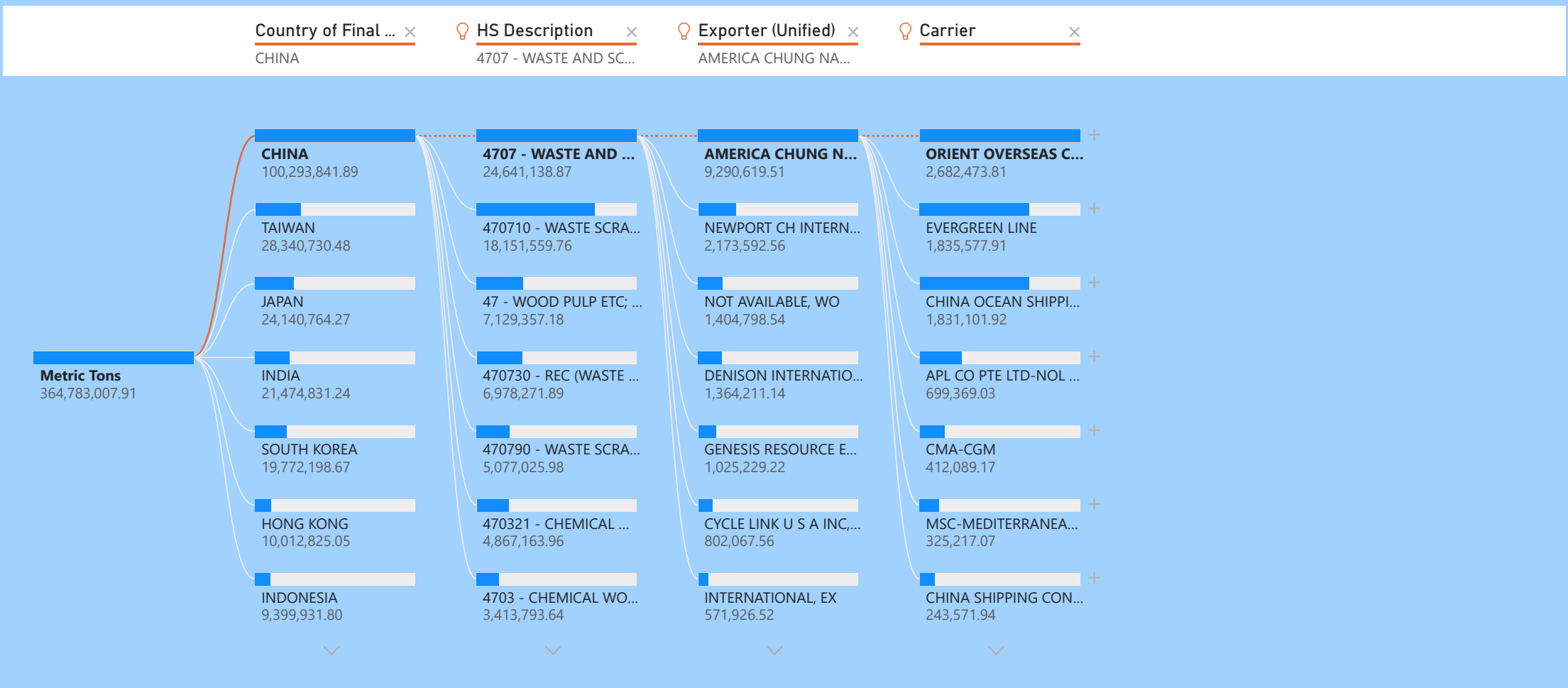


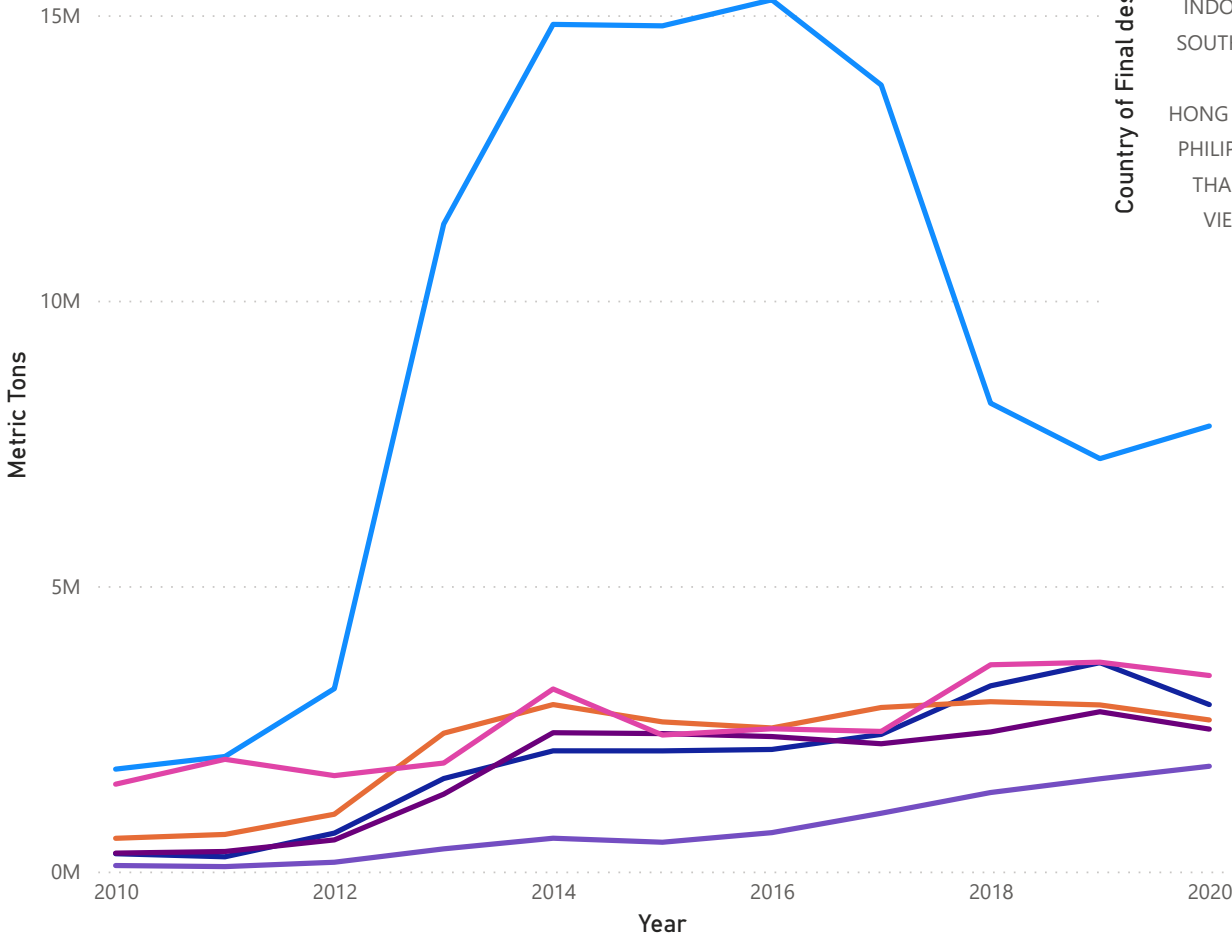
This is a decision tree to look at the factor levels that account for the largest amount of exported volume, measured in metric tonnage, over the entire time period. The diagram is revealing that some factor levels need to be merged into one homogeneous level. Attributes that require cleaning are HS Description and US Port. We may want to create an HS dictionary table at the two-digit level, merging all subcategories into the new category. All classes that begin with 47 are paper, wood, and cellulose waste and can be considered together. By merging these categories, we can better assess HS descriptions by limiting the quantity to 100, instead of the thousands that exist in the original dataset. The U.S. Port cleaning will require some cleaning, but requires institutional knowledge. For example, New York/Newark and Newark, NJ are the same port and should be made into one categorical value.



