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### Marco Fugazza

Economic Affairs Officer Division on International Trade, and Commodities, UNCTAD

marco.fugazza@unctad.org

## Impact of the COVID-19 pandemic on commodities exports to China

#### **Abstract**

This paper presents a preliminary assessment of the impact of the coronavirus (COVID-19) pandemic on commodities exports to China with a focus on exports from Commodity Dependent Developing Countries (CDDCs).

Results indicate that in comparison to short term tendencies observed in the past three years, total commodities exports to China are currently moving downward. As compared to a situation without the COVID-19 crisis, total commodities exports to China may fall by 15.5 to 33.1 billion US Dollars during 2020, resulting in reduction of the projected annual growth of up to 46 percent (i.e. 8 percentage points). Although CDDCs commodities exports to China are also expected to decrease, the estimated impact is weaker. On aggregate they may fall by 2.9 to 7.8 billion US Dollars during 2020, resulting in a loss in terms of annual growth rate of up to 9 percent (i.e. 1.7 percentage points).

Total effects are driven by strong negative import demand shocks in China faced by energy products (e.g. crude petroleum oils), ores (e.g. iron ores) and grains (e.g. wheat). While CDDCs exports of those products are also expected to fall, estimated annual growth rates of exports of fruits and nuts, soya beans, rice and copper outpace those that would prevail in a situation without the COVID-19 crisis. Differences in import demand shocks at the product level lead to differences in effects at the country level. Even though most countries are expected to be negatively affected, some may see a surge in their exports to China.

While this set of results provides some indication about the effects the current sanitary crisis could have on commodities trade, information about the reaction of trade flows in other major economies is still missing making any definitive conclusion, at this stage, hazardous.

#### Key words: Exports, Commodities, China, COVID-19

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#### Introduction

The impact of the coronavirus pandemic on commodities trade is expected to be severe. This is clearly indicated by the latest release of industrial production indices in major economies. Except for beverages and food, all sectors saw declining output in March 2020. The Eurozone registered a ten-year low in output indices, except for pharmaceuticals and biotechnology.<sup>1</sup> Recent WTO estimates based on General Equilibrium simulations point to a contraction of international trade volumes between 13 and 32 per cent in 2020.<sup>2</sup> WTO (2020) results further indicate that most regions are expected to suffer double-digit declines in trade volumes in 2020, with exports from North America and Asia hit hardest. Drops in trade volumes are larger in sectors with complex value chains, particularly electronics and automotive products. Real exports of computer electronics and optic products are expected to decrease between 10.5 per cent and 22.6 per cent. The drop in real exports of agricultural products could vary between 6.5 per cent and 12.7 per cent, while that of fossil fuels between 5.5 and 13.4 per cent.

In China, the first country to be hit by the coronavirus pandemic, initial economic effects were already felt between late January and early February 2020. The release of January and February trade data made it possible to identify changes in monthly trends in comparison to previous years.3 Since China is the largest importer of a significant number of primary products, we believe that this first set of estimates is representative of a more global effect. As shown in column 1 of Table 1, commodities represent close to one fourth of China's imports. Column two indicates that Commodity Dependent Developing Countries (CDDCs)4 account for 65 per cent of these commodities exports. One fifth of world commodities exports are shipped to China as shown in column 3. The last column reports that one fourth of exports of commodities from CDDCs go to China. As a matter of comparison, Table 1 contains the same information for both the United States of America and the European Union. While the European Union absorbs about one fifth of World exports of the commodities considered here, the corresponding share of the United States of America is less than 9 percent. The incidence of imports from CDDCs is slightly larger for the European Union than for China. However, the corresponding figure for the United States of America is about 41 per cent. Column 3 of Table 1 further indicates that imports of the European Union capture about 18 percent of total exports and those of the United States of America 9 percent. We also have that 23 per cent of CDDCs exports are directed towards the European Union and about 7 per cent towards the United States. Table 2 reports a series of figures illustrating further the increasing relative importance of the Chinese market for CDDCs exports. In 2018, 80 CDDCs exported at least one of the commodities listed in table 3. About one third of them directed one third or more of their exports towards the Chinese market. The

<sup>&</sup>lt;sup>1</sup> See IHS MARKIT Global Sector PMI April release

https://www.markiteconomics.com/Public/Home/PressRelease/f69c639a88b54bc586be362511083192

<sup>&</sup>lt;sup>2</sup> See https://www.wto.org/english/news\_e/pres20\_e/pr855\_e.htm and references therein.

