

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

## Summary Statistics of Variables Used in Regressions

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### Matching Description

The tables in this section display the proportion of transactions or firms per country-year represented by the matched Panjiva-Aberdeen-BuiltWith samples. Please note that these percentages pertain only to the matched Panjiva-Aberdeen-BuiltWith dataset and not to the regressions sample. The regressions sample has other filters, for example, excludes firms that do not fall within the analyzed SIC groups (Wholesale/Retail, Manufacturing, Agriculture, Construction and Mining, Services, Finance, Insurance and Real Estate, and Transport and Utilities) and those with total imports/exports of less than 1000 USD across all years.

### Total Exports and Imports Matching Rates by Year

Table 1: Indonesia - Panjiva total imports and total exports matching rates to BuiltWith and Aberdeen datasets by year

Year	Total Value	% Matched Aberdeen	% Matched BuiltWith	% Matched Both
<b>Panjiva Imports</b>				
2019	\$111,689,365,252	65.16	61.17	45.65
2020	\$121,889,448,906	63.49	59.72	42.90
2021	\$ 75,789,780,848	64.64	60.13	44.43
<b>Panjiva Exports</b>				
2019	\$117,213,032,387	66.47	55.43	40.62
2020	\$160,785,569,164	57.58	51.71	36.46
2021	\$137,153,786,021	67.86	61.05	45.59

<sup>a</sup> Data available for imports from February 2019 to June 2021

<sup>b</sup> Data available for exports from February 2019 to September 2021

Table 2: India - Panjiva total imports and total exports matching rates to BuiltWith and Aberdeen datasets by year

Year	Total Value	% Matched Aberdeen	% Matched BuiltWith	% Matched Both
<b>Panjiva Imports</b>				
2018	\$127,536,290,663	43.57	65.15	31.72
2019	\$253,506,184,609	44.25	65.14	32.61
2020	\$217,302,910,739	43.42	66.89	33.16
2021	\$306,430,535,564	42.60	66.81	33.14
<b>Panjiva Exports</b>				
2018	\$111,567,497,569	48.98	65.14	35.52
2019	\$249,244,905,936	48.57	64.43	34.92
2020	\$234,417,237,312	47.48	64.79	35.31
2021	\$311,344,269,990	46.03	64.94	34.56

<sup>a</sup> Only data from July 2018 onwards is included.

Table 3: Mexico - Panjiva total imports and total exports matching rates to BuiltWith and Aberdeen datasets by year

Year	Total Value	% Matched Aberdeen	% Matched BuiltWith	% Matched Both
<b>Panjiva Imports</b>				
2018	\$200,958,172,502	31.06	52.84	22.26
2019	\$386,948,465,511	30.54	51.77	21.61
2020	\$339,049,722,858	30.15	51.20	21.15
2021	\$436,713,856,170	29.62	52.43	20.93
<b>Panjiva Exports</b>				
2018	\$216,740,349,751	36.00	53.88	27.60
2019	\$438,015,696,665	34.41	53.65	26.52
2020	\$405,696,201,793	33.30	52.26	24.86
2021	\$470,775,779,378	32.73	52.70	24.34

<sup>a</sup> Only data from July 2018 onwards is included.

## Firms Matching Rates by Year

Table 4: Indonesia - Panjiva firms matching rates to BuiltWith and Aberdeen datasets by year

Year	Number Firms	% Matched Aberdeen	% Matched BuiltWith	% Matched Both
<b>Panjiva Imports</b>				
2019	31,045	28.41	38.71	15.78
2020	32,782	26.87	38.22	15.16
2021	28,283	27.83	39.63	16.10
<b>Panjiva Exports</b>				
2019	13,801	33.33	38.24	18.75
2020	14,590	31.73	37.44	18.02
2021	13,729	31.33	37.56	18.01

Table 5: India - Panjiva firms matching rates to BuiltWith and Aberdeen datasets by year

Year	Number Firms	% Matched Aberdeen	% Matched BuiltWith	% Matched Both
<b>Panjiva Imports</b>				
2018	92,226	37.24	47.39	22.51
2019	121,290	35.84	45.81	21.28
2020	111,422	36.22	47.46	21.89
2021	117,362	34.47	47.04	20.94
<b>Panjiva Exports</b>				
2018	84,194	38.77	48.66	23.93
2019	116,038	36.56	46.75	22.13
2020	113,853	36.35	47.60	22.20
2021	124,529	34.91	47.46	21.42

<sup>a</sup> Only data from July 2018 onwards is included.

