Documentation for the COVID-19 Food Trade Policy Tracker

Tracking Government Responses Affecting Global Food Markets during the COVID-19 Crisis

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ABSTRACT

In response to the COVID-19 crisis, some governments have implemented export restrictions and other trade policy measures to secure their food supply. This behavior can increase global food prices, with consequences including the exacerbation of hunger and income losses for producers in export-restricting countries. Intergovernmental organizations and other actors need current information on food trade policy to curb detrimental reactive policy and enable cooperation. To address this need, we provide the COVID-19 Food Trade Policy Tracker. Gathering data from sources including the media, national governments, expert input, the OECD, and the IMF, we provide up-to-date information on food trade policies implemented during the COVID-19 crisis and the likely magnitude of their effects.

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INTRODUCTION

In the current COVID-19 crisis, some governments have altered their food trade policies, moving towards restricting exports and facilitating imports. This behavior emerges from a fear that the COVID-19 crisis will cause less food to be available and that world market prices will increase in the near future. While world food stocks are currently high,[1] such policies can trigger a domino effect (Bouet and Laborde, 2012). If enough of internationally traded food is affected, the supply of food available on global markets will indeed shrink, as seen during the 2007 and 2008 food price crisis.

This has implications for human welfare, driving up hunger and hardship, especially in countries that rely on imports. Producers and other actors in food value chains in countries that restrict exports may also face a loss of income.

To shed light on this problem and enable analysis and cooperation, intergovernmental organizations, national governments, academics, and others need up-to-date data on countries' food trade policy. The COVID-19 Food Trade Policy Tracker aims to address this need, and this working paper provides documentation of the process to create the tracker data. We use a combination of systematic and ad-hoc data gathering from official and unofficial sources to track food trade policy responses to the COVID-19 crisis. We augment this information with detailed trade data (Laborde and Goundan, 2020) and data on the caloric value of food trade (Laborde and Deason, 2015) to create impact indicators to give an idea of the magnitude of each policy's effect. We make this data available interactively through Tableau and downloadable as a CSV, with daily updates.

DATA COLLECTION AND PROCESSING

The COVID-19 Food Trade Policy Tracker utilizes a dataset compiled by the team and supplementary data from a number of sources.

COVID-19 Food Trade Policy Dataset

The COVID-19 Food Trade Policy Dataset aims to provide a comprehensive inventory of export restriction policies on food products that national governments have implemented in reaction to the COVID-19 pandemic. Additionally, it includes indicators created by the team to assess quantitatively the magnitude of the impact of these policies. The general process is illustrated in Figure 1 below.

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[1] See USDA FAS, 2020. See also the "World Stock to Use Ratio" tab, based on the USDA FAS data, in *Monitoring Agricultural Production and Stocks* at https://public.tableau.com/profile/laborde6680#!/vizhome/MonitoringProductionStocks_basedon_USDAPSD/PSD_USDA (Laborde, 2020).

Figure 1: Data Collection and Processing
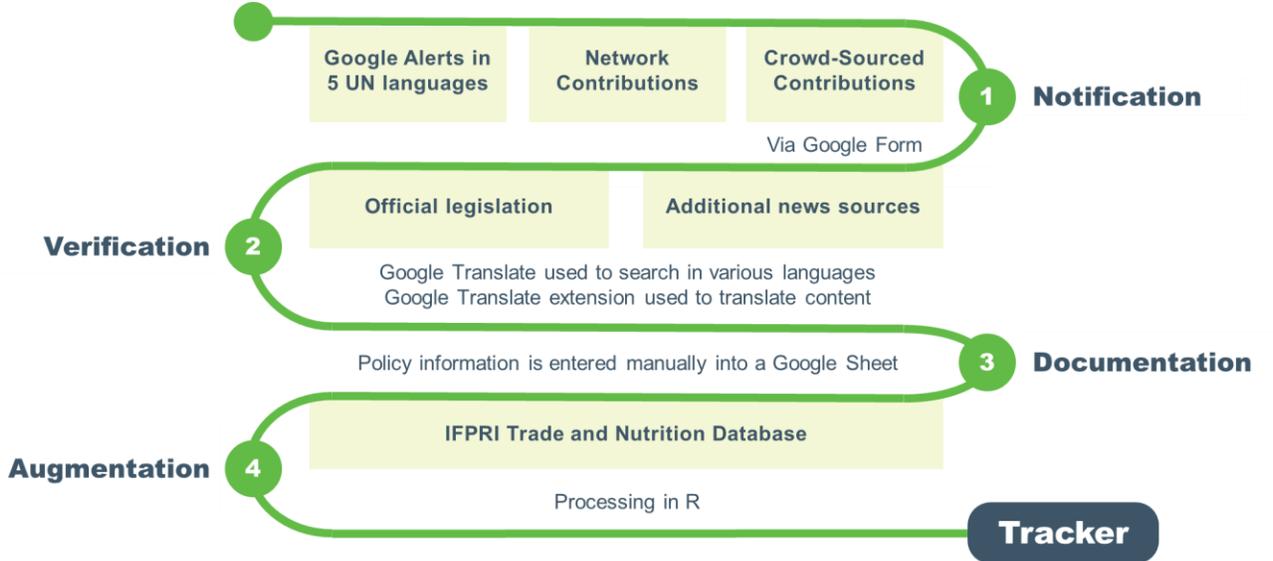
Data to create the inventory of policies is gathered through three channels: (1) Google Alerts, (2) contributions from our network of experts, and (3) crowd-sourced contributions.

