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Job Churn in the Public Service

A trend analysis of the workforce dynamics during the years 2006-2018

LETIZIA GAMBI AND CRÍONA BRASSILL

REFORM EVALUATION UNIT
DEPARTMENT OF PUBLIC EXPENDITURE AND REFORM

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Executive Summary

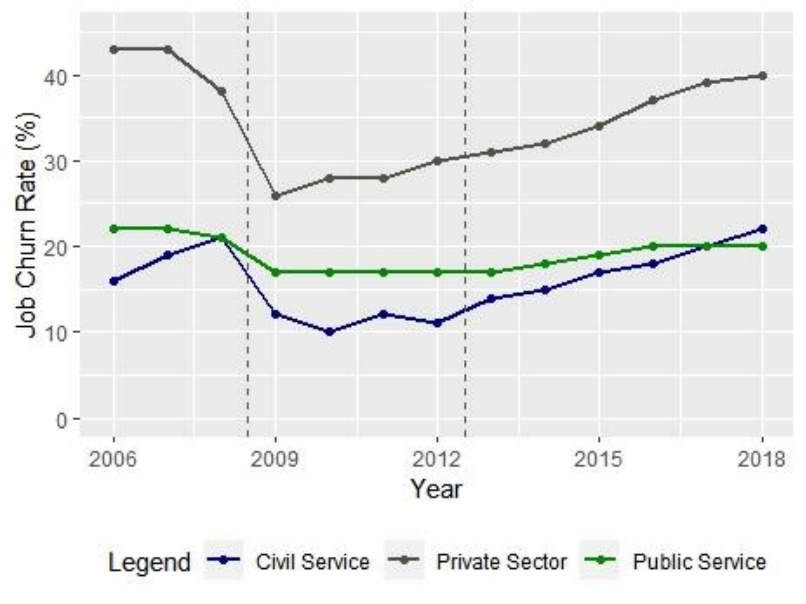
This paper focuses on presenting a comparative perspective of the dynamics of job churn and its components in the public service and in the civil service. The sub-sectoral groups of the 'wider public service' covered here are: education; health; justice; defence; local government; and DHPLG. It is the first time that this new job churn dataset from the Central Statistics Office (CSO) has been analysed. This paper presents job churn trends from 2006-2018 in: (i) Movements of workers within each sector/sub-sector in a given year, or 'job churn'; (ii) Workers staying in their jobs, or 'job stayers' (used as an indicator of retention); (iii) Workers leaving their jobs, or exits' (used as an indicator of attrition); (iv) Which sectors workers take up new jobs.

In this paper the term '*public service' refers to public agencies/organisations excluding the civil service; the term 'civil service' relates only to the civil service; the term 'wider public service' refers to the public service and civil service together*.

Key Findings

Job churn (job movements)

Figure 1: Job churn rates for the Public Service, Civil Service, and Private Sector 2006-2018



- Job movement in both the civil service and the public service is consistently lower than the private sector in all cases throughout 2006-2018.
- Job movement was higher in strong economic times and lower in the economic downturn across all sectors – hence it can be observed that job churn has been pro-cyclical.

- The public service is the least affected sector by the economic cycle (the least 'pro-cyclical'). It has the least drop in job churn rate in strong economic times.
- Public service job movement was greater than the civil service in all years over 2006-2018 with the exception of 2008, 2017 and 2018. Civil service job churn rates reached or exceeded public service rates in the strong economic years of 2008, 2017 and in 2018.
- The education and health groups show higher job movements than the other selected groups. While their job churn rates are still well below those seen in the private sector throughout the entire period, further research at organisational level may provide insights on the drivers.

Job stayers (retention)

- Job stayer rates are greater in both the public service and the civil service than the private sector throughout 2006-2018.
- While private sector workers tended to stay in their jobs during the economic downturn more than in strong economic times, this trend is less evident for the public service.

Job leavers/exits (attrition) and their destinations

- Public service workers tended to remain within the 'wider public service' when leaving their jobs, especially during and post the global financial crisis. This contrasts with the position pre-crises when the destinations of exiting public servants was spread evenly between the 'wider public service' and the 'private sector' (49% in 2007 and 50% in 2008).
- Civil servants tended to remain within the 'wider public service' when leaving their jobs throughout the whole period (2007-2018), and a smaller share of civil servants than public servants exited to the private sector.
- Public service hiring and exit rates are more stable than the civil service and private sector rates – with the greatest percentage of civil servants moving/ leaving their jobs at peak economic times.
- Defence and Justice sub-sectoral level groups presented the smallest share of staff leaving their jobs throughout 2006-2018. It is noted however that the majority of 'exiting staff' from these sectors moved to the private sector throughout 2006-2018.

Key Policy Conclusions

- Staff movements in the wider public service workforce fluctuated less than in the private sector throughout 2006-2018. Therefore the current levels of staff movement are not unusual for this point in the economic cycle. Future research might consider whether these fluctuations in staff movement impact on the volume of activity for local HR units and the agility of HR resourcing to respond.

- Staff movements fluctuate with the economic cycle. Recruitment and retention policies and activities may need to be tailored to reflect the prevailing economic and labour market forces and differing sectoral staff movement fluctuations.
- The policy decision to protect frontline public services during the financial crises 2008-2013, when overall public service staff full time equivalent numbers reduced by 10% over the period, was among the drivers of the finding that the public service is the least affected sector by the economic cycle (the least 'pro-cyclical')
- Broadly, when people join the wider public service they tend to remain within the wider public service (whether as job 'stayers' or 'leavers'). Civil servants are however less likely to move to the private sector than public servants.
- As the first analysis of this dataset, this paper represents an evidence basis of trends and data to further inform discussions in human resource, reform and expenditure fora. These further discussions among those with sectoral level policy knowledge should identify specific drivers and sectoral nuances of the data; e.g. contractual issues, restructuring within the civil and public service etc. This dataset, if published by the Central Statistics Office on an ongoing basis, could be accessed by those seeking independent comparable sectoral indicators on job churn and its components – e.g. indicators on hiring and retention rates as sought under *Our Public Service 2020* Action 12 'Embed strategic human resource management in the public service'.

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The authors acknowledge with thanks the support of the Central Statistics Office – Declan Smith and Brian Cahill – and colleagues in the Department of Public Expenditure and Reform who contributed to the development of the job churn in the public service dataset, especially John Howlin and Fiona O'Callaghan.

The authors remain solely responsible for the views and any errors/omissions contained in this paper.

1. Introduction

This paper provides an overview of how Ireland's civil and public service workforce evolved in the years immediately before, during, and after the global financial crisis[1]. In the paper, the timeline is divided into three phases: (1) 2006-2009, or pre-crisis; (2) 2009-2012, or during crisis; and (3) 2013-2018, or post crisis. The paper generates a detailed insight into the dynamics of job churn and its components in the civil and public service – i.e. it provides information about those staying, leaving or taking new jobs and the sectors in which these jobs are located.

The paper draws on new data made available by the Central Statistics Office (CSO) which linked three elements – the CSO's Business Register (CBR), the Employer end-of-year returns (P35L files) of the Revenue Commissioners and the Central Records System (CRS) of the Department of Employment and Social Protection. The availability of this new data facilitated more comprehensive and in-depth insights into both the job and worker components of job churn, and how these interact with each other.

After an unprecedented period of sustained growth, Ireland experienced a sharp downturn in 2008. This sharp downturn had a significant effect on employment – with the unemployment rate rising from 6.8% in 2008 to 15.5% in 2012[2]. The first small signs of economic recovery were seen by the end of 2012/early 2013 and continued through the years 2014-2018. As the time series of the dataset go back further than the global financial crisis and cover until end of 2018 – showing a full economic cycle with both a period of contraction and expansion of the economy – it has the potential to provide insights towards the post Covid-19 recovery.

The structure of this paper is as follows:

- Section 2 outlines the research design and sets out the characteristics of the datasets used;
- Section 3 provides an overview of all definitions and concepts used in the paper, and a brief national and international review of the literature on job churn;
- Section 4 examines the available data on job churn, including 2006-2018 trends;
- Section 5 examines the job stayers rates throughout 2006-2018;
- Section 6 and 7 focuses on exit trends – where do those leaving jobs get re-employed;
- Section 8 sets out a summary of the key findings and policy conclusions, as well as the data requirements going forward and future research.

[1] While it is not without challenges to interpret economic data to assess past trends in the Irish case – especially due to the openness of its economy, the pre-during-post crisis timeline used here follows the one presented in Fahy et al. (2018), 'The Financial Crisis and the Changing Profile of Mortgage Arrears in Ireland', and in Fitzgerald (2014), 'Ireland's Recovery from Crisis'.
[2] See CSO StatBank series QLF02: ILO Participation and Unemployment Rates by Sex, Quarter and Statistic.

1.1 Rationale

This paper focuses on job churn which measures the staff inflow and outflow movements at sectoral and grouping[3] level for the Civil and Public Service. The associated analysis provides evidence of the impact of the phase of national economic cycle on job churn and its components, together with potential indicators.

By providing insights on job churn rates within and across the wider public service, the paper seeks to support the objectives of Our Public Service 2020[4] (OPS2020) outlined under Pillar 3 'Developing Our People and Organisations' – in particular, (1) Action 12 'embed strategic human resource management in the public service'; (2) Action 13 'mainstream strategic workforce planning in the public service'.

The analysis in this paper provides evidence of the impact of the phase of national economic cycle on job churn and its components, together with potential indicators. The insights gained may assist in (1) informing central and local strategic workforce planning environmental scanning enabling evidence from the appropriate phase of the national economic lifecycle to inform decision making, and (2) aid comparison and benchmark between the workforce dynamics in the public service, the civil service and the private sector.

1.2 Research objectives

The objectives of this analysis are to establish a baseline of workforce dynamics in the public service, investigating in particular:

- Job churn rates in the public service and in the civil service;
- Retention rates in the public and civil service – i.e. employees that stayed in their jobs from year to year.
- Workers movements between public service, civil service and private sector and the extent of inter-sectoral mobility within the wider public service – i.e. movements of people between selected sub-sectors of the wider public service (the 'sub-sectoral groups' here, see Appendix 1) with a focus on the 'destination' of people leaving their job.

1.3 Research questions

This study aims to answer the following research questions:

- What are the churning flows and drivers (i.e. hiring and exits) in the civil and public service 2006-2018 – i.e. pre, during, and post the global financial crisis?
- In what sector/s do people leaving civil and public service jobs get re-employed?

