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Re-employment Probabilities for Unemployed Workers in Ireland

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Abstract

Using data from the Quarterly National Household Survey, we analyse the determinants of re-employment probabilities among Irish workers from 2000-2012. We find that an individual's probability of exiting unemployment diminishes with the length of stay in unemployment and age. The likelihood of exiting unemployment is lower for unemployed workers with the lowest levels of educational attainment while economic activity also impacts transitions out of unemployment. The results may be informative to policy makers tasked with designing appropriate labour market activation measures to reduce unemployment.

1 Introduction

A key issue for the economy in the coming years is how quickly the unemployment rate might fall in a recovery phase. From its peak in Q3 2007, the latest data show that total employment had declined by 14 per cent while the unemployment rate trebled. Of those unemployed, the data indicate that over 30 per cent have a level of education corresponding to junior certificate or lower while almost two in three have been out of work for a year or more. These characteristics of the unemployed suggest that a significant number could find it difficult to regain employment even when the economy recovers. This could result in a damaging legacy of long-term structural unemployment from the crisis which would, among other things, have negative consequences for the economy and for financial stability.

If structural unemployment becomes embedded, it could reduce the economy's long-run potential growth rate. From a financial stability perspective, unemployment is an important determinant of household financial distress. Unpublished data from the Central Bank of Ireland suggests that over 20 per cent of mortgaged Irish households that are 90+ days past due on their mortgage repayments are currently experiencing some unemployment. An important consideration for any mortgage modification process is the expected rate at which these unemployed mortgage holders might re-gain employment. For unemployed mortgage holders who have a low probability of regaining employment, a different solution may be required compared to those who are in arrears but who have a higher probability of finding work in the short-term. The re-employment rate will be sensitive to a number of factors which are specific

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to the unemployed person, including, for example, the length of time the person has been unemployed for.

Several studies have examined re-employment probabilities in other countries. Lancaster and Nickell (1980) argue that unemployment duration is an important determinant for the UK; they acknowledge, however, that heterogeneity, or unobserved individual characteristics, can be problematic in modelling unemployment related effects. To reduce heterogeneity in assessing the factors that impact re-employment probabilities, Alba-Ramirez (1998), in his study of the Spanish labour market, restricts the sample to those of young workers who are deemed to be highly attached to the labour force; he also includes GDP as an indicator of the business cycle. He subsequently concludes that higher education increases the chances of re-employment for women only and that increased unemployment duration negatively affects the probability of re-gaining employment, while, as expected, increased levels of GDP improve re-employment prospects. Imbens and Lynch (2006), in their study on the U.S. labour market, also focus on young workers. Business cycle conditions are found to have a larger impact on the chances of finding employment than individual characteristics, particularly for men, while policies that target specific demographic groups tend to have a limited impact on overall probabilities. The authors additionally note that negative duration dependence exists but is weakened if the worker is male and lives in an area of high unemployment.

Kelly et al. (2012), in their study on the Irish youth labour market, similarly find that a young worker's probability of moving into employment diminishes with their length of stay in unemployment. They also find that re-employment probabilities are lower for older workers, those with low education levels and individuals with literacy problems. A subsequent paper by Kelly et al. (2013) analyses how these probabilities changed for young workers both before and during the most recent crisis. They conclude that the external environment has contributed most to the fall in the transition rates during the crisis and that education and nationality have had a larger impact on transitioning into employment, along with certain cohorts of unemployment duration. Numerous studies have analysed the impact of various individual characteristics, from education (Riddell and Song (2011)) to childbirth (Russell et al. (2006)), however few studies focus solely on the Irish labour market as a whole.

This Economic letter examines the issue of re-employment probabilities for the entire working age adult population in Ireland. The impact of various demographic and economic characteristics in affecting such probabilities is assessed and estimates of average re-employment probabilities are presented. The remainder of this letter is structured as follows: Section 2 describes the data used in the current analysis, while the methodology employed is described in Section 3. Section 4 looks in detail at the transition from unemployment to employment and at the factors that affect this transition. Finally, Section 5 concludes.