Table 6: Mexico - Panjiva firms matching rates to BuiltWith and Aberdeen datasets by year

Year	Number Firms	% Matched Aberdeen	% Matched BuiltWith	% Matched Both
<b>Panjiva Imports</b>				
2018	44,506	13.12	44.47	8.48
2019	50,833	12.39	44.05	7.99
2020	47,940	12.54	44.89	8.20
2021	48,084	12.21	45.20	8.06
<b>Panjiva Exports</b>				
2018	21,844	15.02	43.10	9.71
2019	26,537	14.03	42.31	9.06
2020	26,203	14.15	42.84	9.15
2021	26,415	13.70	42.98	9.09

<sup>a</sup> Only data from July 2018 onwards is included.

## Transactions Matching Rates by Year

Table 7: Indonesia - Panjiva transactions at the Firm-Month-HS6 level matching rates to BuiltWith and Aberdeen datasets by year

Year	Number Transactions	% Matched Aberdeen	% Matched BuiltWith	% Matched Both
<b>Panjiva Imports</b>				
2019	1,404,718	49.27	51.77	32.78
2020	1,621,162	49.10	49.91	31.79
2021	853,003	47.97	49.75	31.42
<b>Panjiva Exports</b>				
2019	354,291	40.06	38.86	22.45
2020	387,702	42.02	41.47	25.02
2021	294,299	41.60	42.60	25.75

Table 8: India - Panjiva transactions at the Firm-Month-HS6 level matching rates to BuiltWith and Aberdeen datasets by year

Year	Number Transactions	% Matched Aberdeen	% Matched BuiltWith	% Matched Both
<b>Panjiva Imports</b>				
2018	1,504,978	40.28	58.64	27.90
2019	3,093,732	40.59	58.53	28.10
2020	2,541,084	40.58	60.54	28.88
2021	2,833,518	40.14	60.55	28.62
<b>Panjiva Exports</b>				
2018	1,184,145	44.79	51.38	27.28
2019	2,729,654	44.16	50.58	26.68
2020	2,498,904	43.55	50.92	26.58
2021	3,033,599	42.19	49.33	25.32

<sup>a</sup> Only data from July 2018 onwards is included.

Table 9: Mexico - Panjiva transactions at the Firm-Month-HS6 level matching rates to BuiltWith and Aberdeen datasets by year

Year	Number Transactions	% Matched Aberdeen	% Matched BuiltWith	% Matched Both
<b>Panjiva Imports</b>				
2018	2,913,368	21.26	49.51	13.80
2019	5,624,959	21.41	49.61	13.86
2020	4,875,030	21.64	50.23	14.08
2021	5,243,244	21.27	50.18	13.90
<b>Panjiva Exports</b>				
2018	575,531	22.78	49.49	14.60
2019	1,160,199	22.65	49.38	14.36
2020	1,112,956	22.58	49.37	14.31
2021	1,182,417	21.88	48.80	13.93

<sup>a</sup> Only data from July 2018 onwards is included.

## Regression Samples for Intensive Margin

### Regression Sample Summary Statistics: Does Tech Adoption Affect Trade Outcomes?

For the matched Panjiva-BuiltWith-Aberdeen dataset, we apply the following additional filters to obtain our regression sample for the model that assesses the impact of tech adoption on trade outcomes:

- Keep firms that belong to any of the analyzed SIC groups (Wholesale/Retail, Manufacturing, Agriculture, Construction and Mining, Services, Finance, Insurance and Real Estate, and Transport and Utilities)
- Drop firms that adopted the E-payment/E-commerce technology before the period of analysis.
- Keep only firms that had website before and after period of analysis (This can be seen in the BuiltWith dataset).

Table 10: Descriptive Statistics of Value of Imports and Exports - Regression Sample

	Min	p25	Median	Mean	p75	Max	SD
<b>Indonesia</b>							
Exports	\$0.00	\$877.00	\$16,068.61	\$688,817.7	\$142,364.50	\$8,885,293,176	\$21,440,629
Imports	\$0.01	\$816.82	\$ 5,422.89	\$112,218.5	\$ 32,895.75	\$1,892,402,838	\$ 2,552,736
<b>India</b>							
Exports	\$0.01	\$749.94	\$5,754.04	\$141,032.2	\$38,118.44	\$804,447,593	\$1,796,577
Imports	\$0.01	\$681.63	\$5,168.10	\$112,991.0	\$32,092.97	\$508,822,464	\$1,745,866
<b>Mexico</b>							
Exports	\$0.04	\$275.01	\$2,861.31	\$518,485.94	\$33,050.21	\$ 784,901,268	\$8,149,436
Imports	\$0.04	\$314.06	\$1,972.19	\$ 88,795.32	\$14,473.08	\$1,298,040,348	\$1,657,786

Table 11: Proportion of Observations with Dummy Variables Equal to 1 for E-payment/E-commerce, e-Bay Tradable, China E-commerce, Consumable, and Durable Product Categories - Regression Sample

