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in the Irish Labour Market
over the Great Recession?

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ECONOMICS DEPARTMENT

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ABSTRACT/RÉSUMÉ

How did Immigrants fare in the Irish Labour Market over the Great Recession?

This paper identifies the labour market impact of the Great Recession on immigrants compared to natives and how this relationship has evolved since the downturn. We find that the employment penalty suffered by immigrant workers, relative to native workers, increased significantly over the Irish recession and persisted during the subsequent recovery. Differences in labour market outcomes between immigrants and natives were accentuated by the recession, when the employment penalty was the highest. Secondly we conclude that the more recent evolution of the employment penalty appears to be related to a composition effect, as many refugee immigrants with weak labour market attachment became naturalised citizens during the recession. This suggests that the difficulties that some immigrants experience in the labour market would be under-estimated without taking due account of naturalisation processes, as is done in this paper for the first time in Ireland.

This working paper relates to the 2015 OECD Economic Survey of Ireland (<http://www.oecd.org/eco/surveys/economic-survey-ireland.htm>).

JEL Classification : E24, F22, J21, J24, J61, J64

Key Words: Immigration, Ireland, Great recession, Labour market, Refugees, Naturalisation

Comment les immigrants réussissent dans le marché du travail irlandais sur la Grande Récession ?

Ce document identifie l'impact sur le marché du travail de la grande récession sur les immigrants par rapport aux autochtones et comment cette relation a évolué depuis la récession. Nous constatons que la pénalisation de l'emploi subie par les travailleurs immigrés, par rapport aux travailleurs indigènes, a considérablement augmenté au cours de la récession irlandaise et a persisté pendant la récupération ultérieure. Les différences de performance dans le marché du travail entre les immigrants et les autochtones ont été accentuées par la récession, lorsque la pénalisation de l'emploi était au plus haut. Deuxièmement, nous concluons que l'évolution récente de la pénalisation de l'emploi semble être liée à un effet de composition car de nombreux immigrants réfugiés faiblement attachés au marché du travail ont été naturalisés Irlandais pendant la récession. Cela laisse à penser que les difficultés rencontrées par certains immigrés sur le marché du travail seraient sous-estimées si le processus de naturalisation n'était pas pris en compte. Ce document prend en compte cet effet de composition pour la première fois en Irlande.

Ce Document de travail se rapporte à l'Étude économique de l'OCDE de l'Irlande 2015 (<http://www.oecd.org/fr/eco/etudes/etude-economique-irlande.htm>).

JEL Classification : E24, F22, J21, J24, J61, J64

Mots clés: Immigration, Irlande, Grande récession, Marché du travail, Réfugiés, Naturalisation

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HOW DID IMMIGRANTS FARE IN THE IRISH LABOUR MARKET OVER THE GREAT RECESSION?

By Elish Kelly¹, Seamus McGuinness¹, Philip J. O'Connell², Alberto González Pandiella³, David Haugh³

1. The Great Recession hit immigrants hard, and almost immediately, in most OECD countries. The impact of the economic downturn on unemployment has been more pronounced for immigrants than for the native-born in the majority of OECD countries (OECD, 2012; OECD, 2015). One of the main reasons for this is that immigrants tend to work in the economic sectors that are most sensitive to business cycles. In addition to the increase in unemployment, immigrants have also ended up in part-time and temporary employment more often than native-born youth or adult immigrants in many OECD countries (OECD, 2012).

2. The Irish recession was particularly severe. Reflecting the sharp decline in GDP, employment contracted by 14% between the peak of the business cycle in 2007 and the trough in 2012, and, with economic recovery, increased by almost 5% in the following two years. Immigration plunged precipitously after 2007 and emigration, which was already on the rise from about 2005, increased steadily throughout the crisis period. Between April 2008 and April 2014, total immigration amounted to 338,000 while emigration was 489,000 - a net outward migration of 142,000 over the 6 years. Irish nationals were the single largest mobile group: 228,000 Irish nationals emigrated during the crisis and 108,000 returned, resulting in net out-migration of 120,000 Irish nationals between 2008 and 2014.

3. While there was a substantial migratory outflow during the Great Recession, this outflow was partially offset by an inflow of immigrants, particularly among those from outside the EU. This can be seen in the data on the number of foreign residents in Ireland, which peaked in 2008 (see Table 1). Their numbers declined during the Recession but recovered slightly in 2014. The single largest group of non-nationals is from the EU-New Member States (EU-NMS), i.e. nationals from the Central and Eastern European countries acceding to the European Union in 2004. The size of this group contracted during the Recession, but increased again in 2014. The number of immigrants from other EU countries has sharply declined. Nationals from the Rest of the World (outside Europe) have increased in number since 2010: this is likely to be related to the influx of highly skilled immigrants to meet skill demands in particular sectors, particularly information technology and health.

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Table 1. Total Population in Ireland Classified by Nationality: 2006 to 2014

	2006	2008	2010	2012	2014	% change 2008-12	2012-14
Numbers (1,000s)							
Irish	3802.4	3909.5	3994.7	4035	4045.3	3.2	0.3
Total Non-Irish	430.6	575.6	560	550.4	564.3	-4.4	2.5
UK	115.5	117.9	115.9	113	114.9	-4.2	1.7
Old EU 13	43.8	50.8	52.4	45.5	38.1	-10.4	-16.3
EU New Member States.	132.5	247.7	233	229.4	230.7	-7.4	0.6
Rest of World	138.8	159.2	158.7	162.5	180.5	2.1	11.1
Total Population	4232.9	4485.1	4554.8	4585.4	4609.1	2.2	0.5
Percent (%)							
Irish	89.8	87.2	87.7	88	87.8		
Total Non-Irish	10.2	12.8	12.3	12	12.2		
UK	2.7	2.6	2.5	2.5	2.5		
Old EU 13	1	1.1	1.2	1	0.8		
EU New Member States	3.1	5.5	5.1	5	5		
Rest of World	3.3	3.5	3.5	3.5	3.97		
Total Population	100	100	100	100	100		

Source: Population and Migration Estimates, April 2013, Central Statistics Office (2013).

4. Using data from the Quarterly National Household Survey (QNHS) longitudinal dataset, this paper builds on earlier work by Barrett and Kelly (2012) and McGinnity *et al.*, (2014) to examine the labour market impact of the recession on immigrants relative to natives' before, during and as the Irish economy has recovered from the downturn. In particular, we investigate the impact that the recession has had on the chances of employment and of unemployment of natives and immigrant groups. We also examine how the effect varies by length of residency in Ireland and nationality. Furthermore, we separately identify the impact that the recession has had on immigrants that have gained Irish citizenship through naturalisation compared to those that retained their country of birth nationality. This is the first time that this distinction has been examined in research on immigrants in the Irish labour market. In undertaking this work, we investigate how the Irish citizenship results vary by the naturalised individuals' countries of origin.

5. The remainder of the paper is structured as follows. Section II presents a brief overview of the Irish labour market and the role that immigrants play. This section also outlines the citizenship through naturalisation process in Ireland, and presents data on the number of citizenships conferred through this process in the last decade. The literature on the impact of the crisis on immigrant's labour market performance is discussed in Section III, while the data and methodology employed in the paper are described in Section IV. Finally, the results from the analyses and the conclusions are presented in Sections V and VI respectively.