[3] Refer to section 2.1 and Appendix 1 for further details on the groupings (or 'sub-group').
[4] OPS2020 is the framework for development and innovation in Ireland's public service. OPS2020 outlines the need to address data gaps through an evidence driven responsive approach by utilizing national and international data sources to providing innovations and policies that support cost-effective delivery of public services.

2. Research design

This trend analysis paper is based on secondary data analysis of the Job Churn (JCH) dataset that has been compiled by the Central Statistics Office (CSO). In 2011, a CSO dataset focusing on the private sector aimed *"to explore the dynamics in business employment – the flow of jobs and persons between firms and within and between sectors, focusing exclusively on the private sector*[5]*"* (CSO website – Job Churn General Information). The current dataset builds on the 2011 methodology to explore the dynamics in public service employment.

The added value of this JCH dataset resides in its ability to compare Public Service (excl. Civil Service), Civil Service and Private Sector in a comprehensive way, using the same methodology for all sectors and avoiding the duplication of datasets found elsewhere.

2.1 Methodology

The methodology and definitions used here are adapted from those in Bassanini & Marianna (2009) and take account of methodology used in Eurostat-OECD Manual on Business Demography Statistics. Definitions and explanation of key concepts/variables used in the analysis are discussed further in Section 3.

While the unit of observation is the employee[6], the unit of analysis used in this paper is the 'sub-sectoral[7] group'. Each 'sub-sectoral group' broadly represents a Government Department and all (public and civil service) agencies/organisations under its aegis – see Appendix 1. Six 'sub-sectoral groups' were selected for this first publication: Justice, Defence, Education, Health, Local Government, DHPLG (Department of Housing, Planning and Local Government, and agencies under its aegis).

A further three groups were also developed reflecting (1) the private sector; (2) the civil service; (3) the public service - which will be referred as the 'three sectors' throughout the paper. The six 'sub-sectoral groups' and the 'three sectors' were chosen to reflect the structure of OPS 2020 – where "Action teams established for prioritised actions under each pillar are made up of experts from the six main public service sectors – Civil Service, Health, Local Government, Education, Justice and Defence."[8]

NOTE: While civil and public service organisations together are usually defined as the 'public service', they are treated separately in this analysis. When referring to the sum of civil service and public service organisations, the term 'wider public service' is used herein. This choice enables to isolate the movements of civil servants in the analysis which, otherwise, would have been double counted.

[5] All employing enterprises in NACE Rev 2 sectors B – N excluding K64.20.
[6] The employee records in the Revenue Commissioners' P35L data.
[7] The term 'sub-sectoral' is used as these groups refer to sub-sectors of the wider public service.
[8] See https://www.ops2020.gov.ie/what-is-ops2020/overview/

2.2 Data Sources

The analysis presented in this paper draws on data from the CSO Job Churn (JCH) dataset, which is a longitudinal administrative dataset for the years 2006-2018.

The JCH dataset combines three elements, derived from linking three separate sources:-

- Data on gross annual earnings (based on reckonable pay[9]) and number of weeks worked which is provided by the Revenue Commissioners for every worker who was an employee[10] during that year (specifically, the P35L[11] dataset).
- Information on workers' age, sex and social welfare class is provided by the Department of Employment Affairs and Social Protection – from their Central Records System (CRS) related to Personal Public Service Numbers (PPSN).
- Finally, data on the sector in which each firm operates and the enterprise's ownership structure come from the CSO's Central Business Register. For the civil service and for the public service, the CSO's Register of Public Sector Bodies[12] in Ireland and the Earnings, Hours and Employment Costs business register[13] were used.

The JCH dataset includes NACE Activity Codes B to S (also see Glossary). The dataset excludes PRSI Classes S, M and those employments with missing employee identifier and/or missing enterprise identifier. Three further criteria were applied to the dataset: (1) a minimum of 2 weeks paid in the year; (2) a minimum of gross annual earnings equal to 500 euro; (3) a maximum gross annual earnings equal to three times the interquartile range of log weekly earnings – meaning that high outlier earners were excluded.

The JCH dataset is comprehensive, with attributes on both workers and enterprises. The dataset:

i. Provides significant population-level coverage of both organisations and workers in Ireland over the period 2006-2018;

ii. Is not impacted by issues typically associated with surveys – such as non-response and attrition, as organisations are obliged to file tax returns for every employee (Doris et al., 2016).

[9] Reckonable pay excludes any payments to a pension scheme or permanent health insurance scheme recognised by the Irish Tax Authorities.
[10] Since a worker could hold multiple employments in a year, a record in the P35L dataset is created for each worker in respect to each individual employer they worked for – meaning that one worker can have multiple records in the same year.
[11] Due to PAYE Modernisation project the data formerly on the P35 return is gathered in real-time since 1st January 2019.
[12] https://www.cso.ie/en/methods/governmentaccounts/classificationdecisions/registerofpublicsectorbodiesinireland/
[13] https://www.cso.ie/en/methods/earnings/earningshoursandemploymentcostssurvey/

The data source does not have point in time measurements – i.e. data does not reflect absolute numbers or rates in a given month or quarter. Instead, it is year-on-year changes, following the same methodology used in the Eurostat-OECD manual on Business Demography Statistics where year t is compared with year t-1.

2.3 Limitations and caveats

The JCH dataset is the product of linking three sources of administrative data, data that was not primarily created for statistical purposes – although the CSO has undertaken in-house analysis on the data in the past (Dunne, 2011). In these circumstances, several challenges have been encountered during both the preparation of the new dataset and at the analysis stage itself – key among them are listed below:

- As a unique business identifier (UBI) is not yet available, challenges were faced in the correct profiling of several public service organisations and their employment. For example, (1) the CSO's enterprise number – which is the level job churn analysis is undertaken – could have multiple Employer Registration Numbers (PREM number) assigned to it (hence, multiple PREM numbers within an enterprise/organization). In such instance, job churn between PREM numbers is not measured, even where PREM numbers represent separate entities within an enterprise; or (2) multiple agencies may pass all their employments through a single PREM number attached to a single enterprise/organization, instead of using multiple PREM numbers. Similarly to (1), in such instances, job churn within the organisation is not calculated. These limitations are particularly relevant in the cases of (i) HSE entities and (ii) schools:

  - Definition and reconciliation of HSE entities

    In the health sub-sectoral group, the Health Service Executive (HSE) is comprised of 8 regional entities[14]. While employment movements within each HSE regional entity are not accounted for in the job churn figures, movements between HSE regional entities are counted.

  - Definition and reconciliation of schools

    In the education sub-sectoral group, employment movements between schools where the employee is paid directly by the Department of Education and Skills are not accounted for in the job churn figures. Similarly, the figures do not include movements between schools within Education and Training Boards (ETBs). If an employee also got paid directly by their school for additional duties, this would be counted within the database as the person having a 'second' private sector employment.

[14] The 8 entities are: HSE – West; Eastern Region HSE; HSE – Mid West; HSE – Midlands; HSE North East; HSE – North West, Mid-West & Midlands; HSE - South East; HSE – South. Due to differences in PREM numbers, these 8 entities are groupings identified by the CSO. The HSE official structure can be found here: https://www.hse.ie/eng/about/who/senior-leadership-team.pdf

- The JCH dataset does not provide information on either duration of employment (number of years/months the worker has been employed by the enterprise) or work-intensity (full time or part time). The JCH dataset has absolute numbers of all the staff employed each year (headcount). Therefore, comparison between the JCH dataset's headcount figures and the Full-Time Equivalent (FTE) basis, which is used in the Department of Public Expenditure and Reform's (DPER) Public Service Numbers databank[15] quarterly figures, are not possible.
- No data is currently included on a range of important demographics when studying job dynamics, such as educational attainment and field of study, occupation, grade, job tenure of workers or labour market experience, etc.
- Due to confidentiality[16] rules under the Statistics Act 1993[17], the data was aggregated by the CSO and provided for analysis by 'sub-sectoral' grouping (see 2.1 and Appendix 1). Therefore, the data only allows the examination of the employment movements between wider sectors – e.g. education vs. defence vs. justice, and not between organisations.
- There is a time lag in that the data is typically made available 12 months from the end of the reference period[18] – i.e. the Job Churn data for 2006-2018 was made available in February/March 2020.

[15] http://databank.per.gov.ie/Public_Service_Numbers.aspx
[16] Information obtained under the Statistics Act is strictly confidential, under Section 33 of the Statistics Act, 1993. The CSO only publishes aggregate statistical data; statistical table and results may not, and do not, disclose details relating to any identifiable person or business.
[17] http://www.irishstatutebook.ie/eli/1993/act/21/enacted/en/html
[18] See https://www.cso.ie/en/methods/qualityreports/jobchurn/

3. Overview of Job Churn and its components

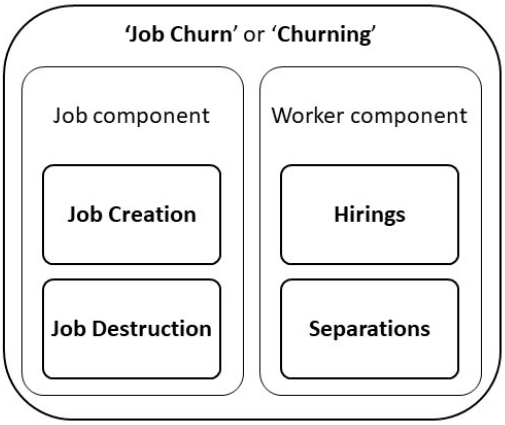
This section defines key concepts/definitions[19] used in this paper, and outlined how they are measured. The international literature on job flows, worker flows and churning – including main international trends and perspectives – are then discussed.

3.1 Definitions

There is a significant amount of literature available on job churn and its respective components. Significant challenges are highlighted in bringing the job components (also called 'firm based components') of (i) job creation (JCr) and (ii) job destruction (JD), together with the worker components (also called 'person based components') of (i) hirings (H) and (ii) separations (S) in the context that components typically are derived from different sources. In this paper, separations are referred as 'exits'.

- '*Job churn*' or '*churning flows*' (CH) represents the worker flows in excess of job flows or 'worker reallocation over and above job reallocation'. It is based on the movement of people between organisations, which excludes internal promotions or internal mobility programmes mirroring the external Revenue Commissioners P35L data source. It is used as an indicator of job-to-job movement among workers within the labour market.

Figure 2: Graphical representation of Job Churn concepts



The job component represents an indicator of 'job flows' – which measures the extent of changes in firm size and reflect changes in organisations' demand for labour. It refers to two primary variables for analysis:

- '*Job Creation*' at the organisation level, which represents a positive job flows.

