

# Analysis of the COVID-19 Shock, Technology and Trade

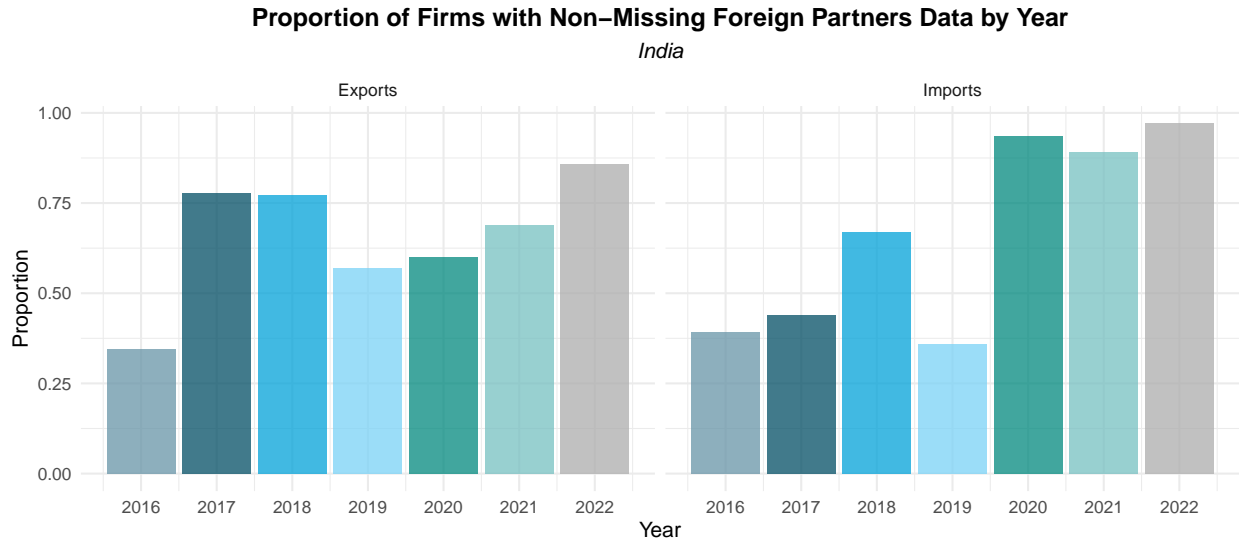
## Quality of Panjiva Foreign Partners Data - India and Indonesia

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April 14, 2023

### 1. India

The following plot illustrates the proportion of Indian firms with non-missing foreign trade partners in all observations. This proportion is calculated for each year of available data in India (2016-2022). Notably, the lowest proportion values for both Exports and Imports datasets can be observed in 2016 and 2019.



Additionally, for each year, we calculate the total number of observations per firm and determine the count of observations with non-missing foreign partners. Subsequently, we compute by firm-year the proportion of observations with non-missing foreign partners. Tables 1 and 2 display the summary statistics (Mean, Min, quantile 5, quantile 25, Median, quantile 75 and Max) of this variable for the exports and imports datasets, respectively.

Table 1: Panjiva Exports India - Summary Statistics of Proportion of Firm Observations with Non-Missing Foreign Partners

	Mean	Min	p5	p25	Median	p75	Max
2016	0.806	0.004	0.275	0.700	0.833	1	1
2017	0.951	0.003	0.620	1.000	1.000	1	1
2018	0.947	0.002	0.565	1.000	1.000	1	1
2019	0.882	0.002	0.283	0.854	1.000	1	1
2020	0.882	0.003	0.239	0.860	1.000	1	1
2021	0.918	0.003	0.360	0.955	1.000	1	1
2022	0.951	0.005	0.480	1.000	1.000	1	1

Table 2: Panjiva Imports India - Summary Statistics of Proportion of Firm Observations with Non-Missing Foreign Partners

	Mean	Min	p5	p25	Median	p75	Max
2016	0.650	0.000	0.027	0.310	0.750	1	1
2017	0.841	0.008	0.398	0.742	0.889	1	1
2018	0.948	0.036	0.704	0.936	1.000	1	1
2019	0.741	0.008	0.201	0.514	0.780	1	1
2020	0.993	0.074	0.996	1.000	1.000	1	1
2021	0.989	0.045	0.971	1.000	1.000	1	1
2022	0.994	0.033	1.000	1.000	1.000	1	1

As illustrated in Tables 1 and 2, the exports dataset shows an average proportion of non-missing foreign partner observations per firm across all years exceeding 0.8, with a median proportion of 1 for all years, except 2016. Meanwhile, the imports dataset presents an average proportion surpassing 0.94 for 2018, 2020, 2021, and 2022, along with a median proportion of 1 for these years.

