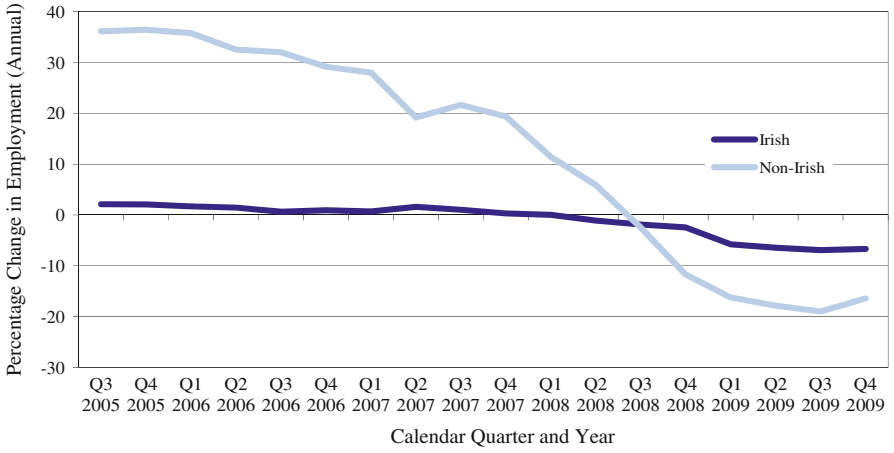

Fig. 3 Percentage change in employment (annual). *Source* Constructed with data from the Quarterly National Household Survey (2005–2009), Central Statistics Office

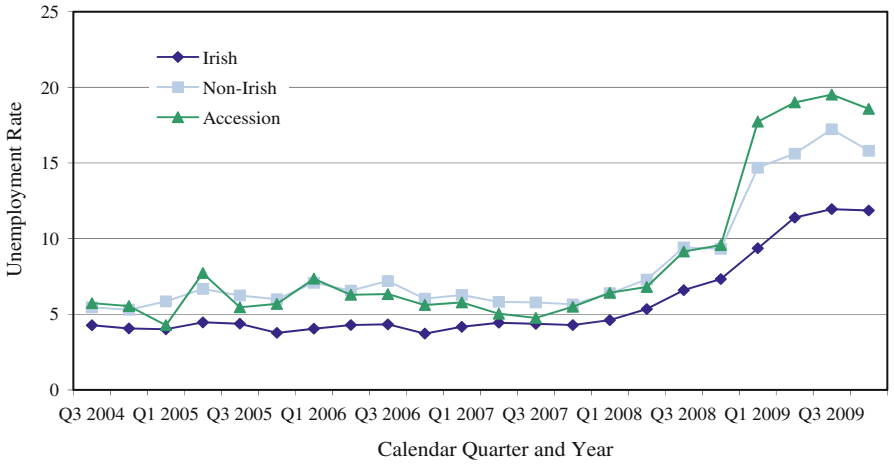

Fig. 4 Unemployment rates: 2004–2009. *Source* Constructed with data from the Quarterly National Household Survey (2004–2009), Central Statistics Office

In Q3 2007, the gap between the unemployment rates of Irish nationals and accession state nationals was less than 0.5 of a percentage point (4.8% for the accession state immigrant vs. 4.4% for the natives). In some senses, these figures on unemployment captured much that was viewed as positive about Ireland's experience of immigration. First, it was noteworthy that Ireland could experience such a huge population inflow without any impact on the rate of unemployment of natives.[3] Second, the convergence of the unemployment rate of the accession state (or NMS) immigrants towards that of natives was consistent with a story of labour market integration.[4]

As shown in Fig. 4, the relative rates of unemployment between immigrants and natives began to diverge with the onset of recession at the start of 2008. The beginning of 2009 shows a rapid divergence once again in unemployment rates with the gap exceeding 5 percentage points in both Q1 and Q3 2009. Based on the different rates of employment losses shown in Fig. 3, this is not surprising and the clear lesson is that the recession was severe for immigrants in terms of employment and unemployment.

We look next at another dimension of labour market outcomes, inactivity. The first point to be taken from Fig. 5 is the very high rate of participation among accession state immigrants in particular. At its peak, in Q1 2007, the participation rate of accession state immigrants was almost 90%. This could be due to immigrants coming to Ireland to work, concentrated in the working ages and leaving dependent and inactive family members in their home countries. The rate has declined since

[3] Of course, the rate of unemployment of natives might have been even lower in the absence of the large inflow. Nevertheless, the broad point appears to remain that Ireland's labour market absorbed the large inflow with limited evidence of displacement on average.

[4] Care needs to be exercised when making any conclusions about integration based on repeated cross sections. The rates of unemployment may have converged because unemployed immigrants left Ireland. In this case, there would be no process of integration whereby unemployed immigrants found jobs.