[19] Adapted from those in Bassanini & Marianna (2009) as outlined in Job Churn Background Notes (CSO).

- '*Job Destruction*' at the organisation level, which represents a negative job flows.

The worker component represents an indicator of 'worker flows' – which measures all movements of workers into and out of jobs. It refers to two primary variables for analysis:

- '*Hirings*', which represent workers taking a new job. Hirings occur sometime in period t – representing those individuals for which a corresponding employment record did not exist in period t-1, and are reported in the same period – i.e. hirings figures in 2008 (t) are based on all those workers that took new jobs during 2008 (t).
- '*Separations*' ('exits' in this paper), which represent workers leaving a job. Separations occur sometime in period t-1, and the estimated separations figure is assigned to period t – i.e. separations figures in 2008 (t) are based on all those workers that left their jobs during 2007 (t-1). They are used here as a measure of employee attrition.
- '*Job Stayers*' are those who remain with the same employer in successive years and they are used here as a measure of employee retention.

The reference period used in this analysis is *one year*, implying that both job and worker flows refer to changes over a one-year time span – for example, hirings and separations (or 'exits') are defined as one-year transitions across different employers and/or employment statuses.

Since sectors and groupings present very different employment sizes in absolute numbers, comparisons of flows – whether job, worker or churning flows – can be made more conveniently by converting these absolute measures into rates. In order to be consistent with the literature (e.g. Davis and Haltiwanger, 1999; Bassanini, A., & Marianna, P., 2009), all flow measures from period t-1 to t used herein are expressed as rates by dividing flow totals by relevant average employment figures in period t-1 and t. For further discussion on other variables' definitions and measures that are part of the JCH dataset, refer to the Glossary.

3.2 Job Churn Literature Review - International / Ireland

Job churn features in the economic literature in Ireland and internationally – although the main focus tends to be on the dynamics in the private sector using employer-employee linked administrative data. Analysis on Job churn is available in Ireland since 2011. A schematic overview of national and international review of the literature on job churn is reported in Appendix 2.

4. Job Churn at sectoral level, trends 2006-2018

This section presents an overview of job churn rates in the civil and public service – based on movements of workers within each sector in a given year.

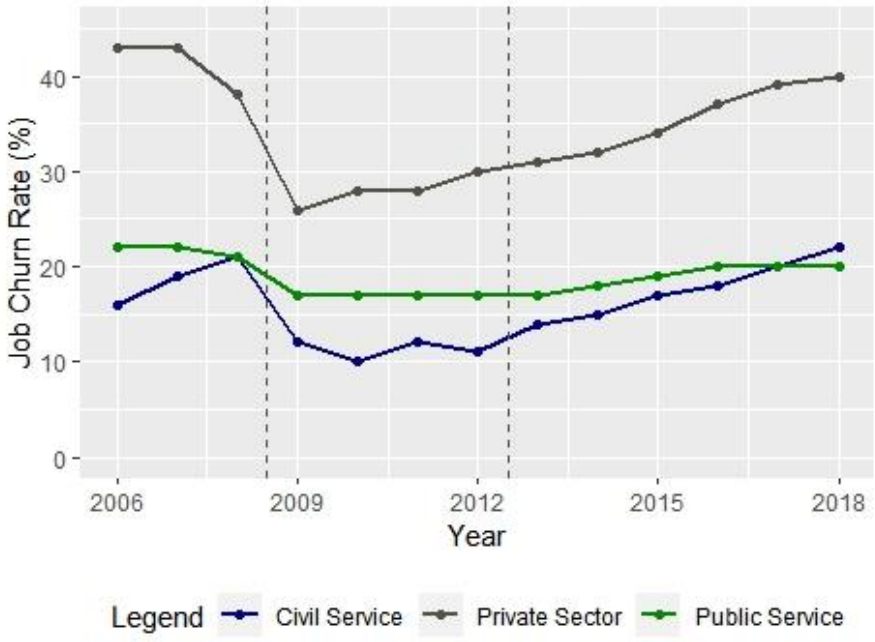
Figures presented are standardised as rates, while graphical representations of data include two grey dashed lines indicating the division between the three period analysed: immediately before (2006 to 2008), during (2009-2012), and after (2013-2018) the global financial crisis.

$$Job\ Churn\ rate = \frac{Job\ Churn}{Employments}$$ [20]

4.1 Job Churn for the Civil and Public Service

The job churn rates for the civil service, the public service and the private sector are shown in figure 3.

Figure 3: Churning rates for the Public Service, Civil Service, and Private Sector



- Job churn show a pro-cyclical[21] pattern based on the decrease in the churning rates of the civil service, the public service and the private sector[22] in 2009 (refer to figure 3), confirming the findings of Bachmann et al. (2017).

[20] The number of employments in a sector/sub-sectoral group is equal to the sum of the number of hirings and the job stayers in a given year. It represents the active workforce in that specific sector or sub-sectoral group. For further discussion on definition and measure of Job Churn, refer to the Glossary.

[21] 'Procyclic' refers to a condition of a positive correlation between an indicator – in this case job churn rate – and the overall state of the economy.

[22] While civil and public service organisations together are usually defined as the 'public service', they will be treated separately in the analysis and, solely when compared to the private sector, referred as 'sectors'. This is done solely to ease the explanation in the text.

- The **private sector** shows the largest share of job movements throughout 2006-2018 (refer to figure 3), with job churn rates well above civil and public service rates for the whole period – from 43% in 2006-2007, to a minimum of 26% in 2006, and a steady recover after the crisis up to 40% in 2018.
- Both the **civil service** and the **public service** showed consistently less movements of workers than the private sector throughout the period 2006-2018 (refer to figure 3). This would indicate much less staff movement within, into and out of both the civil and the public service. This in turn would suggest that the strategic workforce planning environment in the civil and in the public service prove to be more static than in the private sector. This position would indicate the potential for facilitating a more focused approach to workforce planning within both the civil service and the public service, once the drivers of movements are investigated in detail.
- The **public service** showed a more stable job churn trend than the civil service and the private sector throughout 2006-2018, with less of a drop in the job churn rate (figure 3) – ranging between a max of 22% in 2006-2007 and a min of 17% over 2009-2013. This indicates a much more stable share of job movements.
- The **civil service** job churn followed a similar job churn trend to that of the private sector (refer to figure 3) – although the detailed data showing the smallest share of job movements when compared to the other two sectors. Interestingly, civil service job churn rates were the same as the public service rates in strong economic times (2008 and 2017), and even higher in 2018 – but lower job churn rates during the economic downturn (2009-2012).

4.2 Job Churn for selected (6) sub-sectoral groups

Six sub-sectoral groups were selected for in-depth analysis: Health, Education, Defence, Justice, Local Government, and the Department of Housing, Planning and Local Government together with agencies under its aegis (DHPLG). Unique sub-groups have showed different rate of movements of workers both in absolute terms and in term of degree of fluctuations pre-during-post global financial crisis.

Table 1: Churning rates for selected (6) sub-sectoral groups, trends 2006-2018

	Job Churn Rate						
	Civil Service %	**Education %**	**Health %**	**Defence %**	**Justice %**	**Local Government %**	**DHPLG %**
2006	16	23	23	10	10	21	18
2007	19	25	21	12	12	22	21
2008	21	26	18	12	10	21	24
2009	12	24	15	2	6	6	5
2010	10	23	15	3	5	7	8
2011	12	23	15	9	5	9	10
2012	11	23	16	12	3	8	5

Table 1 (continued): Churning rates for selected (6) sub-sectoral groups, trends 2006-2018

Job Churn Rate							
	Civil Service %	Education %	Health %	Defence %	Justice %	Local Government %	DHPLG %
2013	14	23	16	9	4	8	5
2014	15	22	20	9	4	8	6
2015	17	23	20	7	7	10	7
2016	18	22	21	12	9	11	10
2017	20	22	22	13	9	14	23
2018	22	22	22	14	11	16	15

Education and **Health** showed the largest share of job movements over the whole period 2006-2018 (refer to table 1 and figure 4). The Education sector's job churn rate was the highest over 2006-2018 – remaining close to a quarter of its employment (ranging 22%-26%). Its rate was the least impacted by the economic downturn – although it has been decreasing steadily since 2008. In the Health group, the job churn rate has been the second highest after the education group (ranging 15%-22%) and, since 2017, it has almost returned to 2008 pre-crisis levels. While both the education and health groups show higher job movements than the other selected groups, their job churn rates are still lower than the private sectors throughout the whole period.

Defence and **Justice** showed the smallest share of movements of workers throughout 2006-2018 (refer to table 1 and figure 5), with job churn rates well below those showed in Health and Education.