Immigrants in the Irish labour market

6. The Great Recession led to a severe deterioration in the Irish labour market (Table 2). Total employment fell by over 14% between the end of 2007, at the peak of the boom, and the end of 2012. While employment among Irish nationals fell by 13%, it fell by 21% among non-Irish nationals. Employment among NMS nationals contracted by over 26% between 2007 and 2012, and by 18% among UK nationals. The biggest employment losses occurred in construction, wholesale and retail trade, and accommodation and food services: these sectors had expanded substantially, and with large increases in migrant labour, during the boom years.

7. In 2006, during the boom, there was substantial variation around the average national employment rate of 69.1%.⁴ Nationals of the EU-NMS showed the highest employment rate, at 85%, followed by EU-13 nationals (i.e., the pre-enlargement EU-15 countries less Ireland and the UK) at 80%. Nationals of African countries had the lowest employment rate (44.5%), followed by the diverse group from the Rest of the World (62.1%) and UK nationals (63.6%).

Table 2. **Employment Rates: 2006 – 2014**

		National	Irish	Non-Irish	UK	EU-13	EU-NMS	Africa	Asia	North America	Australia	Oceania	Rest of Europe/World
2006	Overall	69.1	68.6	72.6	63.6	80	85	44.5	71.3			72.1	62.1
	Males	78.3	77.5	83.4	78.3	86.4	92.9	59.1	77.9			85.9	74.6
	Females	59.7	59.7	60.1	49.2	74.3	73	30.6	64.5			60.2	46.7
2008	Overall	67.5	67	70.3	62.2	73.9	77.8	45.4	69.6			72.6	58.3
	Males	74.8	74.1	78.6	72.7	81.6	84.5	61	75			76.1	70.4
	Females	60.2	60	61.6	51.7	68	69.9	30.3	63.5			69.9	46.7
2010	Overall	59.8	59.9	59.4	56.5	66.5	63	43.8	61.6			56.5	53.4
	Males	64.0	63.8	65.2	63	75.7	67.5	54.7	63.8			60.3	61.2
	Females	55.7	56.1	53.6	49.8	59.1	58.4	33.8	59.3			52.9	44.3
2012	Overall	59.0	59	59.5	53.5	72	67.1	35.9	58.8			60.1	46.3
	Males	63.2	62.8	65.6	60	80.1	71.4	41.4	65.2			76.4	57
	Females	55.0	55.2	53.8	46.8	65.3	63	30.6	53			44	37.5
2014	Overall	62.2	62.3	62.1	55.7	75.8	69	44.3	58.1			71	51.2
	Males	67.6	67.2	70.2	67.1	82.2	74.9	54	71.2			[63.6]	57
	Females	57.0	57.4	54.4	44.9	66.7	63.3	35.9	44.1			74.3	46.4

Source: Calculations based on the *Quarterly National Household Survey Longitudinal* microdata, CSO

Note: Rates based on individuals aged 15 to 64

Rate based on a sample of 30-49 persons; thus the rate has a wider margin of error and should be treated with caution

⁴ Employment rates based on those aged 15 to 64 years of age.

8. By 2012 the national average employment rate had fallen by 10 percentage points; the decline among non-Irish nationals was greater, falling almost 14 percentage points. The largest decline occurred among EU-NMS nationals and the smallest in respect of EU-13 nationals, although it should be kept in mind that the EU-13 population declined by over 10% between 2008 and 2012.

9. The national employment rate increased by 3 percentage points in the recovery, between 2012 and 2014. During the recovery, the largest growth in the employment rate occurred among nationals of North America, Australia and Oceania (NAAO) countries, sufficient to almost return the employment rate for those groups to their pre-recession levels in 2006. Similarly, there was strong growth in the employment rate of nationals of African countries.

10. Concerning unemployment, trends, the average unemployment rate among non-Irish nationals was 7.2% in 2006, about 3 percentage points higher than the national unemployment rate (Table 3). Unemployment among nationals of African countries was much higher: 22.4%. Previous research has argued that the very low employment rate and high unemployment rate among this group reflects the scarring effects of the exclusion of many African asylum seekers from participation in the Irish labour market while they awaited a decision on their asylum claim (Kingston, O’Connell and Kelly, 2013). Nationals of the NAAO countries showed an unemployment rate of less than 1%.

Table 3. **Unemployment Rates: 2006 – 2014**

		National	Irish	Non-Irish	UK	EU-13	EU-NMS	Africa	Asia	North America	Australia Oceania	Rest of Europe/World
2006	Overall	4.8	4.4	7.2	7.8	5.2	6.1	22.4	6.5		0.7	9.3
	Males	4.9	4.7	6.5	6.7	4.2	4.7	19.8	8.6		1.3	8.6
	Females	4.6	4.1	8.4	9.4	6.2	8.7	26.7	3.6		0	10.5
2008	Overall	7.1	6.7	9.4	8.7	8.1	9.2	23.3	4.9		4.9	14.7
	Males	8.1	7.8	9.6	8.9	8.1	9.7	17.7	5.9		4.2	14.3
	Females	5.8	5.2	9.2	8.5	8	8.6	32.3	3.6		5.5	15.3
2010	Overall	14.1	13.5	17.9	17.6	11.4	20	22.3	10.4		13.3	22.6
	Males	17.1	16.5	20.5	20.4	11.5	23.7	21.6	12.1		13.6	23.3
	Females	10.4	9.7	14.5	13.5	11.3	15.1	23.4	8.4		13	21.4
2012	Overall	15	14.5	17.5	18.6	9	18.1	33.6	9.4		13.7	21.5
	Males	17.8	17.6	19	19.1	8.3	20.6	35.6	10.2		8.5	22
	Females	11.5	10.7	15.8	17.9	9.7	15.2	30.8	8.5		21.4	20.9
2014	Overall	4.8	4.4	7.2	7.8	5.2	6.1	22.4	6.5		0.7	9.3
	Males	4.9	4.7	6.5	6.7	4.2	4.7	19.8	8.6		1.3	8.6
	Females	4.6	4.1	8.4	9.4	6.2	8.7	26.7	3.6		0	10.5

Source: Calculations based on the *Quarterly National Household Survey Longitudinal* microdata, CSO

Note: Rates based on individuals aged 15 plus

11. The national unemployment rate increased by 10 percentage points between 2006 and 2012.⁵ The highest unemployment rate continued to be among nationals of African countries. There were also substantial increases in the unemployment rates of those from the NAAO countries and from the Rest of the World, but not among nationals of Asian countries. In the context of recovery, the national average unemployment rate fell to 11.3% in 2014, and to 13.5% among non-Irish nationals. The largest decline was among African nationals, but this was only enough to return them to their pre-crisis high. There were also strong reductions in unemployment rates among nationals of the NAAO countries and those from the Rest of the World. Nationals of the EU-13 countries showed unemployment rates well below the national average, although as we have seen (Table 1), their population continued to decline.

Citizenship through naturalisation in Ireland

12. Foreign nationals in Ireland may apply to the Minister for Justice and Equality to become an Irish citizen if they are over 18 years, or a minor who was born in the State after 1 January 2005. The applicant must have had a period of 1 year continuous reckonable residence in the State immediately before the date of application and, during the previous 8 years, have had a total reckonable residence in the State amounting to 4 years. The applicant must intend in good faith to continue to reside in the State after naturalisation and make a declaration of fidelity to the nation and loyalty to the State. The Migration Policy Group and Immigrant Council of Ireland (2013) observes that Ireland's legal regime is more inclusive and less restrictive than in most EU countries. However, it also argues that the Minister for Justice and Equality exercises a great deal of discretion in deciding applications for naturalisation. Applicants must be of "good character", a requirement that is not clearly defined and, hence, open to interpretation. The Applicant is also required to have been "self-supporting" i.e. not dependent on social welfare for the three years prior to application. Periods spent in Ireland, for example, as an asylum applicant or as a student are not considered when calculating reckonable residence.

