

Impact of the 4-Week Circuit Breaker – Hypothetical Extraction Model

Department for the Economy

November 2020

Methodology

With the introduction of a 4-Week Circuit breaker in Northern Ireland due to Covid-19, large parts of the Hospitality, 'Close Contact Services' & Arts, Entertainment and Recreation sectors will be closed. These service areas impacted have been mapped using Standard Industrial Classifications (SIC) codes. The mapping of these sectors enables the use of NISRA's (2016) input-output (IO) tables.

With the use of IO tables, 'shock' scenarios can be applied using the Hypothetical Extraction Model (HEM). HEM uses the interconnection between sectors to quantify the economic importance of an individual sector or groups of sectors. HEM works by extracting the purchases and sales made by sectors from the model of Northern Ireland's Economy, this results in a reduction in economic activity across the whole economy. Using HEM the particular parts of sectors impacted by the 4-Week Circuit Breaker were extracted from the model, using employment levels from the Business Register and Employment Survey (BRES). The results will provide a theoretical idea about how output might be impacted in terms of direct, indirect and induced effects. The results which are referenced within the explanation relate to what would hypothetically happen if these sectors were extracted over a calendar year, this has been done due to the uncertainty over the persistence of these changes, however a proportional 4 week extraction has been made for comparison purposes.

Results

Table 1 'Direct, Indirect and Induced effects on Output of Extracting Impacted Sectors' shows the extraction of 'Close Contact Services' from the NI economy, this results in a direct output reduction of £310m. When combined, the direct, indirect and induced effects of the extraction cause a total output reduction of £555m.

The majority of the Hospitality sector will be impacted apart from some exceptions such as take away, delivery of food and Self-Catering accommodation which can remain open. The extraction of the impacted areas of Hospitality results in a reduction in direct output of £1.431 billion. When combined with the indirect and induced effects, the total output decline equates to a £2.86 billion.

For Arts, Entertainment and Recreation, an estimate of two thirds of the sector are due to be impacted. The extraction of the purchases and sales made by this sector results in a direct output reduction of £814m, when indirect and induced effects are combined to this the total output decline is £1.695 billion.