Figure 4: Churning rates for Education and Health groups

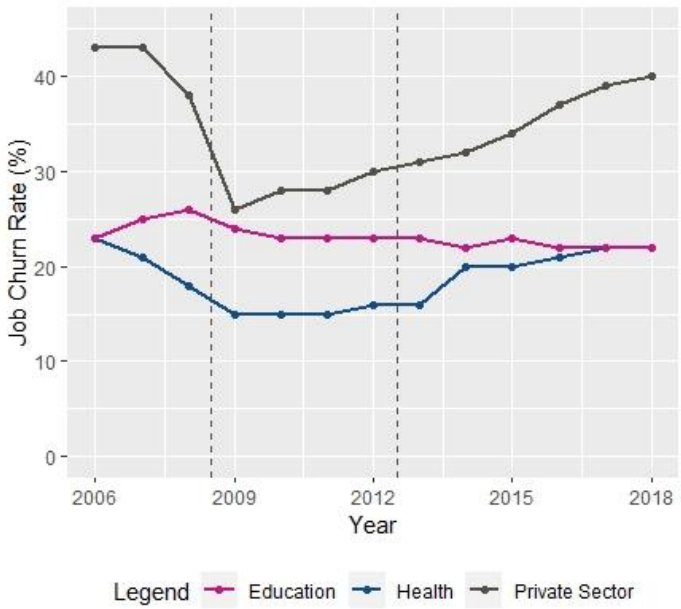
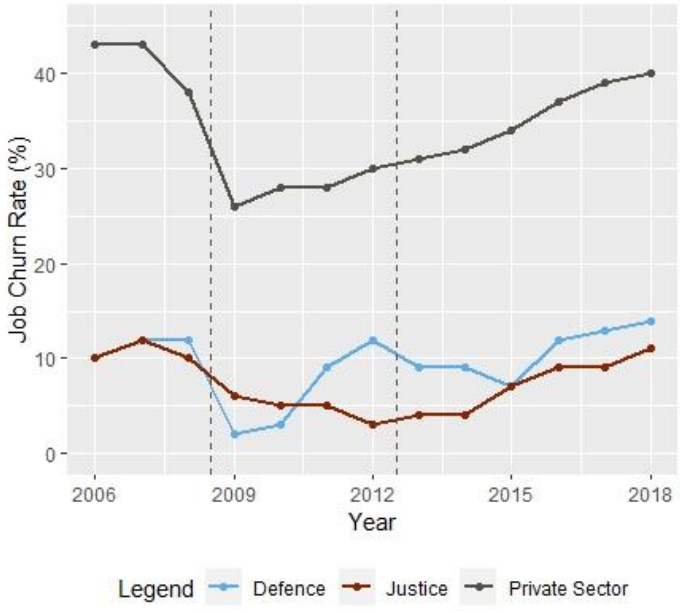
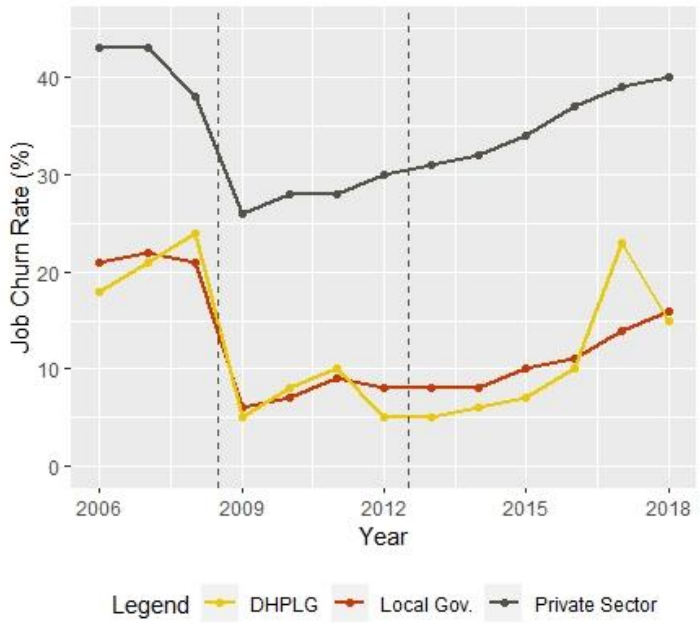


Figure 5: Churning rates for Defence and Justice groups



Both the Department of Housing, Planning and Local Government together with agencies under its aegis (**DHPLG**), and **Local Government** showed quite large movements of workers before the financial crisis, followed by a very significant drop in movements in 2009, and an upward trend in the second part of the post-crisis period (from 2015 onward) (refer to table 1 and figure 6). During the crisis (2009-2012), very little movements of workers were recorded – in the range of 5-10%.

Figure 6: Churning rates for Dept. of Housing, Planning and Local Gov. (and its agencies) and Local Government groups



5 Job Stayers trends 2006-2018

This section focuses on those workers staying in their jobs from period t-1 to t – referred here as 'job stayers'. Job stayers rates can offer further nuances when investigating the workforce dynamics in the context of job churn and its components – i.e. while job churn rate provides an insight on the movements of workers within each sector in a given year, job stayers rate indicates the volume of workers that did not move at all. Job stayers do not leave their jobs from one year to the following one – e.g. job stayers figures for 2009 reflect all those workers whose employment records exists in both 2009 and the previous year (2008). Job stayers rate can therefore be used as an indicator of employee retention.

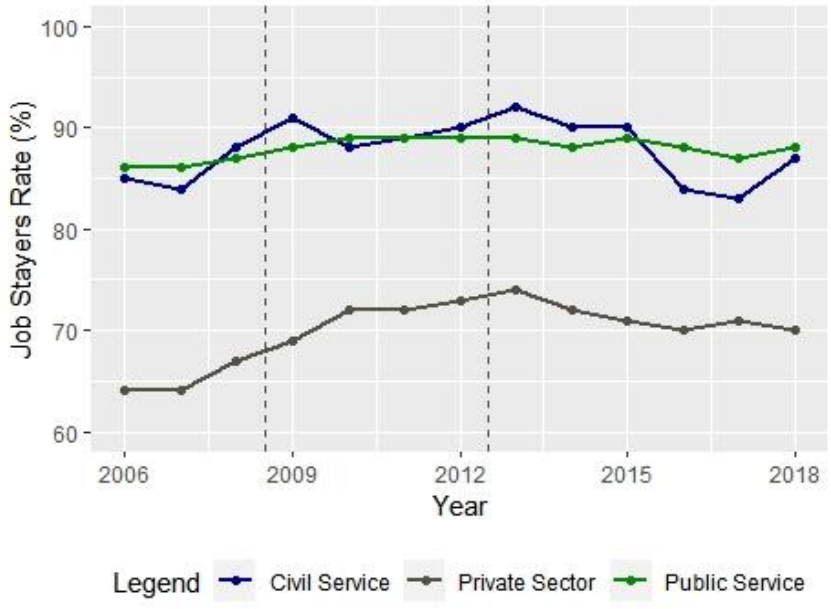
Figures presented are standardised as rates, while graphical representations of data include two grey dashed lines indicating the division between the three-period analysed: immediately before (2006-2008), during (2009-2012), and after (2013-2018) the global financial crisis.

$$Job\ stayers\ rate = \frac{Job\ Stayers}{Employments^{23}}$$

5.1 Job Stayers for the Civil and Public Service

The job stayers rates for the civil service, public service and private sector are shown in figure 7.

Figure 7: Job Stayers rates for the Public Service, Civil Service, and Private Sector



- Both the **public service and the civil service** presented much higher job stayers rates than the private sector throughout 2006-2018 – indicating a greater propensity to retain their workforce.

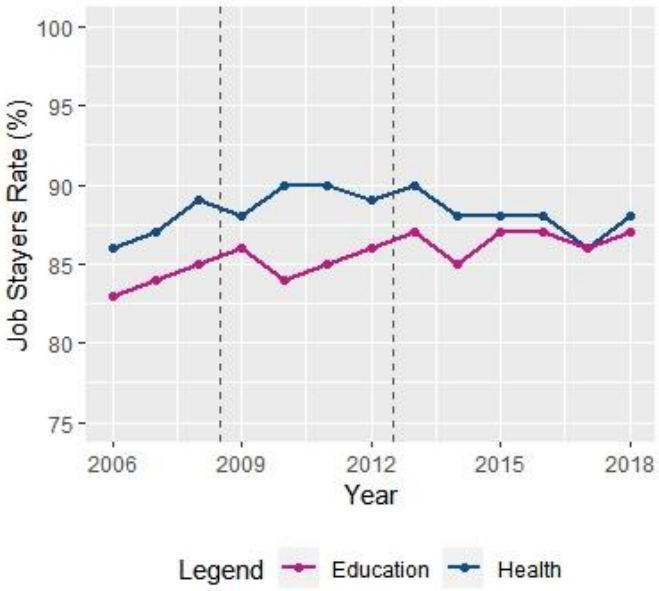
[23] The number of employments in a sector/sub-sectoral group is equal to the sum of the number of hirings and the job stayers in a given year. It represents the active workforce in that specific sector or sub-sectoral group. For further discussion on definitions and measures, refer to the Glossary.

- The job stayers rate trend is counter-cyclical for the private sector – with the percentage of workers staying in their jobs steadily increasing during the crisis (2009-2012) and decreasing from 2013 onward.
- This counter-cyclical trend is less evident for the **public service**, which showed a more stable trend than both the civil service and the private sector throughout 2006-2018, with less of a spike in the job stayers rate during the financial crisis (figure 7) – with rates remaining in the range of 86-89% over the period.
- Job stayers in the **civil service** followed a similar trend to that of the private sector (refer to figure 7), though also showing greater fluctuation – with job stayers rates ranging 83%-92%. In particular, drops in job stayers rate were seen in 2016 (84%) and 2017 (83%) – i.e. meaning less workers staying in their jobs in 2016 and 2017. While different elements may be impacting this downward trend, the increasing usage of of temporary clearical officers (TCO[24]) in the civil service may be playing a role. Future analyis could shed light on other possible drivers.

5.2 Job Stayers for selected (6) sub-sectoral groups

At a sectoral level – referring to the six sub-sectoral groups selected for in-depth analysis as per Section 4.2 – unique sub-groups have showed different rates of staff staying in their jobs both in absolute terms and in term of volatility pre-during-post crisis. **Health** and **Education** saw the lowest share of job stayers throughout 2006-2018 (refer to figure 8) among the 6 selected sub-groups. While different elements may be impacting these low levels, temporary positions in education – such as non-permanent teachers – may be playing a role.

Figure 8: Job Stayers Rate for Education and Health



[24] As all employees during a year would be on the Revenue P35L, figure 7 would include temporary clerical officers whose contracts are for short periods within a year. The usage of temporary clearical officers has increased in recent years. Source: David Mahon and Críona Brassill (2020), 'Civil Service New Joiners' Profile, Trends and Insights', figures 12 and 13, page 14.

Defence[25] and **Justice** presented the greatest share of staff staying in their jobs throughout 2006-2018 (refer to figure 9), with job stayers rates well above those showed in the education and health sub-sectoral groups.

Both the Department of Housing, Planning and Local Government together with agencies under its aegis (**DHPLG**), and the **Local Government** showed quite large share of job stayers throughout 2006-2018. The Local Government also presented an evident counter-cyclical trend – with lower job stayer rates before the crisis, followed by a year-on-year increase from 2009, and a downward trend in the post-crisis period (from 2013 onward) (refer to figure 10). While the DHPLG followed similar trends to the Local Government, it presented two outliers: a drop in job stayers in 2012 – which is a likely consequence of the Department being restructured in 2011 – and in 2017.