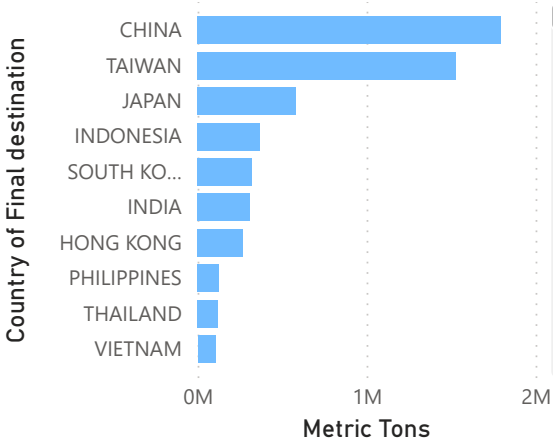
Overall exports to China crash after 2016, but modest gains from multiple other countries help compensate for these losses to the Chinese market.

Metric Tons by Year and Country of Final destination

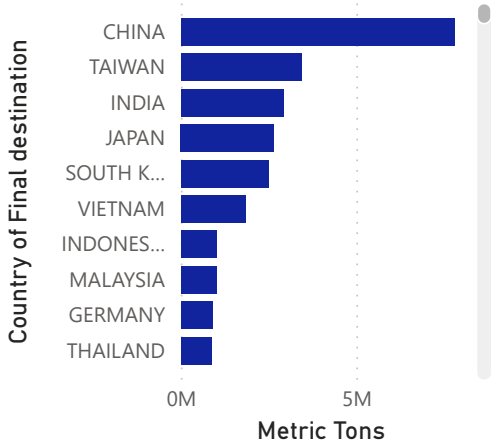
Country of Final destination ● CHINA ● INDIA ● JAPAN ● SOUTH KOREA ● TAIWAN ● VIETNAM



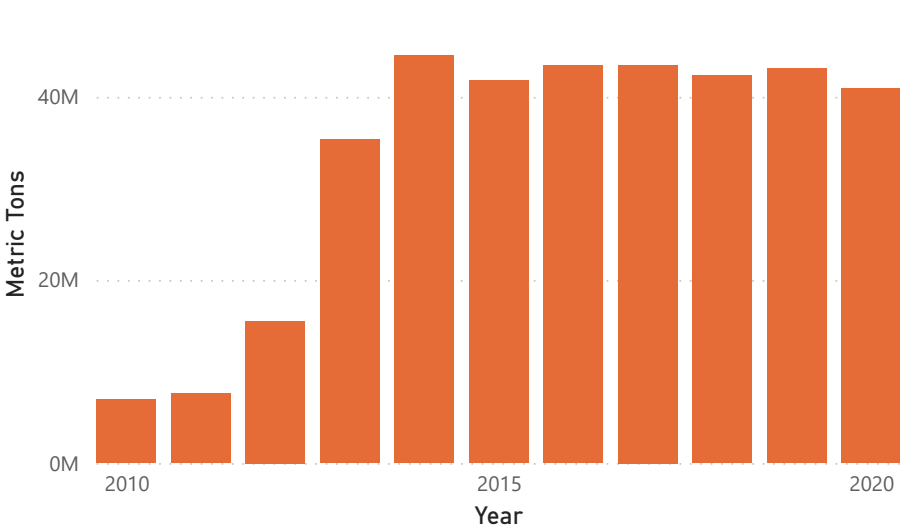
Metric Tons by Country of Final destination [2010]



Metric Tons by Country of Final destination [2020]

