

# Where are Ireland's Construction Workers?

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## Abstract

The construction sector bore the brunt of the employment loss from the economic and financial crisis that began in 2008. Almost one in every two workers who lost their jobs in Ireland in the five years from 2007 to 2012 had previously been employed in construction. While there has been a modest rise in construction employment since 2012, the number at work in the sector as of Q2 2017 was 110,000, or 46 per cent, lower than in 2007. This raises the question: where are the construction workers who lost their jobs during the property crash? We find no evidence of the existence of a significant number of either unemployed or inactive former construction workers as of early 2017. Instead, while we cannot be definitive on the magnitude, our results point to a high rate of outward migration among unemployed construction workers during the 2008-2012 period. This has implications for the recovery in the construction sector, with inward migration likely to play an important role in meeting the demand for labour in the sector as housing output picks up.

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**2** From Q4 1997 up to Q2 2017, labour market data for Ireland published by the CSO came from the Quarterly National Household Survey (QNHS). From Q3 2017, the CSO released revised labour market data for Ireland. The revised data reflect the impact of a move to a new survey methodology (the Labour Force Survey - LFS) along with an update to previous labour market data to include the results of the most recent Census in 2016. This paper uses a combination of published aggregate CSO data (freely available to download on the CSO website) along with more detailed microdata that are unpublished, but accessible by researchers with the consent of the CSO. Where aggregate data are used in this paper, this is based on the new LFS survey. For the analysis which uses the more detailed micro data (in particular, as in Sections 3 and 4), the Quarterly National Household Survey (QNHS) published by the CSO up to Q2 2017 is used. While the revisions in the new Labour Force Survey (LFS) data resulted in changes in the levels of aggregates such as employment and unemployment compared to the QNHS, the trends in the series remain the same before and after the revisions.

## 1. Introduction

The bursting of the Irish property bubble in 2008 had a dramatic effect on construction employment. As house prices collapsed and the number of housing units being constructed declined drastically, employment in the construction sector fell by 65 per cent from 236,800 in 2007 to 83,400 in 2012. Since 2012, a hallmark of the economic recovery has been the pace of growth in overall employment from its crisis low. However, not all sectors have added jobs at the same rate and, in particular, the recovery in construction employment has been weak. As of Q2 2017, employment in all sectors excluding construction had surpassed its 2007 peak. In contrast, the number at work in construction was 46 per cent lower than in 2007. While the 2007 level of construction employment should not be considered a sustainable level – given the excess level of construction output – it is useful to examine the status of workers who lost their jobs in the property crash.

In this paper, we examine the fall in construction employment during the 2008-2012 period and ask: where are the construction workers who lost their jobs during this period? Analysing this issue is important because it helps to shed light on the current labour supply position for construction workers as the demand for labour in the sector increases.

To definitively work out the current status of former construction workers who lost their jobs during the recession, it would be necessary to have data which tracks each of these individuals over time. This would allow us to see how the labour market situation of a 2007 construction worker changed in the subsequent years up to 2017. As a comprehensive dataset such as this does not exist in Ireland, we instead take an alternative three-pronged approach. We first examine the current stock of unemployed workers and investigate whether there are a significant number of individuals currently unemployed who were formerly construction workers

(Section 2). Next we look at labour force transitions during the 2008-2016 period to assess the movements of workers who exited the construction sector during the crisis (section 3). Lastly, we estimate an econometric model to examine the current labour market outcomes of individuals who, based on their characteristics, were likely to have worked in the construction sector in 2007 (Section 4).