	E-payment/E-commerce	e-Bay tradable	China E-commerce	Consumable	Durable
<b>Indonesia</b>					
Exports	0.045	0.269	0.349	0.161	0.031
Imports	0.054	0.212	0.264	0.049	0.007
<b>India</b>					
Exports	0.086	0.271	0.373	0.176	0.024
Imports	0.103	0.234	0.267	0.052	0.011
<b>Mexico</b>					
Exports	0.152	0.257	0.342	0.066	0.009
Imports	0.153	0.218	0.291	0.041	0.007

Table 12: Number of Importing and Exporting Firms - Regression Sample

Indonesia		India		Mexico	
Exp. Firms	Imp. Firms	Exp. Firms	Imp. Firms	Exp. Firms	Imp. Firms
1,930	3,628	23,985	24,790	1,978	2,893

## Regression Sample: Does Existing Tech Use Mitigate COVID Impacts?

For the matched Panjiva-BuiltWith-Aberdeen dataset, we apply the following additional filters to obtain our regression sample for the model that assesses if tech adoption mitigates COVID impacts:

- Keep firms that belong to any of the analyzed SIC groups (Wholesale/Retail, Manufacturing, Agriculture, Construction and Mining, Services, Finance, Insurance and Real Estate, and Transport and Utilities)
- Keep only firms that had website before and after period of analysis.

Table 13: Descriptive Statistics of Value of Imports and Exports

	Min	p25	Median	Mean	p75	Max	SD
<b>Indonesia</b>							
Exports	\$0.00	\$834.00	\$14,128.15	\$666,919.7	\$130,033.11	\$8,885,293,176	\$19,822,958
Imports	\$0.01	\$775.83	\$ 5,208.00	\$110,815.6	\$ 31,852.22	\$1,892,402,838	\$ 2,366,617
<b>India</b>							
Exports	\$0.01	\$687.20	\$5,249.81	\$134,187.7	\$35,216.75	\$804,447,593	\$1,734,736
Imports	\$0.01	\$625.01	\$4,801.50	\$107,118.3	\$30,250.00	\$565,107,480	\$1,690,903
<b>Mexico</b>							
Exports	\$0.04	\$247.96	\$2,419.99	\$635,656.7	\$26,685.68	\$1,109,751,567	\$11,491,128
Imports	\$0.04	\$311.30	\$1,988.29	\$109,330.7	\$14,692.11	\$1,857,583,709	\$ 2,353,136

Table 14: Proportion of Observations with Dummy Variables Equal to 1 for E-payment/E-commerce adopted before 2019, e-Bay Tradable, China E-commerce, Consumable, and Durable Product Categories - Regression Sample

	Pre-2019 E-payment/E-commerce	e-Bay tradable	China E-commerce	Consumable	Durable
<b>Indonesia</b>					
Exports	0.171	0.279	0.349	0.162	0.038
Imports	0.169	0.223	0.271	0.053	0.008
<b>India</b>					
Exports	0.154	0.280	0.384	0.186	0.026
Imports	0.188	0.246	0.282	0.062	0.013
<b>Mexico</b>					
Exports	0.299	0.264	0.347	0.072	0.011
Imports	0.292	0.227	0.305	0.053	0.009

Table 15: Descriptive Statistics of Monthly Average Stringency Index (Filling with 0s before 2020)

	Min	p25	Median	Mean	p75	Max	SD
<b>Indonesia</b>							
Exports	0	0	60.62	42.72	71.11	73.82	31.54
Imports	0	0	56.02	37.54	68.43	73.82	31.97
<b>India</b>							
Exports	0	0	54.52	37.72	68.98	98.64	36.40
Imports	0	0	10.19	35.71	68.98	98.64	36.52
<b>Mexico</b>							
Exports	0	0	19.92	29.68	66.77	82.41	31.19
Imports	0	0	0.19	28.44	66.67	82.41	31.06

Table 16: Number of Importing and Exporting Firms - Regression Sample

Indonesia		India		Mexico	
Exp. Firms	Imp. Firms	Exp. Firms	Imp. Firms	Exp. Firms	Imp. Firms
2,250	4,278	27,159	28,022	2,463	3,618

## Regression Samples for Extensive Margin

### Regression Sample Extensive Margin: Does Tech Adoption Affect Trade Outcomes?

Table 17: Proportion of 0s in binary dependent variable in the expanded datasets

Indonesia Expanded Datasets		India Expanded Datasets		Mexico Expanded Datasets	
Exports	Imports	Exports	Imports	Exports	Imports
0.954	0.953	0.972	0.975	0.958	0.95

### Regression Sample Extensive Margin: Does Existing Tech Use Mitigate COVID Impacts?

Table 18: Proportion of 0s in binary dependent variable in the expanded datasets

Indonesia Expanded Datasets		India Expanded Datasets		Mexico Expanded Datasets	
Exports	Imports	Exports	Imports	Exports	Imports
0.954	0.952	0.972	0.974	0.956	0.948