Table 4. **Former Citizenship of Naturalised Irish**

	2005	2006	2007	2008	2009	2010	2011	2012	2013
Europe	852	1,210	555	794	1,025	1,306	1,869	4,030	3,974
Africa	868	1,088	721	1,179	1,522	2,366	3,005	9,157	9,142
America	1,181	1,928	2,240	169	235	265	380	729	720
Asia	765	919	671	965	1,633	2,321	5,050	10,768	10,264
Oceania	413	618	462	58	81	76	105	154	124
Others	0	0	0	80	45	67	300	191	38
Total	4,079	5,763	4,649	3,245	4,541	6,401	10,709	25,029	24,262

Source: Acquisition of Citizenship by Former Citizenship - Eurostat Database (June 2015)

⁵ The OECD (2015) discusses a recovery period of some European countries from 2011-2014: the Irish recovery appears to have lagged this international trend by at least a year.

13. Following the substantial increase in immigration to Ireland in the early years of the twenty-first century, there was an increase in applications for citizenship towards the end of the first decade, although this did not immediately give rise to a substantial increase in naturalisations. Joyce (2010) notes that of over 25,500 applications for naturalisation processed in 2009, over 18,000 were rejected as ineligible or invalid on technical grounds. Of the 7,300 eligible applications, just 5,868 were granted and 1,461 were refused – mainly because the applicants were not considered to be of good character or not to have demonstrated that they were in a position to support themselves and their dependents. These problems concerning lack of clarity on criteria and discretionary decisions were compounded by lengthy processing times. However, in 2011 a series of reforms were introduced to improve the application form, provide guidance and assistance for applicants in completing the form, speed up processing times and reduce the backlog of applications (McGinnity, Quinn, Kingston and O’Connell, 2014).

14. The impact of the reforms can be seen in Table 4. The number of naturalisation certificates issued increased from 4,541 in 2009 to 10,700 in 2011 and over 25,000 in 2012. This represented a surge in the numbers of naturalised immigrants in Ireland, concentrated in particular among non-EEA residents. The almost 50,000 naturalizations in just two years, 2012 and 2014, are equivalent to almost one-third of the estimated stock of 159,000 non-EEA nationals resident in Ireland in 2010. About 40% of naturalisations in this recent wave have involved Asians and another 37% relate to Africans. There are significant differences between the two groups. Most of the Africans who were recorded as Irish citizens in the 2012 *Quarterly National Household Survey* had been resident in Ireland for a decade or more, and most appear to have entered as asylum seekers in the early 2000s – nationals of just three African countries, Nigeria, Democratic Republic of Congo, and Zimbabwe accounted for about 40% of all asylum seekers in Ireland between 2002 and 2004 (Office of the Refugee Appeals Commissioner). In contrast, the majority of Asian immigrants came to work in Ireland under the employment permits system: for example over 50% of employment permits were issued to nationals of Asian countries in 2007 (O’Connell, Joyce and Finn, 2012).

15. This brief review of trends in migration and the labour market shows that there have been substantial movements of migrants both into and out of Ireland around the years of the Great Recession and suggests there have been significant changes in the composition of the immigrant population over that period. Given these aggregate trends, this paper explores the extent to which differences in employment and unemployment among migrants reflect migrant penalties in changing labour market conditions or is due to underlying differences in the composition of migrant groups, specifically in terms of such potentially influential factors as age, education, gender, region and duration of residence in Ireland. We are particularly interested in the varying fortunes of different immigrant groups and in examining the role of naturalisation in employment and unemployment.

Literature Review

16. There is a vast literature analysing the impact the recession had on labour market outcomes, but few papers attempt to track down the potentially different impact that it may have had on domestic and foreign workers in a given labour market. There are also few attempts to identify how these effects may change over the economic cycle.

17. Kelly et al. (2014) focused their analysis on unemployed youths in the Irish labour market and found evidence that the impact differs depending on nationality, and that this effect changed over the recent recession. Specifically, in 2006, before the recession, unemployed non-nationals were more likely to gain employment. However, the recession turned the balance in favour of unemployed Irish youths. For the Netherlands, Veenman and Bijwaard (2012) found that native individuals leave unemployment faster than immigrant workers.

18. Differences in labour market outcomes have been found across workers of different nationalities, which translate into different degrees of integration and assimilation. For example, prior to the recent global economic crisis Barrett and Duffy (2007) found that workers from Central and Eastern EU countries were less likely to be in high-level occupations in Ireland, controlling for characteristics such as age and education, compared to natives or workers from other nationalities. In Spain, Izquierdo *et al.* (2009) found that earnings assimilation is faster for South-American and European (new accession countries to EU) immigrants compared to Africans.

19. Concerning other OECD countries, in the United States, Hispanic immigrants faced a higher probability of unemployment than native workers during the recession, while Asian immigrants seemed to suffer a less severe impact (Papademetru and Terrazas, 2010). In the United Kingdom, immigrants from Africa, Pakistan or Bangladesh were highly affected, while Indians seemed to cope with the recession better (Sumption, 2010). In France, North Africans are found to be particularly prone to unemployment (Simon and Steichen, 2014). Also in Italy, gender, nationality or country of origin, length of stay and legal status are all found to explain the large variation that is found in the labour market situation of immigrants (Riva and Zanfrini, 2014).

20. Differences between immigrants and natives have been found depending on ethnicity and gender as well. In Ireland, Kingston *et al.* (2010) and McGinnity *et al.* (2014) found that some ethnic groups and nationalities faced particular difficulties in the labour market during the recent recession. Regarding gender, Barrett and Kelly (2012) found that male immigrants coming to Ireland from Central and Eastern EU countries were particularly affected by the recent global downturn, with such individuals being less likely to be employed compared to their Irish counterparts, and also their female compatriots.

21. In relation to business cycle effects, De la Rica and Polonyankina (2014) found evidence that the effects of immigration on the labour market differs over the business cycle. During recession, immigration does not affect the employment levels of natives, but it does negatively affect the employment levels of earlier immigrants. However, Cerveny and van Ours (2013) found that the recession did not have a differential impact on the unemployment of non-western immigrants compared to natives in the Netherlands.

22. There is small empirical literature on the issue of how naturalisation processes affect the labour market status of immigrants. Bratsberg *et al.* (2002) found that for male immigrants' naturalisation facilitated assimilation into the United States labour market. Following naturalisation, immigrants gain access to public-sector, white-collar and union jobs, and, consequently, wage growth accelerates. These gains from naturalisation are greater for immigrants from less developed countries and persist when controlling for unobserved productivity. Bratsberg *et al.* (2002) also found no evidence to suggest that these improvements in job quality and wage gains preceded naturalisation. Consistent with Bratsberg *et al.* (2002), Pastor and Scoggins (2012) found that earnings for naturalised workers can rise significantly in the United States.

23. Chiswick and Miller (2008) analysed the drivers of naturalisation in the United States, and indicate that immigrants are more likely to become citizens if they perceive that the benefits from being naturalised are greater and the costs of satisfying the requirements are lower. Thus, naturalisation rates increase with the immigrant's level of education, duration of stay in the United States or proficiency in English. Naturalisation rates are also higher the less attractive is the prospect of returning to the country of origin. In addition, naturalisation is higher if the state of origin permits dual citizenship.