<sup>&</sup>lt;sup>3</sup> Data for the month of March have been published on April 25, 2020. Preliminary calculations indicate that tendencies observed in the previous two months are confirmed. A clearer picture will be obtained with the release of the April data expected to be released on May 25, 2020 (see http://english.customs.gov.cn).

<sup>&</sup>lt;sup>4</sup> UNCTAD defines a country as dependent on commodities when these account for more than 60% of its total merchandise exports in value terms. The list of CDDCs used in the analysis follows UNCTAD (2019). It includes both developing and transition economies as defined in

https://unctadstat.unctad.org/EN/Classifications/DimCountries\_DevelopmentStatus\_Hierarchy.pdf.

corresponding figures for the European Union and the United States of America were 18 percent and about 7 percent respectively.

All these figures attest to the representative role that China plays in commodities trade. Therefore, identifying variations observed in January-February with respect to past tendencies in Chinese imports is likely to provide an important indication about the overall impact of the coronavirus pandemic. A more complete, and nuanced, picture could be obtained as soon as data for the months of March and April about imports in other major destination markets, such as the European Union and the United States of America, are released. At the time of writing, EU and US data for February and March 2020 were not yet available.

This paper uses import data for January-February 2020 as reported by Chinese Customs to simulate trends for 2020 in imports from CDDCs. As mentioned above, China is a strong representative sample, and it is the first country to provide trade data for the first two months of 2020. It is important to keep in mind that the simulations face several constraints. First, variations in import flows are at sectoral level and do not cover the whole product space. Second, as the latter variations are not available on a bilateral basis for most CDDCs, the sectoral figures are used to simulate country level flows. Third, scenarios about the possible evolution of imports until December 2020 do not account for any evolution outside China. Adding input-output information, without necessarily relying on a full-fledged General Equilibrium framework, would allow the inclusion of forward and backward production chains effects across sectors and across countries. However, such exercise would be meaningful only if information about production would be available for a set of sectors comparable to those reported in trade statistics. This is not the case yet.

Next section briefly presents the approach adopted in the simulation exercise based on three sets of projections of imports flows in China. Annexes 1 and 2 contain more detailed information on the data and describe the methodological approach adopted in the simulation exercise. Results are first reported for CDDCs as group in section 3. Results obtained at the country level are also shown in section 4 for those CDDCs whose exports to China represent more than 10 percent of their total exports in commodities.

|                                | Year | Commodities in total imports | Share of CDDCs<br>in commodities<br>imports | Share of imports<br>in world<br>commodities<br>exports | Share of<br>commodities<br>exports from<br>CDDCs |
|--------------------------------|------|------------------------------|---|--|--|
| China                          | 2016 | 19.6                         | 59.5  | 19.2   | 22.7   |
|                                | 2017 | 24.2                         | 59.7  | 20.1   | 23.5   |
|                                | 2018 | 26.1                         | 65.6  | 20.8   | 25.2   |
| European<br>Union              | 2016 | 15.0                         | 66.0  | 17.4   | 23.1   |
|                                | 2017 | 17.4                         | 66.8  | 17.7   | 23.1   |
|                                | 2018 | 19.2                         | 67.7  | 18.1   | 22.5   |
| United<br>States of<br>America | 2016 | 7.3                          | 43.6  | 10.2   | 8.8  |
|                                | 2017 | 8.4                          | 42.7  | 9.8  | 8.2  |
|                                | 2018 | 8.7                          | 41.1  | 9.1  | 6.9  |

#### Table 1. Commodities import and export shares

Source: Author's calculations based on UN-COMTRADE in Wits (extracted on April 10, 2020).