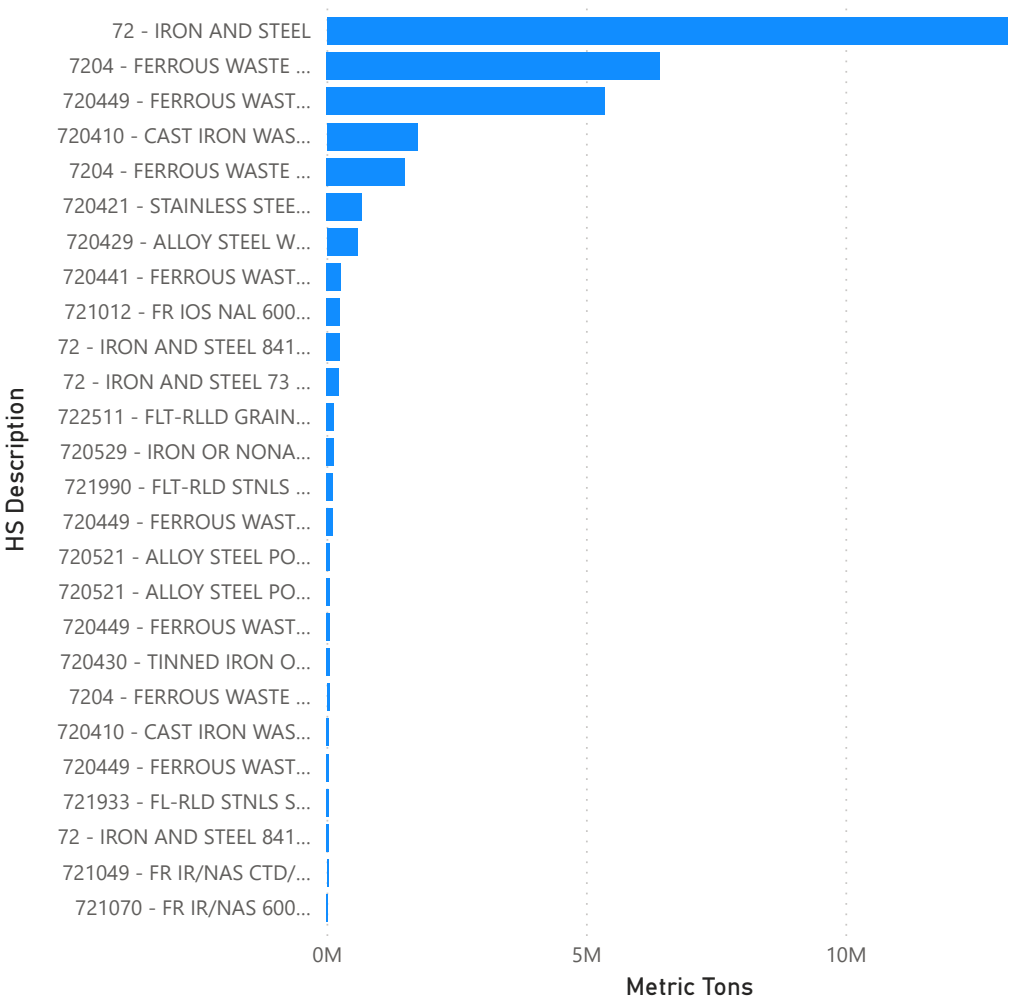


Metric Tons by Year (All Goods)