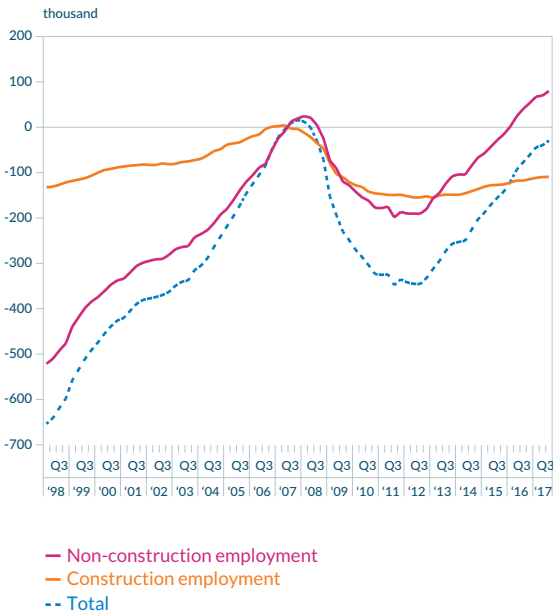
Similar to Ireland, the US also experienced a significant housing bust after 2007. [Paciorek \(2015\)](#) examined the outcomes of construction workers who lost their jobs in the US in the wake of the housing bust. This research found that as of 2014, there was a large and growing group of workers who, based on their observable characteristics, would have been relatively likely to be construction workers but were instead currently out of the labour force. Our analysis is similar to that of [Paciorek \(2015\)](#) but our findings differ. In the Irish case, the analysis in this paper indicates that there is not a significant number of individuals either unemployed or outside the labour force who previously worked in the construction sector. With construction employment still almost 50 per cent below its 2007 level, this suggests an enhanced role for emigration in the Irish case, in contrast to the findings for the US.

## 2. Construction Employment and Unemployment

The collapse of the property bubble in 2008 brought upheaval to the construction sector.<sup>3</sup> As well as the 55 percent peak-to-trough decline in house prices, housing output also fell by 90 per cent. The decline in construction activity was manifested in a significant deterioration in labour market conditions for construction workers. Having increased by 82,000 in the previous 5 years up to 2007, construction employment fell by 153,000 between 2007 and 2012. Over this period, despite the sector making up only about 7.3 per cent of overall employment, construction accounted for just under half of the economy-wide fall in employment.

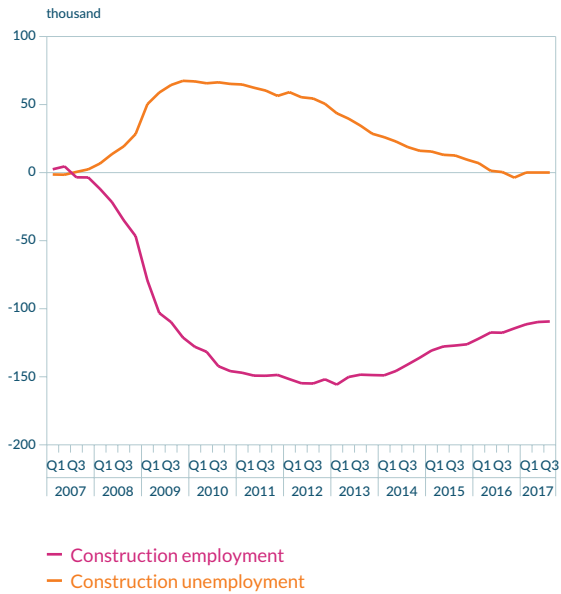
<sup>3</sup> See [Bergin and Kelly \(2017\)](#) and [Lawless et al. \(2015\)](#) for a discussion of labour market developments in Ireland during the 2008-13 economic crisis.

**Chart 1: Employment relative to 2007 Average: Construction and Non-Construction**



Source: CSO.

**Chart 2: Construction Employment and Unemployment**

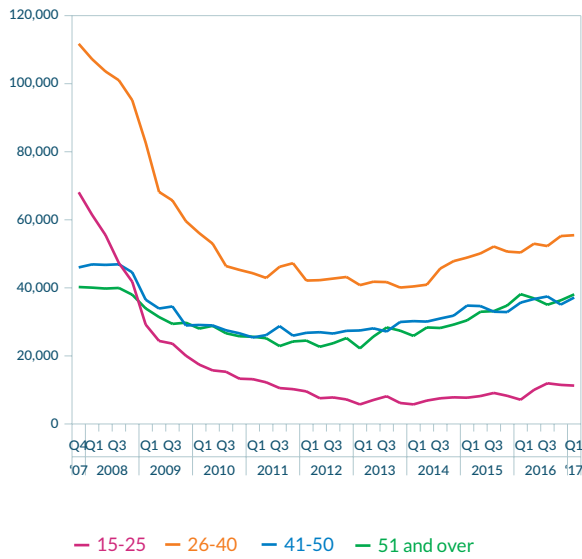


Source: CSO.

