



## Job Creation and Destruction in Recession

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### Abstract

This note provides an update on rates of job creation and destruction in the light of the dramatic slowdown in the economy. Firm-level data on employment changes has been collected by Forfás for almost forty years and allows us to compare the current rates of job turnover to those in previous recessionary episodes. The speed of the slowdown in job creation and increase in job destruction are found to be unprecedented, although the total decline in employment was greater in the 1980s. Higher rates of job destruction were particularly evident in smaller and in Irish-owned firms. Net falls in employment were observed in almost all sectors. We show however that jobs also continued to be created across the economy, albeit at a slower pace than previously.<sup>1</sup>

## 1 Introduction

Aggregate changes in employment are the outcome of many individual firms making decisions on whether to expand or contract their workforce. The simultaneous existence of job creation and job destruction in different firms has been observed in many studies across a wide range of countries, industries and time periods. In the Quarterly Bulletin of January 2008, an analysis of the flows of Irish manufacturing jobs between 1972 and 2006 showed an average job creation rate of 10 percent (i.e. one in every ten jobs each year was newly created) and an average job destruction rate of 8 percent. Overall employment growth across the firms studied was therefore 2 percent each year.

This note provides an update on the change in these rates of job turnover in the light of the dramatic slowdown in the economy and compares

the current figures to those in earlier recessionary episodes. The speed of the slowdown in job creation and increase in job destruction are found to be unprecedented, although the total percentage decline in employment was greater in the 1980s.

## 2 Data

The results on job gains and losses are calculated using the Forfás Employment Survey and cover the period from 1972 up until 2010. This survey tracks employment levels and is carried out on an annual basis, covering agency-supported firms engaged in manufacturing and internationally traded services. Each establishment is allocated a unique identifying number that allows researchers to follow individual units over time while preserving the anonymity of the data. The information contained

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in the survey contains numbers of permanent full-time employees, along with some descriptive information on the sector the firm operates in, ownership and location. The primary benefit of this data source is that it has been carried out on a consistent basis for a considerable period of time, allowing us to track the evolution of employment at the establishment level for 37 years.

Comparing the Forfás Employment Survey to the Central Statistics Office (CSO) series on job churn begun in 2006, we note that the CSO data reports higher rates of both job creation and job destruction. This is consistent with higher levels of job turnover in services sectors, which are under-represented in the Forfás data. Although the CSO series has wider coverage, this note focuses on the Forfás survey due to the considerably longer time-span available.

### 3 Employment Flow Definitions

The job flow measures we use are defined following Davis and Haltiwanger, (1999):

- Job creation in each year is the employment gain summed over all business units which expand or set-up between the previous year and the current one.
- Job destruction in each year is the employment loss summed over all business units that contract or shut down between the previous year and the current one.
- Net employment change is job creation minus job destruction.

Comparisons of job flows can be made more convenient by converting these measures into rates. To do this, the size of a business unit is defined by the average of its employment across the two years. The reason for this adjustment is that it gives a growth rate which is symmetric around zero and which lies within a closed interval  $[-2, 2]$ , thereby allowing an integrated analysis of entry and exit.

The decomposition of net employment changes into the components of job creation and job destruction rates can be used to obtain additional information on employment dynamics, and give a better indication of the amount of structural change the economy is undergoing.

The same net employment change may reflect very different rates of creation and destruction thereby masking an important element of the flexibility or volatility of the labour market (Konings, 1995). In addition higher simultaneous creation and destruction may imply higher adjustment costs for the economy despite resulting in the same net employment change.

It should be emphasized that our calculations focus on job flows and not on worker flows. To explain what we mean by this, consider a firm that in one year has 20 employees and in the next year reports 21 employees. Our method regards this as the creation of one job. In practice, this could have involved four individuals leaving the company and five being hired. The contrary is also true and job reallocation may be treated as a lower bound to worker reallocation as it is obviously possible for workers to change jobs or move in and out of the labour market without any actual creation or destruction of jobs taking place.

### 4 Job creation and destruction rates

Figure 1 shows the rates of job creation, job destruction and net employment growth for the firms covered by the Forfás Employment Survey from 1973 to 2010. Employment growth is positive whenever job creation is greater than job destruction and aggregate employment declines when job destruction is higher than job creation.