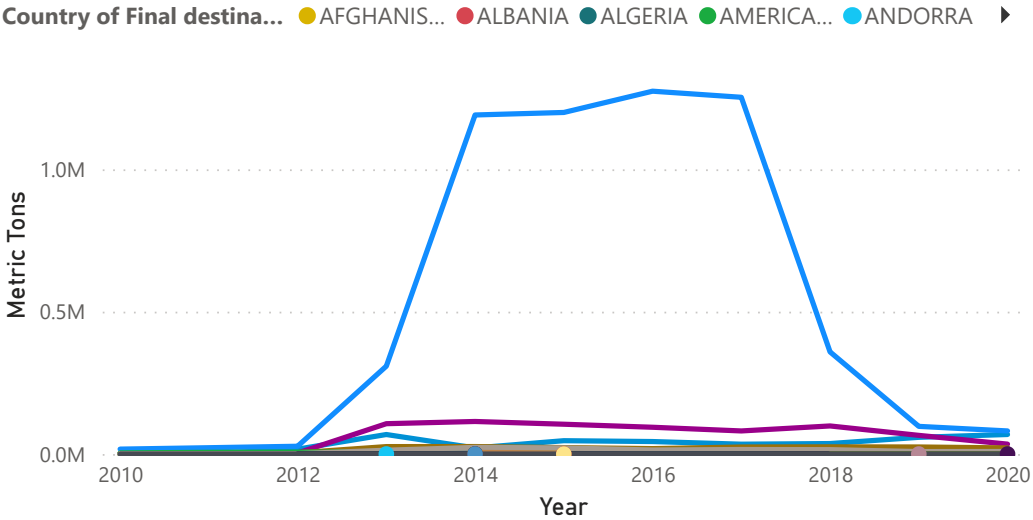


Although China dramatically decreased its U.S. steel imports by 2019, gradual increases by many other countries helped stabilize overall annual export volumes. The data below is filtered for exports with HS codes beginning with 72, the family HS code for iron and steel.

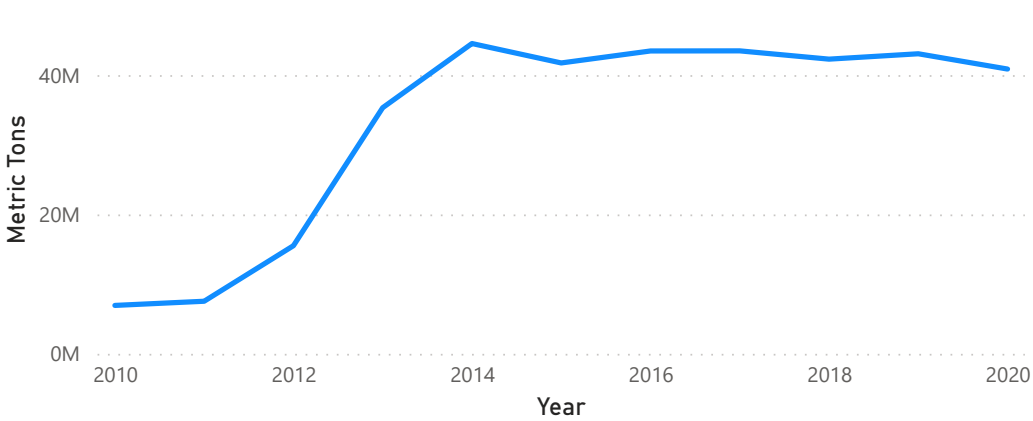
Metric Tons by HS Description



Metric Tons by Year and Country of Final destination



Metric Tons by Year



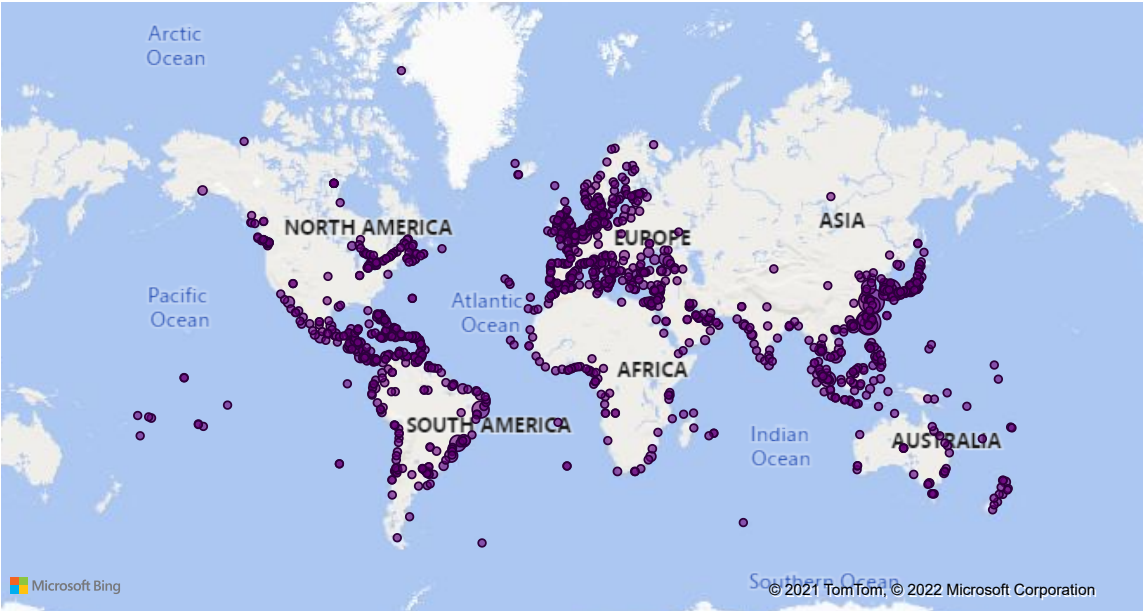
There are over 30,000 distinct HS codes for imports. We could benefit by consolidating these into 100 HS Codes.

