
The International Bilateral Agricultural Trade Database

The export data for the models are drawn from the International Bilateral Agricultural Trade (IBAT) database. This unique statistical resource, developed by Mark J. Gehlhar of ERS, reflects an innovative effort to choose among the competing trade statistics reported to the United Nations. Given the trade statistics reported by two countries, the IBAT database includes the figures from the country with the larger share of reported trade that matches the reported trade of its trading partners. This evaluation is conducted on an annual basis at the 4- and 5-digit level of the Standard Industrial Trade Classification (SITC). Countries in the sample are listed in appendix table 2-1.

A relatively simple example from Argentina-Brazil trade helps to illustrate this process. As reported to the United Nations, the official statistics of Argentina and Brazil contain incompatible measures of Argentine wheat exports to Brazil in 1995. This trade equaled \$662 million according to Argentina, but just \$4 million according to Brazil. Fortunately, the entire body of statistics reported by Argentina, Brazil, and their trade partners provides insight into the general reliability of the two countries' trade reports. With this information, one may calculate a "Reliability Index" for Argentina's wheat export data and for Brazil's wheat import data for 1995. This index is defined as the proportion of a country's reported trade that matches the statistics of its partners. Then, the statistic with the higher Reliability Index is included in the IBAT database. With the assistance of a computer, this decision rule can be elegantly applied to all the bilateral trade data reported to the United Nations—commodity by commodity, year by year, and country by country.

Consider first the wheat export data of Argentina (appendix table 2-2). A match is defined as having occurred when Argentina's reported exports to country *i* equal the imports from Argentina reported by country *i*, plus or minus 20 percent. Eight of Argentina's reported bilateral export flows qualify as matches, for a total of \$128 million. This value forms the numerator of the Reliability Index. The denominator equals the sum of Argentina's reported export flows where both Argentina and the importing country report some non-zero level of trade (\$128 million + \$797 million = \$925 million), minus the value associated with the largest proportionate discrepancy (\$662 million). In this instance, Brazil is the country with the largest discrepancy. Thus, the denominator equals \$263 million (\$925 million - \$662 million), and the Reliability Index for Argentina's wheat export statistics for 1995 equals 0.49.

Next, consider the wheat import data of Brazil. For 1995, Brazil reported wheat imports from only two sources: Argentina (\$4 million) and Paraguay (\$1 million). A match occurs when Brazil's reported imports from country *i* equal the exports to Brazil reported by country *i*, plus or minus 20 percent. Neither figure qualifies as a match, so the Reliability Index for Brazil's wheat import statistics for 1995 is zero. Since 0.49 is greater than zero, the IBAT database records Argentine wheat exports to Brazil in 1995 as \$662 million, not \$4 million.

With respect to U.S. trade, the IBAT database primarily uses information provided by the United States, which has the higher Reliability Index in most face-to-face comparisons. But U.S. data are not used on every occasion. Appendix table 2-3 lists the proportion of observations in the IBAT database that were reported by the United States for the 32 commodity categories featured in the commodity models. Among these commodities, grapes have the highest proportion of U.S. observations (0.767) and sunflower seed oil has the lowest (0.519). The median proportion is 0.6485,

Appendix Table 2-1—Countries appearing in sample

Algeria	Guinea	Peru
Angola	Guyana	Philippines
Argentina	Honduras	Poland
Australia	Hong Kong	Portugal
Austria	Hungary	Qatar
Bahamas	Iceland	Romania
Bahrain	India	Samoa
Bangladesh	Indonesia	Saudi Arabia
Barbados	Ireland	Senegal
Belgium and Luxemburg	Israel	Seychelles
Belize	Italy	Sierra Leone
Benin	Ivory Coast	Singapore
Bermuda	Jamaica	Solomon Islands
Bolivia	Japan	Somalia
Brazil	Jordan	South Africa Customs Union (5)
Brunei Darism	Kenya	Soviet Union, former (6)
Bulgaria	Korea	Spain
Burkina Faso	Kuwait	Sri Lanka
Cameroon	Lebanon	St. Kitts, Nevis, and Anguilla
Canada	Liberia	Sudan
Central African Republic	Macau	Suriname
Chile	Madagascar	Sweden
China, mainland	Malaysia	Switzerland
Colombia	Mali	Syria
Congo	Malta	Taiwan (7)
Costa Rica	Mauritania	Tanzania
Cyprus	Mauritius	Thailand
Denmark	Mexico	Togo
Dominican Republic	Morocco	Trinidad and Tobago
Ecuador	Mozambique	Tunisia
Egypt	Myanmar	Turkey
El Salvador	Nepal	Uganda
Equatorial Guinea	Netherlands	United Arab Emirates
Ethiopia, former (1)	Netherlands Antiles (3)	United Kingdom
Fiji	New Caledonia (4)	United States
Finland	New Zealand	Uruguay
France (2)	Niger	Venezuela
Gabon	Nigeria	Yemen
Gambia	Norway	Yugoslavia, former (8)
Germany, united	Oman	Zaire
Ghana	Pakistan	Zambia
Greece	Papua New Guinea	Zimbabwe
Guatemala	Paraguay	