On the other hand, to assess the importance of non-missing foreign partner observations in relation to a firm's total export or import volume for a specific year, we first calculate the annual total export or import volume for each firm. Following that, we compute by firm-year the proportion of the total volume attributable to observations with non-missing foreign partners. Summary statistics for this variable can be found in Tables 3 and 4 for the exports and imports datasets, respectively.

Table 3: Panjiva Exports India - Summary Statistics of Proportion of Firm Total Exports with Non-Missing Foreign Partners

	Mean	Min	p5	p25	Median	p75	Max
2016	0.799	0	0.275	0.695	0.857	1	1
2017	0.952	0	0.620	1.000	1.000	1	1
2018	0.948	0	0.565	1.000	1.000	1	1
2019	0.882	0	0.283	0.891	1.000	1	1
2020	0.879	0	0.239	0.901	1.000	1	1
2021	0.915	0	0.360	0.979	1.000	1	1
2022	0.946	0	0.480	1.000	1.000	1	1

Table 4: Panjiva Imports India - Summary Statistics of Proportion of Firm Total Imports with Non-Missing Foreign Partners

	Mean	Min	p5	p25	Median	p75	Max
2016	0.695	0.000	0.027	0.358	0.917	1	1
2017	0.842	0.000	0.398	0.746	0.927	1	1
2018	0.947	0.000	0.704	0.951	1.000	1	1
2019	0.735	0.000	0.201	0.511	0.822	1	1
2020	0.994	0.001	0.996	1.000	1.000	1	1
2021	0.990	0.000	0.971	1.000	1.000	1	1
2022	0.995	0.001	1.000	1.000	1.000	1	1

As shown in Tables 3 and 4, for the exports dataset, the average proportion of total trade volume attributed to non-missing foreign partner observations per firm across all years exceeds 0.79, with a median proportion of 1 for all years, except 2016. In the imports dataset, this average proportion surpasses 0.94 for 2018, 2020, 2021, and 2022, and the median proportion is 1 for these years as well.

## 2. Indonesia

The datasets for Indonesia exhibit very few missing values concerning foreign partners. Across all years and in both exports and imports datasets, the proportion of Indonesian firms with non-missing foreign trade partners in all observations exceeds 0.96.