Daily Google Alerts are the main source of information. The alerts are implemented in the six current official languages of the United Nations, using a short set of keywords, as shown in Table 1 below.

Table 1: Google Alert Keywords

Language	Keywords
English	export ban; export restriction
Arabic	حظر التصدير ؛ تقييد الصادرات
Chinese	出口禁令; 出口限制
French	interdiction d'exportation; restrictions aux exportations
Russian	Запрет на экспорт; ограничение экспорта
Spanish	restricciones a la exportación; prohibición de exportación

Source: Authors.

Contributions from our network of experts are collected informally, including from researchers in IFPRI's country offices.

Crowd-sourced contributions are also open. Anyone can submit information on a relevant policy through a Google Form at https://docs.google.com/forms/d/e/1FAIpQLSdpUV82Y_C5YtRQHmF_SU-hZUQbCwaKz9soySkIXrH2gzIif-g/viewform. These submissions are reviewed by the team.

The team compiles the inventory of policies in a spreadsheet. The spreadsheet is updated by the team as new information comes in. The team considers a policy verified if at least two sources report the policy measure or a single, sufficiently reliable source reported the measure. Otherwise, the policy is considered under verification until it can be further substantiated.

Once the policy information has been documented, the dataset is loaded into R, where it is augmented with HS 4 code data, stock-to-use ratio data, trade data, and data on the caloric value of traded food items. HS 4 code data comes from the United Nations International Trade Statistics (UN Trade Statistics, 2017). Stock-to-use ratio data comes from the Production, Supply, and Distribution data set from the United States Department of Agriculture Foreign Agricultural Service and is accessed via their API (USDA FAS, 2020). Detailed trade data comes from Laborde and Goundan (2020). Data on the caloric value of traded food items is per the database constructed by Laborde and Deason (2015), also accessible on Tableau Public at https://public.tableau.com/profile/laborde6680#!/vizhome/Trade_Nutrition_2019_PIM/Overview (Laborde, 2019).

This additional data is used in conjunction with the policy data to create the impact indicators. Table 3 contains the descriptions and formulas for these impact indicators. Metadata for the remainder of the dataset is specified in Table 2 below.