Between 1972 and 2006 the average job creation rate was 10 percent and the average job destruction rate was 8 percent, resulting in net employment growth of 2 percent. It is clear from the chart, however, that there were substantial deviations from these average rates in individual years.

The brief boom in employment of the late 1970s is followed by a sustained increase in job destruction rates from 1980 to 1987. Job creation rates, on the other hand, did not fall significantly in this period. The “Celtic Tiger” years of the late-1990s are associated with a strong increase in the job creation rate, which peak at 16 percent in 2000. This was followed by a fairly sharp but short-lived decline in employment growth with the “dot-com” recession of 2001-2003.

Deconstructing employment growth into the components of expanding and contracting firms shows that jobs are created and destroyed simulta-

neously at all points in the economic cycle. Even during the period of extremely strong growth in the later 1990s, where job creation reached rates of 12 to 15 percent of total employment each year, the rate at which jobs were destroyed did not fall below 6 percent.

In contrast, even in the economic stagnation of the early 1980s some firms expanded and job creation rates never fell below 7 percent. In general, job destruction is somewhat more volatile than job creation (the standard deviations are 0.024 and 0.019 respectively).

Extending the graph to 2010 shows starkly the speed with which employment growth reversed. The job destruction rate rose to 16 percent in 2009, while the job creation rate fell to under 5 percent. Both rates are unmatched in the 37-year sample. The job destruction rate moderated considerably in 2010. Job destruction returned to a rate of 9 percent, a level more within the bounds of previous experience although still somewhat higher than the long-run average of 8 percent.

The job creation rate also recovered very slightly in 2010, increasing to 7 percent from its low of 5 percent in the previous year. Again this remains below average and the combination of the two rates still resulted in a net employment fall of 2 percent. Although the continued decline is far from positive news, the picture in 2010 did show a moderation in the size of the fall. Whether this turnaround will continue in 2011 is unclear, given the recent declines in GDP and unemployment.

## 5 Comparison with earlier recessions

This section takes the current recession period and compares it to the last two episodes of net employment falls in terms of the relative contributions of changes in the job creation and destruction rates. Figure 2 compares 2009 to the largest single-year employment falls in these earlier recessions. During the 1980s, the greatest decline in employment took place in 1983, when the fall was 5 percent.

The fall in employment in the recession of the early part of the 2000s was much less severe, with the largest fall of 3 percent taking place in 2002. All three recession years have a job creation rate below the longer term average of 10 percent, as would be expected. The 8 percent creation rate in 1983 and the 9 percent rate in 2002 are, however,

not substantially lower than average, whereas the slowdown in job creation to just under 5 percent in 2009 is an extreme observation even when compared to other recessions. The increase in the rate at which jobs were destroyed in 2009 is also higher than both previous peak recession years.

Comparing the years of the largest employment falls gives an incomplete picture of the impact of a recession. The duration of the downturn is crucial in determining the total effect. Figure 3 shows the cumulative effects of the current and previous recessions. Setting employment in the year prior to the start of the recession equal to 100, we can compare the total percentage falls relative to the peak. As was apparent from Figure 2, the current recession has had the sharpest decline in employment of the three episodes.

However, the declines in employment during the 1980s, although smaller in each year, were sustained over a period of eight years. The recession of the early 2000s, on the other hand, had three years of employment decline before returning to growth. We can see that a slowdown in the rate of decline has been reached for the current recession. The crucial question of the total impact of the current recession is how soon this turns positive again.

## 6 Firm characteristics and job turnover

Table 1 shows the breakdown by sector of job turnover rates during the last decade. The recessionary period of 2008-2010 shows a net fall in employment occurring broadly across sectors, with 22 out of the 28 industries experiencing negative growth. For a small number of these industries, the 2008-10 declines were a continuation of a process of long-term decline; the clothing industry for example had high rates of job destruction relative to job creation for a number of years, even when general economic growth was strong.

For the majority of sectors, however, employment had been growing in the 2000-2004 and 2005-2007 periods and the reversal of the last two years is evidence of the broad impact of the current downturn.