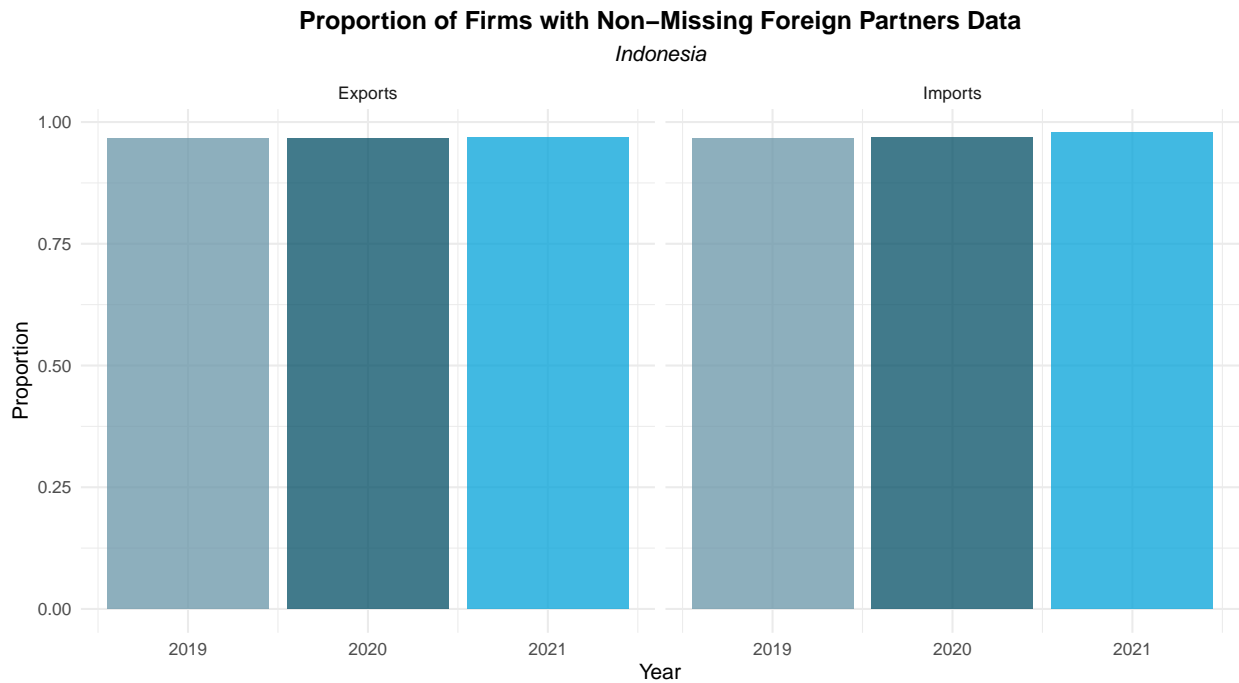


Table 5: Panjiva Exports Indonesia - Summary Statistics of Proportion of Firm Observations with Non-Missing Foreign Partners

	Mean	Min	p5	p25	Median	p75	Max
2019	0.999	0.267	1	1	1	1	1
2020	0.999	0.200	1	1	1	1	1
2021	0.999	0.077	1	1	1	1	1

Table 6: Panjiva Exports Indonesia - Summary Statistics of Proportion of Firm Total Exports with Non-Missing Foreign Partners

	Mean	Min	p5	p25	Median	p75	Max
2019	0.999	0.003	1	1	1	1	1
2020	0.999	0.000	1	1	1	1	1
2021	0.999	0.209	1	1	1	1	1

Table 7: Panjiva Imports Indonesia - Summary Statistics of Proportion of Firm Observations with Non-Missing Foreign Partners

	Mean	Min	p5	p25	Median	p75	Max
2019	0.997	0.023	1	1	1	1	1
2020	0.997	0.025	1	1	1	1	1
2021	0.998	0.011	1	1	1	1	1

Table 8: Panjiva Imports Mexico - Summary Statistics of Proportion of Firm Total Imports with Non-Missing Foreign Partners

	Mean	Min	p5	p25	Median	p75	Max
2019	0.997	0.005	1	1	1	1	1
2020	0.997	0.013	1	1	1	1	1
2021	0.998	0.003	1	1	1	1	1

### 3. Mexico

The datasets for Mexico exhibit very few missing values concerning foreign partners. In all years, except for 2012-2014, the proportion of Mexican firms with non-missing foreign trade partners in both exports and imports datasets exceeds 0.75 for all observations.