| Table 2. Number of exporting CDDCs by destination |      |   |   |   |  |  |
|---|------|---|---|---|--|--|
|   | Year | Share of commodities<br>exports to destination<br>larger than 10% | Share of commodities<br>exports to destination<br>larger than 33% | Number of CDDs<br>exporting to<br>destination |  |  |
| China   | 2016 | 38  | 21  | 80  |  |  |
|   | 2017 | 41  | 20  | 80  |  |  |
|   | 2018 | 45  | 23  | 82  |  |  |
| European<br>Union                                 | 2016 | 47  | 20  | 86  |  |  |
|   | 2017 | 47  | 17  | 87  |  |  |
|   | 2018 | 49  | 16  | 88  |  |  |
| United<br>States of<br>America                    | 2016 | 21  | 7   | 78  |  |  |
|   | 2017 | 23  | 7   | 78  |  |  |
|   | 2018 | 19  | 5   | 78  |  |  |

Note: The list of commodities included in the calculations is reproduced in Table 3.

Source: Author's calculations based on UN-COMTRADE in Wits (extracted on April 10, 2020).

Note: The list of commodities included in the calculations is reproduced in Table 3.

# 1. Projections and simulation exercises: the computational approach

This paper provides an analysis of projected imports flows based on up to date and disaggregated officially released information. Several projections are produced according to different assumptions about the possible impact of the coronavirus pandemic. The focus is on Chinese imports data of a selection of commodities as reported by Chinese customs. China was the first country that released trade figures for January and February 2020. Data for previous years are from the ITC Trade Map.

A benchmark scenario (scenario 0) is first defined. It assumes that bi-monthly imports in 2020 vary in line with average import growth observed for the same period during the previous three years. Then, two scenarios reflecting the possible impact of the COVID-19 sanitary crisis with respect to the benchmark set of projections are identified. Scenario 1 (COVID-19 July) is informed by realized January-February 2020 China import data to project its deviation level from scenario 0 and extends this until the end of June 2020. Scenario 2 (COVID-19 levels) follows scenario 1 until the end of June 2020, but then imposes catch-up growth rates to enforce convergence with the benchmark scenario and a return to normal from the temporary COVID-19 deviation by the end of the year.

Our COVID-19 related scenarios are relevant to the first wave of contamination impacting essentially East Asia. However, the time-spell considered may also capture part of the non-direct effects of the second wave of contamination hitting both Europe and the United States. More detailed information on the scenarios are available in the section 1 and 2 in the appendix.

The projections and simulation exercises are based on five major aggregated groups of commodities. As reported in Table 3 these groups correspond to energy products such as crude oil, ores such as copper ores and concentrates, raw agricultural products such as cotton, grain products such as wheat, and food products such as meat. Product coverage under these five major groups is limited to the set of products whose changes in trade flows have been published by Chinese customs. They are reproduced in the last column of Table 3. Corresponding Harmonized System product codes are also included and used to download data for past periods.

| Category | Description of Commodity                          | Coverage of HS Codes | shocks  |
|----------|---|----------------------|---------|
|          | -   |                      |         |
| Energy   | Coal and lignite                                  | 2701,2702            | +25.10  |
| Energy   | Crude petroleum oils                              | 2709                 | +14.70  |
| Energy   | Natural gases                                     | 271111,271121        | -20.10  |
| Ores     | Iron ores and concentrates                        | 2601                 | +17.00  |
| Ores     | Copper ores and concentrates                      | 2603                 | -0.20   |
| Ores     | Aluminum and concentrates                         | 2606                 | -10.60  |
| Raw      | Wood in the rough                                 | 4403                 | -27.00  |
| Raw      | Wool  | 5101                 | -27.80  |
| Raw      | Cotton  | 5201                 | -29.30  |
| Raw      | Natural and synthetic rubber<br>(including Latex) | 40011,40012,4002     | +9.30   |
| Grain    | Wheat   | 1001                 | -14.90  |
| Grain    | Maize   | 1005                 | +61.70  |
| Grain    | Rice  | 1006                 | -35.90  |
| Grain    | Soya beans  | 1201                 | +4.20   |
| Grain    | Barley  | 1003                 | -57.10  |
| Food     | Meat (including meat offal)                       | 02,0504              | +120.70 |
| Food     | Fresh or dried fruit and nuts                     | 0801-0810,0813       | +4.80   |
| Food     | Sugars  | 1701                 | +122.20 |
| Food     | Salt  | 2501                 | -29.10  |
| Food     | Aquatic products                                  | 03                   | -5.40   |