24. DeVoretz and Pivnenko (2004) found significant economic benefits, in terms of earnings, of citizenship in Canada. A decomposition analysis attributes this benefit to self-selection, namely only the more productive immigrants tend to become Canadian citizens.

25. Positive effects of naturalisation on outcomes such as employment, education and earnings have been found in a number of European countries as well (e.g., Sweden, Bevelander and Pendakur (2011), & Engdahl (2014); Norway, Bratsberg and Raaum (2011); the Netherlands, Bevelander and Veenman (2006), & Bijwaard and Wahba (2014); and France, Jarreau (2015), & Fougère and Safi (2009)). However, Kogan (2003), in her analysis of the impact of naturalisation on former Yugoslavian immigrants to Sweden and Austria, found no evidence that citizenship affects the probability of unemployment in Austria, or in Sweden when the period of migration is controlled for.

26. Gathmann and Keller (2014) assessed whether a more liberal access to citizenship could improve the economic integration of immigrants in Germany and found that liberalisation of citizenship provides some benefits in the labour market, especially for males, but is unlikely to result in full economic and social integration of immigrants in the host country.

27. Steinhardt (2012) quantifies the existence of a wage premium for naturalised immigrants of both genders in Germany. For males he found an increased wage growth in the years following naturalisation, consistent with the argument that naturalisation increases the labour market opportunities of immigrants. For female employees, Steinhardt (2012) found that the wage premium is solely the result of a positive self-selection process.

28. In general, the empirical findings suggest that naturalisation can have positive effects on labour market outcomes, although some studies have had difficulty with attributing causality (naturalised immigrants may be more likely to be employed, but employed immigrants may be more likely to naturalise) and with distinguishing the effects of citizenship from the effects of other dimensions of integration.

Data and Methodology

29. The analyses undertaken in this paper are based on the Quarterly National Household Survey (QNHS) longitudinal data file. This dataset is compiled by the Central Statistics Office (CSO), which is Ireland's national statistical office. The main objective of the QNHS is to provide quarterly labour force estimates. The survey is continuous and targets all private households in the State. The total sample for each quarter is approximately 39,000, which is achieved by interviewing about 3,000 households per week. Households are asked to take part in the survey for five consecutive quarters. In each quarter, one-fifth of the households surveyed are replaced and the QNHS sample involves an overlap of 80% between consecutive quarters and 20% between the same quarters in consecutive years. While participation in the QNHS is voluntary, the response rate is quite high (approximately 85% in recent years).⁶

30. In order to identify the labour market impact of the recession on immigrants compared to natives, and how this relationship has evolved since the downturn, we assessed both groups' likelihood of being employed and risk of unemployment. In capturing how immigrants fared before, during and after the recession relative to natives, we conducted our analyses using five different time points. Specifically, we selected 2006 as our pre-recession time-point, toward the end of the boom in Ireland; 2008 to capture the beginning of the recession; 2010 and 2012 the midst of the recession; and 2014 as the period when the economy had started to grow again. Quarter 3 data was used for each of the selected years.

⁶ Information provided by the CSO.

31. The analyses are based on the working age population, which we define as those aged 15 to 64; with the self-employed, students and individuals from whom key data were missing excluded from the analyses.⁷ The various specifications that we estimated included controls for i) gender, ii) age, iii) marital status, iv) family status, v) education, vi) geographic location and vii) sector.

32. In this paper, natives are defined as people born in Ireland whose nationality is Irish, while immigrants are defined as people not born in Ireland. In addition to the exclusions mentioned previously, we also excluded i) non-Irish nationals who were born in Ireland and ii) individuals who were not born in the country that they have a nationality for, except individuals not born in Ireland who reported Irish nationality.

33. As discussed above, there has been a big increase in naturalisation since 2012, particularly of African- and Asian-born individuals. To isolate this effect, and to identify the true immigrant effect, we also included a variable that captured individuals' born abroad who report that they are Irish nationals in our estimated models. This 'naturalised Irish citizen' variable is made up of a very diverse group and in one of our specifications we break out this variable into the naturalised individuals' countries of birth.

34. We estimated binary probit models for each labour market status examined – employment and unemployment. Our employment analysis focuses on those in full-time employment, and is based on all individuals aged 15-64 (i.e., the inactive are included⁸), while our unemployment analysis is based on those aged 15-64 that are in the labour force.

35. For each labour market status examined (employment and unemployment), we estimated three different immigrant specifications. Model 1 simply distinguishes between Irish natives and non-Irish born immigrants. The second model includes seven country-of-birth groups among non-Irish-born immigrants - UK, EU-13, EU-NMS, Africa, Asia, North America, Oceania, and Rest of Europe/World, relative to Irish-born natives. Model 2 also adds a duration of residence variable, divided in to 2 categories – recent arrivals who report 2 years residency or less, and earlier immigrants with longer residency. Model 3 further breaks down the 7 country-of groups into those who had acquired Irish nationality at the time of the survey versus those who had not. Thus, for example we can examine the employment chances of Asians who had naturalised, and those who had not, with those of Irish natives, controlling for the range of other covariates in each model.

36. Each probit model that was estimated was weighted to ensure that the results were representative of the population in Ireland at each time point examined.

Results

Employment Models

37. As can be seen from Table 5, the impact of most of the covariates that we examined in our employment probability model for Ireland evolved over the period of recession and recovery. The male versus female advantage in employment probability declined between 2006 and 2012 and recovered somewhat in 2014. The probability of employment increased among all age groups relative to those aged 55-64, with the probability gap increasing over the recession. That gap had also receded somewhat in 2014 (with respect to 2012), but it is still larger than it was in 2006. The finding that young people have a greater probability than older workers to be employed is most likely because students have been excluded from the analysis, while the inactive category 'carers', which is a role that is more prominent amongst older individuals, are included.

⁷ Specifically, individuals with missing education, length of residency and sector information were excluded.

⁸ Except for students.

38. More significant changes are evident concerning the impact of educational attainment on employment probabilities. The advantage of holding a medium- or high-level qualification over a low-level qualification increased substantially during the recession, but it had fallen by 2014. Both qualifications continue to provide better employment probabilities in 2014 relative to low education, but the effect is smaller than the one observed in 2012, in the midst of the recession, particularly for a high-level qualification.