Figure 9: Job Stayers Rate for Defence and Justice

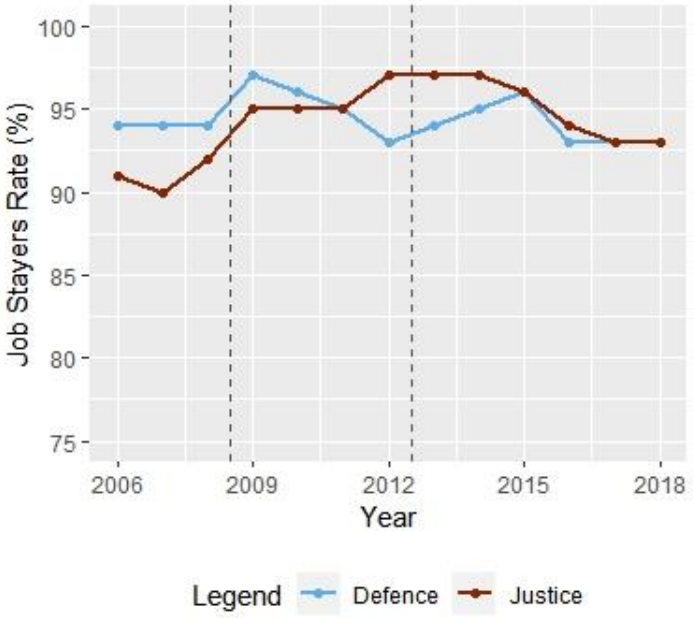
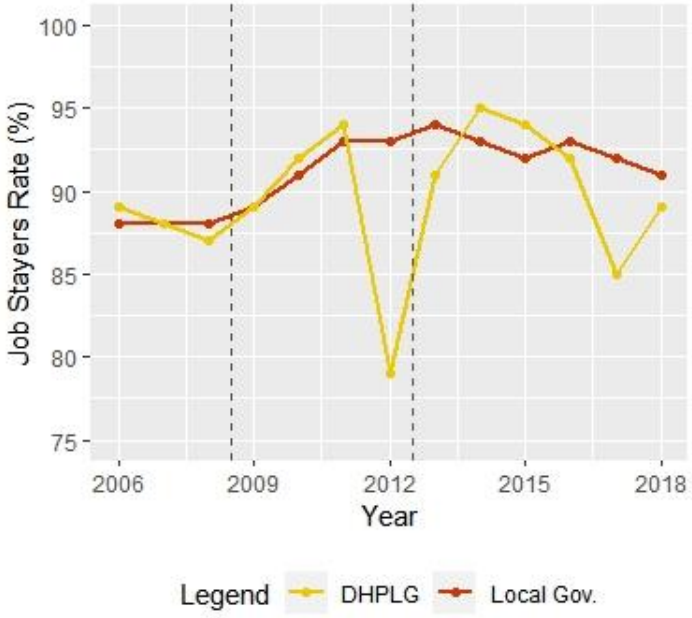


Figure 10: Job Stayers Rate for DHPLG and Local Gov.



[25] The Irish Defence Forces are made up of three branches: Army, Naval Service and Air Corps – all three branches are included in the Defence Sector here, together with the Department of Defence. The Government has committed to maintaining an 'Establishment', of 9,500 personnel – made up of 7,520, 1,094 and 886 in each of the three branches respectively. This 'Establishment' figure was previously higher but it was lowered in 2012. A recent paper published by the Parliamentary Budget Office, explored in depth the organizational context of the Defence Forces. See: Remuneration, Recruitment and Retention (2020).

6. Exits trends 2006-2018

This section presents an overview of the exits rates – based on workers leaving jobs – in the civil and in the public service. While workers leave their jobs sometime in period t-1, the estimated exits figure is assigned to period t – i.e. exits rate in 2008 is based on all those workers that left their jobs during 2007. Exits rates can be used as an indicator of employees' attrition. As data doesn't allow the identification of staff retiring, no reference is made with respect to retirements.

Figures presented are standardised as rates, while graphical representations of data include two grey dashed lines indicating the division between the three-period analysed: immediately before (2006-2008), during (2009-2012), and after (2013-2018) the global financial crisis.

$$Exits\ rate = \frac{Exits}{Employments}$$[26]

Box 1: Impact of financial crisis moratorium on the public service:

During the period 2009-2014, exits rates were impacted by the moratorium on recruitment and promotion across the Public Service.

During 2008-2013, although there was an overall reduction of 10% in the number of full time equivalent public servants (from 320,000 to 288,000), the protection of frontline services was a key consideration. Despite the fiscal pressures the number of medical/dental and health and social care professionals increased over the period. Staffing reductions in the Education sector since 2008 were predominantly located in the third level sector and support staff – with the numbers of primary and secondary teachers increasing slightly over the period. The policy measures which were put in place from 2000 on with regard to special educational needs were preserved.

Under the moratorium, several measures were taken to realign the size of the Public Service, with policy interventions targeting numbers such as accelerated retirements through the 'Incentivised Scheme of Early Retirement (ISER)' (Circular 12/09) and targeted staff reductions. While there were no compulsory redundancies, targeted staff reduction included an 'Incentivised Career Break Scheme', a 'Voluntary Early Retirement and Voluntary Redundancy in the Health Sector' and a 'Voluntary Redundancy Outside of the Health Sector'.

Source: Central Expenditure Evaluation Unit (2014), *'The Cost of the Public Service'*, pages 2 and 14-21.

[26] The number of employments in a sector/sub-sectoral group is equal to the sum of the number of hirings and the job stayers in a given year. It represents the active workforce in that specific sector or sub-sectoral group. For further discussion on definitions and measures, refer to the Glossary.

6.1 Exits for the civil service and the public service

Firstly, the trends in the exits rates in the civil and public service level are examined, together with the hiring rate for ease of comparison. No reference is made with respect to retirements.

Figure 11: Exits and Hirings for the Public Service

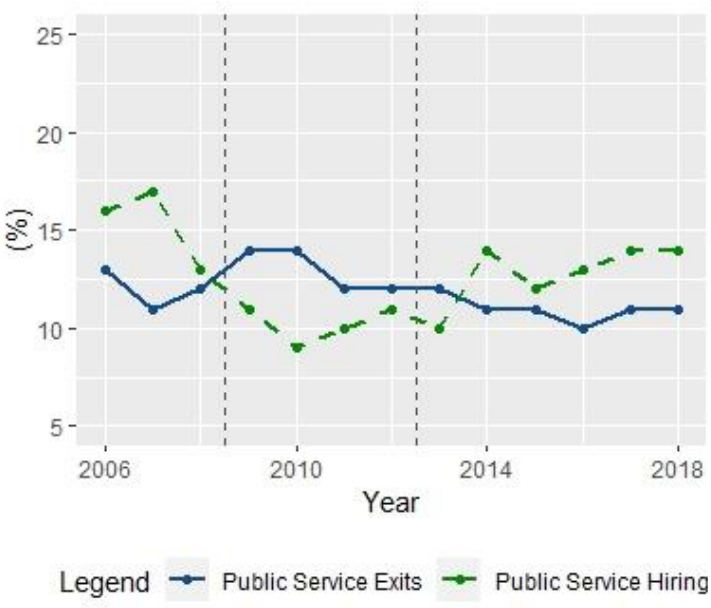
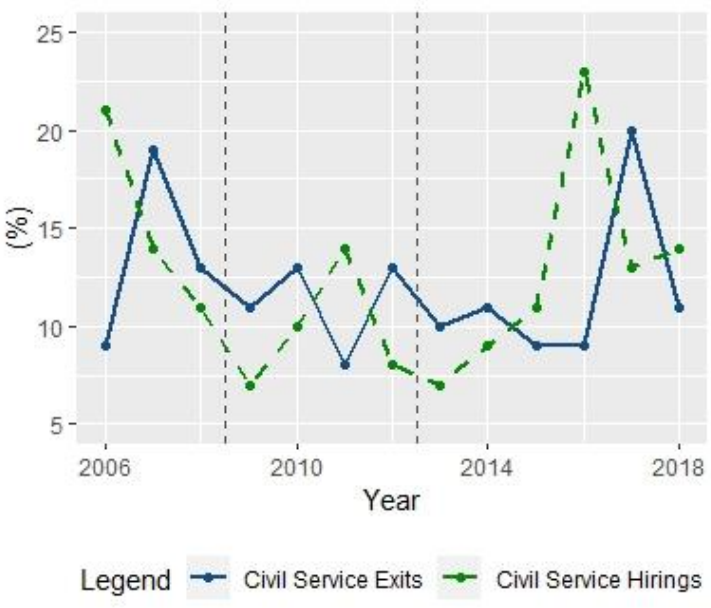


Figure 12: Exits and Hirings for the Civil Service



While the worker components of job churn show similar average rates throughout 2006-2018 – with exit rates averaging to 12% and hiring rates ranging between 13% (PS) and 12.5% (CS), the spread between the average rates and the extremes varied greatly between the civil and public service.

- The **public service** exit rates show quite small year-on-year changes, with the share of employees leaving the public service decreasing steadily since 2010 – from 14% in 2010 to 11% in 2018. Hiring rates were above the exit rates before 2009[27] (avg. 15%) and from 2014 onwards (avg. 13%) – rates were reduced during the moratorium on recruitment[28]. The highest share of new hires (as a percentage of total public service employment on the same year) in the public service was seen in 2007 at 17%.
- The **civil service** shows much greater fluctuations in both hiring and exit rates. Trends appear to be much more influenced by the economic cycle than in the case of the public service. Indeed, while higher exit than hiring rates are seen in 8 out of the 13 years covered by the dataset, the greatest share of civil servants leaving[29] their jobs is seen at peak economic times – in 2007 (19%) and 2017 (20%). In 2018, exit rates went back to 11%, showing a similar pattern to the two years 2007-2008 – when exit rates

[27] Exit rates for 2009 – reflected in 2010 figures here (see definitions in Section 3.1) – likely include more retirees than other years as a consequence of the Incentivised Scheme for Early Retirement (ISER) which was put in place in the civil service, local authorities, health sector and non-commercial state bodies during 2009 (Circular 12/09).

[28] The moratorium on recruitment in the whole public service (intended here as the sum of civil and public service) was introduced in March 2009 and ended with effect from 2015. Refer to Box 1: Impact of financial crisis moratorium on the public service

[29] While different elements may be impacting the exits trend, the increasing usage of temporary clerical officers (TCO) in the civil service may be playing a role in increasing the exits and hirings figures refer to Mahon and Brassill (2020), *'Civil Service New Joiners and Temporary Clerical Officers - Profile, Trends and Insights'*. Future analysis could shed light on other possible drivers.

fell quite sharply after peaking in 2007 (from 19% in 2007 to 13% in 2008). Interestingly, peaks in exit rates follow peaks in hiring rates 21% in 2006 21% and 23% in 2016.