Table 2: Metadata for COVID-19 Food Trade Policy Dataset

Column Name	Description
Episod	Episode of trade restrictions to which the entry belongs.
Code	Policy unique identification number for internal tracking.
LastUpdate	Date that the entry was recorded or last updated.
AnnouncementDate	Date, MM/DD/YYYY, that the policy was formally announced. If unavailable, earliest date identifying it, such as mention in news source. If no information available, starting date of the policy.
StartingDate	Starting date of the policy, MM/DD/YYYY. If available, the date the policy went into effect. Else, the date the policy was officially announced.
EndDate	Ending date of the policy, MM/DD/YYYY.
Year	Year of the starting date of the policy.
Country_Alpha3	Unique 3-letter country code per ISO 3166-1 alpha-3 nomenclature.
Country_Label	Name of country.
Products	Text list of names of products, based on source.
HS4	HS4 codes of categories of products affected by policy measure. If available, based on source. Otherwise, encoded by data enterer.
Category	Categorization of the policy. [Announcement, Ban, Licensing, Not Binding]
Description	Text description of policy measure, including at a minimum the products covered and type of measure.
Additional Comments	Additional comments from the data enterer.
Status	"Checked" if at least two sources report the policy measure or a single, sufficiently reliable source reported the measure. Else "Under verification".
Source	Sources reporting the policy measure.
Source2	Additional source.
ProtectedCountries	Countries protected from the policy measure, either as a co-implementer or through exemption.
WTOcountry	Whether the country is a member of the WTO.
WTOnotification	Whether the country has notified the WTO about this policy.
Stock	Estimated stock (USDA-PSD) of the HS4 products covered by the measure. 1000 Metric Tons.

Production	Estimated production (USDA-PSD) of the HS4 products covered by the measure. 1000 Metric Tons.
Use	Estimated use (USDA-PSD) of the HS4 products covered by the measure. 1000 Metric Tons.
shareStock	Share of the country in global stocks of this product. Based on latest USDA-PSD estimates for the relevant market year (e.g. 2019/2020 for 2020 policies).
shareProduction	Share of the country in global production of this product. Based on latest USDA-PSD estimates for the relevant market year (e.g. 2019/2020 for 2020 policies).
shareUse	Share of the country in global use of this product. Based on latest USDA-PSD estimates for the relevant market year (e.g. 2019/2020 for 2020 policies).
TDollars	Total global food trade for the products. Mio of USD. 3 years average.
TCalories	Total global food trade for the products. Bn of Kcal. 3 years average.
Overlap	Share of the Kcal of this measure not overlapping with a previous policy.

Source: Authors.

In Table 3 below, the variables are defined as follows:

hs4	HS 4 position in the harmonized system restricted to agricultural products as defined by the WTO
r	exporting country
s	importing country
m	policy measure considered
$c_{hs4,r,s}$	the average Kcal contents of the trade flows from *r* to *s* for the product *hs4* for the period 2014-2016
$d_{hs4,r,s}$	the average value pf the trade flows, in millions of current USD, from r to s for the hs4 product for the period 2014-2016
$\delta_{m,hs4,r,s}$	a dummy variable, defined as 1 if the product *hs4* is included in the policy measure *m* implemented by country *r*, and that the partner *s* is not excluded from the restriction (e.g. member of the same custom union); 0 otherwise
rr, ss	*rr* and *ss* are the set of all of the countries in the world. Intuitively, *rr* could be seen as the elements of the set of all exporters, while *ss* could be seen as the elements of the set of all importers; in practice, these sets are identical.

Table 3: Metadata and Formulas for Impact Indicators in COVID-19 Food Trade Policy Dataset

Column Name	Description
Share_of_exports_Kcal	Share of the restricted product in the country's food exports, measured in Kcal. $$shExpKcal_{m,r} = \frac{\sum_{hs4,s} c_{hs4,r,s} \times \delta_{m,hs4,r,s}}{\sum_{hs4,s} c_{hs4,r,s}}$$
Share_of_exports_USD	Share of the restricted product in the country's food exports, measured in USD. $$shExpUSD_{m,r} = \frac{\sum_{hs4,s} d_{hs4,r,s} \times \delta_{m,hs4,r,s}}{\sum_{hs4,s} d_{hs4,r,s}}$$
Share_in_World_Kcal	Share of the restricted products, for this exporter, in global food exports for these products, measured in Kcal. $$shWldKcal_{m,r} = \frac{\sum_{hs4,s} c_{hs4,r,s} \times \delta_{m,hs4,r,s}}{\sum_{hs4,rr,ss} c_{hs4,rr,ss} \times Max_s(\delta_{m,hs4,rr,s})}$$
Share_in_World_USD	Share of the restricted products, for this exporter, in global food exports for these products, measured in USD. $$shWldUSD_{m,r} = \frac{\sum_{hs4,s} d_{hs4,r,s} \times \delta_{m,hs4,r,s}}{\sum_{hs4,rr,ss} d_{hs4,rr,ss} \times Max_s(\delta_{m,hs4,rr,s})}$$

