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Does increased job switching signal higher wage growth?

David Staunton & Reamonn Lydon

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David Staunton¹, Reamonn Lydon²

In many labour markets, job switching – when a worker leaves a job with one employer for a new job with another employer – is a strong predictor of future wage growth. If increased job switching could be used as a leading indicator of wage growth in Ireland, it could signal over-heating pressures in the economy. This Letter uses survey data to show that job switching rates tend to rise rapidly when the labour market is tight, and higher job switching tends to be followed by higher wage growth. In recent quarters, job switching rates are close to, and by some measures above, levels last seen in the early-2000s, which suggests that wage growth could strengthen in the near-term.

Introduction

In a tightening labour market, a key question for workers, employers and policy-makers is how will wages respond. Previous Central Bank analysis has used vacancies and unemployment to explain wage developments. For example, the non-linear Phillips curve in [Linehan et al. \(2017\)](#) suggests that wage growth picks up when the unemployment rate is very low.³

This *Letter* introduces the **job switching rate** as a leading indicator of wage growth. When a worker leaves their current position with one employer to start a new job with a different employer – with either no spell, or a very short spell, of non-working in between – we define this as a job switch. The job switching *rate* is defined as the total number of switchers divided by total employment.

When job switching is high, wage rises tend to follow for two reasons. First, because one of the main motivations for changing jobs is higher pay (moving up the job ladder). [Moscarini and Postel-Vinay \(2016\)](#), [Karahan et al. \(2016\)](#) and [Haltiwanger et al. \(2018\)](#) demonstrate the connection between wage growth and job switching. Its performance as a leading indicator is described in [Faberman and Justiniano \(2015\)](#), which finds that job switching in the US leads changes in wages by six to twelve months. This effect is particularly pronounced at low levels of unemployment. [Lydon and Lozej \(2018\)](#), for example, find that switching job in a tight labour market tends to increase earnings by in excess of 10 per cent.

The second reason wage rises tend to follow increased switching is that employers might

¹Irish Economic Analysis Division, Central Bank of Ireland

²Economics & Statistics Directorate, Central Bank of Ireland.

³[Byrne and Zekaite \(2018\)](#) also find evidence of a non-linear wage Phillips curve for the Euro Area.

need to raise the wages of non-switchers to retain workers. Whilst higher switching reflects the increased demand for the skills of switchers, it also has the effect of increasing the bargaining power of non-switchers with the same or similar skills. [Hahn et al. \(2018\)](#) shows that this can actually be larger than the direct effect. In periods of high switching, the wage growth of job stayers contributes more to aggregate wage growth. This is not because their wage growth is higher than that of switchers, but because the majority of workers are stayers.

Constructing the job-switching series for Ireland

Unlike the JOLTS series (Job Opening and Labour Tightness Survey) published by the US Department of Labour, there is no official Irish series on job switching. We construct a quarterly series of job switchers, defined as new hires from previous employment using the panel component of the *Quarterly National Household Survey* (QNHS, Q1 1998 - Q2 2017) and the *Labour Force Survey* (LFS, Q3 2017 - Q2 2018).

Figure 1 shows the job switching rate over time. However, before discussing the trends, there are two important caveats regarding the series. First, there is no way of establishing whether someone *voluntarily* quits to move to a new job, or whether their employment ended involuntarily and they quickly found a new job. Given that a person's ability to quickly be rehired after being laid off is, like the level of quits, indicative of a tight labour market, we do not expect this to have a detrimental effect on the analysis.⁴

The second caveat relates to the break in the series during the switch from the QNHS to the LFS in Q3 2017. In the QNHS, the attrition rate – how many respondents do not answer the next survey wave – was between 10 and 15 per cent of respondents; this increases to around 25 to 30 per cent in the LFS. This is an important change because we use the panel element of the survey to identify job switches over the quarter. Changes in survey methodology, such as the move to telephone interviewing for follow-up waves (see the [CSO website](#) for more information on changes in the survey methodology), could explain the jump. To take account of attrition, we re-weight the responses using the inverse of the selection probability (attrition rate) between waves. Although in practice, this re-weighting for attrition makes little difference to the job switching trend shown in Figures 1 and 2.