2 Data

The analysis in this Economic letter is based on micro-level data from the CSO's Quarterly National Household Survey (QNHS). The primary purpose of the QNHS is to produce quarterly labour force estimates for the Irish economy. The survey is conducted quarterly and is based on a design sample of approximately 26,000 households which are targetted for interview each quarter. Full details of the sampling methodology are available in CSO (2013).

As well as collecting detailed labour market information, the QNHS also collects socio-economic and demographic information for each survey respondent. Importantly, for the purposes of this analysis, households who participate in the QNHS are asked to take part in the survey for five consecutive quarters. This means that movements between labour market states (unemployment, employment and inactivity) can be observed for each participant over the five quarter period. To undertake the current analysis, we focus on those individuals who report a movement from unemployment to employment in two consecutive quarters during the period 2000Q1 to 2012Q1. We also focus on those individuals who have been employed at some point prior to their current unemployment spell. This results in a sample size of just over 60,000 observations.

3 Methodology

The analysis aims to identify the impact of various demographic and economic factors on the proba-

bility of an unemployed worker regaining employment. The dependent variable in the model is binary, and equals 1 if a person is unemployed in the current quarter but becomes employed in the next quarter. The variable equals zero if a person is currently unemployed and they are not employed in the next quarter. Since the dependent variable is binary, we use discrete dependent variable techniques and employ the following probit model:

$$Prob(y_i = 1) = F(\beta(x_i) + \epsilon i); i = 1, 2, ...n \quad (1)$$

Where: y_i is the dependent variable "Becomes Employed", x comprises a set of characteristics posited to influence re-employment probabilities (including demographic, labour market and macroeconomic variables), β is a set of parameters to be estimated, ϵi is the error term and i is the observation number.

The main highlights from the model are discussed in the next section while a full set of results is shown in Table A1 in the appendix to this note. In the next section, we also use the estimated model to measure the average predicted probability of re-gaining employment for various sub-groups in our sample.

4 Main Results

Employing the previously estimated model (over the period 2000Q1 to 2012Q1), Table 1 reports the average predicted probability of re-employment among various sub-groups of interest. The economic environment changed dramatically over the period and this is controlled for by including quarterly GDP growth rates in the model as well as year and quarter fixed effects. The predicted probabilities reported in the table are estimated for the mean GDP growth rate over the sample and at the mean of the remaining variables in the model.[2] There are a number of points of note:

Duration: The probability of re-employment falls with unemployment duration, i.e. the longer a person remains unemployed, the lower are their chances of regaining employment. In many cases the chances of re-employment fall by two thirds when a person is unemployed for 25 or more months, relative to a person who is unemployed for less than 5 months.

Education: Re-employment probabilities increase with education. More highly educated individuals have a greater chance of becoming re-employed relative to individuals with lower education levels. In many cases, the chances that a person with a third level degree regains employment are at least double the chances for an individual with less than leaving certificate education.

Age: The chances of re-employment decrease with age. Older individuals have lower chances of re-gaining employment relative to younger individuals. As shown in Table 1, the average re-employment probability of a male aged 15-24 years, unemployed for less than six months, with a 3rd level degree is 39 per cent. In contrast, the average probability of a similar individual in the 45-64 year age group finding a job is 10 percentage points less.

Table 1: Re-employment probabilities, 2000Q1-2012Q1

	15-24 years Unemployment Duration (Months)				25-44 years Unemployment Duration (Months)				45-64 years Unemployment Duration (Months)			
	0-5	6-11	12-24	25+	0-5	6-11	12-24	25+	0-5	6-11	12-24	25+
MALES												
Low Education	20.1	13.0	9.4	5.8	15.8	9.8	6.9	4.1	13.2	8.0	5.5	3.2
Medium Education	28.3	19.4	14.5	9.6	22.9	15.1	11.1	7.0	19.7	12.7	9.1	5.6
High Education	38.7	28.2	22.1	15.4	32.5	22.8	17.5	11.8	28.6	19.6	14.8	9.7
FEMALES												
Low Education	19.2	12.3	8.8	5.4	15.0	9.2	6.4	3.8	12.5	7.5	5.1	3.0
Medium Education	27.1	18.5	13.8	9.0	21.9	14.3	10.4	10.4	18.8	12.0	8.6	5.3
High Education	37.4	27.1	21.1	14.6	31.3	21.8	16.6	11.1	27.5	18.7	14.0	9.2

Source: QNHS micro-data and own calculations.