(1) Djibouti, Ethiopia, and Eritrea

(2) Also includes French Guiana, Guadeloupe, Martinique, and Reunion

(3) Curacao, Aruba, and Turks and Caicos Islands

(4) Also includes Wallis and Futana Islands

(5) Botswana, Lesotho, Namibia, South Africa, and Swaziland

(6) Armenia, Azerbaijan, Belarus, Estonia, Georgia, Kazakshtan, Kyrgyzstan, Latvia, Lithuania, Moldova, Russian Federation, Tajikistan, Turkmenistan, Ukraine, and Uzbekistan

(7) Asia, not elsewhere specified

(8) Bosnia-Herzegovia, Croatia, Slovenia, Macedonia (Skopje), and Yugoslavia

Appendix Table 2-2—Competing reports of Argentine wheat exports, 1995

Importing Country	Reported Exports (x) \$U.S. thousands	Reported Imports (m)	m / x
Exporter reports no trade			
Egypt	0	3,687	n.a.
Greece	0	3,231	n.a.
Italy	0	1	n.a.
Switzerland	0	169	n.a.
Importer reports no trade			
Angola	943	0	0.00
Bangladesh	4,534	0	0.00
Iran	25,754	0	0.00
Kenya	35,926	0	0.00
Mozambique	6,603	0	0.00
Netherlands	20	0	0.00
Tanzania	2,556	0	0.00
Yemen Rep.	4,016	0	0.00
Total, non-reporting importers (A)	80,352		
Both countries report trade, large discrepancies			
Bolivia	879	2,129	2.42
Brazil	661,878	4,457	0.01
Chile	21,289	28,232	1.33
Colombia	10,110	14,736	1.46
Indonesia	60,549	94,750	1.56
Jordan	26,971	14,218	0.53
Paraguay	11,417	5,934	0.52
Reunion	108	142	1.32
Spain	6	8	1.40
Zimbabwe	3,533	9,183	2.60
Total, large discrepancies (B)	796,740		
Both countries report trade, small discrepancies			
China	34,176	39,705	1.16
Germany	6	7	1.09
Malaysia	657	791	1.20
Peru	71,243	85,564	1.20
South Africa	6,399	5,218	0.82
Turkey	7,250	8,482	1.17
Uruguay	122	139	1.14
Venezuela	8,429	7,164	0.85
Total, small discrepancies (C)	128,282		
Total exports (D = A + B + C)	1,005,374		
Total, non-reporting importers (A)	80,352		
Observation with largest proportionate discrepancy (B*)	661,878	(Brazil)	
Qualified reported exports (E = D - A - B*)	263,144		
Total, small discrepancies (C)	128,282		
Reliability Index (RI = C / E)	48.8		

Source: Economic Research Service.

Appendix Table 2-3—Proportion of observations in IBAT database that were reported by the United States, U.S. exports, 1980-99, by commodity (number of observations reported by United States divided by total observations)

Beer	0.586	Pork (fresh or frozen)	0.760
Cheese	0.519	Poultry (fresh or frozen)	0.583
Distilled alcoholic beverages	0.592	Milk and cream	0.548
Cotton	0.649	Edible nuts	0.609
Flowers and foliage (cut)	0.671	Plants and bulbs (live)	0.715
Fruit or vegetable juice	0.731	Prepared breakfast food	0.666
Apples (fresh)	0.621	Soda and bottled water	0.706
Grapes (fresh)	0.767	Soybean oil	0.597
Corn	0.648	Soybeans	0.596
Rice	0.567	Sunflower seed oil	0.514
Wheat	0.549	Tobacco (unmanufactured)	0.753
Peanuts	0.723	Tobacco products	0.600
Leather	0.545	Tomatoes	0.708
Live poultry	0.588	Legumes	0.647
Macaroni	0.746	Wine	0.714
Beef (fresh or frozen)	0.738	Yarn and thread	0.603

Source: Economic Research Service.

which is the average of the proportions for corn (0.648) and cotton (0.649). The possibility that as many half of U.S. trade reports for certain commodities could be inferior to the reports submitted by U.S. trade partners provides strong justification of the IBAT database's selective approach.