Job Switching and wages

The general co-movement of the job switching rate and wage growth – the solid and dashed lines respectively in Figure 1 – is clear. Notwithstanding some noise in the series, there are a couple of patterns of note.

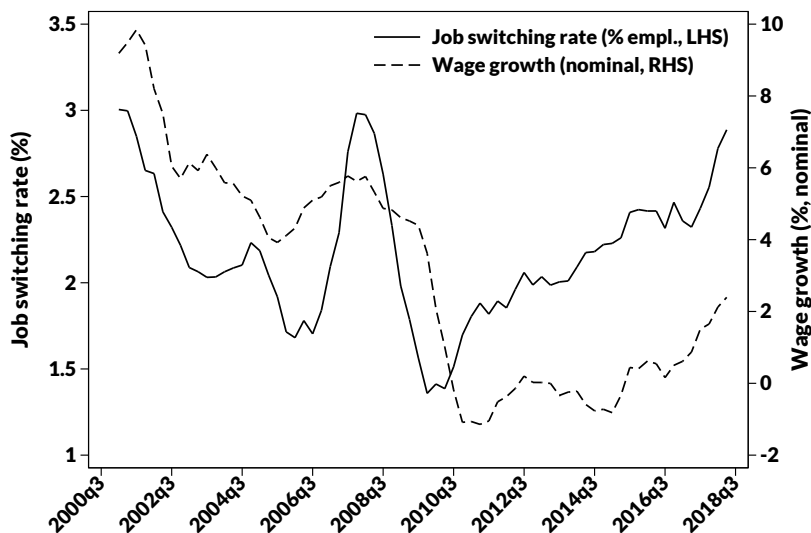
First, in the most recent quarters, the switching rate is approaching highs only seen on a few occasions in the past – notably around the early 2000s and 2007, which was the tail-

⁴The same uncertainty around *why* a job switch has occurred is present in the data used in [Haltiwanger et al. \(2018\)](#) and [Haltiwanger et al. \(2015\)](#), in which the authors demonstrate the robustness of their results to alternative definitions of job switching.

end of the last phase of strong economic growth. These were also periods of relatively strong growth in nominal wages (the right-hand side axis in the chart). If the same co-movement of switching and average wages still holds, then this suggests wage growth could strengthen in the future.

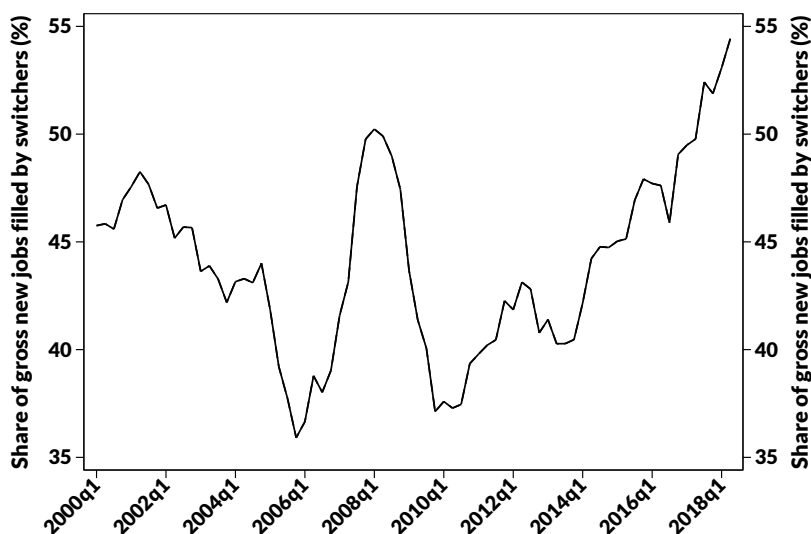
Second, in the time-span available, the job switching rate tends not to stay elevated for prolonged periods. One explanation for this could be that higher wages attract new workers from outside of the labour force – i.e. through increased immigration or higher participation – individuals who, by definition, do not appear in the job switching rate. Another explanation could be that some employers, perhaps only gradually, increase the wages of *incumbents* to encourage them to remain with the firm. However, it is important to point out that the time period we examine is short, with only a small number of periods when job switching is elevated. Firm-level data on wage setting and employment growth, as well as future waves of the LFS, could shed further light on these patterns.

