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PRESENTATION

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COVID-19 and its economic effects: Supply chain disruptions and behavioural changes

André Carrascal Incera[a] / Esteban Fernández Vázquez[b] / Mònica Serrano Gutiérrez[c] (Eds.)[*]

[a] Universidad de Oviedo, REGIOlab, Departamento de Economía, Fundamentos del Análisis Económico, Avenida del Cristo s/n, 33006 Oviedo, Spain

[b] Universidad de Oviedo, REGIOlab, Departamento de Economía Aplicada, Unidad de Estadística y Econometría, Avenida del Cristo s/n, 33006 Oviedo, Spain

[c] Universitat de Barcelona, Departament d'Economia, Avinguda Diagonal 696, 08034 Barcelona, Spain

COVID-19 as a global economic issue[1]

COVID-19 came unexpected and has affected the way we work, socialize and spend our leisure time, reshaping some of the most fundamental activities in our day-to-day routines in the last year. All these changes in our lifestyle have clear economic consequences. Since the outbreak in December 2019, the virus has spread worldwide. The economic implications in terms of supply disruptions and changes in behaviour have become a global issue.

The recent academic literature on this topic has been quite prolific and there is a good number of articles trying to assess the effects of COVID-19 and its control measures on international trade and production globally. As pointed out by some of these studies, the global Gross Domestic Product (GDP) has decreased considerably during the last year as a result of the pandemic. Guan et al. (2020), for example, using an extension of the Adaptative Regional Input-Output (ARIO) model based on Global Trade Analysis Project (GTAP) data, find that if only China was affected, global supply-chain effects would mean 3.5% of the total global GDP. With the spread of the virus to western countries and the control measures applied in the European Union (EU) and the United States of America (USA), global supply-chain effects increase to 12.6%. Finally, global lockdowns would affect 26.8% of global GDP. That means that there is an important economic propagation through global supply chains. They find that countries that are not directly affected by the virus still suffer large shortfalls, with low- and middle-income countries being the most vulnerable to this trade spillover effect.

In a similar fashion, Lenzen et al. (2020) used a global multi-regional macro-economic model to capture direct and indirect spillover effects to estimate the global economic losses of the COVID-19 pandemic. One interesting finding in this research is how the pandemic reveals the vulnerability of some economies with supply chains largely concentrated in countries most directly hit by the virus, as is the case of production chains originated in China. These authors estimate that more than 20% of the total income lost as a result of the several policies implemented to mitigate the spread of the virus can be attributed to reductions in international trade. The authors point out with this estimate the importance

[*] carrascalandre@uniovi.es, evazquez@uniovi.es, monica.serrano@ub.edu

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of the international network effects in the dispersion of the consequences of the pandemic, reaching virtually all countries across the globe.

The study performed by Bonadio, Huo, Levchenko & Pandalai-Nayar (2020) using the OECD Inter-Country Input-Output (ICIO) tables, following Huo, Levchenko & Pandalai-Nayar (2019), estimate that the average real GDP fall due to the COVID-19 shock is -31.5%, of which -10.7% is due to transmissions through global supply chains. Geographically, they find some dispersion in their results, with GDP reductions ranging from -21% in Taiwan and Sweden to -40% in Vietnam. The economies most exposed proportionally to global supply chains are Brunei, Kazakhstan, Saudi Arabia, Chile and Colombia. In these countries the impact coming indirectly from foreign countries would mean 57% of the total effect. On the other hand, Japan, Taiwan, Greece, and Sweden, with their less stringent lockdowns and a greater supply of available domestic labour, would appear to be more resilient to pandemic-related lockdown measures were they to renationalize their supply chains. The opposite would happen for some east-European (Slovenia, Poland, Russia) and Latin American (Peru, Argentina, Colombia) countries.

But apart from the spatial dimension there is another important one, the sectoral dimension. Guan et al. (2020) identify two sectors that are particularly significant in spreading, upstream and downstream, the effects globally: the Chinese electronic and German automobile industries. Supply disruptions in those sectors crucially affected many indirectly related sectors and countries. They also highlight the special exposure of other industries such as food services and tourism-related sectors, which suffered substantial falls in demand and the propagation of more losses from upstream suppliers such as processing of food and business sectors.

Introducing the papers of the special issue

This Special Issue puts together six articles that cover a broad spectrum of the socioeconomic effects of COVID-19. There are five empirical papers, starting from the general perspective of the impact on the EU and the World to specific country or subnational examples, and a final one with a theoretical approach. As can be seen throughout the Special Issue, several methods and points of view have been used to analyse this subject creating a nice kaleidoscope where each of the articles complete the others.

