



On the Slide? Salary Scales for New Graduates 2004-2012

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Abstract

Using data from a survey of degree graduates, this *Letter* presents some new empirical evidence on trends in starting salaries for new graduate labour market entrants pre and post the downturn in the Irish economy. While aggregate wage data suggest that the extent of downward wage adjustment in the Irish economy since 2008 has been small, this analysis provides evidence of a significant decline in starting salaries for new graduates between 2008 and 2012. This indicates that aggregate data likely mask a considerable degree of heterogeneity in wage movements among different individuals and cohorts in the workforce. We note that the adjustment in graduate salaries, with the consequent impact on average starting salaries, provides one possible explanation for the weakness in economy-wide earnings in 2013 despite strong employment growth and signs of economic recovery.

1 Introduction

A significant share of the burden of adjustment to the recent economic downturn in Ireland was carried by the labour market. From peak levels in early 2007, employment declined by 15 per cent, the unemployment rate more than trebled and cumulative net outward migration climbed to over 122,000 in the four years to April 2013. Another important dimension of the labour market adjustment is the degree of wage flexibility in response to the weakening of the labour market. This subject is important for a number of reasons. Given the scale of the rise in unemployment and general deterioration in the labour market, some downward pressure on wages could be expected. Second, although the

evidence is not conclusive, theory suggests that a failure of nominal wages to adjust downwards could result in persistently high unemployment. In this *Letter* we focus on a previously unexplored aspect of the labour market adjustment process, in particular, we examine how the starting salaries for new graduates have changed in response to the crisis.

Existing evidence on pay trends during the crisis presents a mixed picture. A range of research has illustrated that the degree of overall wage adjustment in the economy over the 2008 to 2012 period was modest when compared to the scale of the deterioration in employment, unemployment and participation. Walsh (2012) examined changes in the wage bill over the period 2009 to 2012 broken down by changes in employment, hours

¹The views expressed in this paper are those of the authors and do not necessarily reflect those of the Central Bank of Ireland, the ESCB or the CSO. We would like to thank Vivienne Patterson, Higher Education Authority (HEA), for facilitating access to the data and to John Flynn, Martina Lawless, Reamonn Lydon, Gerard O'Reilly and Terry Quinn for useful comments. All remaining errors are our own.

worked and the hourly rate of pay. Using data from the CSO's Earnings, Hours and Employment Costs (EHECS) survey, the paper finds that the reductions in the wage bill during the recession were primarily achieved through reductions in employment with small contributions from changes in hours worked and only small reductions at an aggregate level in hourly rates of pay. Bergin, Kelly and McGuinness (2012), using data from the National Employment Survey (NES), report that both average earnings and average labour costs increased marginally for the period 2006 to 2009 and were flat from 2009 to 2011. The authors argue that the Irish experience supports the finding from other research which demonstrates that firms will choose to reduce staff numbers, hours worked and bonus payments in preference to reducing wages.

Doris, O'Neill and Sweetman (2013) use administrative data and find evidence of substantial wage flexibility in Ireland before and during the recent crisis. The paper finds a significant degree of downward wage flexibility in the pre crisis period. From 2008, the results indicate that the proportion of workers reporting a pay cut doubled suggesting a significant response from the private sector to the crisis. Over the same period, a large number of workers received pay increases highlighting the flexibility of the Irish labour market.

The studies discussed above are based on data covering the entire population of workers. In this *Letter*, we present evidence on wage changes for new graduate entrants into employment. There are a number of reasons for carrying out this analysis. First, Lydon (1999), using Higher Education Authority (HEA) data, found that the graduate labour market adjusted more flexibly during the period from 1982 to 1997 than the rest of the labour market, lowering the equilibrium wage for new entrants. Although there is some anecdotal evidence of a similar trend in starting salaries for new graduates during the recession, little empirical evidence has been produced on changes in graduate salaries pre and post crisis. Second, labour market theory suggests a number of reasons why wage conditions for existing employees and new entrants may differ. According to insider-outsider theory (Lindbeck and Snower, 1988), incumbents will bargain to maintain wage levels at the expense of new hires because they have no interest in maintaining or increasing employment. In the current labour market environment, new entrants may have low bargaining power given the supply-demand mismatch.

A further explanation for possible downward wage rigidity of existing employees is proposed in the efficiency wage literature. These models suggest that cutting pay could negatively impact employee morale, lead to lower effort, productivity and output. It could also prompt existing staff to leave the firm. For new graduates in a depressed labour market, these considerations are less relevant as the desire to find a job in the first instance may outweigh preferences over pay and conditions.