A remarkable aspect of the economic recovery in Ireland since the crisis has been the pace of increase in employment. From its low point in Q3 2011, overall employment increased by 308,100 as of Q2 2017. Figure 1, however, shows that the recovery in employment has been driven by sectors other than construction. As of Q2 2017, construction employment was still 110,000 lower than in 2007 while non-construction employment had risen to almost 70,000 above its 2007 level. Thus, even as non-construction employment has rapidly exceeded its previous peak, construction employment has made good less than one-third of the losses incurred during the crisis. This means that a large number of construction workers who lost their jobs during the 2008-12 period have not regained employment in the sector in Ireland. The question then arises: where are these workers now?

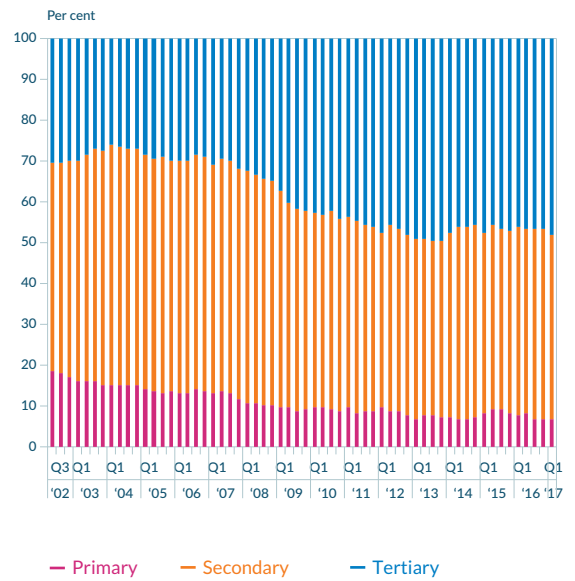
An obvious first place to look for formerly employed construction workers is among the ranks of the unemployed. Using the QNHS it is possible to examine the previous sector of employment of workers who are currently unemployed. Figure 2 shows the level of construction unemployment and construction employment relative to their 2007 averages. The chart shows that as construction employment fell after 2007, there was a large increase in the number of unemployed workers who reported that their previous sector of employment was construction. This peaked at close to 70,000 in early 2010, but since then the number of unemployed former construction workers has fallen back to 2007 levels, even though construction employment still remains far below its 2007 level. This indicates that, in net terms, the majority of former construction workers have exited the sector entirely.

Chart 3: Construction Employment by Age



Source: CSO.

Chart 4: Construction Employment by level of Education

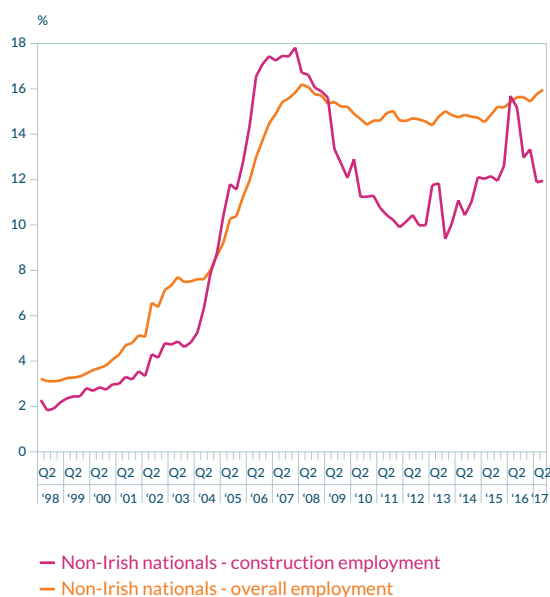


Source: CSO.

Given the very significant changes in the labour market for construction workers over the last decade, it is instructive to examine how the characteristics of workers in the sector have changed since 2007. Figure 3 shows the stock of construction workers by age group. In late 2007, over a quarter of all those employed in the sector were aged between 15 and 25. In subsequent years, however, the number of workers in this age group fell by 90 per cent. There was also a very large decline (63 per cent) in the number of construction workers in the 26 to 40 age group. In contrast, while there were also falls in employment for older age groups, the reductions were much smaller and in Q1 2017, the number of workers in the 51+ age bracket was similar to the level in 2007. The combined effect of these changes in the age distribution mean that average age of employed construction workers has risen significantly from 35.6 years in 2007 to 42.3 in 2017.