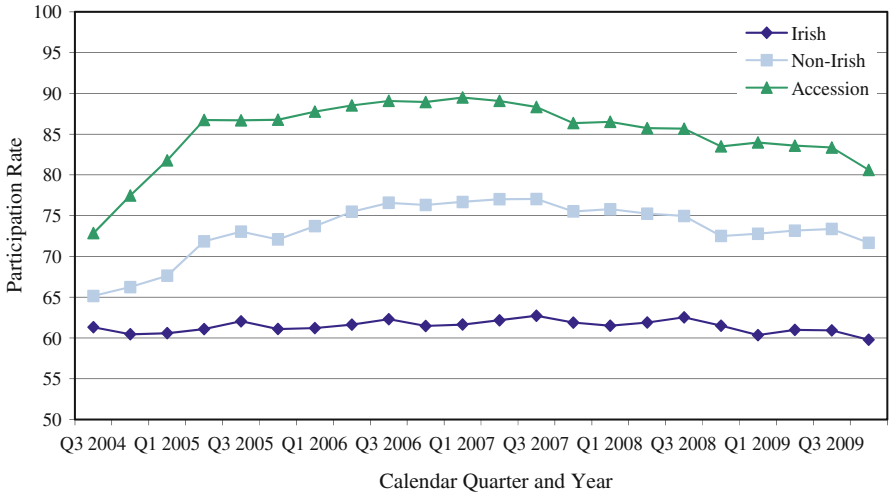

Fig. 5 Participation rates: 2004–2009. *Source* Constructed with data from the Quarterly National Household Survey (2004–2009), Central Statistics Office

then but this could be due to a range of factors including reduced employment opportunities or non-working spouses joining working spouses. Participation rates declined for both immigrants and natives in the middle of 2008.

Figure 5 suggests that the different rates of employment loss did not translate into a fall in the participation rate of immigrants relative to natives. We have already seen that the different rates of employment loss translated into a surge in unemployment among immigrants relative to natives but another potential channel of adjustment was out-migration. Figure 1 suggests that this was indeed a channel taken by a proportion of immigrants. In Fig. 6, we look at this in a slightly different way and consider how the fall in the number of immigrants employed between Q1 2008 and Q4 2009 was distributed across the three alternatives of becoming unemployed, inactive and leaving Ireland.

From Fig. 6, we can see that the number of immigrants employed in Ireland fell by 87,500 over the period in question, a fall of 25%. The number unemployed grew by 24,500, an increase of over 100%. The number who declared themselves as being inactive grew by just 2,700, or just over 2%. However, in absolute terms the biggest adjustment was in the number still in Ireland: this fell by 60,200 or 12%.

The discussion in the preceding paragraph could generate the impression that we are looking at the same people over time and assessing how those who lost their jobs reacted. As noted earlier in the paper, the data used here are not from a panel and so we need to be careful in making interpretations. However, these data are certainly consistent with a tendency for employment losses to have resulted in outflows.

As a final element in this part of our analysis, we will use Fig. 7 to provide some insight into the following question: was the high rate of employment loss among immigrants the result of their concentration in contracting sectors or did they have

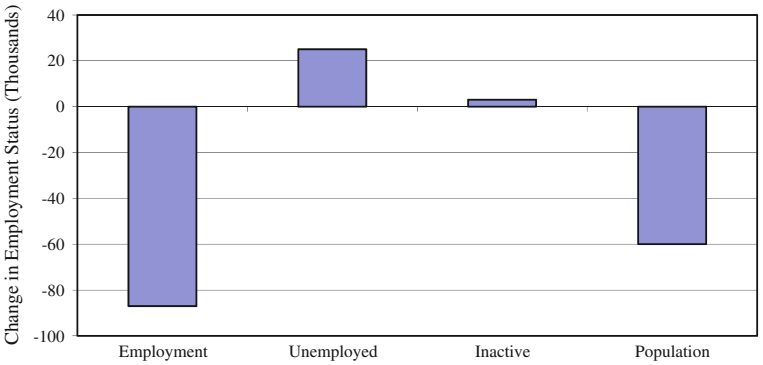

Fig. 6 Change in employment status of non-Irish nationals between Q1 2008 and Q4 2009. *Source* Constructed with data from the Quarterly National Household Survey (2008 and 2009), Central Statistics Office