Figure 1 | Job switching and wage growth



Source: CSO Labour Force Survey, four-quarter moving averages. Wages from [Lihan et al., 2017](#), using a combination of sector surveys and EHECS (from 2008).

Figure 2 | Share of gross new jobs filled by switchers (%)



Source: CSO Labour Force Survey, four-quarter moving average.

We can also calculate the share of gross new jobs that are filled by job switchers, a series also published by some statistical agencies. This is the series shown in Figure 2. Not surprisingly, the broad patterns in the two series are very similar. However, a noteworthy feature of this second series is that in 2018 the share of people starting new jobs that are job switchers is at an *all time high* of almost 55 per cent.

Is job switching a leading indicator of wage growth?

Table 1 shows the correlation between wage growth and job switching at different lags. While the contemporaneous correlation is moderate, it strengthens over time, peaking at four quarters ahead. This is intuitive, as salary increases are usually negotiated sporadically (annually) and increased worker confidence will take time to appear in wage demands. More formally, we find that the job switching rate ‘granger causes’ wage growth, i.e. it helps to forecast wage growth beyond the information contained in past values of wage growth. The test finds no predictive power in the other direction - past wage growth does not help to forecast the rate of job switching.

Table 1 | Correlation between job switching and wage growth (Q1 2000 – Q2 2018)

<i>lead</i>	<i>t</i>	<i>t + 1</i>	<i>t + 2</i>	<i>t + 3</i>	<i>t + 4</i>	<i>t + 8</i>
Wage growth	0.49	0.56	0.62	0.67	0.70	0.65

Table 2 | Wage growth regressions

	(1) Nominal wage growth	(2) Nominal wage growth	
Inflation (CPI)	0.830*** (0.113)	0.660*** (0.098)	Notes: Standard errors in parentheses. *** p<0.01, ** p<0.05. Domestic CPI inflation instrumented with its own lag and oil prices. Data from Q1 2000 to Q2 2018. Regression includes an intercept.
Unemployment rate	-2.979*** (1.153)	-2.478*** (0.955)	
Unemployment rate squared	0.263** (0.123)	0.189 (0.103)	
Unemployment rate cubed	-0.008** (0.004)	-0.005 (0.003)	
Job switching rate ($t - 4$)		1.400*** (0.258)	
Observations	74	74	
R-squared	0.90	0.94	

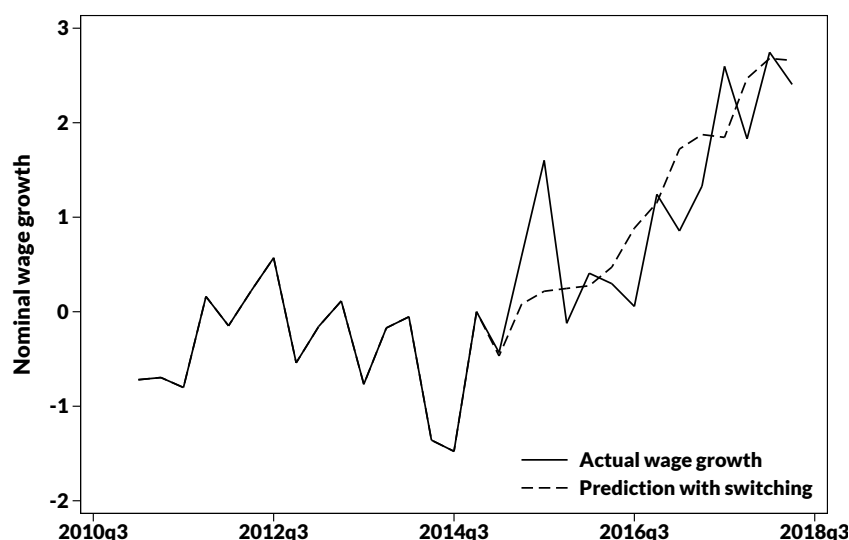
In Table 2 we replicate the wage Phillips curve regression from [Linehan et al., 2017](#), relating nominal wage growth to inflation and unemployment. In the earlier work, we found a cubic of unemployment fitted the data better, particularly at very low or high levels of unemployment.⁵ We include job switching at a four quarter lag, as per Table 1. The main impact from

