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Job opportunities are falling fastest in occupations that are directly exposed to the restrictive measures to fight Covid-19 – like, hospitality, tourism, personal services and some retail. Countries with a higher share of employment in these occupations – such as Ireland and the UK – have seen some of the largest declines in online job postings on *Indeed*

Efforts to fight the Covid-19 pandemic have shut down entire sectors of most major economies. The containment measures are showing up in record numbers of people seeking unemployment benefits and other income support measures introduced in response to the crisis.

At a time when official labour market statistics do not yet reflect the full impact of the crisis, alternative sources of information can shed light on the situation. This paper uses job postings data from *Indeed* to give a real time indicator on the impact of the Covid-19 pandemic on the labour market both globally and in Ireland, and which sectors have been most affected. At the country level, we can see that the pandemic is having a large impact on the labour market by looking at the fall in hiring intentions, as measured by declines in online job postings on *Indeed* (Table 1). Job postings have fallen everywhere. However, as the range of -11 to -40 per cent indicates, not all countries are equally affected.

Of the countries listed, Australia, the UK and Canada fare worst in terms of the year-on-year decline in the trend in job postings. Within Europe, there are considerable differences between countries, with the likes of Ireland, Italy and Spain seeing sharp drops, whilst Germany, the Netherlands and Belgium experience smaller falls. The next section looks at what might explain some of these cross-country differences.

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Table 1 | Decline in job postings in 2020

Job postings trend on Indeed as of 3 April 2020 (vs. same day in 2019)

Country	Change in job postings trend
Australia	-40.6%
United Kingdom	-36.4%
Canada	-35.5%
Ireland	-32.2%
Italy	-31.3%
France	-30.8%
Spain	-27.6%
United States	-23.6%
Netherlands	-23.1%
Belgium	-18.3%
Germany	-14.0%
Japan	-11.3%

Source: Indeed, 1 February - 3 April, 2020 versus 2019 index

Ireland has seen some of the largest declines in job postings in 2020

Restrictions impact some jobs more than others

Differences in the composition of employment across countries – and specifically, the proportion of workers in occupations most likely to be exposed to the containment measures – could explain differences in the impact of Covid-19 on the labour market.

How do we know which occupations are most directly exposed to restrictions on economic activity as a result of the crisis? [Dingel and Neiman \(2020\)](#) argue that the impact of social distancing measures on the labour market could be mitigated if work can be done from home. Using information from *Occupational Information Network (O*NET)* surveys covering “work context” and “generalized work activities”, they determine which occupations cannot be performed from home, and map this to Bureau of Labour Statistics occupations.¹ Table 2 summarises their results for broad occupation groups. The figures in column 2 summarise the extent to which all sub-occupations in this group can be done from home. In other words, a score at, or close to one, indicates a very *high* degree of work-from-home potential.

The grouping is intuitive, with sales-related, hospitality, construction and some manufacturing roles all scoring very low on the index. We take a cut-off of one-third for jobs that have low work-from-home potential, and estimate the proportion of workers in these, or very similar, occupations in the countries in our sample. We map the US occupation categories to two-digit

¹ This is similar to the approach in [Leibovici et al. \(2020\)](#) who use answers to questions in the American Community Survey on the degree to which a job “requires the worker to perform job tasks in close physical proximity to other people” to construct a “job proximity index” for occupations at the six-digit level.

ISCO-08 groups, as used in European survey data (column 3), calculating the share of employment in low work-from-home occupations.² We do the same for Canada, Australia and the UK using official cross-walks to ISCO-08, where available, and manual mapping where it is not.³

Table 2 | Share of jobs that can be done at home, by occupation's major group

	ONET derived baseline estimate (%)	ISCO-08 two-digit occupations
15 Computer and mathematical Occupations	100	
25 Education, Training & Library Occupations	98	
23 Legal Occupations	97	
13 Business and financial operations occupations	88	
11 Management occupations	87	
27 Arts, Design, Entertainment, Sports and Media Occ	76	
43 Office and Administrative Support Occupations	65	
17 Architecture and Engineering Occupations	61	
19 Life, Physical and Social Science Occupations	54	
21 Community and Social Service Occupations	37	
41 Sales and Related occupations	28	52, 95
39 Personal Care and Service Occupations	26	53, 51
33 Protective Service Occupations	6	54 (excluding Police & Fire)
29 Healthcare Practitioners and Technical Occ.	5	<i>Exclude</i>
53 Transportations and Material Moving Occupations	3	83
31 Healthcare Support Occupations	2	<i>Exclude</i>
45 Farming, Fishing, and Forestry Occupations	1	61, 62, 63, 92
51 Production Occupations	1	72, 73, 74, 81, 82
49 Installation, Maintenance, and Repair Occ.	1	93
47 Construction and Extraction Occupations	0	71
35 Food Preparation and Serving Related Occupations	0	75, 94
37 Building and Grounds Cleaning and Maint. Occ.	0	91, 96