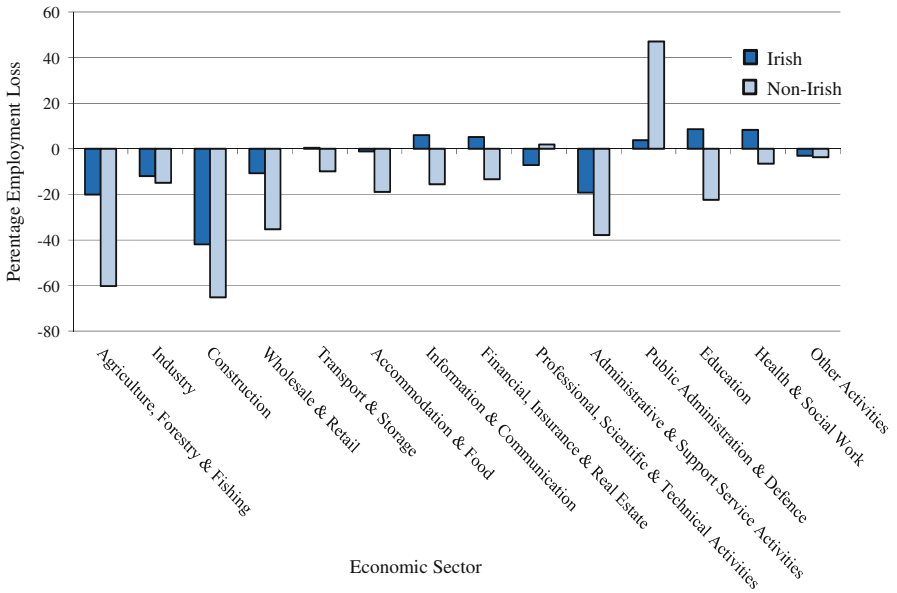

Fig. 7 Percentage employment loss by sector between Q1 2008 and Q4 2009. *Source* Constructed with data from the Quarterly National Household Survey (2008 and 2009), Central Statistics Office

higher rates of employment loss across all sectors? In Fig. 7, we show the percentage fall in employment for immigrants and natives across economic sectors over the 2-year period 2008–2009. The general picture that emerges is that the rate of job loss in most sectors is higher for immigrants than for natives. This suggests that the large employment losses for immigrants were not solely the result of being in vulnerable sectors.

3 Immigrant Employment Outcomes over the Recession: Multivariate Analysis using Microdata

3.1 Approach

The analysis in Section 2 has used published data to assess how the recession has impacted upon immigrants in Ireland. A major limitation of this analysis is that it does not take account of other socioeconomic factors liable to affect the likelihood of an individual experiencing a job loss during a recession. For example, younger workers tend to be in more precarious employment situations, i.e. concentrated in temporary jobs and cyclically sensitive industries (OECD 2009b). To the extent that immigrants are also younger than the native population, on average, the large employment losses discussed above could have been the result of age as opposed to immigrant status per se. In this section, we take a closer look at the employment experiences of immigrants during the recession by using multivariate analysis in which we control for these other socio-economic characteristics.

3.2 Data

As with the analysis in Section 2, the data used here came from the Quarterly National Household Survey (QNHS). Information for the QNHS is collected continuously throughout the year, with 3,000 households surveyed each week to give a total sample of 39,000 households in each quarter. Households participate in the survey for five consecutive quarters.

The QNHS offers one of the few large-scale surveys of immigrants in Ireland. However, it is also known that the survey undercounts their number, and this may be a cause for concern about non-representativeness in using QNHS data to analyse immigration issues. Furthermore, as the survey is only administered in English, there might be an additional concern that low-skilled immigrants are disproportionally omitted from the QNHS. However, research by Barrett and Kelly (2008) shows that the QNHS provides a reliable profile of Ireland's immigrants based on comparisons between the QNHS from the second quarter of 2006 and the Census of 2006.

For the purpose of this article, data from Quarter 1 of the 2008 and 2009 QNHSs were used. The 2008 data captures labour market conditions at the beginning of the recession, while the 2009 data depicts the situation in the middle of the downturn. To assess the impact of the recession on the employment prospects of immigrants, we merged the two QNHS datasets into one and introduced a series of 2009 year interaction terms (e.g. immigrant*year) into out employment probability specifications. The merged QNHS dataset consisted of 143,168 individuals. After restricting our sample to the working age population[5] and eliminating individuals that had

[5] Self-employed individuals are excluded from the analysis, and working age is defined as 20–64 years.

missing information on key variables,[6] the final sample used in the paper consisted of 70,651 individuals.[7]

We should note at this point that the use of two repeated cross sections (as is the case here) to assess how an outcome changes over time is not ideal. As the sample frame may change over time in response to a variable of interest, it is not possible to identify period effects. While this is generally true, we would argue that the likely change in the composition of the sample frame in the case under discussion here is more clearcut than is usually the case and so the direction of any bias in the estimated results is also more clearcut. It seems reasonable to assert that the immigrants who are most likely to have left Ireland between 2008 and 2009 were those who lost their jobs. In this way, the QNHS of 2009 will not observe these people. If this group of immigrants had been included in the 2009 QNHS, then the true impact of the recession on immigrants would be more strongly negative than suggested by our estimates.

As well as including information on a person's economic status (employed, unemployed or economically inactive), the QNHS also contains information on a range of demographic factors (e.g. gender, age, nationality, country of birth, marital status, year of residence in Ireland, educational attainment, geographic location, etc.), job characteristics (e.g. occupation, industry, job-type, trade union membership, working patterns, etc.) and unemployment information (e.g. month last worked, job search methods, etc.).