The construction sector stands out, both for its extremely high growth rates up to 2007 and for the scale of the decline in 2008-2010. It should be noted that this data does not contain infor-

mation on self-employed or contract staff, so the number of workers in this industry are almost certainly understated. Other industries with strikingly high percentage declines in employment in 2008-2010 include textiles, transport and wood; however, these are relatively small sectors in absolute size.

The sectoral patterns of job turnover can be linked to a certain extent to differences in the nationality of ownership, as can be seen in Table 2. Both Irish and foreign-owned firms saw declines in their rates of job creation in 2008-2010, with the lowest point for both groups being approximately half the rate of job creation observed in the 2005-2007 period. Irish firms in the boom had higher job creation rates than foreign-owned firms (12 percent and 8 percent respectively) but the downturn closed this gap substantially. Job creation for Irish firms fell to 6 percent at its lowest point in 2009, and foreign firms reduced their job creation rate to just 4 percent. However, job creation in foreign firms recovered more rapidly, returning to 7 percent in 2010, while that of the Irish-owned firms stayed at the same rate in 2010 as in 2009.

The increase in job destruction rates was more marked for Irish firms - this increased from 9 percent in 2005-2007 to 18 percent in 2009. Foreign-owned firms also increased their job destruction rate from 7 percent in 2004-2007 to 13 percent in 2009, before returning to a close to average rate of 8 percent in 2010. Information on the exporting activity of firms is not available in these data, but it seems likely that the smaller declines in employment in foreign-owned firms can be linked with their lower reliance on domestic sales.

Table 3 shows a negative relationship between establishment size and the rate at which it creates jobs and destroys jobs. Smaller units both create and destroy jobs at higher rates than larger ones. Up until 2007, establishments in almost every size group added more jobs than they eliminated, as would be expected given the considerable economic expansion of recent years.

Very small establishments (with ten employees or fewer) experienced by far the greatest volatility in their employment flows, with new jobs accounting for 16 per cent of their employment on average each year and 14 per cent of jobs in this group be-

ing lost. In contrast, the largest units in the sample (employment over 500) had average job creation rates of 7 per cent and job destruction rates of 4 per cent.

The increase in job destruction rates in the crisis period was particularly marked for small firms and the net employment decline in firms with 20 employees or fewer rose to 15% in 2009. The current recession is unusual in having experienced employment declines in all firm size groups. The net employment fall of the 1980s was accounted for almost entirely by larger firms, while in the dot-com recession it was primarily the smallest firms that reduced net employment.

That is not to say however that it was only these groups that were affected by the previous recessions. Job destruction rates did increase for all firm types in both recessions, but job creation was somewhat more resilient particularly for medium-sized firms. The picture is quite different for 2008 and 2009 with declines affecting all size groups. The two groups of larger firms returned to positive growth in 2010 but smaller firms continued to experience considerably higher job destruction than average and to reduce net employment.