6.2 Exits for selected (6) sub-sectoral groups

At a sectoral level – referring to the six sub-sectoral groups selected for in-depth analysis as per Section 4.2 – unique sub-groups have showed different rates of exits of staff both in absolute terms and in term of degree of fluctuations pre-during-post financial crisis. Nevertheless, similarly to exit trends seen in the public service (5.1), exit trends seem to be only marginally influenced by the economic cycle.

Table 2: Exits rates for selected (6) sub-sectoral groups, trends 2006-2018

	Exits Rates						
	Civil Service %	Education %	Health %	Defence %	Justice %	Local Government %	DHPLG %
2006	9	13	14	5	5	11	9
2007	19	13	10	6	7	11	10
2008	13	13	12	7	5	12	12
2009	11	15	13	6	6	15	19
2010	13	18	10	6	7	13	12
2011	8	14	12	6	6	7	6
2012	13	15	11	7	5	10	32[30]
2013	10	14	12	8	5	8	16
2014	11	14	12	5	4	7	5
2015	9	12	10	5	4	10	7
2016	9	11	11	6	5	6	6
2017	20	12	14	7	5	7	15
2018	11	12	11	8	5	8	8

Education and **Health** presented very limited fluctuations in exit trends (table 2, figure 13). Education had between 11% and 15% of its workers leaving jobs from any year t-1 to t – with highest exit rate in 2010[31] at 18%, while Health presented similar exit figures (ranging 10%-14%) – with the greatest exit rate seen in 2006 and 2017 at 14%.

Both **Defence** and **Justice** presented the smallest share of staff leaving their jobs throughout 2006-2018 (refer to table 2 and figure 14), with exit rates well below those showed in the other 4 sub-sectoral groups during the whole period.

[30] This figure represents a clear outlier – which is likely a consequence of the Department restructuring in 2011.
[31] Throughout 2008-2013, staffing reductions in the Education sector have been mainly located in the third level sector and support staff, as shown in previous research. See: Central Expenditure Evaluation Unit (2014), 'The Cost of the Public Service', page 19.

Figure 13: Exit Rates for Education and Health

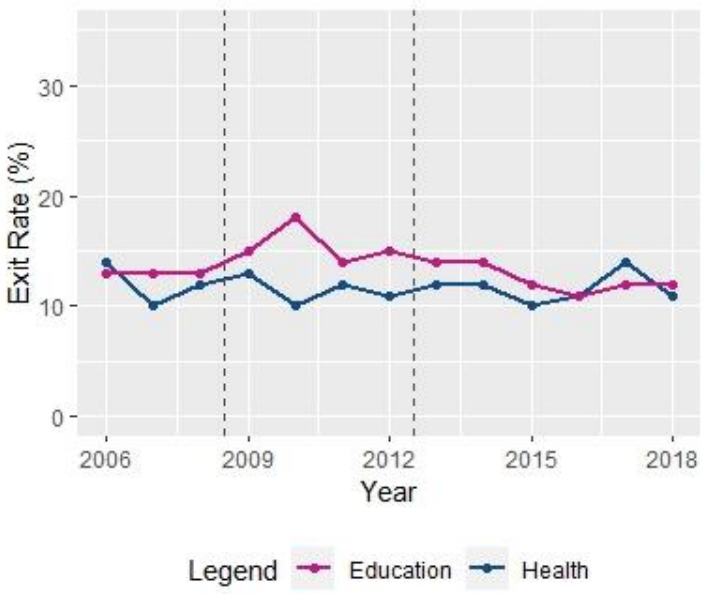
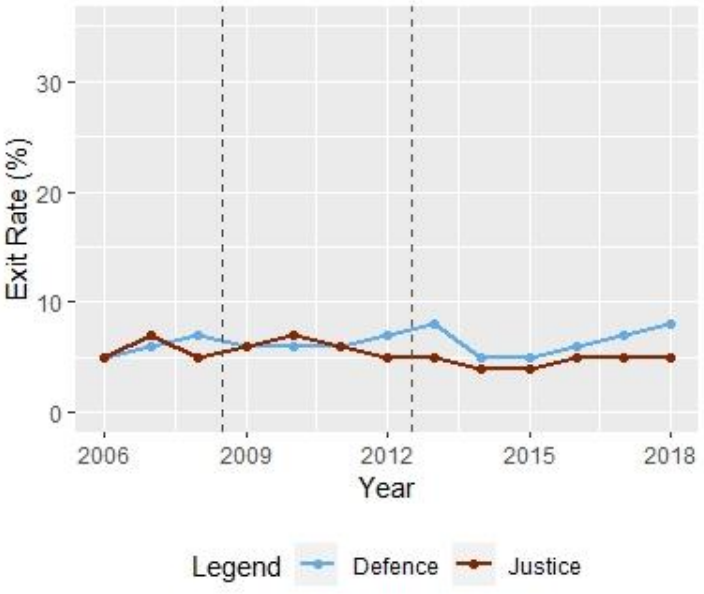
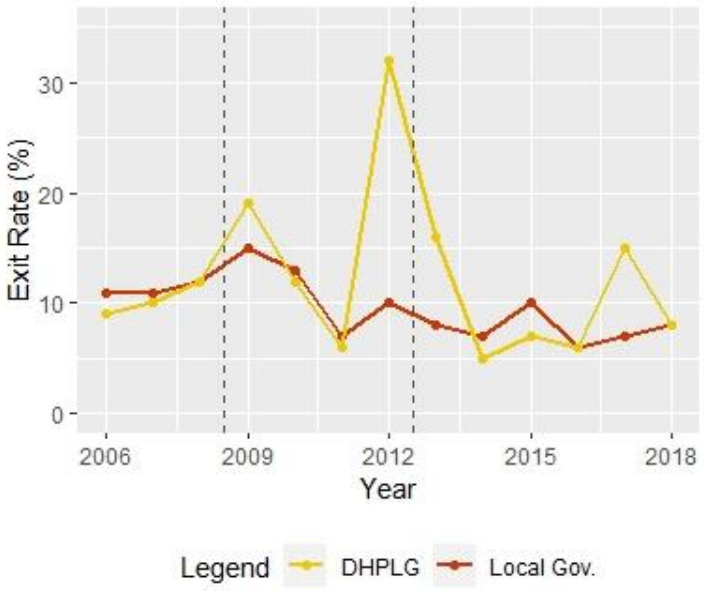


Figure 14: Exit Rates for Defence and Justice



The **Local Government** showed a downward trend in exit rates with the share of employees leaving the local government decreasing steadily since 2009[32] – from 19% in 2010 to 8% in 2018. While the Department of Housing, Planning and Local Government together with agencies under its aegis (**DHPLG**) presented much greater fluctuations in exit rates comparing to the other 4 sub-sectoral groups, especially in 2012 – the greatest share of workers leaving the DHPLG has been seen in 2009 and in 2017 with an overall slight downward trend since 2009.

Figure 15: Exit Rates for DHPLG and Local Government



[32] This downward trend in exits rates is somewhat in contrast with previous published research that had found a negative overall change in staffing levels of local authorities between 2008 and 2013 – see: Central Expenditure Evaluation Unit (2014), 'The Cost of the Public Service', page 21.

7. Destination of exits

The trends in the destination of exits[33] are examined in this section, providing insights on where those leaving the 'wider public service'[34] jobs get re-employed[35]. The analysis of destination of exits focuses on one exit per employee in the year – which is referred as the primary exit (or separation). Since exits rates are based on those workers leaving their jobs sometime in the previous year, data in this section is presented from year 2007 (2006+1) to 2018. The data can decompose primary exits showing whether a new employment was found in the civil, public or private sector.

7.1 Exits for the Civil and Public Service

This data shows that when **public service**'s workers leave their jobs, they primarily move organisation within the 'wider public service' – refer to table 3 combining the civil and public service columns. Exceptions arise in 2007, 2008 and 2011[36], when the largest share of primary exits from the public service were directed towards the private sector (2007: 49%; 2008: 50%; 2011: 50%). Furthermore, among those workers leaving the public service, only a small share went to another public service organisation – on average 7%, but with peaks in 2010 (14%) and 2012 (15%). Instead, the majority of public servants increasingly exited their jobs to move into the civil service throughout 2007-2018 – being 44% pre-crisis, 48% during the crisis, and 52% post-crisis.

Table 3: Destination of exits from the Public Service

	Public Service %	Civil Service %	Private Sector %
Public Service			
2007	8	43	49
2008[37]	5	44	50
Avg. 2007-2008	7	44	50
2009	4	55	40
2010	14	44	41
2011	4	46	50
2012	15	47	38
Avg. 2009-2012	9	48	42

[33] As individuals can hold multiple employments in a year, they can also separate from multiple employers within the same year. The analysis of separations concerns only one separation per individual – which is the separation with the highest earnings within the year the separation occurred. It is referred as 'Primary Separation'.

[34] Here the 'wider public service' is conceived as the sum of both civil and public service.

[35] Note that if the employee leaves but is not re-employed in the public service, civil service or private sector (i.e. retirements, people who left the country, etc.), their separation would not be captured in the above.

[36] As per separations definition, 2011 figures reflect those workers who left their jobs at some point during 2010. Therefore, separation figures reported here in 2011 are likely impacted by the moratorium on recruitment that was put in place in 2010.

[37] Percentages representing the destination of staff in a given year to 'all sectors' (public service + civil service + private sector) do not always add up to 100% - e.g. in 2008, 5% + 44% + 50% = 99%. This is due to the fact that the absolute numbers used to calculate 'All Sectors' is derived from the sum of those individuals changing jobs (exits) to the civil service, the public service, and the private sector and also those workers whose new employer has not been allocated a NACE code (called 'blanks' in the original datasets).

Table 3 (continued): Destination of exits from the Public Service

	Public Service %	Civil Service %	Private Sector %
Public Service			
2013	3	57	39
2014	3	64	32
2015	4	56	39
2016	7	48	44
2017	6	39	35
2018	8	47	43
Avg. 2013-2018	5	52	39
Avg. 2007-2018	**7**	**49**	**41**

The **civil service** has been losing the smallest share of staff to the private sector throughout 2007-2018 – remaining well below 50%. Like public service staff, civil servants tended to remain working within the 'wider public service' – seen as the sum between civil and public service in table 3 – and mainly separated to the public service (on average 35% of the primary exits). In 2014, this trend was particularly strong – with 67% of civil servants going to the public service. It is worth acknowledging that exits of civil servants to the civil service itself remained quite high, although lower than exits to the public service. In particular, during the crisis (2009-2012), the greatest share of civil servants separating stayed in the civil service (on average 40%) – with two years where this trend was particularly strong, in 2010 (46%) and 2012 (55%). During better economic times, civil servants separated almost evenly between the public service and the private sector – on average 37% and 36% respectively before the crisis, and 40% and 36% during 2013-2018.