3.3 Methodology

In terms of methodology, we estimated binary probit regression models where the dependent variable equalled 1 if the person was employed and zero if non-employed (i.e. unemployed or economically inactive).[8] Probit regressions are used as an alternative to standard ordinary least squares regression when the dependent variable is binary. The probit model produces estimated coefficients whereby any predicted values of the dependent variable lie in the range of zero to one. Standard OLS could lead to predicted values of the dependent variable which lie outside of the zero/one range which is clearly undesirable in the case of a binary variable. It should be noted that the coefficient estimates from a probit model cannot be readily interpreted as measuring the impact on the dependent variable of a one-unit increase in an explanatory variable, due to the non-linear nature of the estimation procedure. However, 'marginal impacts' can be calculated using the mean of the explanatory variable as a base and are interpretable in terms of the magnitude of the relationship between the dependent and explanatory variables.

[6] Specifically, individuals were excluded if information on their country of birth, nationality and/or year of taking up residence in Ireland was missing.

[7] We also eliminated individuals from the analysis whose country of birth did not match their nationality e.g. person with an Irish nationality who was not born in Ireland. Furthermore, American citizens were omitted due to small numbers.

[8] The QNHS contains two economic status variables: the first is based on the International Labour Office (ILO) classification and the second captures individuals' own perceptions of their economic status (principal economic status variable). The ILO variable was selected to create the dependent variable used in this article.

The following explanatory variables were included in our specifications: gender, age, education, geographic location within Ireland, whether the individual is an immigrant and year of observation (i.e. 2008 or 2009).[9] We define immigrants as individuals who describe their nationality as being non-Irish and who were not born in Ireland. This group is then compared with individuals who describe themselves as Irish nationals and who say that they were born in Ireland. In some specifications, immigrants are divided into four regional categories: (i) UK, (ii) EU-13,[10] (iii) EU-New Member States (i.e. the accession states) and (iv) other countries. Descriptive information on the variables included in our models is presented in Table A1 in the Appendix.

We initially estimated four sets of specifications to assess the impact of the recession on immigrants' employment propensities compared to natives. In the first set, we used a dichotomous immigrant dummy variable equalling one if non-Irish and zero if native. In the second set of models, immigrants were divided into the four nationality groupings outlined above. In order to identify if recently arrived immigrants are more likely to experience negative employment prospects during the recession, we included a 'recently arrived' and an 'earlier arrived' immigrant dummy variable in our third set of specifications. The year of arrival information contained in the QNHS was used to create these two dummy variables, with recently arrived defined as immigrants that have been in the country for a maximum of 2 years. In our fourth set of models, we broke down the four nationality groups into recently arrived and earlier arrived immigrants.

3.4 Impact of the Recession on Immigrants

The results from the four sets of specifications are presented in Tables 1, 2, 3 and 4. In each case, Model 1 includes a dummy variable indicating immigrant/native and a dummy variable indicating the year of observation (2008 or 2009). In model 2, we add interaction terms between the year and immigrant dummies (e.g. immigrant*year). If we find negative and significant coefficients on these interaction dummies, we interpret this as evidence of a deterioration in employment probabilities for immigrants relative to natives in 2009.

As indicated earlier, our dependent variable equals one if employed and zero otherwise. Only the results on our variables of interest are presented in the tables. Specifically, for each variable we present the coefficient estimates and also the marginal effects on an individual's likelihood of being employed. The results on the other covariates included in our models are in line with expectations.[11] Overall, we found that an individual's likelihood of being employed decreased with age, if female and/or living in the Border/Midland/Western region of the county, while a

[9] We also include a student control in our models. This is because there are a small number of individuals in our dataset who view their main economic status as being a student (identified by the principal economic status variable) but are employed according to the ILO definition.

[10] EU-15 less Ireland and the UK.

[11] Results available from the authors on request.

Table 1 Probit model of employment for immigrants and all natives

Model		Coefficient	Standard error	Marginal effect	Standard error
1	Immigrant	−0.047***	(0.017)	−0.017***	(0.006)
2	Immigrant*year	−0.133***	(0.032)	−0.049***	(0.012)

* Significant at 10%; ** significant at 5%; *** significant at 1%

Standard errors in parentheses. Controls: gender, age, education, geographic location within Ireland, whether the individual is an immigrant and year of observation (i.e. 2008 or 2009), immigrant year interactions

Table 2 Probit model of employment for immigrants by nationality and all natives

Model		Coefficient	Standard error	Marginal effect	Standard error
1	UK	−0.327***	(0.035)	−0.124***	(0.014)
	EU-13	−0.033	(0.051)	−0.012	(0.018)
	EU-NMS	0.227***	(0.025)	0.077***	(0.008)
	Other	−0.231***	(0.028)	−0.087***	(0.011)
2	UK*year	0.057	(0.070)	0.020	(0.025)
	EU-13*year	0.046	(0.101)	0.016	(0.035)
	EU-NMS*year	−0.324***	(0.050)	−0.123***	(0.020)
	Other*year	−0.081	(0.055)	−0.030	(0.020)

