

## Abstract Eco&Stat n°134 - The impact of COVID-19 on Industrial Production in Luxembourg

In 2020, the COVID-19 pandemic led to a sharp drop in demand for service activities requiring intense interpersonal interactions. Against this background, this study evaluates for the first time total economic impacts from initial COVID-19 demand shocks for Luxembourg, a small open economy highly integrated in Global Value Chains [GVCs]. The analysis is conducted at the industry level.

More specifically, the study estimates the impact of the pandemic on Luxembourg's industrial production focusing on inter-industry linkages and adopting an input-output approach. The study also depicts the economic structure of Luxembourg and its inter-dependencies with other foreign industries.

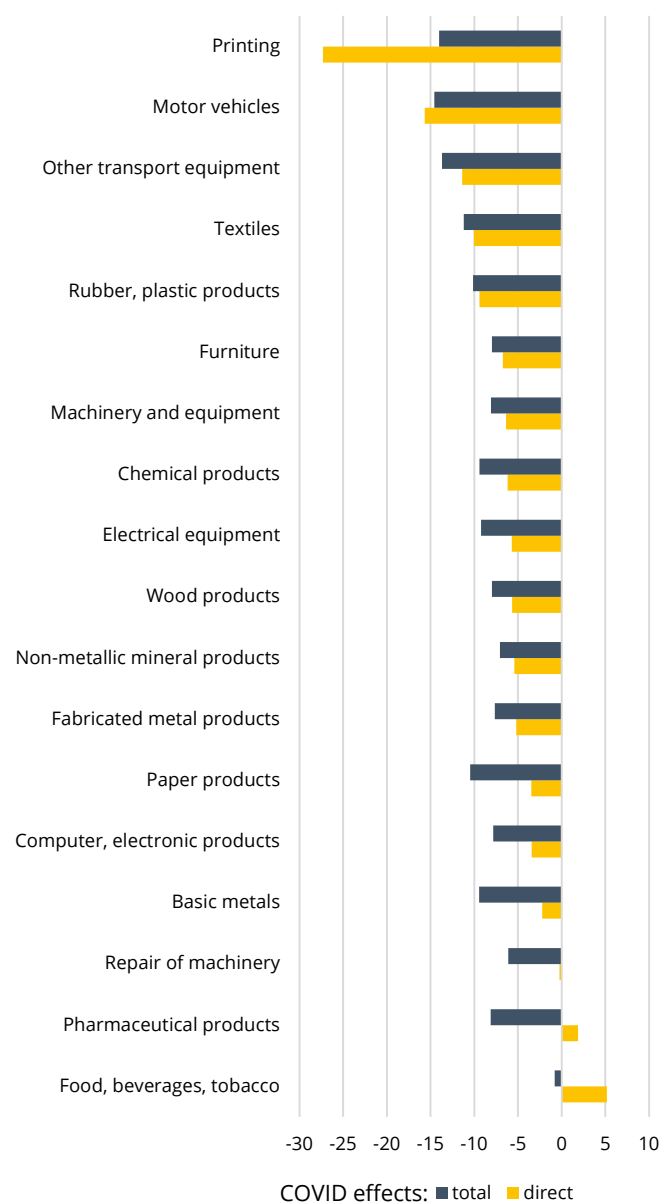
The basic idea underlying this approach is that demand shocks can propagate from one industry to the entire economy through linkages between industries, stemming from trade in intermediate inputs. As a result, the total effect generated by a demand shock on an economy might be larger than the initial direct effect generated by the fall in consumption.

Using data from Groningen's World Input-Output Tables, Oxford Economics's consumption data, and Cai and Vandyck's [2020] bridging matrices, the study estimates the size of demand shocks on impact, the fall in the supply of final goods for the various Luxembourg industries, and the change in supply generated by the inter-industry linkages for Luxembourg's industries.

The analysis confirms that the Covid-19 pandemic in 2020 had a significant and direct impact on the contact-intensive service sector in Luxembourg. More importantly, the analysis shows that inter-industry linkages led to the propagation of the initial demand shock to the entire Luxembourg's economy. This resulted in the total effect of demand shocks on the economy being larger than the initial direct effect. The manufacturing sector, which was largely spared from direct impacts, suffered significant impacts through indirect channels. The paper also analyses the international transmission of demand shocks and their implication for Luxembourg's industries. More specifically, the study identifies the sources and channels through which demand shocks are transmitted from foreign industries to Luxembourg's industries. The analysis shows that foreign shocks often originate outside the country's traditional trade partners. These foreign shocks come from industries with a low volume of direct trade with Luxembourg. This finding implies that Luxembourg could be affected by economic shocks coming from less well-understood

economic ties, thus highlighting the importance of analysing inter-industry linkages and shock transmission.

**Luxembourg manufacturing industries: percentage change in production following COVID outbreak [2019-2020]**



Source : calculs des auteurs à partir des données d'Oxford Economics et de la World Input-Output Database.

**For more information**

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