Figure 4 shows construction employment by level of education. At the end of 2007, over 12 per cent of those employed in the construction sector had only primary education while 54 per cent had a second-level qualification. The fall in employment in the construction sector was concentrated among individuals in both of these educational brackets; in contrast, the reduction in employment for those with third level qualifications was significantly smaller. As a result, the educational composition of construction sector employment has changed markedly. In Q1 2017, 47 per cent of the workforce had third level qualifications, compared to 28 per cent in 2007, while the proportion with only primary education had halved to just over 6 per cent.

**Chart 5: Employment by Nationality: Construction and all sectors**



Source: CSO.

Figure 5 shows the proportion of non-Irish nationals in employment in the construction sector compared to the proportion of non-Irish nationals in employment in all sectors. Across all sectors, there was an increase in the proportion of non-Irish nationals in employment up to 2007, and in particular during the period 2003-2007. The increase in the share of non-Irish nationals at work was even more pronounced in the construction sector. Between 2003 and 2007, the number of non-Irish nationals employed in the construction sector increased dramatically so that by the end of 2007, non-Irish nationals accounted for just under one fifth of construction employment. Figure 5 shows that during the crisis the proportion of non-Irish nationals in employment in the construction sector fell by almost half. This was significantly larger than the fall in the proportion of non-Irish workers in employment generally, suggesting that non-Irish workers

in the construction sector suffered a greater incidence of employment loss compared to workers in other sectors of the economy.