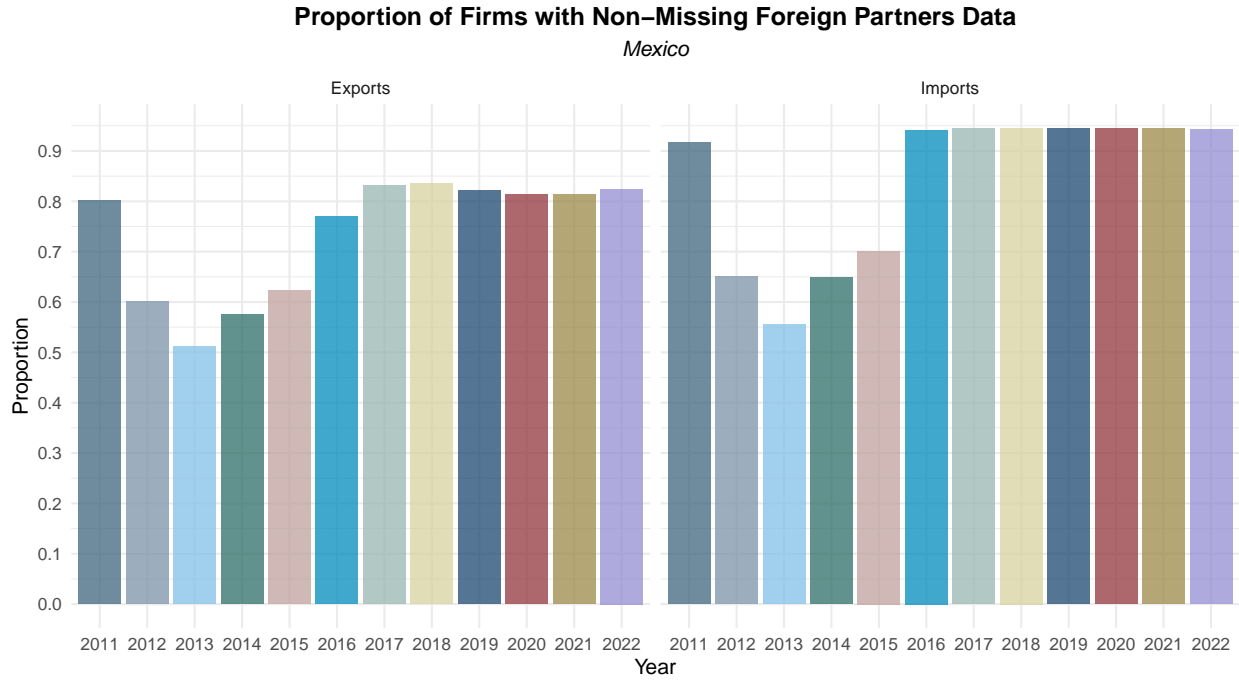


Table 9: Panjiva Exports Mexico - Summary Statistics of Proportion of Firm Observations with Non-Missing Foreign Partners

	Mean	Min	p5	p25	Median	p75	Max
2011	0.895	0.000	0.012	1.000	1	1	1
2012	0.825	0.000	0.012	0.743	1	1	1
2013	0.778	0.000	0.007	0.607	1	1	1
2014	0.799	0.000	0.007	0.667	1	1	1
2015	0.834	0.001	0.011	0.778	1	1	1
2016	0.881	0.001	0.055	1.000	1	1	1
2017	0.916	0.001	0.057	1.000	1	1	1
2018	0.919	0.001	0.061	1.000	1	1	1
2019	0.911	0.001	0.049	1.000	1	1	1
2020	0.899	0.000	0.040	1.000	1	1	1
2021	0.906	0.000	0.047	1.000	1	1	1
2022	0.909	0.001	0.047	1.000	1	1	1

Table 10: Panjiva Exports Mexico - Summary Statistics of Proportion of Firm Total Exports with Non-Missing Foreign Partners

	Mean	Min	p5	p25	Median	p75	Max
2011	0.879	0	0.012	1.000	1	1	1
2012	0.808	0	0.012	0.746	1	1	1
2013	0.766	0	0.007	0.593	1	1	1
2014	0.784	0	0.007	0.666	1	1	1
2015	0.817	0	0.011	0.802	1	1	1
2016	0.866	0	0.055	1.000	1	1	1
2017	0.907	0	0.057	1.000	1	1	1
2018	0.911	0	0.061	1.000	1	1	1
2019	0.902	0	0.049	1.000	1	1	1
2020	0.888	0	0.040	1.000	1	1	1
2021	0.896	0	0.047	1.000	1	1	1
2022	0.898	0	0.047	1.000	1	1	1

Table 11: Panjiva Imports Mexico - Summary Statistics of Proportion of Firm Observations with Non-Missing Foreign Partners

	Mean	Min	p5	p25	Median	p75	Max
2011	0.964	0.000	0.776	1.000	1	1	1
2012	0.878	0.000	0.205	0.889	1	1	1
2013	0.836	0.000	0.051	0.800	1	1	1
2014	0.858	0.000	0.053	0.878	1	1	1
2015	0.903	0.000	0.264	0.958	1	1	1
2016	0.972	0.000	0.979	1.000	1	1	1
2017	0.973	0.000	0.996	1.000	1	1	1
2018	0.973	0.000	0.998	1.000	1	1	1
2019	0.974	0.000	0.999	1.000	1	1	1
2020	0.972	0.000	0.997	1.000	1	1	1
2021	0.973	0.001	0.995	1.000	1	1	1
2022	0.971	0.001	0.972	1.000	1	1	1

Table 12: Panjiva Imports Mexico - Summary Statistics of Proportion of Firm Total Imports with Non-Missing Foreign Partners

	Mean	Min	p5	p25	Median	p75	Max
2011	0.957	0	0.776	1.000	1	1	1
2012	0.872	0	0.205	0.918	1	1	1
2013	0.834	0	0.051	0.836	1	1	1
2014	0.852	0	0.053	0.912	1	1	1
2015	0.895	0	0.264	0.975	1	1	1
2016	0.964	0	0.979	1.000	1	1	1
2017	0.964	0	0.996	1.000	1	1	1
2018	0.964	0	0.998	1.000	1	1	1
2019	0.965	0	0.999	1.000	1	1	1
2020	0.964	0	0.997	1.000	1	1	1
2021	0.964	0	0.995	1.000	1	1	1
2022	0.961	0	0.972	1.000	1	1	1