Table 5: Probit Model 1 of Employment: Non-Irish-Born vs Irish Natives, 2006 to 2014

	2006	2008	2010	2012	2014
Male	0.157*** (0.006)	0.133*** (0.006)	0.135*** (0.008)	0.119*** (0.008)	0.131*** (0.008)
Ref: Aged 55-64					
Age 15-19	0.126*** (0.005)	0.126*** (0.008)	0.184*** (0.020)	0.237*** (0.014)	0.180*** (0.015)
Age 20-24	0.136*** (0.005)	0.116*** (0.008)	0.179*** (0.011)	0.181*** (0.011)	0.193*** (0.007)
Age 25-34	0.134*** (0.006)	0.145*** (0.008)	0.211*** (0.011)	0.237*** (0.010)	0.205*** (0.009)
Age 35-44	0.116*** (0.005)	0.129*** (0.006)	0.189*** (0.010)	0.204*** (0.010)	0.191*** (0.008)
Age 45-54	0.126*** (0.004)	0.134*** (0.005)	0.197*** (0.009)	0.204*** (0.009)	0.176*** (0.008)
Ref: Married					
Single	0.043*** (0.007)	0.036*** (0.008)	-0.018* (0.011)	-0.053*** (0.011)	-0.039*** (0.011)
Widowed	0.014 (0.018)	0.047** (0.019)	-0.043 (0.037)	-0.068* (0.037)	-0.085** (0.039)
Divorced	0.006 (0.012)	-0.009 (0.014)	-0.037* (0.019)	-0.081*** (0.020)	-0.001 (0.018)
Ref: Couple, No Children					
Couple, Children	-0.049*** (0.006)	-0.056*** (0.007)	-0.089*** (0.010)	-0.071*** (0.010)	-0.051*** (0.009)
Lone Parent	-0.154*** (0.014)	-0.199*** (0.015)	-0.218*** (0.018)	-0.199*** (0.018)	-0.167*** (0.018)
Not in Family Unit, Lives Alone	-0.052*** (0.014)	-0.090*** (0.015)	-0.058*** (0.017)	-0.054*** (0.017)	-0.052*** (0.017)
Not in Family Unit, Lives with Others	0.036*** (0.010)	0.032*** (0.012)	0.034** (0.016)	0.066*** (0.016)	0.048*** (0.015)
Ref: Low Education					
Medium	0.084*** (0.005)	0.100*** (0.006)	0.114*** (0.009)	0.130*** (0.009)	0.112*** (0.009)
High	0.138*** (0.005)	0.152*** (0.007)	0.218*** (0.010)	0.254*** (0.010)	0.198*** (0.010)
Ref: Dublin					
Border	-0.022*** (0.008)	-0.044*** (0.010)	-0.057*** (0.014)	-0.085*** (0.015)	-0.066*** (0.014)
Midlands	0.012 (0.009)	-0.044*** (0.013)	-0.060*** (0.016)	-0.077*** (0.016)	-0.087*** (0.017)
West	-0.010 (0.010)	-0.037*** (0.011)	-0.019 (0.014)	0.001 (0.013)	-0.037*** (0.014)
Mid-East	-0.000 (0.008)	-0.017 (0.010)	-0.003 (0.012)	-0.020 (0.013)	-0.030** (0.013)
Mid-West	0.006 (0.008)	-0.042*** (0.011)	-0.035*** (0.014)	-0.043*** (0.014)	-0.033** (0.015)
South-East	0.009 (0.007)	-0.020** (0.009)	-0.054*** (0.013)	-0.076*** (0.013)	-0.066*** (0.014)
South-West	0.012* (0.007)	-0.003 (0.008)	-0.002 (0.011)	-0.005 (0.011)	-0.051*** (0.012)

Table 5: Continued

	2006	2008	2010	2012	2014
Ref: Irish					
All Non-Irish-Born Immigrants	-0.052*** (0.008)	-0.042*** (0.008)	-0.068*** (0.010)	-0.059*** (0.010)	-0.069*** (0.010)
Ref: Industry					
Agriculture, Forestry and Fishing	-0.074*** (0.020)	-0.063*** (0.024)	0.046* (0.024)	-0.010 (0.029)	-0.008 (0.029)
Construction	-0.017* (0.009)	-0.144*** (0.013)	-0.366*** (0.015)	-0.386*** (0.016)	-0.309*** (0.020)
Wholesale and Retail	-0.034*** (0.009)	-0.041*** (0.010)	-0.038*** (0.013)	-0.073*** (0.014)	-0.066*** (0.014)
Transportation and Storage	-0.000 (0.012)	-0.005 (0.014)	0.037** (0.017)	0.015 (0.018)	-0.039** (0.020)
Accommodation and Food Storage	-0.097*** (0.014)	-0.102*** (0.015)	-0.078*** (0.017)	-0.140*** (0.019)	-0.131*** (0.020)
Information and Communication	-0.027* (0.015)	-0.037** (0.018)	-0.004 (0.020)	0.021 (0.020)	-0.054** (0.021)
Financial, Insurance and Real Estate	0.037*** (0.010)	0.030** (0.013)	0.073*** (0.016)	0.065*** (0.017)	-0.019 (0.018)
Professional, Scientific and Technical	0.018 (0.012)	-0.009 (0.015)	-0.042** (0.020)	-0.068*** (0.021)	-0.040** (0.020)
Administrative and Support Services	-0.075*** (0.015)	-0.089*** (0.017)	-0.098*** (0.021)	-0.118*** (0.022)	-0.115*** (0.025)
Public Administration and defence	0.064*** (0.008)	0.090*** (0.009)	0.164*** (0.011)	0.100*** (0.014)	0.064*** (0.014)
Education	0.036*** (0.009)	0.008 (0.012)	0.117*** (0.013)	0.003 (0.016)	-0.019 (0.016)
Health and Social Work	0.046*** (0.008)	0.037*** (0.010)	0.120*** (0.011)	0.058*** (0.013)	0.030** (0.013)
Creative, Arts and Entertainment	0.006 (0.019)	-0.029 (0.023)	-0.059** (0.029)	-0.037 (0.030)	-0.134*** (0.034)
Other Services	-0.060*** (0.017)	-0.107*** (0.022)	-0.104*** (0.026)	-0.114*** (0.025)	-0.180*** (0.029)
Observations	27,382	23,117	19,921	19,390	16,897
Pseudo R-squared	0.141	0.126	0.157	0.162	0.133

Note: Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1

39. In addition, the relative employment advantage of being located in Dublin increased over the period.

40. The employment penalty for foreign-born immigrants fluctuated somewhat over the period, falling from 5.2% to 4.2% between 2006 and 2008, before increasing to almost 7% at the height of the recession in 2010 and almost 6% in 2012. In 2014 the immigrant employment penalty remained at just under 7%, suggesting that immigrants benefitted little, if at all, from the employment recovery.

41. The effects reported in Table 5 represent the average experiences of migrants in general. However, we know that immigrants in Ireland come from a diverse range of origin countries. Table 6 distinguishes the employment probabilities of immigrants from 7 different country-of-origin groups, controlling for the covariates reported in Table 5, and shows substantial variation in employment chances. Africans stand out with particularly low employment prospects: compared to Irish-born natives, Africans were 18% less likely to be employed in 2006, during the boom. This disadvantage increased to 27% in 2010 and stood at 24% in 2012, but fell to 11% in 2014. Immigrants from the United Kingdom were 8% less likely to be employed than their Irish born counterpart in 2006 and this increased to 8.6% in 2012 and to almost 12% in 2014, so the employment chances of UK immigrants actually deteriorated in the recovery period.

Table 6: **Probit Model 2 of Employment, Summary Results: Detailed Country-of Birth**
Groups, 2006 to 2014

	2006	2008	2010	2012	2014
Country of Birth Group (Reference - Irish)					
UK	-0.079*** (0.013)	-0.072*** (0.013)	-0.070*** (0.016)	-0.086*** (0.017)	-0.117*** (0.018)
EU-13	0.005 (0.025)	-0.040 (0.030)	0.005 (0.034)	0.010 (0.034)	0.026 (0.028)
NMS	0.076*** (0.013)	0.031** (0.014)	-0.024 (0.016)	-0.006 (0.014)	-0.029* (0.015)
Africa	-0.182*** (0.044)	-0.173*** (0.046)	-0.269*** (0.043)	-0.239*** (0.040)	-0.106*** (0.041)
Asia	-0.019 (0.028)	-0.041 (0.029)	-0.058* (0.033)	-0.002 (0.032)	-0.040 (0.031)
North America, Australia, Oceania	0.014 (0.026)	-0.033 (0.036)	-0.094** (0.046)	-0.036 (0.045)	0.004 (0.044)
Rest of Europe/World	-0.044 (0.030)	-0.095** (0.038)	-0.054 (0.048)	-0.210*** (0.044)	-0.099** (0.046)
Recent Arrival	-0.078*** (0.021)	-0.038** (0.018)	-0.100*** (0.031)	-0.018 (0.034)	-0.058* (0.033)

Note: Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1
Models control for Sex, Age group, Marital status, Education, Region, and Industrial sector, as in Model 1.