⁵For simplicity, we omit the productivity (slow-moving), migration and effective exchange rate (volatile and difficult to predict) terms from this regression. Whilst statistically significant, their economic significant is quite small relative to the other factors.

including the job switching rate is to reduce the impact of unemployment. Furthermore, the statistical significance of the higher-order (cubed and squared) unemployment terms is reduced, suggesting that the switching rate captures some of the non-linear effects. This result is robust to different specifications of the non-linear unemployment effect. For example, the results from using a more flexible spline function, as in [Byrne and Zekaite \(2018\)](#), are very similar.

Figure 3 plots the pseudo out of sample forecast from regression (2) – estimated on data up to end-2014 in this case – alongside outturn wage growth. The regression fitted value captures the broad trend in wages, in particular the up-tick in wage growth that occurs from 2017 onwards. Given that switching enters with a lag, and that it has ticked-up in 2018, these results suggest some strengthening of wage growth in 2019. This is in-line with the forecasts from the Q4 2018 Quarterly Bulletin, where our centre-line wage growth projection is expected to increase from 2.8 per cent in 2018 to 3.3 per cent in 2019.

Figure 3 | Out of sample forecast



Source: The out-of-sample forecast is the fitted value from regression specification (2) in Table 2, estimated on data up to Q4 2014.

Digging deeper: job switching by education and sector

In addition to aggregate switching trends, cross-sectional patterns can provide some insights on job switching trends and what they mean. This is particularly important in our case, as with relatively few periods of higher rates of job switching, questions can arise as to the robustness of the analysis.⁶ By analysing patterns of job switching for certain groups – as we do here for education and sectors – we aim to address some of these concerns.

Job switching by education

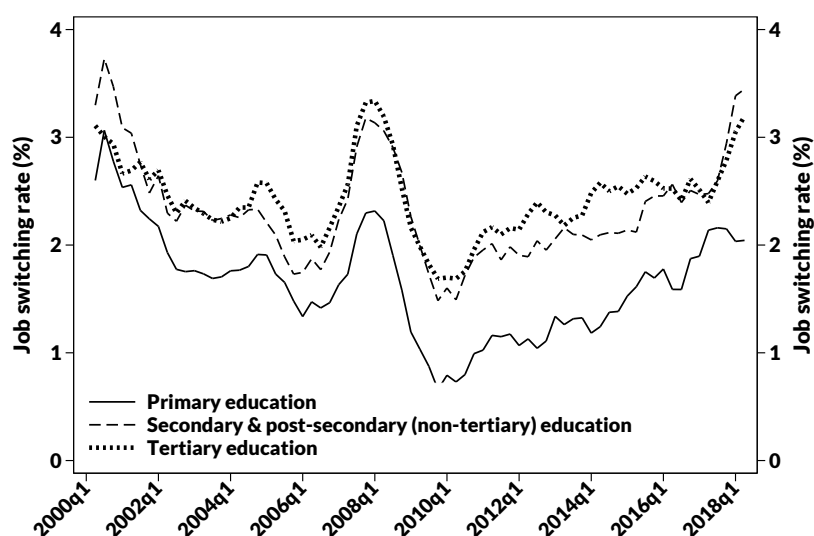
The evidence on job switching rates both here and in the literature suggests that it is reflective of worker bargaining power. In which case, we would expect workers with stronger bargaining power to have higher switching rates, other factors held constant. If more educated workers have stronger bargaining power – a realistic assumption, given the education