* Significant at 10%; ** significant at 5%; *** significant at 1%

Standard errors in parentheses. Controls: gender, age, education, geographic location within Ireland, whether the individual is an immigrant and year of observation (i.e. 2008 or 2009), immigrant year interactions

Table 3 Probit model of employment for recently arrived and earlier arrived immigrants and all natives

Model		Coefficient	Standard error	Marginal effect	Standard error
1	Recently arrived immigrant	0.010	(0.028)	0.004	(0.010)
	Earlier arrived immigrant	−0.071***	(0.019)	−0.026***	(0.007)
2	Recently arrived immigrant*year	−0.167***	(0.056)	−0.062***	(0.021)
	Earlier arrived immigrant*year	−0.107***	(0.038)	−0.039***	(0.014)

* Significant at 10%; ** significant at 5%; *** significant at 1%

Standard errors in parentheses. Controls: gender, age, education, geographic location within Ireland, whether the individual is an immigrant and year of observation (i.e. 2008 or 2009), immigrant year interactions

person's probability of being employed increased with education level and if married.

The coefficient estimate on our immigrant dummy variable in Model 1 (Table 1) tells us that, controlling for factors such as age, education, gender, etc., immigrants are less likely to be employed compared to natives. The marginal effect, which gives us a sense of the size of this result, tells us that immigrants are almost 2% less

Table 4 Probit model of employment for recently arrived and earlier arrived immigrants by nationality and all natives

Model		Coefficient	Standard error	Marginal effect	Standard error
1	UK recently arrived immigrants	−0.650***	(0.090)	−0.253***	(0.035)
	EU-13 recently arrived immigrants	−0.154*	(0.082)	−0.057*	(0.031)
	EU-NMS recently arrived immigrants	0.348***	(0.041)	0.114***	(0.012)
	Other recently arrived immigrants	−0.303***	(0.052)	−0.115***	(0.021)
	UK earlier arrived immigrants	−0.270***	(0.038)	−0.102***	(0.015)
	EU-13 earlier arrived immigrants	0.039	(0.064)	0.014	(0.023)
	EU-NMS earlier arrived immigrants	0.153***	(0.031)	0.053***	(0.010)
	Other earlier arrived immigrants	−0.207***	(0.032)	−0.077***	(0.012)
2	UK recently arrived immigrants*year	−0.149	(0.182)	−0.055	(0.069)
	EU-13 recently arrived immigrants*year	0.213	(0.163)	0.072	(0.052)
	EU-NMS recently arrived immigrants*year	−0.179**	(0.082)	−0.067**	(0.031)
	Other recently arrived immigrants*year	−0.133	(0.104)	−0.049	(0.039)
	UK earlier arrived immigrants*year	0.084	(0.076)	0.029	(0.026)
	EU-13 earlier arrived immigrants*year	−0.067	(0.129)	−0.025	(0.048)
	EU-NMS earlier arrived immigrants*year	−0.368***	(0.065)	−0.140***	(0.026)
	Other earlier arrived immigrants*year	−0.074	(0.064)	−0.027	(0.024)

* Significant at 10%; ** significant at 5%; *** significant at 1%

Standard errors in parentheses. Controls: gender, age, education, geographic location within Ireland, whether the individual is an immigrant and year of observation (i.e. 2008 or 2009), immigrant year interactions

likely to be employed compared to natives. In relation to the impact of the recession on immigrants' employment prospects, the coefficient estimate on the immigrant*year2009 interaction term (Model 2), being negative and statistically significant, tells us that the recession has been more damaging to the employment probabilities of immigrants relative to natives.

In Table 2, we show the results from our second set of models in which immigrants are divided into four nationality groupings: UK, EU-13, EU-New Member States (EU-NMS) and other countries. The results from Model 1 indicate that immigrants from the EU-NMS are the only immigrant group that is more likely to be employed compared to natives (7.7%), whereas those from the UK and other countries are significantly less likely to be employed (12.4 and 8.7% respectively). Interestingly, when we investigated the impact of the recession on immigrants from different locations (Model 2), we found that the immigrants from the EU-NMS are the only group whose employment prospects have been negatively affected by the downturn.

One might expect immigrants who have been in Ireland for a long period of time to be more integrated and, hence, less exposed to the recession than those who arrived in the country in the last couple of years. To investigate this hypothesis, our third set of specifications includes a recently arrived immigrant dummy variable,

defined here as immigrants who have been in the country for a maximum of 2 years, and an earlier arrived immigrant dummy variable (Table 3). The results from our base model (Model 1) indicate that there is no difference in the employment propensities of recently arrived immigrants and natives, whereas earlier arrived immigrants are 2.6% less likely to be employed compared to natives.[12] However, based on the results in Model 2, both earlier arrived and recently arrived immigrants have experienced a decline in employment probabilities, compared to natives. While the findings seem to suggest that the recession has had a bigger negative impact on recently arrived immigrants, a *t*-test shows that there is no statistical difference between the more recently arrived and earlier arrived immigrant coefficients.