42. The employment prospects of immigrants from the residual and very diverse group of Rest-of-World countries, deteriorated during the recession and then recovered to the extent that their disadvantage relative to Irish natives was not statistically significant in 2014. In general, immigrants who had arrived within the two years prior to each survey date showed lower employment probabilities than those who had longer duration of residency in Ireland, although the size of this effect fluctuated over the course of the business cycle.

43. We noted above that there was a substantial increase in naturalisation of immigrant residents in Ireland after 2011 and we have seen the research evidence from other countries that naturalised immigrants tend to fare better in the labour market than non-citizens. Table 7 disaggregates the employment effects for country-of-birth groups into naturalised citizens (in Panel A) and non-naturalised residents (in Panel B). Our main groups of interest are immigrants from the UK and Africa. Among immigrants born in the UK, naturalised Irish citizens suffer a smaller employment deficit than their non-naturalised counterparts. For example, in 2006 immigrants from the UK who had naturalised were 4% less likely to be in employment, compared to 12% of those who had not naturalised. This pattern is consistent with the international pattern that naturalised immigrants tend to fare better in the labour market than their non-naturalised counterparts from the same country. The disadvantage experienced by non-naturalised UK immigrants increased to 16% in 2014, compared to 8% among naturalised immigrants from the UK.

44. Among immigrants of African origin, the pattern shifts over time. In the early period and through the recession, non-naturalised Africans showed lower employment probabilities than naturalised Irish citizens of African origin. In 2012 naturalized Irish of African origin were 14% less likely to be employed than native Irish, compared to 27% of non-naturalised Africans. However, by 2014 the employment deficit among naturalized immigrants had increased to 16% while that for non-naturalised had disappeared.

45. This followed a marked increase in naturalisations of mostly non-EEA nationals after the election of the new Government in 2011. As we have seen many of the newly naturalised citizens were of African origin (see Table 4). Further inspection of the QNHS data shows that almost 80% of naturalised Irish of African origin had been resident in Ireland for 10 or more years. Kingston *et al.*, (2013) argue that a large

share of African immigrants with this duration would have originally entered as asylum seekers and been denied access to the labour market for extended periods as they awaited recognition as refugees. The non-naturalised group are of much more recent arrival, just 38% had been resident for 10 years or more – so less of the non-naturalised group were likely to have been exposed to, and scarred by, the Irish asylum system.

Table 7: **Probit Model 3 of Employment, Summary Results: Detailed Country-of Birth**
Groups by Naturalisation 2006 to 2014

	2006	2008	2010	2012	2014
PANEL A: Non-naturalised Immigrants					
Country of Birth Group (Reference - Irish)					
UK	-0.120*** (0.022)	-0.108*** (0.023)	-0.111*** (0.028)	-0.124*** (0.030)	-0.164*** (0.033)
EU-13	0.013 (0.026)	-0.040 (0.031)	-0.001 (0.035)	0.032 (0.036)	0.022 (0.030)
NMS	0.073*** (0.013)	0.030** (0.014)	-0.023 (0.016)	-0.005 (0.015)	-0.026 (0.016)
Africa	-0.200*** (0.050)	-0.172*** (0.055)	-0.319*** (0.049)	-0.273*** (0.049)	-0.042 (0.061)
Asia	-0.011 (0.029)	-0.038 (0.031)	-0.065* (0.035)	0.006 (0.037)	-0.063 (0.043)
North America, Australia, Oceania ¹	0.022 (0.035)	-0.060 (0.053)	-0.068 (0.067)	-0.012 (0.070)	0.036 (0.065)
Rest of Europe/World	-0.055* (0.034)	-0.102** (0.041)	-0.062 (0.059)	-0.224*** (0.053)	-0.086 (0.056)
Recent Arrival	-0.070*** (0.021)	-0.033* (0.018)	-0.094*** (0.031)	-0.018 (0.034)	-0.059* (0.034)
	2006	2008	2010	2012	2014
PANEL B: Naturalised Irish Citizens					
Country of Birth Group (Reference - Irish)					
UK	-0.040*** (0.014)	-0.038*** (0.014)	-0.027 (0.018)	-0.046** (0.019)	-0.075*** (0.019)
EU-13	-0.107 (0.083)	-0.017 (0.098)	0.115 (0.079)	-0.122 (0.098)	0.099 (0.063)
NMS ²		0.047 (0.087)	-0.008 (0.086)	0.072 (0.065)	0.003 (0.049)
Africa ³	-0.091 (0.082)	-0.160** (0.077)	-0.029 (0.073)	-0.142** (0.063)	-0.159*** (0.049)
Asia	-0.102 (0.086)	-0.055 (0.085)	0.032 (0.085)	0.004 (0.052)	0.025 (0.035)
North America, Australia, Oceania	0.004 (0.037)	0.008 (0.044)	-0.103 (0.063)	-0.037 (0.058)	-0.016 (0.053)
Rest of Europe/World ⁴	0.021 (0.043)	-0.014 (0.080)	-0.012 (0.079)	-0.139** (0.069)	-0.109 (0.070)
Recent Arrival	-0.044*** (0.014)	-0.039*** (0.015)	-0.131*** (0.030)	-0.055 (0.034)	-0.093*** (0.034)

Note: Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1
Models control for Sex, Age group, Marital status, Education, Region, and Industrial sector, as in Model 1.

Unemployment Models

46. Table 8 shows the models describing the determinants of unemployment between 2006 and 2014. The risk of unemployment increased sharply for men relative to women during the recession and fell in 2014, but not to pre-recession levels. Unemployment rates fell over the period for individuals in the 15-34 age groups. On the other hand, the risk of unemployment increased for individuals with medium levels of educational attainment, couples with children, lone parents and individuals who live alone. Relative to Dublin, the risk of unemployment increased for labour market participants residing in the South-East, Midlands and West regions.