Number_Products_5pct	Number of HS4 products included in this measure for which the country has a market share of 5 percent or more on the global market (Kcal metrics) $$NbHS4_{m,r} = \sum_{hs4} \mu_{m,hs4,r}$$ with $$\mu_{m,hs4,r} = \begin{cases} 1 \; if \; \sum_s c_{hs4,r,s} \geq 0.05 \sum_{rr,s} c_{hs4,rr,s} \\ 0 \; otherwise \end{cases}$$
Calories	Annual exports of the country for the HS4 products covered by the measure. Measured in billions of Kcal. $$\text{Calories}_{m,r} = \sum_{hs4,s} c_{hs4,r,s} \times \delta_{m,hs4,r,s}$$
Dollars	Annual exports of the country for the HS4 products covered by the measure. Measured in Mio of USD. $$\text{Dollars}_{m,r} = \sum_{hs4,s} c_{hs4,r,s} \times \delta_{m,hs4,r,s}$$
Share_of_imports_Kcal	Share of the restricted product in the country's food imports, measured in Kcal. This variable is used in the tracker but not provided in the download facility, since it aggregates elements from various policy measures (aggregation by importer, over a set of exports). $$shImpKcal_{m,s} = \frac{\sum_{hs4,r,m} c_{hs4,r,s} \times \delta_{m,hs4,r,s}}{\sum_{hs4,r} c_{hs4,r,s}}$$
Share_of_imports_USD	Share of the restricted product in the country's food imports, measured in USD. This variable is used in the tracker but not provided in the download facility, since it aggregates elements from various policy measures (aggregation by importer, over a set of exports). $$shImpUSD_{m,s} = \frac{\sum_{hs4,r,m} d_{hs4,r,s} \times \delta_{m,hs4,r,s}}{\sum_{hs4,r} d_{hs4,r,s}}$$

Source: Authors.

The COVID-19 Food Trade Policy Dataset is publicly available at https://tinyurl.com/IFPRItptracker. It is made available under the Open Data Commons Attribution License, https://opendatacommons.org/licenses/by/1.0/index.html.

2007-2008 Food Price Crisis Policy Dataset

To use as comparison for the COVID-19 Food Trade Policy Dataset, the team has created an inventory of food trade policies enacted during the 2007-2008 food price crisis. The primary source for this dataset is Table A.1 in Appendix 1 of Bouët and Laborde (2010). As the team updated and augmented the Bouët and Laborde dataset, it pulled on additional information it came across to add relevant policies to the dataset.

While the team has sought to be as accurate as possible with this historical dataset, it does present some limitations. Sources differ on what type of restriction was imposed, when it was imposed, and what products were affected. Often, a policy appears in one source but is not mentioned in another where it would presumably be relevant to mention, so there appears to be occasional disagreement even on the existence of a policy. The team has prioritized official sources, including policy documents; where these were unavailable, we have used our best judgement. Where an end date for a policy is unavailable, the end date has been set to one year from the start date of the policy, or, if the policy has been mentioned in a source after its introduction, one year from the last mention of the policy. Additionally, while we seek to be comprehensive in this dataset, there are likely policies that we have not captured. Finally, this dataset does not yet include incidences of loosening of trade restrictions.

COVID-19 General Policy Dataset

In the "Macroeconomic & Other Food policy Responses" tab, the tracker includes information on COVID-19-related policies, not limited to food export restrictions, for background and context. This information is drawn from the Organisation for Economic Co-Operation and Development (OECD) and the International Monetary Fund (IMF) and processed by the team using Python for use in the tracker.

The OECD data, as shown via their interactive [COVID-19 Country Policy Tracker](#), includes policy response data for 92 countries. We use an Excel file version of this data available in the OECD GitHub repository at https://oecd.github.io/OECD-covid-action-map/data/CoronavirusUpdate_AllCountries_Public.xlsx. We extract columns including quarantine, travel bans, closure of schools and universities, cancellation of public events, health, fiscal overall, fiscal-people specific, fiscal- company specific, monetary, and macro prudential into Python. We impute source of each columns or information where appropriate.

The IMF data is available at https://www.imf.org/en/Topics/imf-and-covid19/Policy-Responses-to-COVID-19. It provides data for 187 countries. We use Python to web scrape specific data and organized it into columns including fiscal, monetary, exchange rate, and balance of payments by countries.

