

9 March 2020
Article

Eurozone: Gauging possible supply chain disruptions from Covid-19

As Covid-19 goes global, supply chain risks to the eurozone economy have increased materially. Our analysis finds risks to the eurozone mainly come from China and Italy



As coronavirus spreads, one big question is how much will the eurozone economy be impacted. Obviously, there are several channels through which the eurozone economy will be affected, for example, weaker demand from China and other Asian countries, the impact of preventive measures and increased uncertainty in general. But supply chain disruptions are a big one. As factories shut down, production becomes increasingly fragmented worldwide, and this can have a significant impact on eurozone production.

To gauge the eurozone's overall supply chain exposure to Covid-19, we use eurozone value chain exposure to four countries that have seen the most cases of the virus except Iran. This leaves China, Korea and Italy.

[Using the intercontinental input-output tables of the OECD](#), we estimate value-added of China, South Korea and Italy in the total output of Eurozone countries. This is the sum of intermediate inputs produced by the affected countries used in final goods produced by eurozone countries. For example, a car part from China used in German car production. Indirect inputs are also included in this estimate, think of a Korean semiconductor that is used in an electronic component imported from the US by a eurozone producer. Sounds complicated? That's because global supply chains usually are these days.

Countries that rely most on Chinese intermediate inputs for their production are Slovakia, Estonia and Slovenia

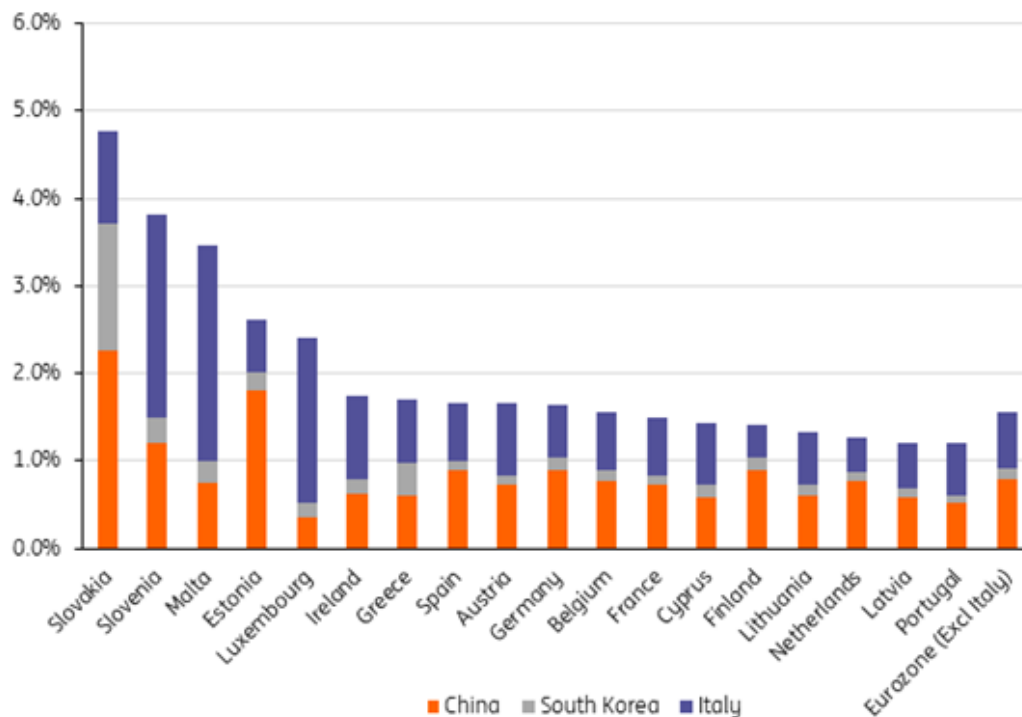
We find that the exposure of the rest of the eurozone economy to Italian intermediate inputs is not as large as one would expect. While in general, the golden rule holds that proximity increases the impact on a country's economy, this is not necessarily the case for Italy. The rest of the eurozone's exposure to Chinese production is, in fact, larger than the exposure to Italy at 0.8 and 0.6% of eurozone value-added respectively.

The Korean exposure to eurozone production is far smaller at 0.1% and therefore poses a much smaller risk. However, if inputs are essential and difficult to substitute, they may have a material impact on the supply chain when unavailable, despite the smaller contribution of Korean industries.

[OECD Inter-Country Input-Output \(ICIO\) Tables](#)

Fig 1: Exposure to COVID-19 affected countries

Country exposure as % value added of affected countries in country output



Large differences in terms of country exposure

Take countries like Slovakia, Slovenia and Malta for example as they have a relatively large exposure to Italy, bringing them to the top of the list in terms of eurozone countries overall exposure to the three countries at 4.8%, 4% and 3% of value-added.