Table 8: **Probit Model 1 of Unemployment: Non-Irish-Born vs Irish Natives, 2006 to 2014**

	2006	2008	2010	2012	2014
Male	0.004 (0.003)	0.017*** (0.003)	0.036*** (0.005)	0.036*** (0.005)	0.010** (0.005)
Ref: Aged 55-64					
Age 15-19	0.016* (0.010)	0.033** (0.014)	0.012 (0.023)	-0.050*** (0.017)	-0.038*** (0.013)
Age 20-24	0.017** (0.007)	0.047*** (0.011)	0.034** (0.014)	0.022 (0.014)	-0.027*** (0.008)
Age 25-34	0.015*** (0.006)	0.020*** (0.007)	0.025** (0.010)	-0.001 (0.009)	-0.008 (0.008)
Age 35-44	0.014** (0.005)	0.014** (0.006)	0.016* (0.009)	-0.002 (0.008)	-0.009 (0.007)
Age 45-54	0.007 (0.005)	0.011* (0.006)	0.008 (0.009)	-0.002 (0.008)	-0.010 (0.007)
Ref: Married					
Single	0.018*** (0.004)	0.019*** (0.004)	0.041*** (0.007)	0.061*** (0.007)	0.052*** (0.007)
Widowed	-0.008 (0.010)	-0.021** (0.010)	-0.024 (0.021)	0.003 (0.025)	-0.016 (0.020)
Divorced	0.028*** (0.009)	0.030*** (0.010)	0.055*** (0.015)	0.103*** (0.017)	0.036*** (0.013)
Ref: Couple, No Children					
Couple, Children	0.005 (0.003)	0.009** (0.004)	0.034*** (0.006)	0.029*** (0.007)	0.028*** (0.006)
Lone Parent	0.017*** (0.006)	0.035*** (0.008)	0.082*** (0.013)	0.063*** (0.013)	0.070*** (0.013)
Not in Family Unit, Lives Alone	0.004 (0.006)	0.017** (0.008)	0.024** (0.012)	0.039*** (0.013)	0.038*** (0.012)
Not in Family Unit, Lives with Others	-0.012*** (0.004)	-0.012** (0.005)	-0.008 (0.010)	-0.015 (0.010)	-0.013 (0.009)
Ref: Low Education					
Medium	-0.017*** (0.002)	-0.031*** (0.003)	-0.040*** (0.005)	-0.045*** (0.006)	-0.037*** (0.005)
High	-0.027*** (0.003)	-0.038*** (0.004)	-0.080*** (0.006)	-0.092*** (0.007)	-0.071*** (0.006)
Ref: Dublin					
Border	0.007 (0.004)	0.008 (0.005)	0.007 (0.009)	0.030*** (0.010)	0.012 (0.008)
Midlands	-0.007* (0.004)	0.008 (0.007)	0.024** (0.011)	0.034*** (0.011)	0.039*** (0.011)
West	0.006 (0.005)	0.020*** (0.007)	0.018* (0.009)	0.014 (0.009)	0.024*** (0.009)
Mid-East	-0.008** (0.004)	-0.002 (0.005)	0.004 (0.008)	0.012 (0.009)	0.010 (0.008)
Mid-West	0.003 (0.004)	0.013** (0.006)	0.034*** (0.010)	0.038*** (0.010)	0.009 (0.009)

Table 8: Continued

	2006	2008	2010	2012	2014
Ref: Dublin					
South-East	-0.002 (0.004)	0.007 (0.005)	0.034*** (0.009)	0.048*** (0.010)	0.039*** (0.009)
South-West	-0.008*** (0.003)	-0.000 (0.004)	0.006 (0.007)	-0.006 (0.007)	0.010 (0.007)
Ref: Irish					
All Non-Irish Born Immigrants	0.023*** (0.005)	0.020*** (0.005)	0.043*** (0.007)	0.039*** (0.007)	0.030*** (0.007)
Ref: Industry					
Agriculture, Forestry and Fishing	-0.009 (0.007)	0.015 (0.013)	-0.038*** (0.013)	-0.010 (0.017)	-0.032*** (0.012)
Construction	0.002 (0.004)	0.080*** (0.009)	0.279*** (0.016)	0.281*** (0.017)	0.166*** (0.016)
Wholesale and Retail	-0.002 (0.004)	0.007 (0.005)	-0.002 (0.008)	-0.001 (0.008)	-0.001 (0.007)
Transportation and Storage	-0.008 (0.005)	-0.005 (0.007)	-0.020** (0.010)	-0.017 (0.011)	0.003 (0.011)
Accommodation and Food Storage	0.016** (0.006)	0.018** (0.008)	0.001 (0.010)	-0.001 (0.010)	0.021** (0.010)
Information and Communication	-0.003 (0.006)	0.003 (0.009)	-0.016 (0.012)	-0.027** (0.011)	0.001 (0.012)
Financial, Insurance and Real Estate	-0.017*** (0.004)	-0.017*** (0.006)	-0.042*** (0.009)	-0.051*** (0.009)	-0.012 (0.010)
Professional, Scientific and Technical	-0.017*** (0.004)	0.002 (0.008)	0.025* (0.014)	0.016 (0.013)	-0.011 (0.010)
Administrative and Support Services	0.017** (0.007)	0.021** (0.009)	0.033** (0.014)	0.029** (0.014)	0.036** (0.014)
Public Administration and defence	-0.025*** (0.003)	-0.037*** (0.003)	-0.092*** (0.005)	-0.084*** (0.006)	-0.052*** (0.006)
Education	-0.007 (0.005)	-0.005 (0.007)	-0.054*** (0.008)	-0.014 (0.010)	-0.006 (0.009)
Health and Social Work	-0.016*** (0.003)	-0.021*** (0.004)	-0.066*** (0.006)	-0.056*** (0.007)	-0.034*** (0.006)
Creative, Arts and Entertainment	-0.004 (0.008)	0.010 (0.012)	-0.003 (0.016)	-0.011 (0.015)	0.013 (0.016)
Other Services	-0.004 (0.006)	-0.005 (0.009)	0.001 (0.014)	-0.009 (0.013)	0.016 (0.015)
Observations	27,962	24,086	20,422	20,189	18,126
Pseudo R-squared	0.0603	0.111	0.173	0.154	0.100

Note: Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1

47. With respect to migrants, the results from the unemployment models strongly reflect those of the employment equations. The unemployment risk among immigrants increased from about 2% in 2006 and 2008 to about 4% in 2010 and 2012 and fell back to 3% in 2014.

48. Table 9 shows substantial variation around these average immigrant unemployment risks. Once again, Africans stand out as being hit particularly hard in the recession: Africans were 11% more likely to be unemployed than their Irish counterparts in 2006, controlling for other relevant factors. The African unemployment gap increased to 16% in 2010 and 16% in 2012 before returning to about its pre-recession level at 10% in 2014. The unemployment penalty among immigrants from the UK increased gradually but steadily, from 3% in 2006 to 5% in 2014, with no evidence of them benefitting from the wider labour market upturn in the latter year. Immigrants from the Rest-of-World group of countries also saw an increase in their unemployment penalty, relative to Irish natives, increasing from 4% in 2006 to 7% in 2012 before falling to 2%, below the pre-recession level. This latter effect may reflect selective inward migration of highly skilled non-EEA nationals to meet specific skill needs.

Table 1. Table 9: Probit Model 2 of Unemployment, Summary Results: Detailed Country-of Birth
Groups 2006 to 2014

	2006	2008	2010	2012	2014
Country of Birth Group (Reference - Irish)					
UK	0.027*** (0.007)	0.027*** (0.007)	0.040*** (0.011)	0.041*** (0.012)	0.052*** (0.013)
EU-13	0.015 (0.014)	0.022 (0.018)	0.011 (0.023)	0.003 (0.025)	-0.012 (0.016)
NMS	-0.010 (0.006)	-0.003 (0.007)	0.027*** (0.011)	0.026** (0.010)	0.019** (0.009)
Africa	0.109*** (0.035)	0.137*** (0.039)	0.159*** (0.040)	0.186*** (0.037)	0.100*** (0.031)
Asia	0.017 (0.016)	0.022 (0.018)	0.050* (0.027)	0.023 (0.023)	0.008 (0.021)
North America, Australia, Oceania	-0.021*** (0.007)	0.002 (0.018)	0.065* (0.039)	0.030 (0.033)	0.013 (0.029)
Rest of Europe/World	0.038* (0.020)	0.034 (0.022)	0.048 (0.035)	0.073** (0.033)	0.022 (0.025)
Recent Arrival	0.017* (0.010)	0.014 (0.010)	0.029 (0.020)	-0.005 (0.021)	-0.002 (0.017)

Note: Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1
Models control for Sex, Age group, Marital status, Education, Region, and Industrial sector, as in Model 1.