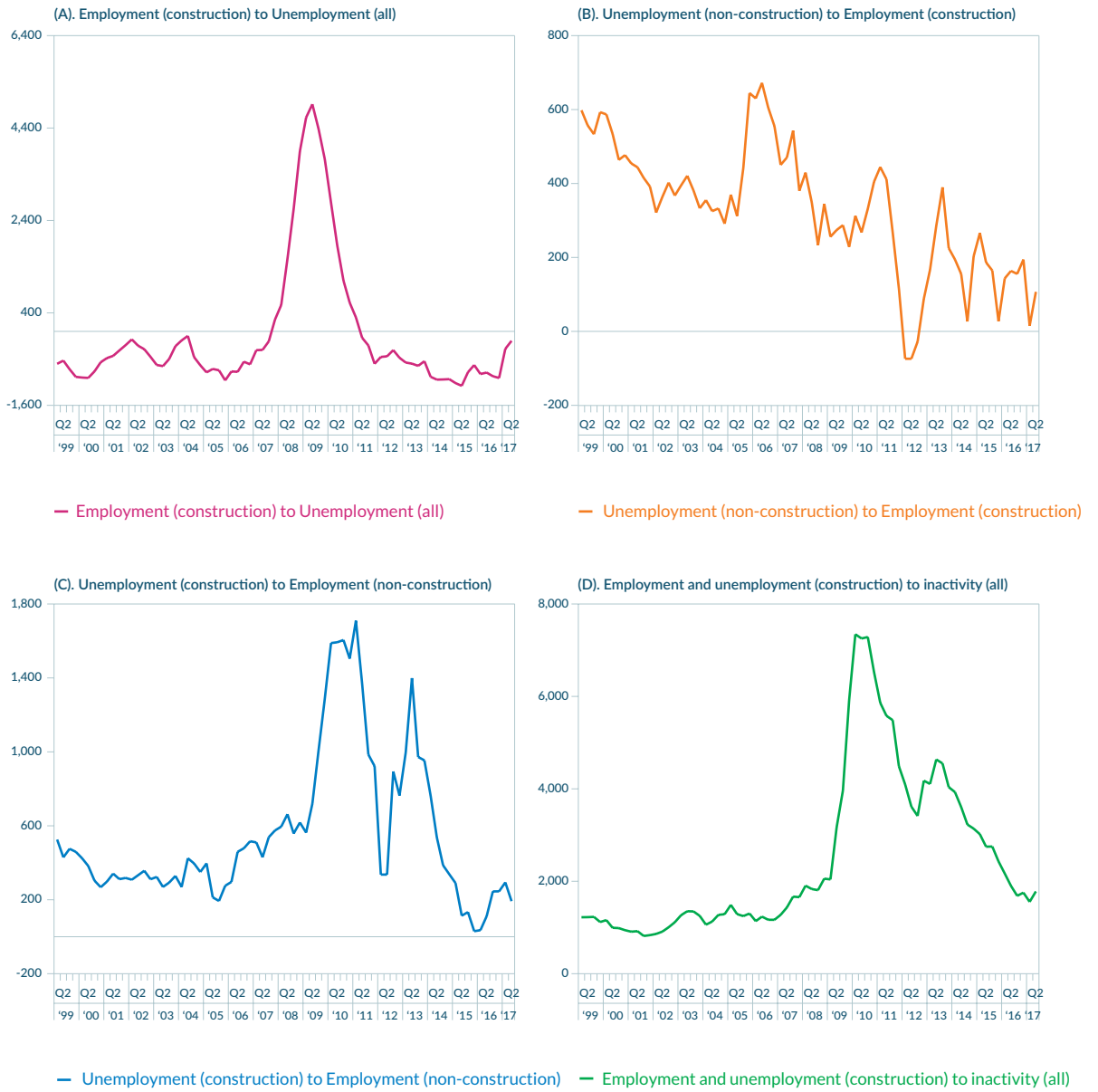
### 3. Construction Sector Worker Flows

The longitudinal nature of the QNHS makes it possible to track the labour market status of individuals over consecutive quarters during which they remain in the QNHS sample. The detailed information on worker flows allows us to examine the movement of workers between different states, i.e., from construction employment to unemployment or inactivity. This can help shed light on the labour market status of construction workers who lost their jobs during the crash.

At the outset, a number of caveats with the detailed flows data should be noted. Because we are interested in tracking the movements of construction workers, we require information on each individual's labour market status (employed, unemployed and inactive), as well as their sector of employment. While the majority of respondent's labour market status is reported in the QNHS data, a significant number of employed and unemployed individuals in the survey do not report their sector of employment (or previous sector in the case of the unemployed). This means that it is not possible to track the flows of all workers in the construction labour force. In addition, an individual stays in the QNHS sample for a maximum of five quarters - after this period it is not possible to track their labour market status. Despite these drawbacks, the flows data still capture a large number of construction sector transitions and the trends in these data provide insights on the movements of workers during and after the crisis.

For this analysis, we divide all individuals in our sample from the QNHS into four categories: construction employment, unemployment, non-construction employment and non-participation. In each case, we focus on net flows of individuals between these categories.

**Chart 6: Construction Sector Worker Flows, 1999–2017**



Source: CSO, Authors' calculations.

For example, the top left panel of Figure 6 shows the flow of workers from construction employment to unemployment minus the number who flowed from unemployment into construction employment.

During the peak of the construction boom from 2004-07, the net flow of workers from construction employment to unemployment was negative, meaning that more workers moved from unemployment into a construction job than exited construction employment. During the boom, this flow of workers into the construction sector from unemployment was supplemented by flows of workers moving from other sectors into construction jobs. From late 2007, the position changed as the number of construction workers moving into unemployment increased substantially. Although some unemployed workers managed to find a job in construction, even during the housing bust (panel b), the flow of workers into the sector was vastly outweighed by the numbers losing their jobs, giving rise to the very large increase in unemployment during the recession as shown in Figure 1 and Figure 2.

Where did unemployed construction workers go? The bottom left panel (c) in Figure 6 shows that some unemployed construction workers found jobs in other sectors of the economy with the net outflow to non-construction sectors trebling in 2009-10 compared to pre-crisis. In addition, a large number of workers left the construction sector entirely (both employment and unemployment) by moving out of the labour force and into inactivity (bottom right panel (d)). Between 1999 and 2007, around 1,000 workers, on net, flowed into inactivity each quarter. During the bust, however, this net flow increased to over 7,000 as large numbers of construction workers exited the sector. Since 2013, construction employment has begun to grow again, reflecting the fact that all of the net flows shown in Figure 6 have returned to close to pre-crisis levels. In particular, the exit rate from

the construction sector has dropped which has helped to support the recovery in employment.