As there exists overlap of information on policy responses (for example, fiscal and macro/monetary) between the OECD and IMF data, we create two additional columns, fiscal consolidated and monetary consolidated, using a simple aggregation formula: if OECD is empty then IMF else OECD. This allows us to fill gaps in countries where policy response data is not available.

We augment the OECD and IMF inventory with non-regular additions from several other sources. First, we use data from Alliance for a Green Revolution in Africa's (AGRA) Food Security Monitor (March 2020). Their data covers quarantine, travel bans, and other restriction measures in select countries in West, East, and Southern Africa. Second, we augment with the COVID-19 Food Policy Response Monitor for Egypt, created by the IFPRI Egypt Strategy Support Program (2020). Third, we use a version of the Food and Agriculture Policy Decision Analysis (FAPDA) dataset accessed on 23 April 2020 (FAO, 2020). Finally, we include data from the 3 April 2020 version of Gentilini, Almenfi, and Orton (2020).

We update our policy response tracking database once every day, using Python to pull the most recent data from the OECD and IMF sources.

Other Data

Global Number of COVID-19 Cases

The global number of COVID-19 cases is pulled from the Github Repository of the Center for Systems Science and Engineering (CSSE) at Johns Hopkins University (Center for Systems Science and Engineering (CSSE) at Johns Hopkins University, 2020). It is used in the tracker tab "Time Profile and period of implementation."

Data Challenges

The aim of our dataset is to provide a near-real-time, comprehensive source of information on food trade policies occurring around the COVID-19 crisis that may have an impact on global food security.

We also aim to be transparent about the data's challenges and limitations, as they affect interpretation and analysis.

Impact indicators are not perfectly precise and tend to overestimate effects for two reasons. First, indicators consider "restricted products," for example, "Country Global Market Share [Kcal] in restricted products," and do not account for the magnitude of the restriction. Take as a case Russia's export quota on wheat. Using the fact that Russia accounts for 13.20 percent of internationally traded wheat annually, its export quota on wheat resulted in a Country Global market Share [Kcal] in restricted products of 13.20 percent in the first few weeks of the quota's implementation. However, the quota was not binding for these first few weeks that it was implemented, based on expert opinion. So, the affected global market share in kilocalories of wheat would have actually been be near or at 0 percent. The reason that we don't aim for more precision and accuracy in these indicators is that it would require, in most cases, infeasibly detailed knowledge of markets and the on-the-ground realities of trade policy implementation.

Second, we use HS 4 codes rather than a more detailed level to document what products are affected. This choice is for simplicity, and in most cases, it is enough. In some cases, only part of the HS 4 category may be affected, so we necessarily overestimate indicators; documenting at the HS 6 level would be more accurate. For example, the export regulation of lemons (HS 6 080550) by Turkey implemented in April 2020 is coded as HS 4 0805, thus including oranges, which are a large component of Turkey's 0805 exports. However, the exact HS codes in a legislative document are not always available to provide the exact coverage of the policy. We advise people to consider whether this might be an issue for their use of the data, but this occasional loss of detail from using HS 4 does not appear to cause much bias for most purposes.

The 2007-2008 Food Price Crisis Policy Dataset presents some special challenges as a retrospective dataset. As mentioned above, sources differ on key aspects of policies. For the COVID-19 Food Trade Policy Dataset, we are able to rely on information from government and news sources, which often includes useful details such as policy name and number, HS4 codes, and exact implementation date. Information from government and news sources was less digitized over a decade ago, so for the 2007-2008 Food Price Crisis Policy Dataset, we rely primarily on academic papers, which tend to have more general information on policies.

We do not yet make an explicit effort to track loosening of export restrictions in either the COVID-19 or the 2007-2008 Food Price Crisis Datasets, other than noting the end dates of restrictive policies. The large global movement at the moment is in the direction of hoarding food, so the information is not immediately relevant.

We also do not yet track import facilitation measures and out-of-the-ordinary purchase quantities by importing countries. For example, Angola, a net-food-importing country, announced on 31 March 2020 that it was relaxing restrictions on imports of food (and medicine). Egypt This type of policy tends to have a much smaller or negligible effect on global markets than export restrictions.