The first one titled "The economy of the European Union in times of COVID-19", by José Manuel Rueda-Cantuche, evaluates how the economic impact derived from the policy measures taken to contain the transmission vary between state members. By means of a Multiregional Input-Output model (Trade-SCAN) developed by the author as part of the EU Commission team, the article presents an analysis of the value chains involved at the sectoral level by countries. The main results obtained show that the EU GDP dropped 6.1% in real terms, being Spain the country with a larger fall (close to 11%), followed by Italy (9%) and Greece, France and Croatia (all of them with a decline higher than 8%). By sectors, wholesale trade and distribution activities were the most negatively affected in 18 member states; while in Germany, Lithuania, Latvia, The Netherlands, Denmark, Poland and Romania it was the recreational and cultural activities.

The second paper, "An assessment of trade policies related to COVID-19", whose authors are Rosane Nunes de Faria, Laura Mercedes Grimaldo Hidalgo and Leonardo Ferraz, offers insights into the pandemic situation within the framework of the international trade measures. In particular, this paper analyses a World Trade Organization (WTO) database that provides detailed information about notifications, a transparency obligation requiring member governments to report trade measures whenever they might have an effect on other members. COVID-19 trade-related notifications received from February to October 2020 are classified based on their typology and their objective. The authors evaluate whether they are trade-facilitating or trade-restricting measures, their trend over time, and the country and product distribution. The analysis shows two waves of notifications. The first wave is characterized by the predominance of trade-restricting measures, and unilateral actions from countries. The second wave is instead characterized by trade-facilitating measures and a trend towards

multilateral actions. Among other findings, the authors stress that the two categories of goods mostly affected are medical and pharmaceutical commodities, as well as agricultural products.

After the articles with a broader geographical scope, the Special Issue includes three papers with a focus on a particular country and a region. The first one titled "Explaining COVID-19 contagion in Portuguese municipalities using spatial autocorrelation models", signed by Paulo Mourao and Ricardo Bento, explores how the virus was spreading throughout the Portuguese municipalities and the main determinants of this progress in the first wave. As can be seen in the analysis, among other results, this article shows that highly dense municipalities extended the virus to neighbouring areas more than less dense municipalities. This paper differs from the other two country cases in that this reveals why some areas were more affected than others in terms of COVID-19 cases, while the next two explain the economic impact of that spread.

The second of these papers, "Estimating the impact of Covid-19 on the Spanish economy with input-output analysis", whose authorship corresponds to Eladio Febrero Paños and Fernando Bermejo Patón, presents estimations of the impact of COVID-19 for the Spanish Economy in 2020 and 2021 by using input-output modelling and focusing on output and employment industry levels. The authors measure not only the direct effects, but also the indirect consequences of the measures adopted to stop the spread of the virus considering the industry classification of the 64 economic branches that can be identified in the input-output Spanish tables. The authors acknowledge the double nature of the economic effects triggered by the outbreak of the virus, distinguishing the supply-side shock produced as a result of maintaining social distancing, reducing mobility, and halting non-essential activities. The authors argue that this supply-side shock is expected to give rise to a subsequent demand-side shock. Using their estimates, and by considering a variety of possible scenarios, they expect the latter to be more damaging to the Spanish economy than the initial shock.

The last one of these three papers, "Factors behind the employment loss in Galicia: Great Recession of 2008 vs. the first wave of the COVID-19 pandemic", authored by Yolanda Pena-Boquete and Iria Dios-Murcia, analyses the factors behind the employment loss of specific groups of the population comparing the COVID-19 economic crisis with the previous financial one for the Galician region. The main results show that young workers (16-29 years old) have been used as a "buffer" in the Galician economy: firing them during downturns and hiring them during upturns. Within the group of older than 30, the article also finds important differences between men and women. For women, the situation is completely different during both crises. The sectors where women are concentrated are also the ones most negatively affected by the COVID-19 crisis.

Finally, the last article of this Special Issue, "The coronavirus: Black swan and endowment shock", by Guillermo Peña Blasco, shows a theoretical approach to this topic. By developing a set of models, the paper explains the effect of an asymmetric shock (COVID-19 economic effects) on total income and economic inequality, and the possible public policy scenarios to counteract the negative consequences of this crisis. Among other conclusions, it shows the need for public policy coordination between countries to prevent more negative externalities during crises.

As guest editors of this issue, we hope the readers of the *Revista Galega de Economía* will enjoy this extraordinary collection of articles, believing that they can contribute to create some knowledge about the COVID-19 pandemic and the socioeconomic effects associated with it that we all have been suffering for more than a year now.

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