In the fourth set of specifications (Table 4), we examined whether or not recently arrived immigrants from certain locations are more exposed to the downturn than their earlier arrived counterparts. The first point to note from Table 4 relates to Model 1. The results from this model indicate that both recently arrived and earlier arrived immigrants from EU-NMS are more likely to be employed compared to natives. The positive effect for the most recent arrivals from EU-NMS is largest, and this coefficient is statistically different to the coefficient for the earlier arrived EU-NMS immigrants. Apart from earlier arrived immigrants from the EU-13, all other immigrant groupings are less likely to be employed compared to natives, with the marginal effects indicating that the impact is bigger for more recently arrived immigrants. However, the difference between the other countries recently arrived and earlier arrived immigrant coefficients are not statistically significant.

Moving on to the impact of the recession, we saw earlier (Table 2, Model 2) that the EU-NMS immigrants were the only national grouping whose employment prospects were negatively affected by the downturn. The results in Table 4 (Model 2) suggest that it is the employment outlook of earlier arrived EU-NMS immigrants that has been more negatively affected by the recession. However, the difference between the EU-NMS recently arrived and earlier arrived immigrant coefficients is only statistically significant at 10%. This could reflect a welfare system impact. Recalling that we are using repeated cross sections, if earlier arrived immigrants built up entitlements to welfare, they may have remained in Ireland to a greater degree than their more recently arrived counterparts. Hence, the recent arrivals may be less likely to appear in the data in 2009.

3.5 Gender Analysis

The rapid rise in unemployment that has taken place over the downturn in Ireland has not been uniformly distributed across genders. Specifically, unemployment has increased more for men than for women, rising from 5.4% at the end of 2007–16.5% by the final quarter of 2009, compared with an increase from 4.1 to 8.9% over the same time period for women (Fig. 8). This unemployment rate discrepancy is predominately due to the higher concentration of male employment in the construction sector, the industrial sector worst affected by the recession.

[12] The earlier arrived immigrant coefficient is significantly different to the coefficient for the more recent arrivals.

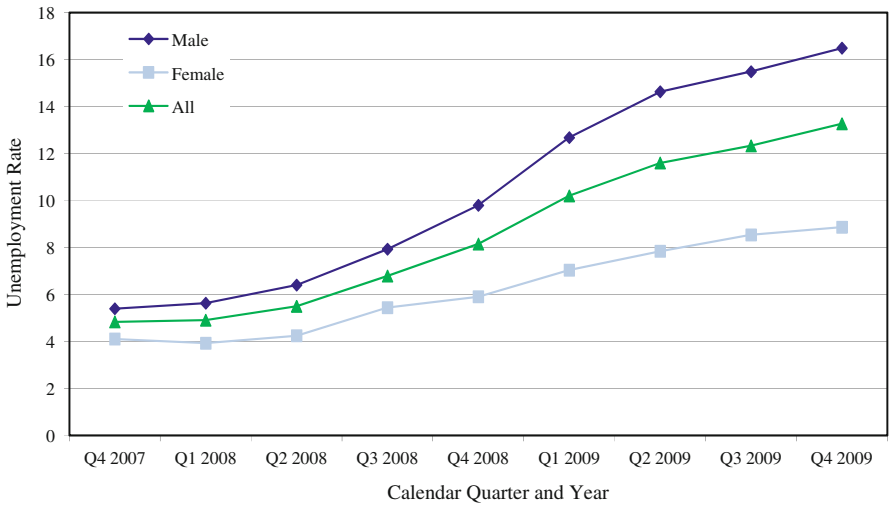

Fig. 8 Unemployment rates: Q4 2007–Q4 2009. Constructed with data from the Quarterly National Household Survey (2007–2009), Central Statistics Office

Given this, we investigated if the recession had a differential effect on male and female immigrants' employment prospects by estimating separate gender models and then tested for differences in the variables of interest. The results from this analysis are presented in Tables 5 and 6. For simplicity, we report only the immigrant/nationality and year interaction effects (coefficient and marginal effects). The results for the other covariates included in the models behaved according to expectations.[13]

Focussing on the immigrant status model (Table 5, Model 1), the first result to note is that there is no difference for men between immigrant and native employment probabilities (Column 1). Female immigrants, on the other hand, are less likely to be employed compared to their Irish counterparts (Column 2). The result on the immigrant dummy variable in Column 3, which formally tests for statistical differences between the male and female coefficients, tells us that female immigrants are also less likely to be employed compared to male immigrants (−5.5%). Turning to the impact of the recession, (Model 2), we can see from the individual gender models that the effect has been negative for both male and female immigrants. However, the insignificant difference between the coefficients in Column 3 tells us that the economic downturn has not had a differential gender effect.