ANALYSIS OF FOOD TRADE POLICIES

As the COVID-19 crisis has hit, policymakers around the world are implementing policies to mitigate and cope with the damage it will bring. These policies include food trade restrictions. So far, such behavior has been limited, although restrictions have increased as global worry about the effects of the crisis has increased. This is shown anecdotally in Figure 2 below.

**Figure 2:** COVID-19 Cases and Food Trade Restrictions Rising
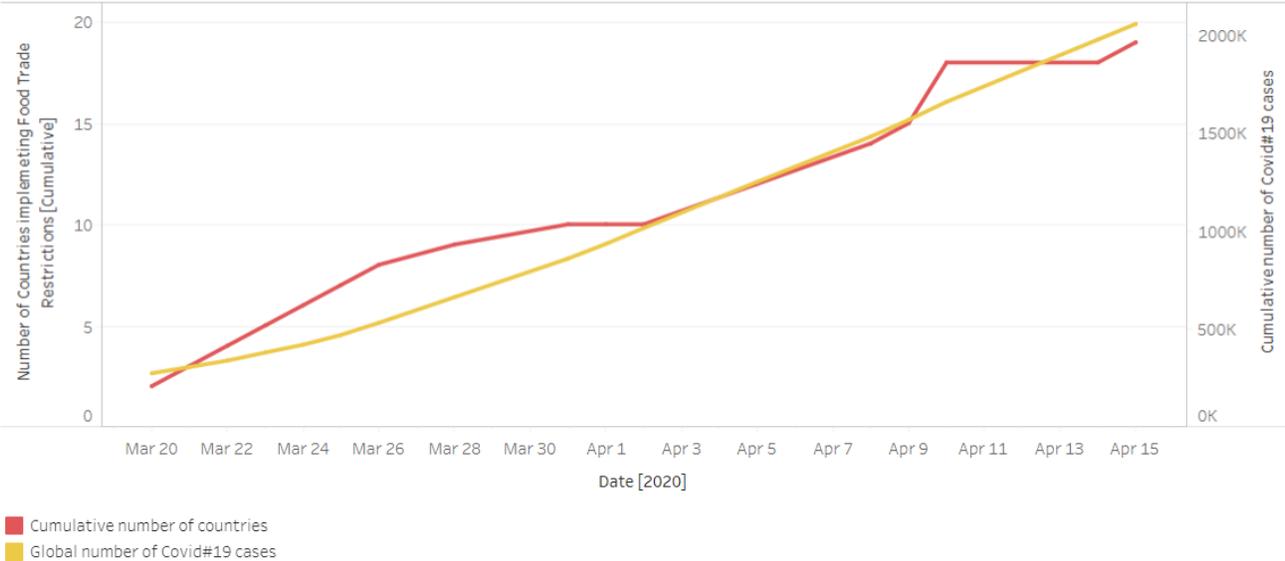
Source: COVID-19 Food Trade Policy Tracker. Extracted 27 April 2020.

Recently, world prices of most major agricultural products have declined and are continuing to decline. While some nations face lower-than-usual stocks of key commodities, globally aggregated stocks are relatively high.

As of writing, 17 countries have active binding export restrictions on food as a response to the COVID-19 crisis, mainly affecting staple foods. The share of globally traded calories that has been impacted is still relatively small, at around 5 percent, as shown in Figure 3 below. This can be compared to 19 percent of globally traded calories impacted by the 2007-2008 food price crisis, with 33 countries implementing export restrictions.

Figure 3: Announcements, Bans, and Non-Binding Policy Affecting Global Calorie Markets
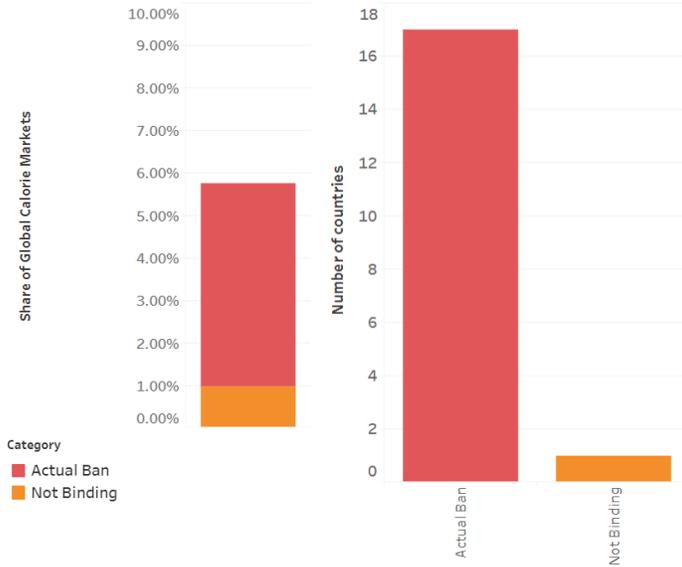
Source: COVID-19 Food Trade Policy Tracker. Extracted 27 April 2020.

