

Extended Abstract

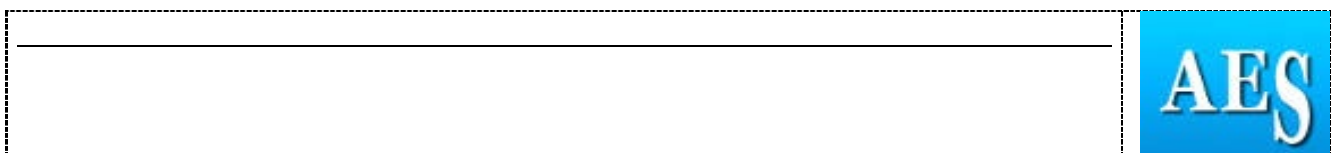
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| Paper/Poster Title | A resilience analysis of the contraction of the accommodation and food service on the Scottish food industry |
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Abstract prepared for presentation at the 97th Annual Conference of the Agricultural Economics Society, The University of Warwick, United Kingdom

27th – 29th March 2023

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| Abstract | 200 words max |
| <p>The Scottish economy has been exposed to several adverse shocks over the past 5 years. Examples of these are the effects of Brexit, COVID-19 pandemic and more recently the Russia-Ukraine war, which can result in adverse direct and indirect economic losses across various sectors of the economy. These shocks had adverse effects on the accommodation and food service sector which could have cascading effects on interconnected sectors, especially the food and drinks sector. This paper explored this in detail by 1) exploring the degree of resilience of the Scottish food and drinks sector, (2) estimating the effects of the disruption to other interconnected sectors on the economy; and (3) estimating the economic losses which is the financial value associated with the reduction in output for all sectors. To achieve these, the study relied on the Dynamic Inoperability Input-Output Model (DIIM), which considers the relationships across the different sectors of the Scottish economy over time. The DIIM shows that the disruption to this sector had a cascading effect on the remaining 17 sectors of the economy. The Processed and preserved fish, fruits and vegetable sector is the least resilient whilst the other services sector had the highest economic loss.</p> | |
| Keywords | COVID-19; Scotland food and drink industry; dynamic interoperative input-output model; dynamic recovery |
| JEL Code | C67; C53; D57; see: www.aeaweb.org/jel/guide/jel.php?class=Q) |
| Introduction | 100 – 250 words |
| <p>The Scottish economy continued to suffer after Brexit in 2020 due to the global COVID-19 pandemic. Estimates of the monthly gross domestic product (GDP) indicated that it fell by about 22 per cent using 2016 as the baseline. In addition, there was also a contraction of several final demand components. The economic impact of disruptions such as COVID-19 and Brexit on the economy manifested on two fronts: the labour market and the final demand (i.e., consumption of households, exports, and government expenditure). Labour shortage in a productive sector can render it inoperable and since different sectors are mutually dependent, they become indirectly affected because of their linkages. The present paper is like the work by Haimar and Santos, (2014) in the sense that it uses the dynamic inoperability input-output model (DIIM) to analyse the impacts of a pandemic (influenza, in their case). However, in contrast with them, the purpose of this paper is to explore the effect that the contraction of the final demand of the ‘accommodation and food service activities’ sector had on</p> | |



the Scottish food and drinks sector as well as interrelated sectors. The choice of the sector was due to its close relation with the agricultural and food processing sectors.

Methodology

100 – 250 words

The Leontief Input-Output model presents a framework capable of describing the extent of interconnectedness among different sectors of the economy. Haimés and Jiang (2001) extended the Leontief model by focusing on the spread of inoperability into a networked system – input-output inoperability model (IIM). The model has been used extensively to assess the impact of catastrophic disasters on the entire economy until it was extended by Lian and Haimés (2006) to incorporate intertemporal analysis – Dynamic Input-Output Inoperability model (DIIM). The advantages are that it uses an estimated industry resilience coefficient to determine the speed with which industries recover after a disruption. It also allows researchers to represent the dynamic behaviour of disrupted and interdependent sectors in the recovery duration. We relied on the DIIM to estimate the resilient coefficients of 18 sectors following the Covid-19 disruption; the effects of Covid-19 disruption on interconnected sectors; and the economic losses due to the disruption across all sectors.

Results

100 – 250 words

We show in this analysis that 1) the Covid-19 pandemic disrupted all sectors of the Scottish economy with the accommodation and food sectors being the most affected; 2) the temporary reduction in final demand in the accommodation and food service activities due to the pandemic had cascading effect on interconnected sectors of the economy; 3) economic sectors have different coefficient of resilience (resistant to/recovery from shocks) and dynamic recovery rates when exposed to the same disruption, and finally economic losses vary across different sectors.

Discussion and Conclusion

100 – 250 words

We estimated the sector-specific resilience coefficient to show the speed with which these sectors return to full operation. The results show that the Processed and preserved fish, fruits and vegetable sector is the least resilient (most disrupted) whilst Preserved meat and meat products sector is the most resilient (least disrupted) to final demand disruption in the accommodation and food service sector. The dynamic recovery curve shows that recovery is quicker for the agricultural, fishery and forestry sector after 10 months compared to the remaining sectors especially the soft drinks sector. The least economically affected sector was the other food products sector whilst the other services sector had the highest economic loss. Despite the fact that the soft drinks sector had a slow recovery rate, economic losses were lower compared to the agricultural, fishery and forestry sector. From the policy perspective, we have shown that the most disrupted sector by the Covid-19 pandemic is the accommodation and food service sector. Stakeholders in the accommodation and food service sector should re-examine the sector and develop capacity against future pandemics. In addition, since pandemics affect interconnected sectors, it is important for economic sectors to collaborate either vertically or horizontally by sharing information and risk to reduce the burden of future disruptions. The most vulnerable interconnected sector of the economy i.e. other services sector should form a major part of government policy decision-making when planning against future pandemics.