#### 4. The Current Labour Market Status of a 2006 Construction Worker

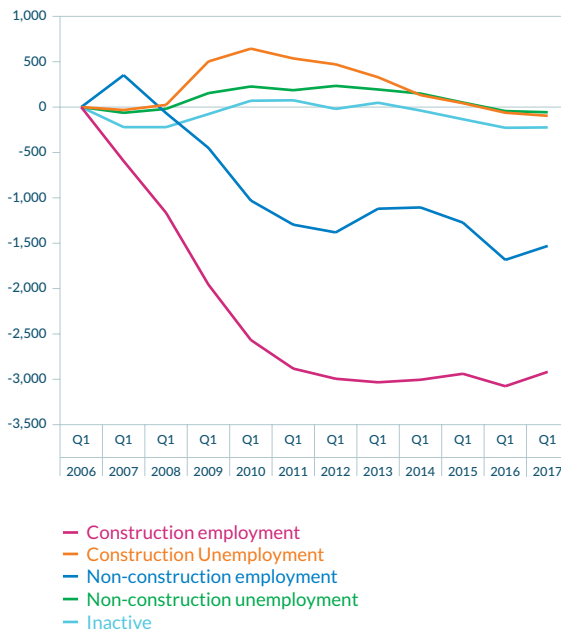
The analysis of the flows data provides some information on the movements of construction workers since before the crisis. However, as noted earlier, it is only possible using the QNHS data to track workers over a relatively short horizon of just over a year. Moreover, given the prolonged nature of the downturn in the construction sector, it is possible that individuals who previously would have taken up construction jobs never joined the sector after the 2007 collapse.

To more formally examine what these missing construction workers are likely to be doing instead, we use the detailed QNHS data to examine the current labour market outcomes of individuals who, based on their observable characteristics, were relatively likely to be construction workers in 2006. The methodology mirrors the approach in Paciorek (2015). In order to predict the likelihood that individuals are employed in the construction sector we carry out the following logit regression. Specifically, we regress an indicator variable describing whether an individual is employed in construction on explanatory variables for secondary education, nine occupation categories, six nationality categories, gender, age and age squared (to capture potential non-linearities in the effects of age on the likelihood of being employed in the construction sector).

We take 2006Q1 as the base year for our logit model.<sup>4</sup> Using the explanatory variables described above and the estimated coefficients from our logit model, we can predict the likelihood of an individual being employed in the construction sector in 2006Q1. The average of these predicted probabilities over the whole 2006Q1 sample of employed individuals is 38 per cent. We can then rank

<sup>4</sup> The use of 2006Q1 as the base year is a technical assumption. It does not imply that construction employment in that quarter – a period when construction output was unsustainably high – should be considered a target level of employment.

**Chart 7: Labour Market Status of Likely Construction Workers, Relative to 2006 Q1**



Source: CSO, Authors' calculations.

all individuals in the sample by their predicted probabilities of working in construction. Those with a predicted probability of over 38 per cent account for approximately 20 per cent of the total sample. When we examine the actual employment outcomes of this top 20 per cent of the 2006Q1 sample we find that we capture fully 80 per cent of those actually employed in construction in the quarter. This indicates that the explanatory variables in the logit model do a good job of capturing the characteristics of the majority of construction workers in 2006.

If the explanatory variables predicting construction employment remain constant over time, the 2006Q1 coefficients should predict construction employment as accurately in 2017Q1 as they do in 2006Q1. We use the 2006Q1 logit coefficients to predict probabilities of construction employment using subsequent years of QNHS data and select the group that would have been in the top quintile in 2006. We find that the model performs well: in the top fifth of the construction workers probability distribution in 2017Q1, the model

captures 72 per cent of all construction workers, down marginally from 80 per cent in 2006Q1.

Figure 7 shows the difference between predicted and actual outcomes for this group of high-probability construction workers. For example, the model predicts that among this group of likely construction workers, over 3,000 fewer are actually employed in construction in 2017Q1. Non-construction employment is also lower, indicating that the missing construction workers are not working in other sectors. Figure 7 shows that the incidence of unemployment and non-participation among likely construction workers increased during the recession but in both cases the numbers have fallen back to pre-crisis levels. In line with the earlier evidence, this suggests that there currently is not a significant pool of former construction workers either in unemployment or outside the labour force. This analysis implies a likely high rate of outward migration from the construction labour force during the crisis.

These findings differ from the results of a similar analysis carried out for the US. Paciorek (2015) looks at the predicted labour market outcomes for a group of high probability construction workers in the US from 2006 up to 2014. In the US case, the author finds evidence that there is a large group of workers in 2014, who would have been relatively likely to be construction workers in 2006, but are instead out of the labor force. This suggests that as of 2014 there was a large number of workers in the US who are good candidates for construction employment, who remain in the country, but who have dropped out of the labour force.