49. Table 10 shows unemployment models disaggregated by non-naturalised country of birth versus naturalised Irish by country of birth. For those of African and UK origin, the patterns mirror those found in the employment equations. Among those from the UK, the unemployment penalty mainly concerns non-naturalised residents, whose unemployment penalty increased from 4% in 2006 to .9% in 2014. UK-born naturalised Irish experienced similar unemployment risks as native Irish in most years, and their unemployment penalty was just 3% in 2010, in the depths of the recession. The African unemployment effects are mainly driven by non-naturalised immigrants up to 2012: their unemployment penalty, relative to Irish natives, increased from 14% in 2006 to over 17% in 2010 and almost 19% in 2012. However the unemployment penalty among this group then dropped sharply and was not significantly different from the native Irish unemployment rate. Among the naturalised immigrants of African origin, the unemployment penalty was 14% in 2008 and about 15% in 2012 and 2014, suggesting a continuous and large unemployment penalty throughout the business cycle. By 2014, in the context of recovery, just two groups suffered an unemployment penalty relative to Irish natives: non-naturalised immigrants of UK origin and naturalised Irish citizens of African origin.

Table 10: **Probit Model 3 of Unemployment, Summary Results: Detailed Country-of Birth**
Groups by Naturalisation 2006 to 2014

	2006	2008	2010	2012	2014
PANEL A: Non-naturalised Immigrants:					
Country of Birth Group (Reference - Irish)					
UK	0.042*** (0.014)	0.041*** (0.014)	0.050** (0.020)	0.075*** (0.023)	0.092*** (0.025)
EU-13	0.016 (0.014)	0.021 (0.019)	0.013 (0.024)	-0.014 (0.025)	-0.011 (0.017)
NMS	-0.009 (0.006)	-0.003 (0.007)	0.024** (0.011)	0.024** (0.010)	0.015 (0.010)
Africa	0.139*** (0.042)	0.131*** (0.046)	0.174*** (0.046)	0.187*** (0.046)	0.050 (0.042)
Asia	0.007 (0.015)	0.020 (0.018)	0.041 (0.028)	0.010 (0.026)	0.010 (0.027)
North America, Australia, Oceania ¹	- -	0.016 (0.029)	0.057 (0.057)	0.045 (0.058)	-0.014 (0.038)
Rest of Europe/World	0.043* (0.023)	0.039 (0.024)	0.043 (0.042)	0.042 (0.036)	-0.002 (0.026)
Recent Arrival	0.015 (0.010)	0.012 (0.010)	0.030 (0.020)	-0.002 (0.021)	0.003 (0.018)
	2006	2008	2010	2012	2014
PANEL B: Naturalised Irish Citizens					
Country of Birth Group (Reference - Irish)					
UK	0.011 (0.007)	0.013* (0.008)	0.025* (0.013)	0.009 (0.012)	0.020 (0.012)
EU-13	-0.010 (0.024)	0.009 (0.052)	-0.070** (0.028)	0.130 (0.096)	-0.046 (0.031)
NMS ²	-	-0.014 (0.033)	0.071 (0.068)	-0.043 (0.032)	0.010 (0.031)
Africa ³	-	0.142** (0.066)	0.059 (0.064)	0.155*** (0.055)	0.149*** (0.041)
Asia	0.118* (0.069)	0.024 (0.048)	0.071 (0.071)	0.039 (0.045)	-0.011 (0.023)
North America, Australia, Oceania	-0.003 (0.018)	-0.016 (0.020)	0.058 (0.050)	0.012 (0.038)	0.034 (0.039)
Rest of Europe/World ⁴	0.004 (0.027)	-	0.044 (0.057)	0.140** (0.061)	0.078 (0.051)
Recent Arrival	0.017** (0.008)	0.020** (0.008)	0.056*** (0.021)	0.019 (0.024)	0.013 (0.018)

Note: Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1
Models control for Sex, Age group, Marital status, Education, Region, and Industrial sector, as in Model 1.

¹ In 2006, North America, Australia and Oceania observations predicted failure (to be unemployed) perfectly: this resulted in these observations being dropped from the model.

² In 2006, NMS observations predicted failure (to be unemployed) perfectly: this resulted in these observations being dropped from the model.

³ In 2006, African observations predicted success (to be unemployed) perfectly: this resulted in these observations being dropped from the model.

⁴ In 2008, Rest of Europe/World observations predicted failure (to be unemployed) perfectly: this resulted in these observations being dropped from the model.

Conclusions

50. This paper examines how the likelihood of being employed and the risk of unemployment have evolved over the Great Recession depending on country of birth, acquisition of citizenship through naturalisation, and other characteristics. The results show that the employment penalty suffered by immigrant workers, relative to native workers, increased significantly over the Irish recession, and has fallen only slightly during the subsequent recovery. In particular, the penalty in 2014 remains higher than before the crisis (2006). However, this recent evolution is largely driven by the high numbers of disadvantaged migrants becoming naturalised Irish citizens. As the number of disadvantaged migrants becoming naturalised Irish citizens increased, the overall level of immigrant's employment penalty has fallen. This result highlights the need to take into account naturalisation processes, and the characteristics of the immigrants entering into those processes, when gauging the situation of immigrants in a labour market. Ignoring this element in Ireland would underestimate the disadvantages suffered by some immigrants in the labour market. Contrary to some other advanced economies where there is evidence of self-selection in naturalisation process (i.e. more productive workers tend to acquire host nationality), in Ireland naturalisation, particularly among immigrants from Africa, tends to be more prevalent among refugees, a group which was systematically excluded from participation in the labour market for extended periods of time after their initial entry to the country. These findings carry clear policy implications: preventing immigrants from accessing the labour market for extended periods of time has long-term scarring effects on their long-term labour market prospects and can result in extended periods of welfare dependency, with negative consequences for immigrants as well as the wider society.

51. Beyond the impact of nationality, the paper also provides an empirical assessment of how other characteristics impact employability and risk of unemployment, and how those impacts have evolved during the recession and recovery. The impact of some characteristics has remained relatively stable. However, others have changed and remain significantly different relative to the pre-crisis period. For example, workers above 54 now have an even higher penalty in terms of employment probabilities relative to younger workers than they had before the recession started. The same is true for lone parents in comparison with couples with no children, suggesting that Ireland's employment rate for lone parents, already low in international comparison before the Recession, may have worsened further. The advantage of being a male steadily fell during the economic crisis period and has recovered only marginally during the recent upturn, which may partly reflect the still low levels of construction activity. Conversely, the relative employment advantage of being located in Dublin has increased over the period under examination.

52. The impact of some of the other characteristics examined significantly evolved during the recession, but as the economy recovers are reverting to their pre-crisis situation. This is particularly the case in relation to high-levels of educational attainment and the advantage that it conferred in relation to low education. The advantage of this educational qualification strongly increased during the recession, but by 2014 the size of the effect of having a high-level qualification relative to a low education level had started to fall. The same is true for the advantage conferred by having a medium-level qualification over a low-level education.

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