In relation to the nationality results (Table 6, Specification 1), both UK and Other Country male and female immigrants are less likely to be employed compared to their Irish counterparts, whereas those from NMS countries have higher employment probabilities. NMS females, however, are less likely to be employed than their

[13] Results available from the authors on request.

Table 5 Gender probit models of employment: immigrant status

		Coefficient			Marginal effect		
		(1) Male model	(2) Female model	(3) Difference between models	(1) Male model	(2) Female model	(3) Difference between models
Specification							
1	Immigrant	0.015	−0.136***	−0.150***	0.005	−0.052***	−0.055***
		(0.025)	(0.023)	(0.033)	(0.008)	(0.009)	(0.013)
2	Immigrant* year	−0.132***	−0.120***	0.011	−0.044***	−0.046***	0.004
		(0.048)	(0.044)	(0.065)	(0.016)	(0.017)	(0.023)

* Significant at 10%; ** significant at 5%; *** significant at 1%

Standard errors in parentheses. Controls: age, education, geographic location within Ireland, whether the individual is an immigrant and year of observation (i.e. 2008 or 2009), immigrant year interactions

Table 6 Gender probit models of employment: nationality status

		Coefficient			Marginal effect		
		(1) Male model	(2) Female model	(3) Difference between models	(1) Male model	(2) Female model	(3) Difference between models
Specification							
1	UK	−0.318***	−0.35***	−0.037	−0.111***	−0.139***	− 0.013
		(0.053)	(0.048)	(0.072)	(0.020)	(0.019)	(0.026)
	EU-13	0.108	−0.161**	−0.269***	0.033	−0.062**	−0.101**
		(0.079)	(0.067)	(0.104)	(0.024)	(0.026)	(0.040)
	EU-NMS	0.275***	0.139***	−0.136***	0.081***	0.052***	−0.050***
		(0.037)	(0.036)	(0.051)	(0.010)	(0.013)	(0.019)
	Other	−0.178***	−0.310***	−0.135**	−0.060**	−0.123***	−0.050**
		(0.042)	(0.039)	(0.057)	(0.015)	(0.015)	(0.021)
2	UK*year	0.198*	−0.063	−0.261*	0.059**	−0.024	−0.098*
		(0.106)	(0.096)	(0.143)	(0.029)	(0.037)	(0.056)
	EU-13*year	0.355**	−0.156	−0.511**	0.100***	−0.060	−0.197**
		(0.158)	(0.133)	(0.207)	(0.038)	(0.053)	(0.082)
	EU-NMS*year	−0.504***	−0.150***	0.349***	−0.182***	−0.060**	0.113***
		(0.075)	(0.070)	(0.102)	(0.029)	(0.027)	(0.029)
	Other*year	−0.033	−0.102	−0.069	−0.011	−0.039	−0.025
		(0.081)	(0.076)	(0.111)	(0.027)	(0.030)	(0.041)

* Significant at 10%; ** significant at 5%; *** significant at 1%

Standard errors in parentheses. Controls: age, education, geographic location within Ireland, whether the individual is an immigrant and year of observation (i.e. 2008 or 2009), immigrant year interactions

male compatriots (Column 3), as are females from other countries. EU-13 females are also less likely to be employed compared to both Irish females and with their fellow male citizens.

Regarding the impact of the economic downturn on immigrants' employment prospects (Model 2), this has only been negative and significant for male and female immigrants from NMS countries. However, the effect has been more severe on NMS males compared to their female counterparts. Another interesting result to emerge from this analysis is that EU13 and UK males are more likely to be employed during the economic downturn than Irish males, and they are also more likely to be employed compared to their fellow female citizens.[14]

4 Conclusions

The analysis presented in this article shows that Ireland's recession has impacted heavily on its immigrants in terms of reduced employment and increased unemployment. This finding is in contrast to the situation in the UK (for NMS immigrants) and Germany, where the impact of the downturn on immigrants does not appear to have differed so significantly from the impact on natives (Sumption 2010 and Kim 2010), but similar to that observed in the U.S. (Orrenius and Zavodny 2010). Significant outflows also appear to be happening, based on the information provided in the Quarterly National Household Survey.[15] As shown in Fig. 2, in the year ending Q4 2009, the population of non-nationals fell by 8.9%, or 41,500. This rate of net outflow is as high as at any time during the current crisis so there is no sign as yet of a levelling off in the outflow. In spite of this, it should also be noted that there were still well over 400,000 non-nationals living in Ireland (aged 15 and over) towards the end of 2009 and this represented 12% of the population. Even if outflows persist at their current rate for another year or two, Ireland will retain a significant non-national population and so issues of integration will remain.