[2]Over the period, GDP growth averaged 0.9 per cent quarter-on-quarter.

Table 1 provides insights on expected re-employment prospects if the economy evolves in line with the average performance over the 2000 to 2012 period. However, at present the economy is growing at a much weaker rate. Table 2, therefore, reports the estimated re-employment probabilities from the sample of data from 2007Q1 to 2012Q1. The re-employment probabilities in this case are lower than shown previously. However, the broad trends reported in Table 1 are repeated when the model is estimated over the most recent period. This implies that the probability of regaining employment declines the longer a person stays in unemployment, the lower their level of education and the older the unemployed worker.

Table 2: Re-employment probabilities, 2007Q1-2012Q1

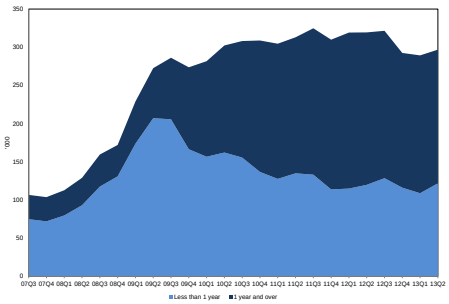
	15-24 years Unemployment Duration (Months)				25-44 years Unemployment Duration (Months)				45-64 years Unemployment Duration (Months)			
	0-5	6-11	12-24	25+	0-5	6-11	12-24	25+	0-5	6-11	12-24	25+
MALES												
Low Education	14.8	9.6	6.7	3.9	12.8	8.1	5.5	3.2	10.4	6.4	4.3	2.4
Medium Education	21.1	14.3	10.4	6.4	18.4	12.3	8.8	5.3	15.4	10.0	7.0	4.1
High Education	30.3	21.8	16.5	10.8	27.1	19.1	14.3	9.2	23.3	16.0	11.8	7.4
FEMALES												
Low Education	15.1	9.7	6.8	4.0	13.0	8.2	5.7	3.2	10.6	6.6	4.4	2.5
Medium Education	21.4	14.5	10.6	6.5	18.7	12.5	8.9	5.4	15.7	10.2	7.2	4.2
High Education	30.6	22.1	16.8	11.0	27.4	19.4	14.5	9.4	23.6	16.3	12.0	7.5

Source: QNHS micro-data and own calculations.

5 Implications

The evidence presented above and past experience indicates that an individual's length of stay in unemployment along with their educational attainment and age have a critical bearing on their likelihood of regaining employment.

Figure 1: Unemployment by duration, thousands



Source: QNHS data, Q2 2013.

Figure 1 shows the current stock of unemployment by duration. The number of people out of work for a year or more increased to over 50 per cent of the total number unemployed during late 2010. Since then long-term unemployment increased further before stabilising at around 60 per cent of total unemployment in recent quarters. In absolute terms, close to 175,000 of the 300,700 total number unemployed have been out of a job for a year or more. The long-term unemployment rate stood at 8.1 per cent in Q2 2013.

Table 3 shows the educational attainment of the unemployed. The data show that 70 per cent of those unemployed have higher secondary education or above (column 3). This contrasts with the position in the late 1980s when the majority of those unemployed had a leaving certificate or below. Table 1 shows that those with third level qualifications are on average more than twice as likely to regain employment compared to those with only primary education. As the majority of those currently out of work are in the higher educational brackets as shown in Table 3, this improves their prospects of regaining employment as the economy recovers.

In contrast, the data also show that almost two out of every three persons unemployed have been

out of work for twelve months or more. Furthermore, over a quarter, or around 80,000, of all those unemployed and aged between 15-64 years, have only a junior certificate or lower. Since the analysis in Section 3 demonstrates that both low levels of education and a prolonged stint in unemployment seriously negatively impact an unemployed worker's likelihood of regaining employment, there is a risk that individuals in these cohorts could experience long-term structural unemployment. Appropriate labour market interventions are required to mitigate this risk and avoid a damaging legacy of persistently high unemployment.