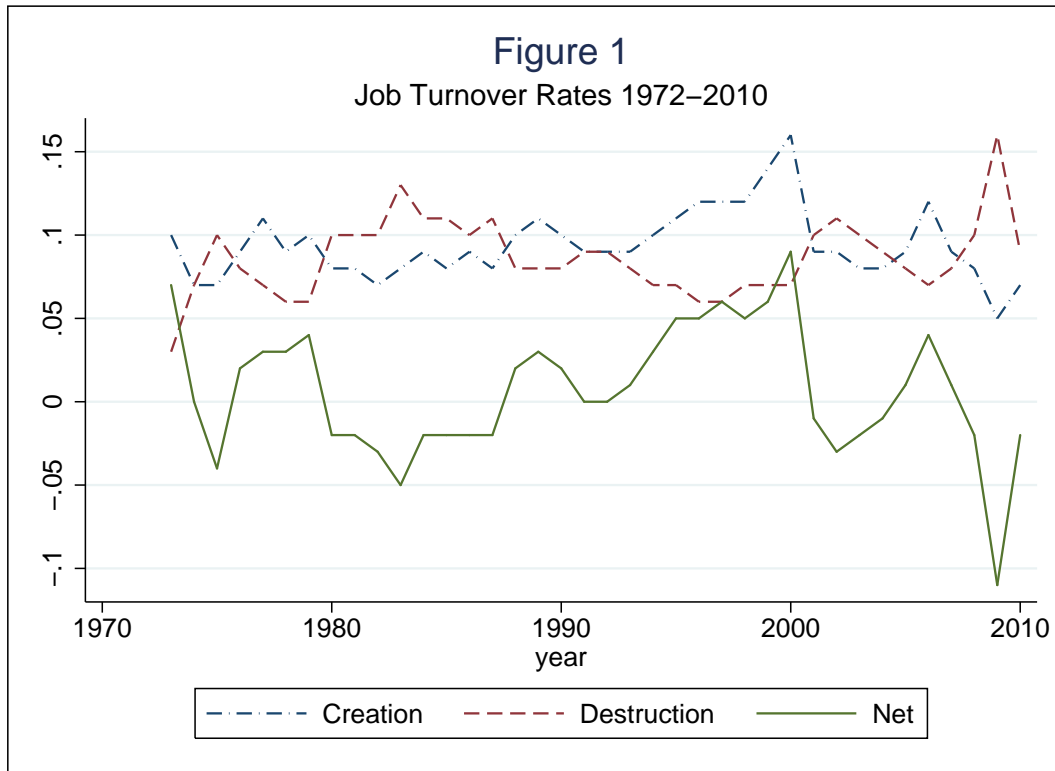
## 7 Conclusions

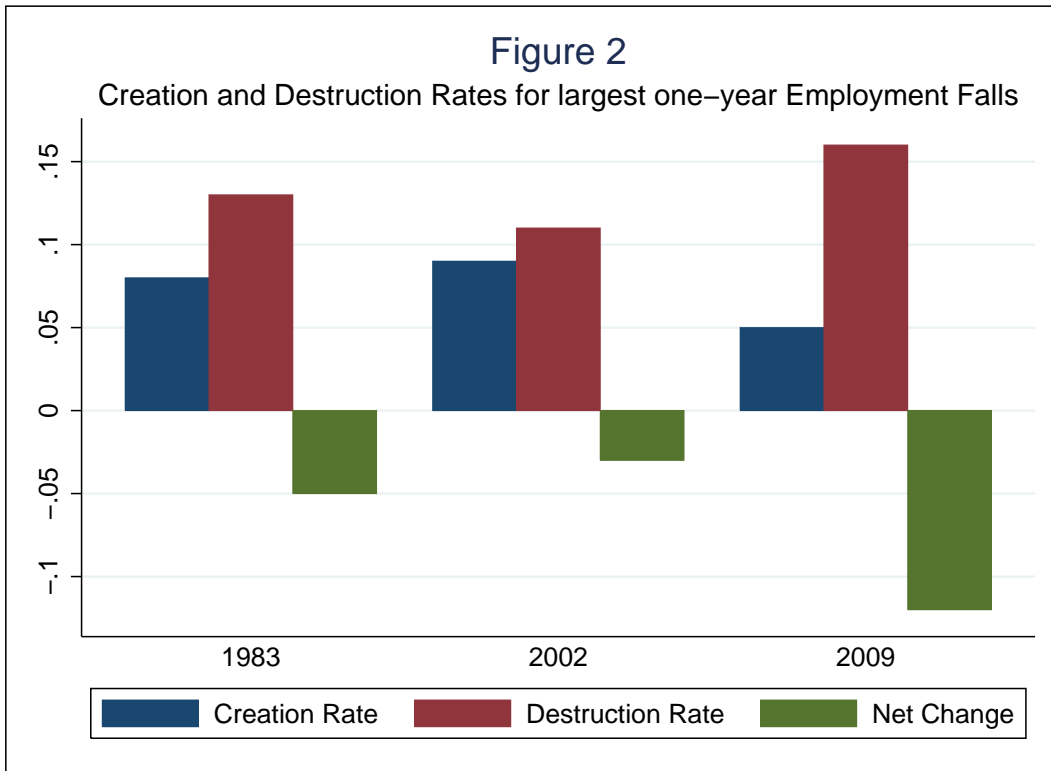
The decomposition of employment growth into the two components of job creation and job destruction rates can provide a useful insight into the amount of turbulence underlying the net changes. Over the period from 1972 to 2006, Irish firms had an average job creation rate of 10 percent and an average job destruction rate of 8 percent, broadly in line with rates found in the US and UK and slightly higher than those of other European Union members.