⁶Similar issues arise in the [Karahan et al. \(2016\)](#) study of US data. They also combine cross-section and time-series analysis to test the robustness of their results.

wage premium – then we would expect to see higher switching rates for more educated workers.⁷

This is exactly what we find in Figure 4. Workers with either secondary or tertiary education are much more likely to make a job-to-job switch than workers with lower education levels throughout the sample period.⁸ This is very similar to the findings in [Haltiwanger et al. \(2018\)](#) for the US. It is interesting that the higher job switching rates we observe in 2018 are concentrated in the higher education groups. This suggests that any associated wage gains may accrue to these groups first.

Figure 4 | Job switching rate by level of education



Source: CSO Labour Force Survey.

Job switching by sector

Figure 5 shows the average job switching rate by sector over the period 2000-2018. There are significant differences across the sectors, with *Accommodation and Food Services* sectors showing the highest rates of job switching during this period. In contrast, areas that tend to be dominated by public sector workers, such as *Public Administration* and *Health Services* have lower rates of job switching. This result is not surprising as, in general, exits from public sector jobs tend to be lower than private sector jobs – in fact, the average job tenure of a worker in the public sector in 2018 is almost two years longer (133.4 months) versus a worker in the private sector (110 months).⁹

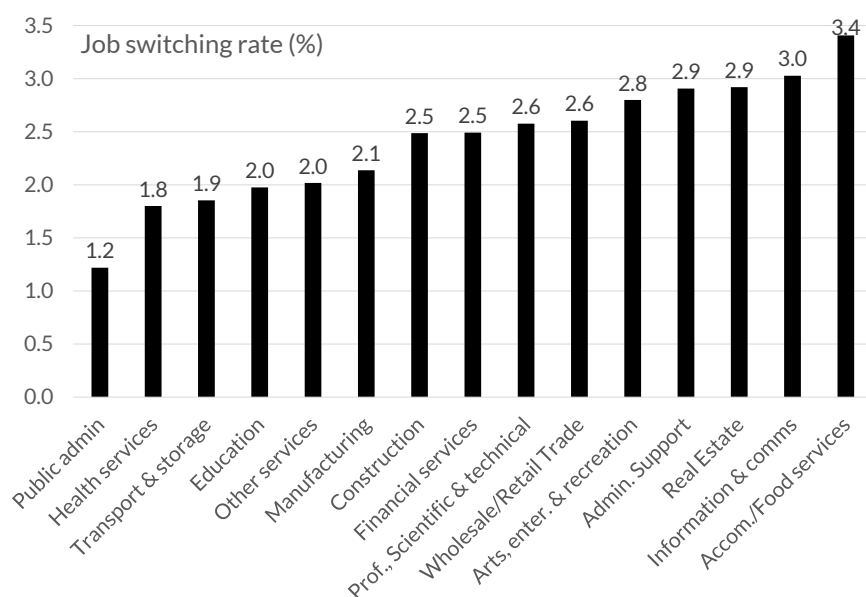
⁷In a recent, unpublished paper using French and Italian administrative data, Berson et al. (2018) show that the wage gains from moving jobs are largest for workers in high-skilled occupations and for workers who move from small to large firms. See Berson, C, de Phillipis M. and E. Viviano, “Job-to-job flows and wage cyclicality in France and Italy”, *Mimeo*, October 2018.

⁸Note: here secondary includes some post-secondary training/education below degree level. There is a high concentration of these workers in skilled craft and technical occupations, as well as in the accommodation and food services sector.

⁹There could be several reasons for these patterns, including, for example, different characteristics or preferences of workers; more limited gains from moving within the public sector due to more rigid pay scales; or a reluctance to move due to the deferred pension benefits of some public sector jobs.