## 5. Conclusion

In this paper, we examine the characteristics of the construction labour force since before the crisis. Our analysis reveals significant structural change in the characteristics of this segment of the labour market over time. Compared to



2006, those employed in the construction sector in 2017 are older, more likely to be Irish nationals and have higher levels of educational attainment. With the construction sector having regained less than one-third of the jobs lost during the crisis, we attempt to determine the status of the large number of construction workers who lost their jobs during the crash. In the absence of data which tracks each of these individuals over time, it is not possible to answer this question definitively. Nevertheless, some conclusions can be drawn based on the different analytical approaches in this paper. The analysis provides no evidence of the existence of a large number of unemployed former construction workers. Similarly, there does not appear to be a significant number of previously employed construction workers currently outside the labour force (or inactive). This suggests that a large proportion of construction workers who lost their jobs during the crash are likely to have emigrated. As construction sector output picks up, net inward migration is likely to play an important role in meeting the demand for labour in the sector.

## References

- [1] Bergin, A. and Kelly, E. 2017. "The Labour Market in Ireland 2000-2016", IZA World of Labour 2017:410.
- [2] Conefrey, T., Lawless, M. and Linehan, S. 2015. "Developments in the Irish Labour Market During the Crisis: What Lessons for Policy?", Journal of the Statistical and Social Inquiry Society of Ireland 2014/15.
- [3] Paciorek, A. 2015. "Where Are The Construction Workers?", FEDS Notes, Board of Governors of the Federal Reserve System.

Table 1: Prediction regression results, marginal effects, various quarters

	2004Q1	2006Q1	2012Q1	2017Q1
Secondary education	0.221*** (0.0461)	0.168*** (0.0449)	-0.0958 (0.0683)	0.105 (0.0699)
Age	0.0364*** (0.00801)	0.0323*** (0.00785)	0.103*** (0.0159)	0.138*** (0.0152)
Age2	-0.000776*** (0.0000967)	-0.000720*** (0.0000941)	-0.00137*** (0.000175)	– (0.000168)
Occupation (reference category administration) Elementary	1.195*** (0.0983)	1.371*** (0.0952)	0.348** (0.164)	0.649*** (0.174)
Manager	-0.271** (0.109)	-0.437*** (0.114)	-0.182 (0.192)	0.0242 (0.192)
Operatives	0.271*** (0.105)	0.691*** (0.0997)	0.390** (0.163)	0.639*** (0.173)
Professional	0.159 (0.120)	0.309*** (0.114)	-0.294 (0.184)	-0.662*** (0.203)
Sales	-1.676*** (0.215)	-1.390*** (0.190)	-1.755*** (0.395)	-2.047*** (0.442)
Services	-4.106*** (0.586)	-2.488*** (0.291)	-2.422*** (0.753)	-0.627** (0.307)
Skilled Trades	2.363*** (0.0899)	2.532*** (0.0879)	1.366*** (0.144)	1.754*** (0.153)
Technical	-0.516*** (0.148)	-0.249* (0.139)	-0.507*** (0.192)	-0.759*** (0.226)
Nationality (reference category EU-15)				
EU-15 to 28		0.631** (0.280)	0.700 (0.581)	0.951** (0.483)
Other Europe	-0.0454 (0.356)	1.060*** (0.366)	0.688 (0.723)	0.588 (0.598)
Irish	0.683*** (0.259)	0.329 (0.263)	1.007* (0.570)	1.251*** (0.467)
UK	0.661** (0.272)	0.409 (0.275)	0.881 (0.585)	1.395*** (0.487)
Rest of the world	-0.500 (0.336)	-0.194 (0.310)	0.245 (0.611)	-0.0383 (0.537)
Female	-2.107*** (0.0721)	-2.020*** (0.0695)	-1.947*** (0.112)	-1.915*** (0.122)
Constant	-3.466*** (0.306)	-3.019*** (0.311)	-5.548*** (0.686)	-6.439*** (0.580)
Observations	51,147	44,609	27,182	21,764

Robust standard errors in parentheses \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Source: CSO, QNHS and own calculations.