Our econometric analysis has shown that the employment probabilities of immigrants from the accession states were particularly badly hit between Q1 2008 and Q1 2009, particularly for NMS males compared to both Irish males and their fellow female citizens. In this context, it is interesting to note that the rate of outflow for accession state immigrants was also higher than for other immigrant groups between these two dates. Over this period, the population of all non-nationals fell by 4.3% but the fall for immigrants from the accession states was 9.2%. In a more

[14] We estimated separate gender models with recently arrived and earlier arrived immigrant dummy variables included, and another specification that had recently arrived and earlier arrived nationality dummy variables, to assess if the recession had a differential gender effect for such immigrant groups. Apart from recently arrived NMS females, who emerged to be more likely to be employed during the recession than their male counterparts, and earlier arrived EU13 females, who were less likely to be employed during the downturn than their fellow male citizens, all other immigrant/nationality results from these two analyses were insignificant (results available from the authors on request).

[15] The Central Statistics Office produces a release annually on *Population and Migration Estimates*. The most recent version was published in September 2009 and relates to the year ending April 2009. Under normal circumstances, this time lag is not a problem but in the current context, the existing information from that source is dated.

recent period, the rate of net outflow has become more similar across groups—the average in the year ended Q4 2009 was a net outflow of 8.9%, with the figure for accession state immigrants being 9.2%.

Ireland's experience of immigration during its boom provided a new context in which to study immigration. Similarly, its recession has provided insights into the situation of migrants during a rapid downturn. The lessons appear to be that the labour market disadvantage which immigrants experienced in the boom, in terms of lower wages and occupational downgrading, manifested itself in rapid job losses in the recession. While immigrants in many settings suffer initial labour market disadvantage, the labour market assimilation hypothesis (as discussed in Rendell et al. 2010) predicts that convergence towards natives will occur. However, in the Irish case, it seems that possible convergence processes might have been cut-off for many immigrants due to the recession.

Figure 6 is consistent with a story in which much of the reaction to job losses by immigrants has been to out-migrate, but we need to be careful on this, given that cross sectional data is being used and not a panel. If employment loss has indeed resulted in outflows, Ireland can be said to have enjoyed a benefit to its economy from immigration. An inflow allowed labour demand to be met in a boom and then for that labour to be released in the downturn. In this way, Ireland's openness to immigration has been rewarded.

Beyond Ireland, the implications are many. As discussed in the Introduction, much of the literature on the labour market outcomes of immigrants points to a weakness in those outcomes. To the extent that low levels of location-specific human capital or the existence of discrimination leave immigrants exposed to a higher risk of job loss, the outcomes observed above for Ireland could well be repeated elsewhere. In addition to job losses at a point in time, the negative impact on immigrants can be seen in a longer term framework. One strand of the literature argues that immigrants may plan to work in a host country for a limited period of time so that they can, for example, build up human capital which can then be used in their home countries (Dustmann and Weiss 2007). In this situation, an unexpected job loss can mean that the human capital investment strategy is interrupted and the migrant may suffer the equivalent of an investment loss. In this way, immigrants may be severely penalised as a result of economic downturns.

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Appendix

See appendix Table A1.

Table A1 Descriptive statistics on merged 2008 and 2009 (Q1) QNHS variables

	All		Natives		Immigrants	
	Mean	SD	Mean	SD	Mean	SD
Employed	65.7	0.475	65.3	0.476	68.5	0.464
Unemployed	5.9	0.236	5.5	0.227	9.2	0.290
Economically inactive	28.4	0.451	29.2	0.455	22.2	0.416
Female	55.0	0.498	55.8	0.497	48.8	0.500
Age 25–34	24.6	0.430	22.0	0.414	43.4	0.496
Age 35–44	23.0	0.421	22.9	0.420	23.7	0.426
Age 45–54	21.1	0.408	22.4	0.417	11.7	0.321
Age 55–59	9.4	0.292	10.3	0.304	3.0	0.170
Age 60–64	8.7	0.282	9.5	0.293	2.7	0.163
Married	54.2	0.498	54.6	0.498	51.3	0.500
Widowed	1.9	0.135	2.0	0.140	0.8	0.091
Divorced	4.9	0.216	4.9	0.215	5.0	0.218
Secondary	43.9	0.496	45.3	0.498	33.6	0.472
Post-secondary	9.4	0.292	9.6	0.294	8.1	0.273
Third-level non-degree	11.0	0.312	11.0	0.313	10.4	0.305
Third-level degree and higher	19.4	0.395	18.5	0.389	25.7	0.437
Student	5.1	0.220	4.9	0.217	6.1	0.239
Border/midland/western region	23.7	0.425	24.0	0.427	21.4	0.410
Immigrant	12.0	0.325	–	–	–	–
UK	2.1	0.142	–	–	17.3	0.378
EU-13	1.2	0.108	–	–	9.8	0.297
EU-NMS	5.1	0.221	–	–	42.8	0.495
Other countries	3.6	0.187	–	–	30.2	0.459
Recently arrived immigrant	3.7	0.190	–	–	31.2	0.464
Earlier arrived immigrant	8.2	0.275	–	–	68.8	0.464
Observations	70,651		62,182		8,469	

SD Standard deviation

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