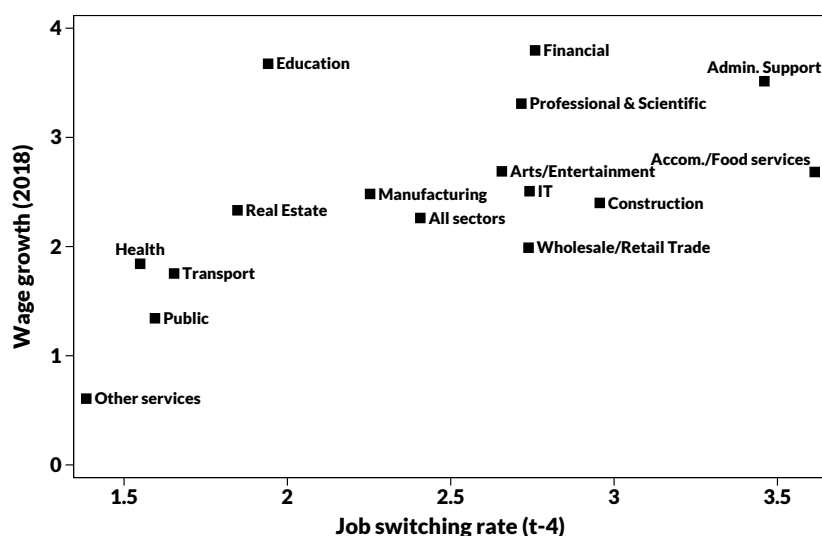
Wage growth and job switching are also positively correlated at the sector level, confirming our earlier results with aggregate data. We illustrate this in Figure 6, which plots wage growth in 2018 against lagged switching rates. The sectors with the highest job switching rates have also tended to have the highest wage growth in recent quarters, i.e. Accommodation and Food Services, Administration and Support Services, Professional and Scientific activities, Financial, IT and Wholesale and Retail Trades.¹⁰

Figure 5 | Average job switching rate, by sector 2000-2018



Source: CSO Labour Force Survey.

Figure 6 | Wage growth and job switching rate by sector in 2017/18



Source: CSO Labour Force Survey and EHECS (2018). Job Switching rate is lagged four quarters, with the exception of the Real Estate sector, where a six-quarter lag proved a better fit for the data. The chart uses a four quarter moving average of wage growth to smooth volatility in quarterly wages.

It is interesting to note that switching in the *Accommodation and Food Services* sector is highest across the entire sample period (Figure 5) as well as in 2018 (Figure 6) – although this

¹⁰We also estimated a fixed effects regression of wage growth on switching for the the period 2009-2018 (EHECS sector wage data is only available from 2008). The coefficient on switching in this regression is 1.44 (highly statistically significant) – almost identical to the results using aggregate data in Table 2.

does not necessarily mean workers in this sector have the highest wage *levels*. The sector covers a wide range of activities, with most workers having a mix of second- (51%) or third-level (26%) qualifications – which might go some way to explaining the higher switching rates, given the correlation between job switching and education. Another explanation could be that some of the skills related to occupations in this sector are less firm-specific – chefs for example. This makes it easier to transfer such skills to a new employer, making these workers more valuable to the hiring firm. This increases their bargaining power and potential wage gains of the worker looking to switch.

Conclusion

We show that job switching is a leading indicator of wage growth. Switching rates are close to, and by some measures above, levels last seen in the early-2000s, suggesting that we can expect wage growth to strengthen in the near term, with some differences across sectors.

In the past, job switching has tended not to stay at elevated levels for extended periods. This makes sense: higher wages boost labour supply through both increased participation and increased migration, neither of which show up in the job-switching rate by definition. As [Byrne and O'Brien \(2017\)](#) point out, to a certain extent, increases in inward migration in the early- to mid-2000s also fed increases in participation – the workers that came to Ireland during this period, especially from the Eastern and Central European accession countries, came *to work*. This contributed in a significant way to the sharp increase in *average* labour force participation during this period – the opposite happened in the recession. Therefore, the extent to which increased inward migration can contribute to aggregate labour supply will be important for job switching patterns in the future.