Table 4: Destination of exits from the Civil Service

	Public Service %	Civil Service %	Private Sector %
Civil Service			
2007	37	21	40
2008	37	29	32
Avg. 2007-2008	**37**	**25**	**36**
2009	31	30	36
2010	26	46	27
2011	32	28	38
2012	18	55	25
Avg. 2009-2012	**27**	**40**	**32**
2013	30	25	43
2014	67	9	23
2015	37	21	39
2016	41	20	36
2017	30	20	46
2018	36	32	28
Avg. 2013-2018	**40**	**21**	**36**
Avg. 2007-2018	**35**	**28**	**34**

Therefore, while civil servants moved to the public service in quite large numbers throughout 2006-2018 (on average 35% of the primary exits, see table 4), they moved to stay within the civil service in smaller proportions (on average 28% of the primary exits, see table 4). Instead, the greatest share of public servants moved to the civil service when leaving their jobs (on average 49% of the exits, see table 3), with only a very little portion staying within the public service (on average 7% of the exits, see table 3).

7.2 Exits to the private sector for selected sub-sectoral groups

Health Sector: among the selected sub-sectoral groups, the Health sector represents the one that have been losing the least share of employees to the private sector over the whole period.

Table 5: Destination of exits from the Health Group

	Public Service	Civil Service	Private Sector
	%	%	%
Health			
2007	54	7	39
2008	49	7	44
2009	65	4	30
2010	60	7	32
2011	46	6	48
2012	46	25	30
2013	67	4	28
2014	76	5	19
2015	61	7	32
2016	60	8	32
2017	39	6	23
2018	59	9	32

Education Sector: the Education sector (table 6) has lost the least share of employees to the private sector during the global financial crisis and the two years immeditely before that (2009) and after (2014). During strong economic times (2007-2008 and 2015-2018), the share of employees movign to the private sector was close or above 50% of the overall exits from the sector.

Table 6: Destination of exits from the Education group

	Public Service %	Civil Service %	Private Sector %
Education			
2007	43	3	54
2008	44	3	52
2009	54	2	43
2010	41	20	39
2011	52	2	47
2012	46	13	41
2013	52	2	45
2014	62	1	37
2015	45	2	53
2016	42	4	54
2017	46	3	49
2018	43	4	51

Defence and Local Government: Two sub-sectoral groups have been losing the largest share of exits to the private sector throughout 2006-2018: Defence and Local Government. While the Defence trend shows a clear pattern, there is considerable volatility in Local Government trend during the period. Further research might be appropriate to shed light on possible drivers of exits to the private sector, in particular in the case of the Defence sector.

Table 7: Destination of exits from the Defence group

	Public Service %	Civil Service %	Private Sector %
Defence			
2007	19	8	**70**
2008	23	11	**65**
2009	33	8	**59**
2010	25	23	**53**
2011	12	18	**71**
2012	10	7	**83**
2013	11	4	**85**
2014	7	0	**93**
2015	13	0	**87**
2016	16	4	**80**
2017	16	3	**80**
2018	25	2	**73**

Table 8: Destination of exits from the Local Government group

	Public Service %	Civil Service %	Private Sector %
Local Government			
2007	34	2	**64**
2008	38	3	59
2009	31	3	**66**
2010	22	2	**75**
2011	26	2	**72**
2012	69	1	30
2013	49	1	49
2014	46	1	**53**
2015	78	1	21
2016	37	6	**57**
2017	44	6	**49**
2018	44	7	**48**

Justice: There has been a decrease in recent years of employees being re-employed in the private sector from the Justice sub-sectoral group, with exit percentages below 50% in the years 2007-2009, growing to a max figure of 59% in 2014, and decreasing again from 2015 (41%) to 34% in 2018.

Table 9: Destination of exits from the Justice group

	Public Service %	Civil Service %	Private Sector %
Justice			
2007	16	55	**28**
2008	26	31	**39**
2009	20	29	**48**
2010	17	25	**57**
2011	18	29	50
2012	16	28	56
2013	16	34	49
2014	21	20	59
2015	26	18	**55**
2016	28	29	**41**
2017	21	39	**37**
2018	21	40	**34**

8. Key findings, policy conclusion and future research opportunities

The key findings of this paper will, by informing wider discussion on the workforce planning across the civil and public service, be of particular relevance to each sub-sectoral group and the Public Appointments Service.

8.1 Job churn

- Job movement is lower in the civil and public service than the private sector in all cases throughout 2006-2018.
- Job movement was higher in strong economic times and lower in the economic downturn across all sectors - hence, job churn has been pro-cyclical.
- The public service is the least affected sector by the economic cycle (the least 'pro-cyclical'), as it has the least drop in job churn rate.
- Public service job movement was greater than the civil service in most years throughout 2006-2018. But civil service job churn rates reached or exceeded public service rates in the strong economic years of 2008, 2017 and in 2018.
- While the education and health groups show higher job movements than the other selected groups, their job churn rates are still well below those seen in the private sector throughout the entire period.

8.2 Job stayers ('retention')

- Job stayer rates are greater in the public and civil service than the private sector throughout 2006-2018.
- While private sector workers tended to stay in their jobs during the economic downturn more than in strong economic times, this trend is less evident for the public service.

8.3 Exits and their destinations

- Public service's workers tended to remain within the 'wider public service' when leaving their jobs, especially during and post the global financial crisis – while they nearly as many public servants exited to the private sector pre-crisis (49% in 2007 and 50% in 2008).
- Civil servants tended to remain within the 'wider public service' when leaving their jobs throughout the whole period (2007-2018), and a smaller share of civil servants than public servants exited to the private sector.
- Public service's hiring and exit rates are more stable than the civil service and private sector rates – showing the greatest percentage of civil servants moving/ leaving their jobs at peak economic times.

- Defence and Justice sub-sectoral level groups presented the smallest share of staff leaving their jobs throughout 2006-2018. But most of their 'exiting staff' moved to the private sector throughout 2006-2018.

8.4 Key Policy Conclusions

- Staff movements in the wider public service workforce fluctuated less than in the private sector throughout 2006-2018. The staff movement 'normal' baseline should not default to the moratorium period, which was an outlier.
- Staff movements fluctuate with the economic cycle, hence recruitment and retention activity and policies may need to be tailored consonant of prevailing internal and external market forces.
- The policy decision to protect frontline services, when overall public sector staff full time equivalent numbers reduced by 10%, during the last financial crisis 2008-2013 was among the drivers of the finding that the public service is the least affected sector by the economic cycle (the least 'pro-cyclical').
- Broadly, when people join the wider public service they tend to remain within the same. Civil servants are more likely to stay within either the civil or public service, rather than moving to the private sector. Loyal and experienced staff are an asset, yet staff movement may help to mitigate the risk of groupthink, rapidly acquire skillsets, etc. Exploring an optimal range of job stayer rate to inform HR policies may be worthwhile using international benchmarks of public sector institutions in different jurisdictions prioritised by their citizens' satisfaction levels.
- As the first analysis of this dataset, this paper represents an evidence basis of trends and data to further inform discussions within the human resource, reform and expenditure communities. These further discussions among those with sectoral level policy knowledge should surface the drivers and sectoral nuances of the data; e.g. contractual issues, restructuring within the civil and public service etc. further enhancement the interpretation of the data in policy deliberations.
- This dataset, if made available by the Central Statistics Office on an ongoing basis, could be accessed by those seeking independent comparable sectoral indicators on job churn and its components – e.g. indicators on hiring and retention rates as sought under *Our Public Service 2020* Action 12 'Embed strategic human resource management in the public service'.

8.5 Future Research

This paper presents further questions for future research and potential to further develop the dataset which would be useful additions to the evidence base for understanding the workforce dynamics in the public service.

Examples of questions possible to research from the existing dataset:

- Analyse hirings and exits rates by individual characteristics including age, gender and earnings[38] – to enable specific questions to be considered; e.g. Is there a change in the exit rates among younger recruits over time? How many people are moving for better conditions of work (using the variable 'average weekly earnings' as an indicator of job quality)?
- Extend the analysis to remaining sub-sectoral groups – e.g. Finance, Social Protection, etc. how have other sub-sectoral groups performed throughout 2006-2018?
- Extend the analysis to the 'job component' of job churn – job destruction and job creation.
- Explore the use of international comparators (if available) with a view to better understand the long-run rates.
- A qualitative exploration of the motivational drivers of those leaving their jobs by adding ad-hoc questions in the exit interviews undertaken by the HR units at the organization level.

Potential options to further develop the dataset:

- While the unit of analysis – or 'sub-sectoral groups'[39] in this study – was agreed with the CSO in order to allow for the most data to be available under the Statistics Act 1993 (confidentiality rules) that applied to the dataset, further re-arranging of the groupings of Departments/organisations is possible and may be worth for further consideration in light of these findings for future research.
- Similarly to the 'destination of exits' analysis, the dataset could allow an in-depth 'hirings analysis' focusing on the provenance[40] of hirings – where do those taking jobs in the public service come from?
- Further administrative datasets and record linkage might be considered to overcome some of the shortfalls in the dataset posed by the lack of certain demographic variables, such as educational attainment, field of study, occupation, grade, job tenure of workers or labour market experience, etc.
- There is room to explore whether there is any mechanism to access the dataset at lower organisational level to understand staff movements within sectors under the Data Sharing and Governance Act[41] and subject to the approval from different stakeholders[42] and compliance with GDPR.

[38] In the absence of grade information, 'average weekly earnings' could be used as an indicator of job quality.
[39] It was considered that the most appropriate grouping of organisations in this context was the 'sub-sectoral group', which allowed to clearly identify the 6 main sectors that OPS2020 puts its focus on.
[40] Subject to provision of the specific dataset from the CSO.
[41] http://www.irishstatutebook.ie/eli/2019/act/5/enacted/en/html
[42] In particular, the Data Sharing Governance Board, the Revenue Commissioners, and the Department of Employment and Social Protection (DEASP).

Glossary

Macro-level Groups	Definition
Civil Service	Only the civil service parts of the sub-sectoral groups. Only departments and those organisations whose employees are considered civil servants (e.g. CSO)
Public Service (excl. Civil Service)	Only the public service parts of all sub-sectoral groups – i.e. excluding civil service organisations.
Private Sector	All employing enterprises in NACE Rev 2 sectors B – S, excluding public service, civil service & non-commercial semi-state bodies.