Larger economies like Germany, Spain, France and the Netherlands have an exposure of around 0.8% to China

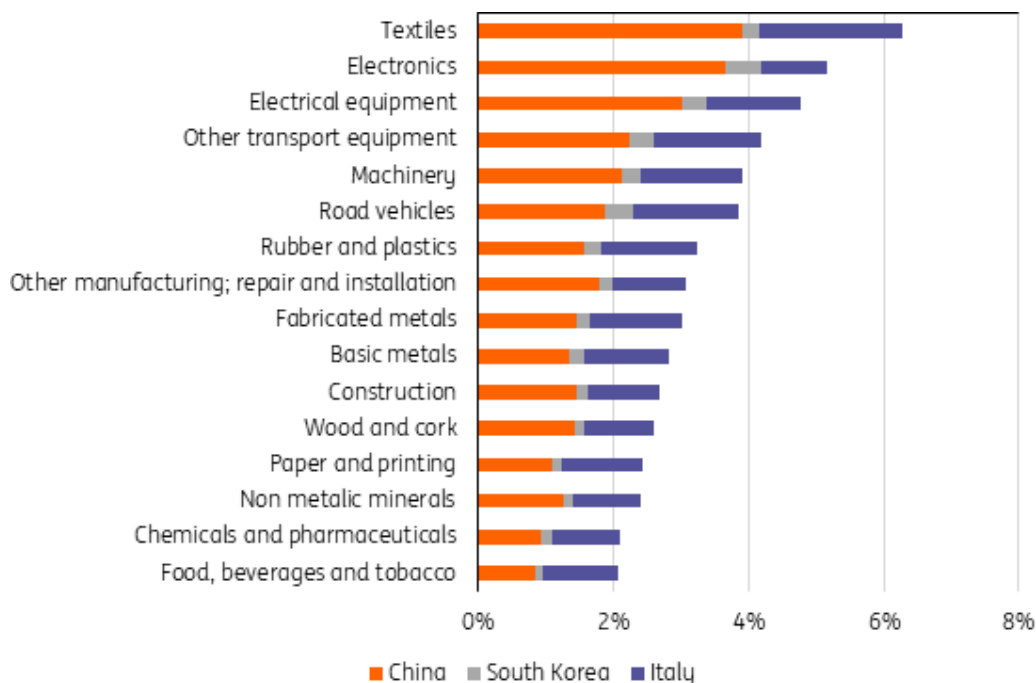
The countries that rely most on Chinese intermediate inputs for their production are Slovakia, Estonia and Slovenia at 2.3%, 1.8% and 1% of value-added. Larger economies like Germany, Spain, France and the Netherlands have an exposure of around 0.8% to China. Slovakia is the only eurozone country with material exposure to Korea at 1.5% of value-added. For Italy, neighbouring Slovenia and Malta both have sizable exposure of 2%, while Luxembourg and Slovakia also have exposure of above 1%. France, Germany and Spain all have similar exposures to Italy at 0.7, 0.7 and 0.6% of value-added.

By sector, textiles, electronics and electrical equipment rank high on the list. Thanks to exposure to both Italy and Germany, vehicle and other transport production are also high up on the list, which have already been struggling with supply-side issues after the new emission standards.

Even though Korea has an important role in the global supply of semiconductors, the exposure of eurozone electronics to Korean inputs is limited compared to Italian and Chinese exposure. But, even small disruptions can have a material impact.

Fig 2: Eurozone sector exposure to COVID-19 affected countries

Sector exposure as % value added of affected countries in sector output



Supply chain exposure in value terms is not linear. An essential input but low in value could still cause the shutdown of an entire supply chain if unavailable. The exposure in terms of value-added should be seen as indicative for the potential number of essential parts in a supply chain produced by the affected countries.

As the impact on total GDP seems small, one might think that the impact will be minor, but small disruptions can cause disruptions in production much larger than suggested by these numbers.

This is why it is difficult to gauge where production will be disrupted most, but differences in exposure to China, Korea and Italy show which countries and sectors on average have a higher chance of being affected.

Bert Colijn

Senior Economist, Eurozone
 +31 20 563 4926
bert.colijn@ing.com

Carsten Brzeski

Chief Economist, Eurozone and Global Head of Macro
 +49 69 27 222 64455
carsten.brzeski@ing.de

Timme Spakman

Economist, International Trade Analysis
 +31 20 576 4469
timme.spakman@ing.com

Disclaimer

This publication has been prepared by the Economic and Financial Analysis Division of ING Bank N.V. ("**ING**") solely for information purposes without regard to any particular user's investment objectives, financial situation, or means. *ING forms part of ING Group (being for this purpose ING Group NV and its subsidiary and affiliated companies)*. The information in the publication is not an investment recommendation and it is not investment, legal or tax advice or an offer or solicitation to purchase or sell any financial instrument. Reasonable care has been taken to ensure that this publication is not untrue or misleading when published, but ING does not represent that it is accurate or complete. ING does not accept any liability for any direct, indirect or consequential loss arising from any use of this publication. Unless otherwise stated, any views, forecasts, or estimates are solely those of the author(s), as of the date of the publication and are subject to change without notice.

The distribution of this publication may be restricted by law or regulation in different jurisdictions and persons into whose possession this publication comes should inform themselves about, and observe, such restrictions.

Copyright and database rights protection exists in this report and it may not be reproduced, distributed or published by any person for any purpose without the prior express consent of ING. All rights are reserved. The producing legal entity ING Bank N.V. is authorised by the Dutch Central Bank and supervised by the European Central Bank (ECB), the Dutch Central Bank (DNB) and the Dutch Authority for the Financial Markets (AFM). ING Bank N.V. is incorporated in the Netherlands (Trade Register no. 33031431 Amsterdam). In the United Kingdom this information is approved and/or communicated by ING Bank N.V., London Branch. ING Bank N.V., London Branch is subject to limited regulation by the Financial Conduct Authority (FCA). ING Bank N.V., London branch is registered in England (Registration number BR000341) at 8-10 Moorgate, London EC2 6DA. For US Investors: Any person wishing to discuss this report or effect transactions in any security discussed herein should contact ING Financial Markets LLC, which is a member of the NYSE, FINRA and SIPC and part of ING, and which has accepted responsibility for the distribution of this report in the United States under applicable requirements.