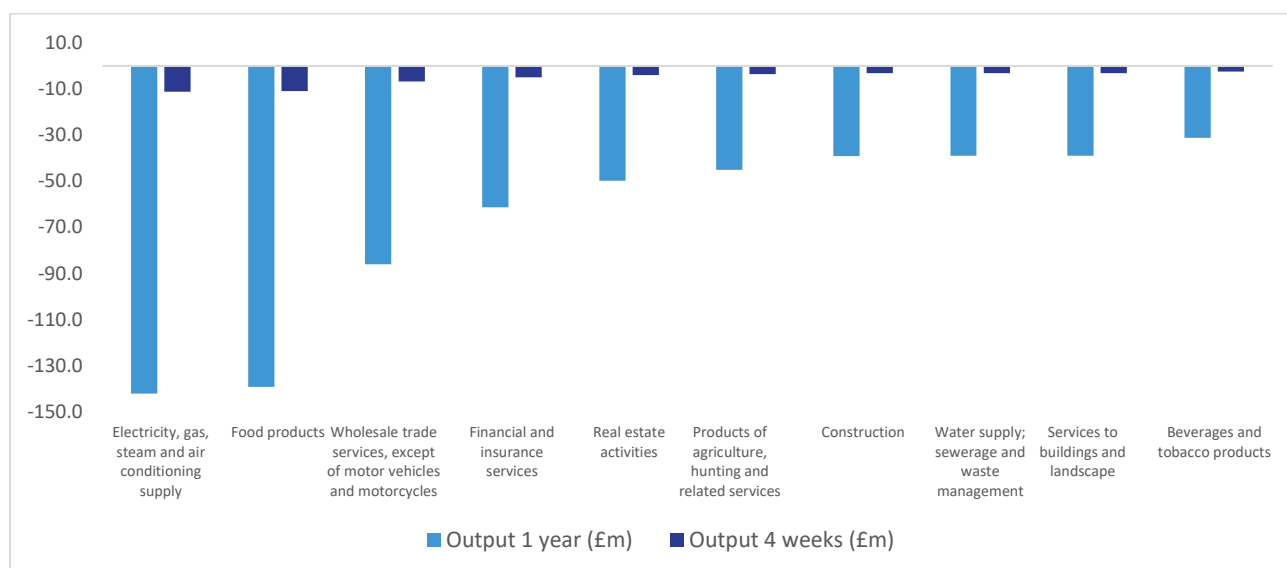
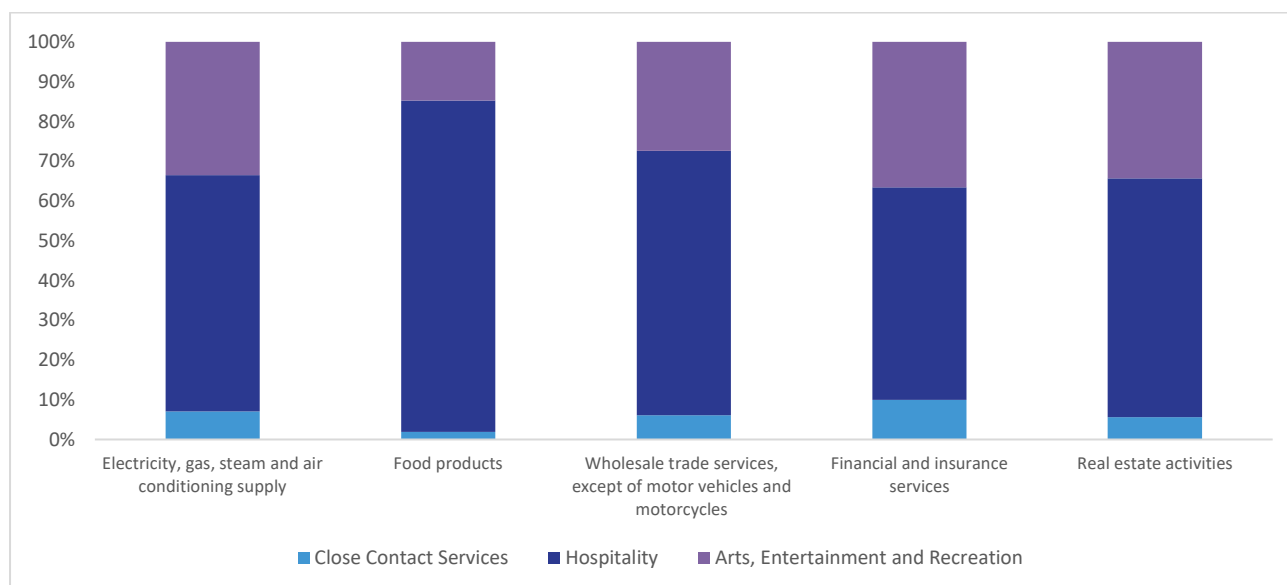
The theoretical modelling indicates the cumulative effect of the closure of these services results in a direct output loss of £2.56 billion to Northern Ireland's Economy, due to the reduction of expenditure by these firms. The reduction in final use has knock-on effects for both indirect and induced impacts which cumulatively has a total output effect of £5.12 billion. However if these losses were contained within the 4-Week Circuit breaker, the total output effect would be a £423m loss to the economy.

Table 1: Direct, Indirect and Induced effects on Output of Extracting Impacted Sectors

Sector	1 Year Direct Output (£m)	4 Weeks Direct Output (£m)	1 Year Indirect Output (£m)	4 Weeks Indirect Output (£m)	1 Year Induced Output (£m)	4 Weeks Induced Output (£m)	1 Year Total Output Effect (£m)	4 Weeks Total Output Effect (£m)
Close Contact Services	-310		-67		-178		-555	
Hospitality	-1,431		-588		-849		-2,868	
Arts, Entertainment and Recreation	-814		-466		-415		-1,695	
Cumulative Business Closures	-2,555	-196	-1,121	-94	-1,442	-133	-5,118	-423