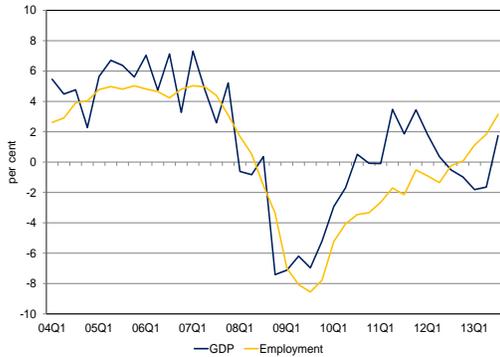
This *Letter* provides evidence on the starting salaries for new primary degree graduates from 2004 to 2012 using data from the HEA. Salary trends for new graduates in employment both pre and post crisis are presented. We go beyond changes in aggregate salaries for all graduates to examine wage changes over time by detailed faculty level. The remainder of this letter is structured as follows: Section 2 provides some background on overall labour market and pay developments in the economy during the downturn. Section 3 outlines the data used. The main results are described in Section 4 with a discussion of the implications in Section 5. Finally, Section 6 concludes.

2 Background

Figure 1 shows the annual change in GDP and employment from 2004 to the present. Having averaged almost 4 per cent a year from 1999 to 2007, employment declined dramatically from 2008 in response to the fall in output in the economy. From peak to trough, the size of the economy as measured by real GDP shrunk by almost 11 per cent and employment declined by around 326,000.

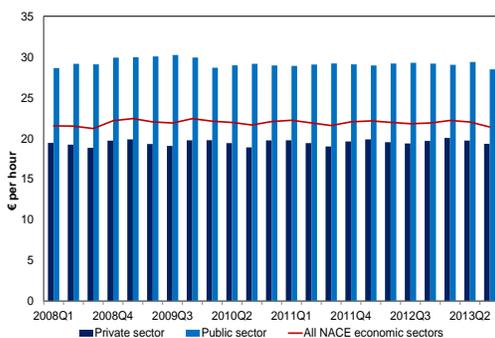
Despite the scale and speed of this deterioration in the economy and in the labour market, aggregate data do not provide evidence of widespread reductions in nominal pay during the crisis. Data from the EHECS survey show that overall hourly earnings in the private sector have been broadly flat since 2008 (Figure 2). Public sector hourly earnings fell during 2010 due to budgetary measures and again in Q3 2013 reflecting the impact of the Haddington Road Agreement. In the four years to Q3 2013 economy-wide average hourly earnings declined by 2 per cent.

Figure 1: GDP and employment, year-on-year % change



The National Income and Expenditure Accounts provide data on compensation of employees at an aggregate level. These data also point to a small reduction in overall earnings during the recession. In the four years from 2009 to 2012, the annual change in nominal compensation per employee averaged -1 per cent. These trends from the aggregate data are in line with the findings from some of the research noted in the previous section which reported evidence of only small reductions in wages during the crisis. In the following sections, we examine whether wage changes for new graduates differ from the trends in overall earnings evident in the aggregate data.

Figure 2: Average hourly earnings



Source: CSO, own calculations.

3 Data

This *Letter* uses data from the graduate First Destination Reports (2004 to 2012) published by the HEA entitled *What do Graduates do?* These reports are derived from a survey sent to all Institutes of Technology and University level 8 to 10 graduates 9 months after graduating.² The data provide information on the proportion of graduates in employment and the salaries paid to new graduates as self reported by those who complete the survey. These data are in the form of broad salary bands across faculties.³

Salary figures for the class of 2009 and a faculty breakdown for the class of 2010 were not available. However, unpublished salary data divided by faculty were obtained directly from the HEA for the classes of 2011 and 2012. Consequently, by examining the above salary data pre and post the downturn, we are able to analyse the affect of the recession on entry level salaries.

There are a number of caveats in relation to the data. First, approximately 3,700 Level 8 graduates provided salary data from the classes of 2004 to 2012 which represent roughly 20 per cent of the average total graduates per class. Consequently, the HEA data provide a sample indicator of graduate salaries across the faculties. The participation rate for graduates of the faculties of Veterinary Medicine, Law, Architecture and Agriculture were quite low and are therefore treated with some caution as representing the entire body of graduates for the four faculties.

The unpublished data from 2011 and 2012 do not include figures for Institute of Technology graduates, as the survey was discontinued for this cohort from 2011. However, the loss of this data pool does not have a significant bearing on the results as participation rates for IT graduates was previously quite low. Third, although the salary data are broken down across the 10 faculties outlined above, it is not possible from the dataset to determine whether graduates have found employment in an area related to their respective faculty.