This note uses more recent data, now available up to 2010, and illustrates how the current recession compares with earlier episodes of negative employment growth. The extent of the fall in the job creation rate and of the increase in job destruction in the last two years were unprecedented on a year-to-year basis, although the cumulative percentage decline in employment was higher in the 1980s.

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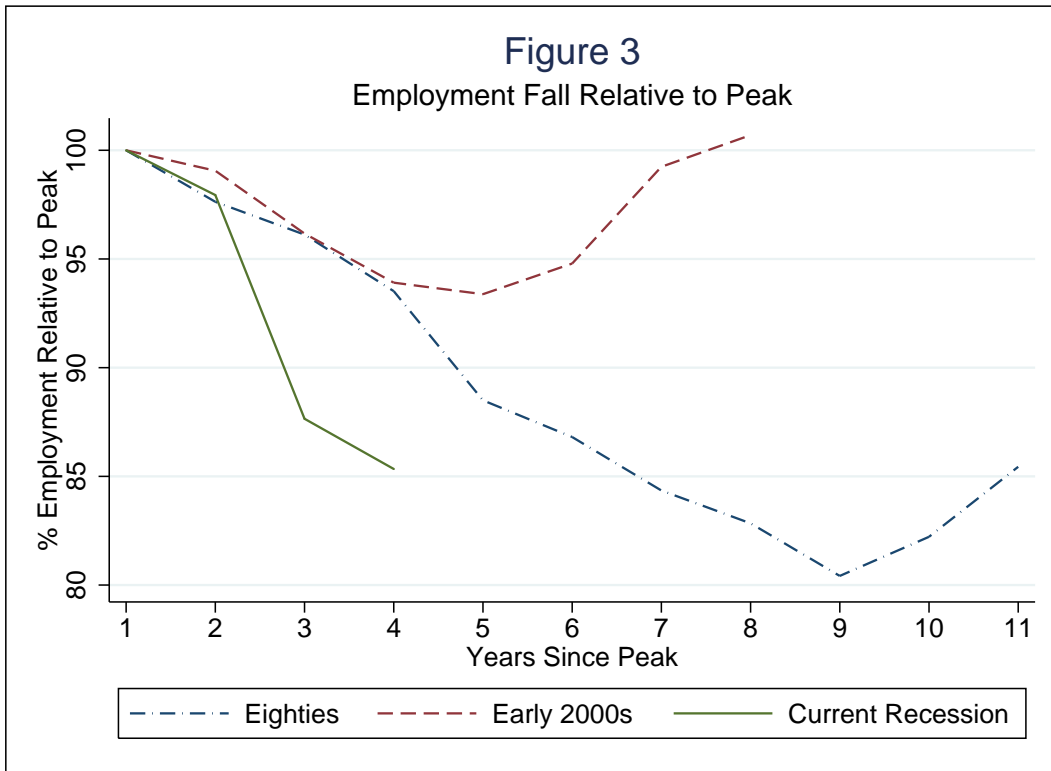