As shown in red in Figure 4 below, many restrictions affect just a very small portion of that country's total export of kilocalories. However, a few countries have drastically reduced the kilocalories that they export. Especially notable are Kazakhstan, Russia, and Viet Nam, at 77, 70, and 48 percent respectively. The dark grey shows the extent to which the country's export restrictions affect the global market for the affected products. For example, Vietnam is in dark grey, showing that its export ban on rice affects around 10 percent of global rice markets (in calories). Similarly, Russia's export ban on grains and Turkey's export ban on lemons have relatively large effects on their respective product markets.

Figure 4: Map of Food Export Restrictions (Active and Binding Restrictions)

Source: COVID-19 Food Trade Policy Tracker. Extracted 28 April 2020.

Figure 5 shows what percentage of a country's imports, in kilocalories, are from products affected by export bans, taking into account from which countries products are imported. For example, Kyrgyzstan gets most of its imported calories from wheat and wheat flour imports. It imports almost all these goods from Kazakhstan. However, Kazakhstan has banned the export of wheat and wheat flour. So, you can see that 50 percent of Kyrgyzstan's imported calories are affected by export restrictions, largely due to Kazakhstan's wheat export ban.

Figure 5: Map of Percentage of Imported Calories Impacted by Export Restrictions

Share of restricted flows in food imports (Kcal)

0% ──────────────────────────── 79%
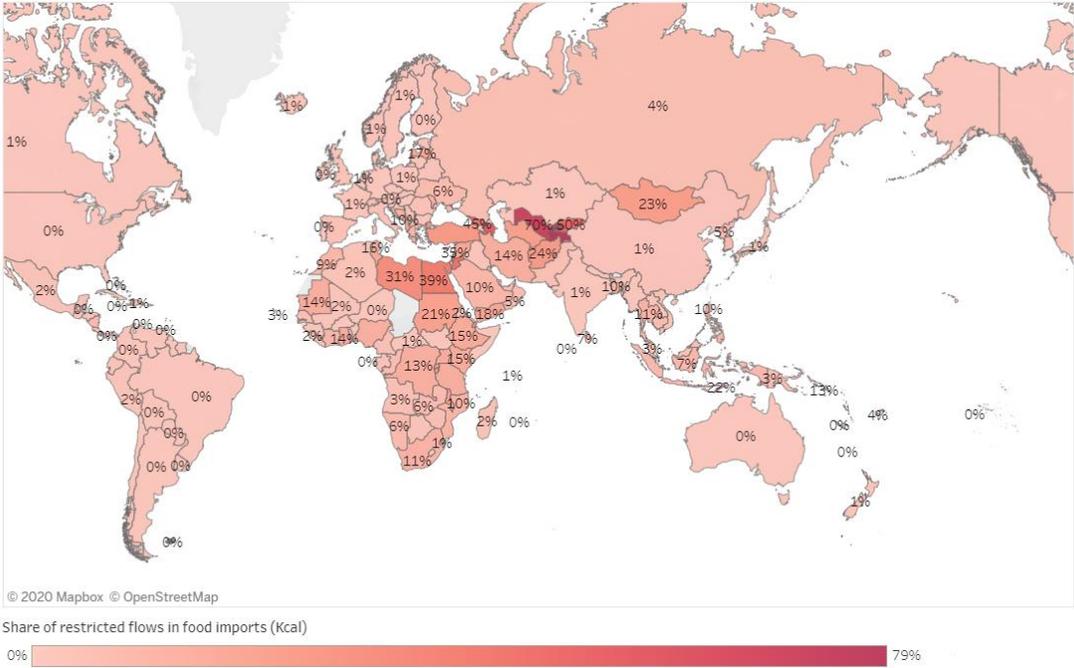
This map only partially answers the question of who is most affected by food export restrictions. We also need to ask: How reliant is a country is on imports to feed its population? How able are its people to cope with food price increases? We plan to include these aspects in future updates.