Source: [Dingel and Neiman \(2020\)](#) and own calculations based on ISCO-08

Healthcare and some public-sector protective service occupations (fire and police) have low work from home potential but we exclude them from our

² [Eurostat](#) publishes survey data on actual work-from-home behaviour (proportions of workers that 'sometimes' or 'often' work from home) for some European countries. Our country-level estimates correlate closely with this data.

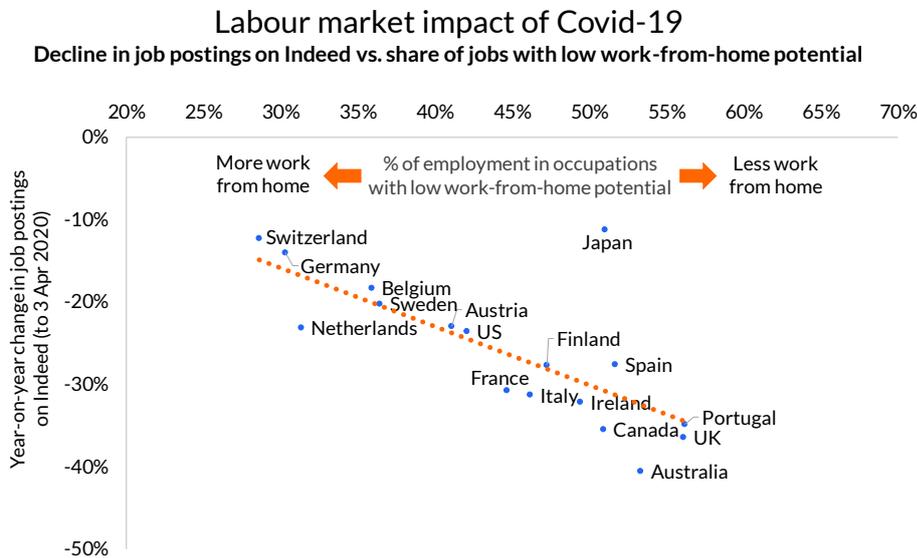
³ Data for European countries and the UK is extracted from EU-SILC 2016-18; US data from the BLS (Table 1.2 Employment by detailed occupation, 2018); Canada from Statistics Canada (2018, Table 14-10-0297-01); Australia from the Australian Bureau of Statistics (Labour Force Survey, Feb 2020); Japan from UN Demographic Statistics Database (Employed population by occupation, age and sex, 2015).

calculations. The nature of the public health crisis means that demand for workers in these occupations remains strong.

Figure 1 plots the share of employment in occupations with lower work-from-home potential against the annual change in the trend in Indeed job postings at the country level. A higher percentage on the x-axis means a greater share of employment in jobs with low 'work-from-home potential'. We show G7 countries and other countries where Indeed is a major job search platform, and where suitable data on the occupational mix of employment is available.

Job postings have generally fallen more – by 30 to 40 per cent – in countries with a higher proportion of employment in occupations with lower work-from-home potential. This includes Ireland, the UK, Portugal, Spain, Canada and Australia – where the percentage of employment in lower work-from-home occupations ranges from 50 to 60 per cent. In contrast, Germany, Switzerland, the Netherlands, Belgium and Sweden all tend to have a lower share of employment in occupations with low work-from-home potential (between 30 to 40 per cent), and have experienced relatively smaller declines in job postings (15 to 20 per cent).

Figure 1 | Share of employment in occupations with low work-from-home potential and the decline in job postings (G7 + selected European countries + Australia)



Source: Indeed, 1 February - 3 April, 2020 versus 2019, and various statistical sources for employment composition data.

On average, a one percentage-point increase in the share of low work-from-home employment is associated with around 0.7 of a percentage-point decline in job postings between 1st February and 3rd April 2020, relative to the trend during the same period last year. Between 53 (when we include Japan) and 84 (excluding Japan) per cent of the cross-country variation in job

postings can be ‘explained’ by the pre-crisis occupational composition of employment.

Japan is an outlier in the chart – a country with mid- to high-share of low work-from-home jobs (manufacturing, in particular), but a relatively small fall-off in job postings. Japan has had a low rate of infections per head of population, and relatively fewer restrictions until recently, which might explain this. This observation demonstrates that occupational composition cannot fully explain the impact of containment measures on the labour market.