The data are used to calculate the average weighted salary for the 10 faculties across the period examined.⁴ There are 2 assumptions made for

²In this *Letter* we focus on Level 8 graduates, those who receive an undergraduate honours degree after completing their studies.

³The 10 faculties are Arts, Humanities & Social Science, Commerce & Business Studies, Medicine, Dentistry & Pharmaceutical Studies, Engineering, Science, Law, Agriculture, Veterinary, Architecture and Food & Science Technology.

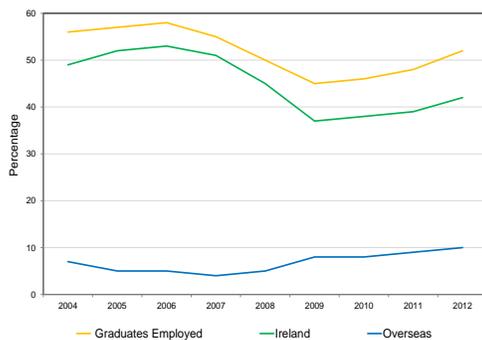
⁴To determine the weighted average salary for each faculty in a particular year, the midpoint or assumed figure for each

this exercise; graduates earning <€12,999 are considered to be at the top of the bracket while graduates on salaries above >€33,000 are regarded as being at the bottom of the salary bracket. These assumptions are necessary due to the manner in which the HEA presents the salary data from 2004 to 2012. Certain salary bands were added or removed over the years and those used in the *Letter* are the bands common across the classes reviewed.

4 Results

To provide an insight into employment conditions for graduates, Figure 3 shows the proportion of level 8 graduates in employment from 2004 to 2012. In 2007, 55 per cent of degree graduates who responded to the HEA survey reported that they were in work, this declined to 45 per cent for the class of 2009. A recovery in the graduate job market is evident from 2009 with 52 per cent of the 2012 class reporting that they are in employment. The chart also shows that the share of graduates gaining employment overseas doubled over the last five years from 5 per cent of the 2008 graduates to 10 per cent of the 2012 class. While the data show that a larger proportion of graduates have moved abroad to take up employment opportunities in recent years, as shown later, the number of third level graduates in the state has continued to rise over recent years.

Figure 3: Graduate employment, 2004-2012



Source: HEA data, own calculations.

Turning to the data on graduate salaries, Fig-

ure 4 shows a steady increase in salary levels from a weighted average salary of €24,078 for the class of 2004 to €26,919 in 2007, a rise of 11.8 per cent. Economic growth of over five per cent along with full employment during this period resulted in a tightening of labour market conditions and upward pressure on wages. From their peak in 2007, weighted average nominal salaries across all faculties decreased steadily to €23,777 in 2012, a fall of 11.7 per cent. The decline in 2012 brought overall salary levels back to below 2004 levels, highlighting the extent of the adjustment in graduate pay.

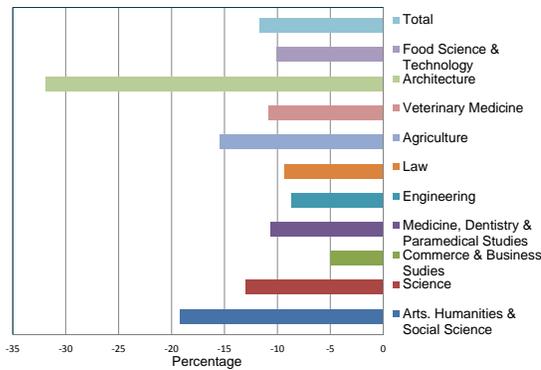
Figure 4: Graduate Salaries (W. Avg.) 2004-2012



Source: HEA data, own calculations.

An analysis of the detailed data reveals that some graduate cohorts have fared worse than others since the economic downturn. The majority of graduate salaries, when considered on a faculty basis, peaked in 2007 with the exception of Medicine, Dentistry & Paramedical Studies and Law which peaked in 2006 and 2008, respectively. Taking the salary levels at 2007, we were able to compare the decline in salaries across the faculties (Figure 5) to discern which graduate cohorts have been most severely affected by the downturn.

Figure 5: Percentage change in salary, 2012 versus 2007



Source: HEA data, own calculations.

Arts, Humanities & Social Science graduates suffered above average salary falls from 2007 to 2012 at 19.1 per cent. The average weighted salary for these graduates in 2007 was €24,445 while for the 2012 class it had fallen to €19,748. The weighted average salary for Agriculture and Science graduates were also above the aggregate average salary reduction at 15.4 per cent and 12.9 per cent, respectively.