#### **Table 3: Commodity groups and product coverage**

Note: Products HS coverage is based on information provided by Chinese customs. The last column reports changes in imports in percentage terms with respect to the same period in 2019 (January and February aggregated) as published by the Chinese customs in March 2020.

## 2. Projections and simulation exercises: country group level findings

Results obtained for total commodities imports are first discussed. Results are then presented for each commodities category included in the analysis, namely energy products, ores and concentrates, raw-agricultural products, grains and food products. CDDCs are here treated as a single country group. This may lead to strong compositional effects. As shown in last column of Table 3 changes with respect to the same period in 2019 may be of opposite sign within each commodity group. For instance, while imports of iron ores increased by 17 percent with respect to 2019, those of aluminum decreased by almost 11 percent. Results may then be driven by those commodities predominantly exported by CDDCs to China within each commodities group. The relative importance of products within each commodity group may also vary as projections refer to two-month periods which, for some products, may be characterized by relatively high variability.

In order to avoid any spurious interpretation of simulations results an additional qualification is needed. As already mentioned, variations reported in Table 3 correspond to the change in imports values between January-February 2019 and January-February 2020. In order to capture a possible change of direction in terms of periodic evolution of import flows, it is necessary to compare with some reference. In this paper the

reference is the evolution observed for the same period in the previous three years. This implies that a change of direction could only be identified if a difference with previously observed variations emerges. This also means that even if a negative variation is in recorded in 2020 its relative amplitude may be smaller than that observed in previous year and would then suggest a relative improvement. In other words, negative figures in Table 3 are not necessarily associated with a negative shock due to the coronavirus pandemic. Table A.1 in annex 3 illustrates the latter qualification by showing the evolution of each product within each category with respect to benchmark. It can be observed that signs of observed variations in January-February 2020 and differences with projected benchmark variations based on past variations do not necessarily coincide. For instance, imports iron and concentrates increased by 17 per cent in 2020 as compared to the same period the year before. This increase appears to be significantly below the projected rise in imports based on previous years evolution indicating that the shock due to the coronavirus pandemic is clearly negative. The opposite is obtained for wood in the rough products. Despite a negative observed variation in 2020 with respect to levels observed in 2019, the projected shock appears to be strongly positive. The latter suggests that the negative evolution observed in 2020 is less marked than it was on average the three years before. The COVID-19 shock is then positive.

Tables 4 to 7 contain a series of statistics allowing for a detailed analysis of all scenarios. CDDC values are marked in red when they remain below the no-COVID19 shock benchmark, and green when they are above. Table A.1 can then be referred to in order to analyze the set of results reported in these tables.

#### Aggregate Results

Last columns of Tables 4 to 7 refer to results obtained for total imports of commodities. They suggest that total Chinese commodities imports are expected to fall by between 15.5 and 33.1 billion US Dollars in comparison to our benchmark scenario. In the latter, the annual growth rate was projected to be about 15 per cent. In COVID-19 scenarios, annual growth rate varies from 9.1 to 12.2 per cent. As to CDDCs, projected effects of the COVID-19 crisis are also negative but much more contained than those observed for total commodities imports because of a more favorable products composition. As mentioned earlier this reflects the fact that CDDCs export relatively more of products facing a relatively less negatively or even positively affected import demand as shown in Table A.1. Total commodities imports from CDDCs are expected to fall by between 883 million and 5.7 billion with respect to benchmark figures (Table 4). In growth terms, total commodities imports were projected to grow by 17 per cent in the benchmark scenario. Because of the current sanitary crisis, the growth rate of total commodities imports would lie between 15.5 and 16.8 per cent.

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