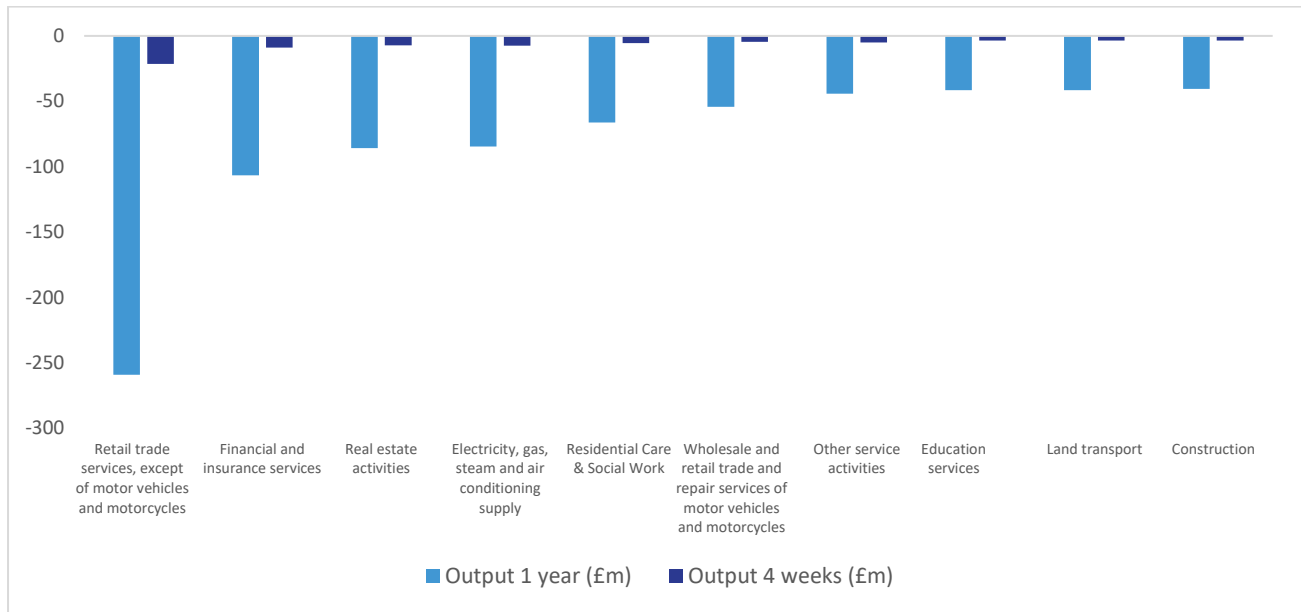
Figure 1 shows that Electricity, gas, steam and air conditioning supply is the sector most interconnected with the closed sectors. The hypothetical shut down means these businesses will be using much less than they would usually use for utilities such as lighting and heating. As a result there is an indirect output decline of just over £140m. From Figure 2 it is evident that the largest share (59%) in the drop in indirect output is from the Hospitality sector, however a significant share (33%) comes from Arts, Entertainment & Recreation which reflects the reliance cinema's, theatre's and sports facilities have on this sector also.

The Manufacture of food products is heavily impacted by the closure of the Hospitality sector, from Figure 1 just under £140m of output will be lost indirectly, the strong interconnectedness of these sectors is indicated in Figure 2, where we can see (83%) of the total output decline in Food Products comes from the closure of Hospitality. Wholesale trade services which includes sub-sectors such as wholesale of food, beverages and tobacco and wholesale of household goods, is impacted by a £86m decline in output. Hotels and B&B's are strongly interconnected to trade with Wholesalers for food, beverages etc. Figure 2 reflects this as (66%) of the decline in output is felt in the Hospitality sector.

Figure 1: Sectors most indirectly effected by the 4-Week Circuit breaker (Output £m)**Figure 2: Most indirectly effected Sectors, % of Output decline caused by closure of Close Contact Services, Hospitality and Arts, Entertainment & Recreation**

In this hypothetical scenario, expenditure activities of firms directly impacted has fallen, decreasing direct output. This decrease in final use has led to a reduced use of their suppliers and further down the supply chain decreasing indirect output.ⁱ The combined impact of direct and indirect effects will then cause induced effects through decreases in wages for those sectors impacted and this will reduce expenditure on goods and services within the NI Economy. From Figure 3 it is apparent that the most pronounced induced effect is seen in Retail Trade Services who would see over £250m in induced output decline. The reduced household income through lower wages and job losses across the economy means households in turn reduce their Retail spending especially for non-essential items. The induced effects are also significant for Financial and Insurance services sector, totalling £106m. Finally, Real Estate Activities have a fall in output of £86m, which is driven by lower wages which have resulted from reduced employment.

Figure 3: Sectors most impacted in terms of induced effects for the 4-Week Circuit Breaker



ⁱ [NISRA - The Analytical Input-Output tables](#)