Table 3: Unemployment by educational attainment (15-64 year olds), Q2 2013

Education level	**No. Unemployed, (000s)**	**Unemployment Rate, % of Group in Row**	**% of Total Unemployment**
Primary or below	26.7	26.5	8.9
Lower secondary	54.1	22.8	18.1
Higher secondary	89.5	16.9	29.9
Post leaving certificate	52.2	18.7	17.4
Third level non-honours degree	30.7	9.3	10.3
Third level honours degree or above	37.2	6.3	12.4
Other	9.0	17.2	3.0
Total	299.4	14.1	100.0

Source: QNHS, Table S8.

6 Conclusion

In this *Letter* we use detailed micro data to examine the impact of individual characteristics and business cycle effects on the probability of re-employment. We find that there is considerable variation in the probability of re-employment across different cohorts. During the crisis period, young, recently unemployed females with third-level qualifications are found to have the highest probability of regaining employment. For both males and females, the probability of re-employment diminishes with age and the duration of unemployment. Young males with low educational attainment who have been out of work for more than a year have the lowest probability of finding work. Business cycle conditions are also found to exert an influence on re-employment probabilities. This highlights the importance of a resumption in GDP growth in bringing about an improvement in labour market conditions.

The work in this *Letter* provides potentially useful policy insights. While a majority of those currently unemployed have completed advanced schooling, a large number are long term unemployed and almost thirty per cent have a junior certificate or less. This implies that a recovery in GDP growth alone is unlikely to be sufficient to bring about a reduction in the unemployment rate within a reasonable timeframe. The implementation of appropriate labour market training and employment programmes will be vital to reduce the risk of long-term structural unemployment. In this context, there is evidence for Ireland on the most effective labour market activation measures (O'Connell, 2009 and O'Connell et al., 2011).[3] This research points to the importance of ensuring that the chosen labour market activation programmes are closely linked to demand in the labour market, and furthermore, that the programmes are designed to tackle the key factors that cause long-term unemployment.

[3] O'Connell, P. 2009. What works? Applying lessons from the 1990s, available at: http://www.esri.ie/news_events/events/past_events/event_details/index.xml?id=218 and McGuinness et al., 2011. Activation in Ireland: An Evaluation of the National Employment Action Plan.

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[3] Imbens G., and L. Lynch (2006), "Re-Employment Probabilities over the Business Cycle", IZA Discussion Paper, No. 2167, June 2006.

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[9] Russell H., Halpin B., Strandh M., and A. Zielfe (2006), "Comparing the Labour Market Effects of Childbirth in Ireland, Sweden, the UK and Germany", ESRI Working Paper, No. 170, April 2006.

Table A1: Regression Results (Probit, Dependent Variable=UE)

Variable	Coefficient	Standard Error
Constant	-0.96***	0.0586
Male	0.03**	0.0148
Age: 16-24	Omitted Category	
Age: 25-44	-0.17***	0.0179
Age: 45-64	-0.28***	0.0242
Low Education	Omitted Category	
Medium Education	0.27***	0.0149
High Education	0.56***	0.0223
Single	Omitted Category	
Married	-0.00	0.0172
Widowed	0.08	0.0774
Divorced/Separated	-0.02	0.0331
U.Duration: 0-5 Months	Omitted Category	
U.Duration: 6-11 Months	-0.30***	0.0173
U.Duration: 12-24 Months	-0.49***	0.0189
U.Duration: 25+ Months	-0.75***	0.0225
Annual GDP Growth[a]	-0.04	0.0046
N	61,303	
LR chi^2	4466.23	
Prob¿chi2	0.0000	
Pseudo R^2	0.0861	

Notes: UE=transition from unemployment to employment in two consecutive quarters. [a] The coefficient on annual GDP growth has been scaled up by 100. The model also includes year and quarter fixed effects and controls for the previous sector of employment. *** Significant at 1 per cent level; ** Significant at 5 per cent level; * Significant at 10 per cent level.