Conversely, Commerce & Business Studies graduates' salaries experienced the smallest decline during the downturn according to the data. Graduates in 2007 received an average weighted salary of €23,860, a drop of 5 per cent compared to 2007.

Architecture graduates, bearing in mind the caveat regarding the low participation rate, were the most affected cohort with a fall of 31 per cent in the weighted average salary between 2007 and 2012. This likely reflects the collapse in the construction sector and conforms to anecdotal evidence concerning new entrant architects in the field. The weighted average salary across the remaining faculties dropped by between 7.7 and 11 per cent.

5 Implications

Figure 6 shows the the year-on-year change in employment by level of education using data from the Quarterly National Household Survey (QNHS).

The chart sheds light on some interesting aspects of recent employment changes. First, it highlights the degree to which the decline in employment during the recession was concentrated among those with the lowest levels of educational attainment. In contrast, graduate employment has continued to grow during the crisis. Between Q3 2007 and Q3 2013, graduate employment increased by just over 2 per cent annually while overall employment declined by almost 1 per cent over the same period. This likely reflects the relatively strong performance of the high-skilled exporting sectors of the economy over this period in contrast to the weakness in sectors such as construction which have a higher proportion of low skilled employees. Figure 6 also shows that the recent gains in employment have been concentrated almost entirely among those with third level qualifications. Of the 58,000 increase in employment in the year to Q3 2013, 50,000 was accounted for by third level graduates.

The analysis presented in this *Letter* suggests a significant decline in average starting salaries for new graduates since 2007. With the majority of new jobs in the economy being filled by those with third level qualifications, this suggests that the fall in graduate salaries could impact overall economy-wide pay trends in the coming years.

The reduction in graduate salaries since 2008 has not been uniform across faculties. Arts and Architecture graduates have experienced the largest falls while Commerce, Veterinary and Engineering graduates have seen the smallest falls. The decline in salaries could arise from a number of sources. It could reflect a degree of underemployment among graduates who have had to move into lower skilled sectors or occupations in search of work. Alternatively individuals with third level qualifications may be doing jobs comparable to similar graduates in 2007, but for a lower wage.

Although comparable cross-country evidence on graduate salaries is limited, the available data suggests that the reduction in graduate pay in Ireland appears to be larger than that experienced elsewhere. This is not surprising given the scale of the deterioration in the Irish economy and labour market during the crisis. Data from the UK Higher Education Statistics Agency⁵ indicates that although the increase in salaries between 2004 and 2007 was less than in Ireland, average salaries

⁵See http://www.hesa.ac.uk/index.php?option=com_contenttask=view&id=2944&Itemid=278

⁶See <http://www.cge.asso.fr/actualites/la-cge-publie-son-enquete-2013-sur-l-insertion-des-jeunes-diplomes>

paid to graduates increased in 2009 and have been broadly flat since then. Data for France⁶ also point to a reduction in salaries since 2008 but not on the same scale as that observed in Ireland. Given the downward adjustment in graduate salaries in Ireland over the same period, this points to an improvement in the relative competitiveness position in the context of this segment of the labour market.

Figure 6: Employment by level of education, year-on-year change, thousands



Source: QNHS data, own calculations.

6 Conclusion

In this *Letter* we present some new evidence on the extent of wage adjustment for new graduate

References

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entrants into the Irish labour market. Overall our results point to a significant degree of flexibility in graduate salaries. The period of rapid economic growth and low unemployment from 2004 to 2007 saw a sustained rise in overall graduate salaries across all faculties. By 2007, around two thirds of graduates earned above €24,999 compared to 45 per cent in 2004. The data provide evidence of significant downward flexibility in graduate salaries since the economy went into decline in 2008. The analysis shows that the reduction in salaries from 2008 to 2012 has eroded the gains made over the 2004 to 2007 period and brought average overall salary levels back to below 2004 levels.

The analysis suggests that aggregate data likely mask significant heterogeneity in wage developments across different sectors and cohorts of the population. While aggregate data and some previous research suggests only marginal reductions in overall earnings during the recession, the results presented here provide evidence of significant downward adjustment in nominal pay for new graduate entrants into the labour market. With the analysis showing that recent employment gains have been concentrated among third level graduates, the decline in graduate salaries is likely exerting some downward pressure on aggregate wages in the economy. Cast in this light, this *Letter* provides one explanation for the muted growth in economy-wide earnings in 2013 despite the return to strong employment growth.