Variable Name	Definition
Employments	Employment in period t is estimated as the number of valid employment records with non-zero reckonable pay for that enterprise in the period. This estimate does not factor in duration of employment or whether an employment is part-time or full-time in nature. At the enterprise level, differences in employment between period t-1 and t are equal to: $\Delta E_{it} = H_{it} - S_{it} = JCr_{it} - JD_{it}$
Hirings (H)	Hirings are calculated as the number of employment records assigned to an individual in an enterprise in period t for which a corresponding employment record for that individual did not exist in period t-1 with respect to the enterprise.
Separations, or 'exits' in this paper (S)	Separations are calculated as the number of employment records assigned to an individual in an enterprise in period t-1 for which a corresponding employment record for that individual did not exist in period t with respect to the enterprise. The separations occur sometime in period t-1, and the estimated separations figure is assigned to period t.
Job Creation (JCr)	Job creation is measured as the difference in the number of employment records in an enterprise, with non-zero reckonable pay, between two periods, t and t-1, if that difference is positive.
Job Destruction (JD)	Job destruction is measured as the difference in the number of employment records in an enterprise, with non-zero reckonable pay, between two periods if that difference is negative. The jobs destruction figures are assigned to period t even though technically the jobs were lost in period t-1.
Job Stayers	Job stayers are calculated as the number of employment records assigned to an individual in an enterprise in period t-1 for which a corresponding employment record exists for that individual in period t with respect to the enterprise.
Primary Separations, or 'exit' in this paper (used in exit analysis)	As employees can hold multiple employments in a year they can separate from multiple employers within a year. The analysis of separations focuses on one separation per employee. This Primary Separation is identified as the separation with the highest earnings within the year the separation occurred.
Primary Hirings	As employees can hold multiple employments in a year they can also be hired by multiple employers within a year. The analysis of separation and destinations focuses on one separation per employee and one hiring per employee in the year. The Primary Hiring is identified as the hiring with the highest earnings within the year the hiring occurred.

Variable Name	Definition
Job Reallocation (REALJ)	Total job reallocation (REALJ) refers to the sum of job creation (JCr) and job destruction (JD) for a group of enterprises.
Excess Job Reallocation (EXCJ)	Excess job reallocation (EXCJ) for a group of enterprises is defined as the difference between total job reallocation (REALJ) and the absolute net change in total employment (absolute value of job creation minus job destruction). "Excess job reallocation provides therefore a measure of simultaneous and off-setting job creation and job destruction by different firms belonging to the same group. In other words, excess job reallocation represents the reallocation of labour resources between firms within the same group whereas the group's absolute net employment change provides a measure of reallocation across different groups of firms (e.g. different industries)" (Bassanini, A., & Marianna, P., 2009).
Worker Reallocation (REALW)	Total worker reallocation (REALW) refers to the sum of hirings (H) and separations (S) over all members of a specified group (firms or demographic characteristics e.g. age, gender etc.).
Excess Worker Reallocation (EXCW)	Excess worker reallocation (EXCW) for a group is defined as the difference between total worker reallocation (REALW) and the group's absolute net change in employment (absolute value of hirings minus separations) "Excess worker reallocation provides a useful measure of the number of job matches that are created and destroyed, over and above the minimum necessary to accommodate net employment growth. In other words, it reflects the reallocation of job matches (the reshuffling of jobs and workers) within the same group" (Bassanini, A., & Marianna, P., 2009).
Job Churn / Churning Flows (CH)	At the enterprise level, churning flows (CH) is the difference between excess worker reallocation and excess job reallocation. Churning flows represent labour reallocation arising from firms churning workers through continuing jobs or employees quitting and being replaced on those jobs. $CH_{jt} = EXCW_{jt} - EXCJ_{jt} = REALW_{jt} - REALJ_{jt} = H_{jt} + S_{jt} - JCr_{jt} - JD_{jt}$

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Appendix 1: Sub-sectoral Groups

Sub-sectoral groups are made up of organisations that are considered as being both civil and public service.

Only the sub-sectoral group 'local government' is made of only public service organisations.

Sub-sectoral Groups	Definition
Agriculture	Department of Agriculture, Food and the Marine (DAFM), and agencies under its aegis.
DBEI	Department of Business, Enterprise and Innovation (DBEI), and agencies under its aegis.
DCCAE	Department of Communications, Climate Action and the Environment (DCCAE), and agencies under its aegis.
DCHG	Department of Culture, Heritage and the Gaeltacht (DCHG), and agencies under its aegis.
DCYA, DEASP and DFAT[43]	Department of Children and Youth Affairs (DCYA), Department of Employment Affairs and Social Protection (DEASP), Department of Foreign Affairs and Trade (DFAT), and agencies under their aegis.
Defence[44]	Department of Defence, and organisations under its aegis.
DHLPG	Department of Housing, Planning and Local Government (DHPLG), and agencies under its aegis. NOTE: excludes Local Authorities (see below).
Local Government	Local Authorities – City and County Councils, and Town Councils (before they were disbanded). Organisations under the aegis of local authorities are included in Local Government when their employees are included in the local authority's PREM Number.
DPER	Department of Public Expenditure and Reform (DPER), and agencies under its aegis.
DRCD	Department of Rural and Community Development (DRCD), and agencies under its aegis.
DTTAS	Department of Transport, Tourism and Sport (DTTAS), and agencies under its aegis.
Education[45]	Department of Education and Skills (DES), agencies under its aegis, first level education (schools) and second level education (universities). Note: the employees of the Department of Education and Skills and its agencies represent a very small proportion of what is considered to be the workforce in the education sector.
Finance	Department of Finance, and agencies under its aegis.
Health	Department of Health, and agencies/organisations under its aegis – e.g. Food Safety Authority of Ireland, HSE, hospitals, etc.
Justice	Department of Justice and Equality (DJE), and agencies/organisations under its aegis – e.g. the Irish Prison Service, the Courts Service, An Garda Siochana, etc..
Taoiseach	Department of the Taoiseach, and agencies under its aegis.

[43] As outlined in Section 2.3 Limitations and caveats, due to confidentiality rules under the Statistics Act 1993, the data was aggregated by the CSO and provided for analysis by 'sub-sectoral' grouping. As DCYA, DEASP and DFAT alone would have been in breach of confidentiality rules, they had to be grouped together. Similarly, further re-arranging of the groupings of Departments/organisations is possible and may be worth for further consideration in light of these findings for future research.

[44] The Irish Defence Forces are made up of three branches: Army, Naval Service and Air Corps – all three branches are included in the 'Defence Sector', together with the Department of Defence.

[45] As outlined in Section 2.3 Limitations and caveats, the movements of teachers paid directly by the Department of Education and Skills are not accounted for in the job churn figures. Similarly, the figures do not include those teachers moving between schools within Education and Training Boards (ETBs).

Appendix 2: Schematic Overview of Literature review

Country	Paper	Key Insights
OECD	Bassanini, A. and Marianna, P. (2009)	The authors use cross-country comparable data on both job and worker flows to examine key determinants of these flows and of their cross-country differences. Their focus is on the job and worker flows in the private sector of market-based economies – which is characterised by "continuous process of creative destruction of jobs and job-matches: Each day, new firms start up; existing firms expand, contract and eventually shut down; individuals are hired to fill new positions or to replace previous employees on existing jobs; others quit or are dismissed".
USA	Burgess, Lane, & Stevens, 2000	The authors utilize a large employer-level panel dataset to explore the links between gross job flows and gross worker flows in the private sector. They focus their interest on hiring and separations due to firm churning workers, that is in excess of job creation and destruction.
Finland	Ilmakunnas & Maliranta, 2001	The authors investigate job and worker flows in the Finnish business sector during a deep recession in the early 1990s. The flows are calculated both for the whole business sector, and for seven main industries. Services have clearly higher flow rates than manufacturing, but the cyclical changes in the flows are fairly similar in all industries. To test the sensitivity of the results to data sources, job flows are calculated also using Business Register and Industrial Statistics.
Germany	Guertzgen, 2007	Using a large linked employer-employee data set, the author investigate the relationship between job reallocation, worker reallocation and the flexibility of wages in western German manufacturing sector.
Norway	Li, 2010	The authors investigate job reallocation and labour mobility in Norwegian (private) firms that are heterogeneous with respect to the internationalization strategy, R&D intensity, and knowledge activity. The analysis is based on matched trade data and employer-employee data from 1996 to 2005.
South Africa	Kerr, 2018	In this paper, the extent of job flows, worker flows and churning in South Africa's labour market is investigated. Worker and job flows are

		estimated using anonymised IRP5 tax certificate data from the South African Revenue Service from the 2011–2014 tax years.
Ireland	Dunne (2011)	The paper covers experiences from the first 'Job Churn Explorer' project at CSO with a particular focus on a sectoral flow analysis of job separations. The project focused on the Irish labour market as a whole, as Ireland entered the recessionary period caused by the 2008 global financial crisis.
Ireland	Fox, R. (2009) Job opportunities in the Down-Turn. FAS	The analysis presented in this report was intended to provide guidance in terms of job opportunities in the Irish labour market during the down-turn and aimed to better understand the prospects for different occupations.
Ireland	Doris, O'Neill and Sweetman, 2016	The authors examine nominal earnings flexibility (wage changes) in the Irish Labour Market during the Great Recession, using tax return data that are free of reporting error and cover the entire population of workers.

Quality assurance process

To ensure accuracy and methodological rigour, the author engaged in the following quality assurance process.

- ✓ Internal/Departmental
  - ✓ Line management
  - ✓ Spending Review Sub-group and Steering group
  - ✓ Other divisions/sections
  - ✓ Peer review (IGEES network, seminars, conferences etc.)

- ✓ External
  - □ Other Government Department
  - ✓ Advisory group
  - □ Quality Assurance Group (QAG)
  - □ Peer review (IGEES network, seminars, conferences etc.)
  - □ External expert(s)

- ✓ Other (relevant details)
  - ➢ Central Statistics Office (CSO) and
  - ➢ Office of the Government Chief Information Officer (OGCIO).

An Roinn Caiteachais
Phoiblí agus Athchóirithe
Department of Public
Expenditure and Reform

Tithe an Rialtas. Sráid Mhuirfean Uacht,
Baile Átha Cliath 2, D02 R583, Éire
Government Buildings, Upper Merrion Street,
Dublin 2, D02 R583, Ireland

T:+353 1 676 7571
@IRLDeptPer
www.per.gov.ie