CONCLUSION

While global stocks of food are relatively high, action by national policymakers to restrict food trade can push up global food prices, hurt the incomes of food producers in their own countries, and exacerbate hunger globally. Cooperative policy is needed to avoid a wave of detrimental policy like that we saw in the 2007-2008 food price crisis. Food trade policy can move quickly, but it can have lasting implications on global poverty and hunger. The COVID-19 Food Trade Policy Tracker project provides publicly available data on the global food trade policy environment in the context of the ongoing COVID-19 crisis to aid in curbing this potential problem.

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REFERENCES

Alliance for a Green Revolution in Africa (AGRA). *Food Security Monitor: Africa Food Trade and Resilience Initiative*, no.1 (March 2020).

Bouët, Antoine, and David Laborde. 2010. *Economics of Export Taxation in a Context of Food Crisis: A Theoretical and CGE Approach Contribution.* IFPRI Discussion Paper 00994. Washington, DC: International Food Policy Research Institute. http://ebrary.ifpri.org/cdm/ref/collection/p15738coll2/id/2291. Accessed 24 April 2020.

Bouët, Antoine, and David Laborde Debucquet. "Food Crisis and Export Taxation: the Cost of Non-Cooperative Trade Policies." *Review of World Economics / Weltwirtschaftliches Archiv*, vol. 148, no. 1, 2012, pp. 209–233. *JSTOR*, www.jstor.org/stable/41485792. Accessed 21 April 2020.

Center for Systems Science and Engineering (CSSE) at Johns Hopkins University (username: CSSEGISandData). 2020. "time_series_covid19_confirmed_global.csv" https://github.com/CSSEGISandData/COVID-19/blob/master/csse_covid_19_data/csse_covid_19_time_series/time_series_covid19_confirmed_global.csv. Accessed 26 April 2020.

"COVID-19 Food Policy Response Monitor for Egypt." *IFPRI Egypt Strategy Support Program (ESSP).* 6 April 2020. https://egyptssp.ifpri.info/2020/04/13/covid-19-food-policy-response-monitor-for-egypt/. Accessed 10 April 2020.

Food and Agriculture Organization of the United Nations (FAO). 2020. *Food and Agriculture Policy Decision Analysis (FAPDA)* dataset. Accessed 23 April 2020.

Gentilini, Ugo, Mohamed Almenfi, and Ian Orton. 3 April 2020. "Social Protection and Jobs Responses to COVID-19: A Real-Time Review of Country Measures." https://nidm.gov.in/covid19/PDF/covid19/research/2.pdf. Accessed 29 April 2020.

Laborde, David. 2019. *Trading in Macro-nutrients.* https://public.tableau.com/profile/laborde6680#!/vizhome/Trade_Nutrition_2019_PIM/Overview. Accessed 27 April 2020.

Laborde, David. 2020. *Monitoring Agricultural Production and Stocks.* "World Stock to Use Ratio." https://public.tableau.com/profile/laborde6680#!/vizhome/MonitoringProductionStocks_basedon_USDAPSD/PSD_USDA. Accessed 27 April 2020.

Laborde, David, and Anatole Goundan. 2020 (forthcoming). "A consistent approach of trade data: the AATM database."

Laborde, David, and Lauren Deason. 2015. "Trade and Nutritional Contents." https://www.researchgate.net/publication/340914152_Trade_and_Nutritional_Contents. Accessed 26 April 2020.

United States Department of Agriculture Foreign Agricultural Services (USDA FAS). 9 April 2020. *Production, Supply, & Distribution* [Data set accessed via API in R]. Available at https://apps.fas.usda.gov/psdonline/app/index.html#/app/downloads.

UN Trade Statistics. 2017. "Harmonized Commodity Description and Coding Systems (HS)." https://unstats.un.org/unsd/tradekb/Knowledgebase/50018/Harmonized-Commodity-Description-and-Coding-Systems-HS. Accessed 27 April 2020. Csv download available at http://unstats.un.org/unsd/tradekb/Attachment439.aspx?AttachmentType=1.

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