There are many reasons why each country’s labour market may respond differently to this crisis, both in the short and in the long term. They include differences in the timing and type of restrictions imposed in each country; differences in existing labour market institutions (such as allowing flexibility for short-term work); and differences in the policy response to the crisis (such as wage subsidies and financial support given to businesses). But it appears that the pre-crisis composition of employment is one feature strongly associated with the outcomes we are seeing on the job posting front.

Trends in Ireland

In an earlier paper, [Adrian and Lydon \(2019\)](#), we compare *Indeed* data with Central Statistics Office (CSO) published labour market data. Across a range of dimensions – vacancy trends, geographies, employment growth and the occupational mix of new hires – we showed that the online data closely tracked labour market trends in official statistics. Here, we look at current job posting trends, and, in particular, which types of roles have seen the largest declines following the restrictions introduced to tackle the pandemic.

Figure 2 highlights the job posting trends in Ireland through 3rd April. The three lines are for 2018 (blue), 2019 (red) and 2020 (yellow). Whilst 2020 was slightly below the previous two years, the major impact of the containment measures did not kick in until mid-March. By 3rd April, postings were almost a third below those observed in previous years. For comparison, job vacancy numbers in the last crisis, as recorded by the Central Statistics Office, fell by over 70% from peak-to-trough. Although, this decline took place over two years, from 2008 Q1 to 2009 Q4.

Figure 2 | Job postings in Ireland on Indeed

Source: Indeed, 1 February - 3 April. Seven-day moving average. 01 February in each year = 100.

Table 3 shows the change in job postings for a selection of occupations. This data can provide useful insights in a time of rapid change. Furthermore, information from official sources, such as the Labour Force Survey, is not yet available, and may face further delays because the containment measures themselves affect data gathering.

To an extent, the pattern in Table 3 is just a more granular version of Figure 1. We observe the largest declines in hospitality, tourism, personal services and (some) retail roles. Some of the declines, e.g. in nursing, are perhaps surprising, given that this is a health crisis. However, it is important to point out that an advertisement for multiple positions in a single (perhaps broad) role could appear as a *single* job posting. For example, a hiring call by a recruiter or employer for general nursing applications, might only count as one posting.

Supermarket jobs is one category that has seen a sharp rise in the demand for workers during the crisis. The number of supermarket job postings increased by around one-fifth in the first half of March.⁴

⁴ To obtain this figure we look at the change in the number of postings by the largest supermarket businesses; that is, Spar, Lidl, Dunnes, Tesco, Musgrave, BWG, Londis, Aldi. Whilst this includes all types of roles, including HQ/office roles, the most common job title in supermarket jobs posted over the last month is 'customer assistant'.

Table 3 | Decline in job postings in 2020 for selected occupations**Job postings trend on Indeed as of 3 April 2020 (vs. same day in 2019)**

Select occupations	Change in job postings trend
Beauty & Wellness	-80.1%
Hospitality & Tourism	-75.9%
Food Preparation & Service	-68.0%
Driving	-49.3%
Childcare	-49.1%
Construction	-48.2%
Security & Public Safety	-47.6%
Retail	-38.7%
Customer Service	-26.4%
Nursing	-25.3%
Software Development	-20.6%
Logistic Support	-17.5%
IT Operations & Helpdesk	-16.3%
Insurance	-13.9%
Medical Information	-12.1%
Personal Care & Home Health	-8.3%
Pharmacy	1.5%

Source: Indeed, snapshot as of 03 April

Conclusion

The Covid-19 health crisis is unprecedented in many ways, including the speed with which the containment measures have put a stop to large amounts of economic activity. This, in turn, has led to a large decline in labour demand, in particular for roles and occupations directly affected by the containment measures.

In a fast-moving situation, access to 'live' or close-to-real-time information on labour market developments is vital for understanding how the economy is affected, how certain groups in society might be more or less affected, and for designing the appropriate policy response.

Using *Indeed* data on job postings, this note shows that the labour demand impact of the restrictions at the country level is correlated with the proportion of aggregate employment that has less 'work-from-home potential'. Ireland is one of the most affected countries, in terms of the decline in hiring intentions.

At the occupation level, we show that roles in the likes of hospitality, tourism, personal services and retail have seen some of the largest declines. It is important to remember that these are *direct*, or first-order, effects. Other occupations or sectors may experience weaker labour demand in the future as these shocks ripple through supply chains and the economy more generally.



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