The U.S. imported from 228 countries, including U.S. petroleum offshore platforms, during the 11 years.

HS Description	Teus
940360 - WOODEN FURNITURE NESOI	3,053,030.96
950300 - TRICYCLE SCOOTR PEDAL CAR & SIM WHEELED TYS; ETC	2,879,786.96
940161 - SEATS WITH WOODEN FRAMES UPHOLSTERED NESOI	2,639,909.51
9401 - SEATS (EXCEPT BARBER DENTAL ETC) AND PARTS 9403 - FURNITURE NESOI AND PARTS THEREOF	2,594,899.71
401110 - NEW PNEUMATIC TIRES OF RUBBER FOR MOTOR CARS	2,445,063.69
9401 - SEATS (EXCEPT BARBER DENTAL ETC) AND PARTS	2,407,993.80
8708 - PARTS & ACCESS FOR MOTOR VEHICLES (HEAD 8701-8705)	2,360,606.23
0803 - BANANAS INCLUDING PLANTAINS FRESH OR DRIED	1,888,140.27
9403 - FURNITURE NESOI AND PARTS THEREOF	1,871,254.79
4011 - NEW PNEUMATIC TIRES OF RUBBER	1,652,169.42
870899 - PARTS AND ACCESSORIES FOR MOTOR VEHICLES NESOI	1,541,842.45
940320 - METAL FURNITURE NESOI	1,367,439.85
080390 - BANANAS FRESH OR DRIED OTHER THAN PLANTAINS	1,340,028.67
940350 - WOODEN BEDROOM FURNITURE EXCEPT SEATS	1,320,113.36
94 - FURNITURE; BEDDING ETC; LAMPS NESOI ETC; PREFAB BD	1,199,858.82
220300 - BEER MADE FROM MALT	1,094,227.68
080300 - BANANAS AND PLANTAINS FRESH OR DRIED	970,969.88
940490 - ART OF BEDDNG EX MATTRSS ETC INC QUILTS CUSHIONS	938,888.66
220421 - WINE FR GRAPE NESOI & GR MUST W ALC NOV 2 LITERS	890,702.02
9405 - LAMPS & LIGHTING FITTINGS & PARTS ETC NESOI	754,268.24
950510 - ART F CHRISTMAS FESTIVITIES AND PTS & ACCESSORIES	737,657.47
940179 - SEATS WITH METAL FRAMES NOT UPHOLSTERED NESOI	715,217.65
9404 - MATTRESS SUPPORTS; ARTICLES OF BEDDING ETC.	669,340.23
9506 - ARTLS & EQUIP F GENRL PHYSCL EXERC ETC; POOLS; PTS	642,924.93
2204 - WINE OF FRESH GRAPES; GRAPE MUST NESOI	620,273.57
732690 - ARTICLES OF IRON OR STEEL NESOI	607,928.96
870829 - PTS & ACCESS OF BODIES OF MOTOR VEHICLES NESOI	600,035.09
950691 - ARTCL/EQUIP F GEN PHYS EXERC GYMN ETC NESOI- PTS	583,106.20
Total	95,350,790.50