Table 1: Job Turnover by Sector

	2000-2004			2005-2007			2008-2010		
	CR	DR	Net	CR	DR	Net	CR	DR	Net
Agriculture	0.09	0.15	-0.06	0.12	0.12	0.00	0.12	0.27	-0.15
Alcohol	0.06	0.09	-0.04	0.09	0.07	0.02	0.04	0.09	-0.04
Business	0.19	0.08	0.11	0.21	0.07	0.14	0.10	0.12	-0.01
Chemicals	0.08	0.06	0.02	0.06	0.05	0.00	0.04	0.07	-0.03
Clothes	0.05	0.26	-0.20	0.05	0.23	-0.18	0.05	0.15	-0.10
Computer consultancy	0.16	0.12	0.04	0.13	0.10	0.03	0.10	0.13	-0.03
Computer facilities	0.13	0.07	0.06	0.12	0.11	0.01	0.05	0.10	-0.04
Computers other	0.16	0.13	0.03	0.29	0.10	0.20	0.19	0.09	0.09
Computer program	0.13	0.12	0.00	0.10	0.09	0.01	0.09	0.10	-0.01
Construction	0.22	0.03	0.18	0.14	0.03	0.11	0.07	0.17	-0.10
Education	0.21	0.11	0.10	0.19	0.08	0.11	0.11	0.09	0.03
Electrical equipment	0.08	0.14	-0.06	0.08	0.09	-0.01	0.05	0.18	-0.13
Electronics	0.09	0.14	-0.05	0.07	0.06	0.01	0.05	0.10	-0.05
Financial	0.20	0.07	0.13	0.18	0.03	0.15	0.08	0.08	0.00
Food	0.08	0.07	0.01	0.09	0.09	0.00	0.05	0.09	-0.04
Machinery	0.08	0.11	-0.03	0.08	0.09	-0.02	0.05	0.13	-0.08
Medical supplies	0.11	0.04	0.07	0.09	0.04	0.05	0.05	0.04	0.01
Metal	0.08	0.10	-0.02	0.09	0.08	0.01	0.05	0.20	-0.15
Minerals	0.07	0.06	0.01	0.08	0.10	-0.02	0.04	0.26	-0.22
Mining	0.11	0.06	0.06	0.08	0.04	0.04	0.06	0.16	-0.10
Miscellaneous manuf.	0.07	0.10	-0.02	0.09	0.09	0.00	0.04	0.16	-0.12
Paper & publishing	0.06	0.12	-0.06	0.07	0.10	-0.03	0.06	0.14	-0.07
Plastic	0.07	0.11	-0.04	0.08	0.08	0.01	0.04	0.13	-0.09
Services-other	0.13	0.09	0.04	0.13	0.10	0.04	0.12	0.13	-0.02
Telecoms	0.08	0.08	0.00	0.11	0.07	0.04	0.08	0.10	-0.02
Textiles	0.06	0.18	-0.12	0.08	0.08	0.00	0.04	0.19	-0.14
Transport	0.06	0.09	-0.03	0.04	0.05	0.00	0.05	0.21	-0.16
Wood	0.07	0.06	0.00	0.08	0.07	0.01	0.02	0.20	-0.18

Table 2: Job Turnover by Ownership

	Foreign Owned			Irish Owned		
	CR	DR	Net	CR	DR	Net
1972-80	0.22	0.06	0.16	0.20	0.06	0.14
1981-87	0.08	0.09	-0.01	0.08	0.12	-0.04
1988-93	0.09	0.06	0.03	0.10	0.10	0.00
1994-99	0.13	0.06	0.07	0.11	0.07	0.04
2000-04	0.09	0.09	0.00	0.11	0.10	0.01
2005-07	0.08	0.07	0.01	0.12	0.09	0.04
2008	0.07	0.07	-0.01	0.09	0.12	-0.03
2009	0.04	0.13	-0.09	0.06	0.18	-0.12
2010	0.07	0.08	-0.01	0.06	0.10	-0.04

Table 3: Job Turnover by Firm Size

	Small (1-20 Emp.)			Medium (21-50 Emp.)			Large (51-250 Emp.)			V. large (> 250 Emp.)		
	JC	JD	Net	JC	JD	Net	JC	JD	Net	JC	JD	Net
1972-80	0.26	0.09	0.18	0.24	0.05	0.18	0.21	0.05	0.16	0.19	0.03	0.16
1981-87	0.16	0.12	0.04	0.11	0.07	0.04	0.08	0.06	0.02	0.04	0.05	-0.01
1988-93	0.15	0.10	0.05	0.12	0.06	0.06	0.09	0.05	0.04	0.07	0.03	0.03
1994-99	0.16	0.10	0.06	0.14	0.05	0.08	0.11	0.04	0.07	0.11	0.03	0.08
2000-04	0.13	0.15	-0.02	0.11	0.08	0.03	0.10	0.06	0.04	0.09	0.04	0.04
2005-07	0.13	0.13	-0.01	0.13	0.06	0.07	0.10	0.05	0.05	0.08	0.03	0.05
2008	0.13	0.17	-0.04	0.12	0.11	0.01	0.06	0.08	-0.01	0.06	0.04	0.02
2009	0.10	0.24	-0.15	0.06	0.16	-0.10	0.04	0.13	-0.09	0.04	0.09	-0.05
2010	0.09	0.15	-0.06	0.08	0.09	-0.01	0.06	0.05	0.01	0.06	0.04	0.02