Country of Origin	Metric Tons
CHINA	219,773,524.62
BRAZIL	133,594,349.40
SOUTH KOREA	85,091,080.60
JAPAN	75,835,484.23
GERMANY	47,364,049.88
VIETNAM	37,393,777.57
GUATEMALA	34,274,029.45
TAIWAN	33,369,341.59
MEXICO	33,057,275.30
THAILAND	31,352,358.72
ITALY	30,895,171.58
RUSSIA	29,238,282.07
INDIA	28,727,256.21
TURKEY	28,059,901.15
CANADA	26,220,637.77
COSTA RICA	25,719,582.86
INDONESIA	25,310,668.14
NETHERLANDS	20,814,223.40
MALAYSIA	19,485,522.71
SWITZERLAND	19,346,792.29
UNITED KINGDOM	17,330,210.06
AUSTRALIA	17,305,475.39
CHILE	17,145,682.97
FRANCE	16,556,763.11
UKRAINE	16,448,553.80
BELGIUM	15,254,145.67
SPAIN	15,085,638.57
ECUADOR	13,941,186.60
Total	1,341,352,767.87

Foreign Ports sending goods to U.S. (MTONs)



Foreign Ports receiving U.S. goods (MTONs)



There are hundreds of carriers that sent goods to the U.S., but dozens of carriers that exported U.S. goods to other countries. We should consider cleaning the carrier names, and condensing them into the same carriers. For example, all Maersk *** carriers are Maersk.

Carrier	Metric Tons
	0.00
1A-SONIC LOGISTICS (USA) INC	6,365.33
1FUTURE FORWARDING COMPANY	17,534.43
2DODO CARGO INC	936.57
2SAMRA TRUCKING LLC	0.80
3CONNOR, JOHN S INC	1,906.67
4MITSUBISHI LOGISTICS AMERICA CORPORATION	219,488.95
6DUNAVANT LOGISTICS GROUP LLC	123,003.94
6INTERLOG USA INC	2,169.04
7CLEARFREIGHT	49,181.33
7FLAMEN HAMMER TRUCKING OF IOWA LLC	26.82
Total	1,341,352,767.87

Carrier	Metric Tons
ZIM INTEGRATED SHIPPING SERVICES LTD	7,039,673.57
YANG MING MARINE TRANSPORT CORP	13,933,655.80
WAN HAI LINES LTD	229,896.43
WALLENIUS WILHELMSSEN LOGISTICS AMERICAS LLC	3,751,876.83
UNITED ARAB SHIPPING CO SAG	4,018,699.38
SOUTHERN CHOICE MOVING SERVICE LLC	0.00
SM LINE CORPORATION	660,386.42
SEAFREIGHT LINE LTD	123,935.70
SEABOARD MARINE LTD	1,156,994.44
SAFMARINE CONTAINER LINES (HEREINAFTER SAFMARINE)	1,764,034.74
SAFMARINE CONTAINER LINES	83,173.54
RZ CARRIER	6,708.20
Total	364,783,007.91

Nine states never had an effective date for stay at home orders.

Count of State by Effective Date



Tariff rates are aggregating for all years and HS codes...

Country	Average_Tariff	Free_Trade_Agreement_with_US
Brazil	3,251.06	No
Canada	828.83	Yes
Chile	1,378.70	Yes
China	3,671.39	No
Chinese Taipei	2,664.65	No
Colombia	3,190.13	Yes
Ecuador	3,814.64	No
Egypt	19,846.80	No
European Union	1,800.27	No
India	6,933.03	No
Indonesia	1,944.42	No
Japan	1,459.39	No
Korea, Republic of	10,456.19	Yes
Mexico	3,929.42	Yes
Peru	750.29	Yes
Russian Federation	1,841.09	No
Saudi Arabia, Kingdom of	1,953.03	No
Thailand	6,249.80	No
Turkey	4,204.73	No
United States of America	2,998.48	
Viet Nam	3,440.87	No
Total	86,607.21	

Total in Thousands by Month

