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International Trade Data: Sources, Uses, and Limitations

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International trade has been a key component of the livestock industries for decades. In fact, cattle trade between Mexico and the U.S. has been significant and debated since before the Civil War. In recent years, the role of international trade in meat and poultry markets has become increasingly important and is often a major influence on the prices received for U.S. livestock and poultry. For example, in 2007 U.S. pork exports represented about 16 percent of total U.S. pork production, compared to just six percent ten years earlier. Often times, within some broadly defined trade product categories, the U.S. will import and export similar products with other countries (e.g., beef, pork). Because of trade's importance for the livestock industry, and the interdependence of commodity prices, market participants may need to gauge what other sectors are doing internationally. As an example, U.S. beef producers have become more interested in Japanese purchases of U.S. pork and chicken in recent years because of competition between these sectors for the Japanese protein market.

Due to the importance of trade to a country's economy, it is essential that countries account for the types and quantities of products traded in a given time period. The basics of how international trade data are reported, the units used, and scope of those data are summarized in this Fact Sheet. In the livestock and poultry industries, many different items are exported and imported. For example, live animals for slaughter, feeding, and breeding purposes are sold extensively between North American countries (Canada, Mexico and the U.S.) while products of livestock and poultry are also traded with the most attention on meat items. Increasingly, high value fresh meat products are sold to foreign customers, while frozen meat and poultry items are also exported and imported. Variety meats, hides and skins are also actively traded internationally and are especially important to the U.S. as a major exporter of such items.

There are key differences that must be understood when using international trade data on livestock and products. Fundamental differences include data collection methods, purpose, scope, detail, and data quality. A useful distinction can be made between the

typically used monthly versus weekly data. U.S. data that are reported on a monthly basis are originally collected by the U.S. Census Bureau and are "the official data", but there is a significant time lag in reporting. Weekly data are reported by various sources, but have limitations in scope. However, weekly data tend to be released on a much timelier basis than the monthly official data.

History of Trade Data [1]

The Division of Foreign Trade Statistics, which is in charge of compiling, maintaining, and publishing the official trade statistics of the U.S., has its origins in early American history. Starting in 1790, the Treasury Department compiled annual import and export statistics from customs collectors' reports. On February 10, 1820, an Act of Congress provided for the Registrar of the Treasury to prepare U.S. foreign commerce statistics showing kinds, quantities, and values of U.S. imports and exports by trading partner. On July 28, 1866, another Act of Congress established the Bureau of Statistics within the Treasury Department. Further, it also specified that imports and exports, including information on kinds (types), quantities, and values, be reported by country or shipment and exports should be shown separately from re-exports. In 1903, the Bureau of Statistics was transferred to the Department of Commerce and Labor, which was newly established. The Section of Customs Statistics of New York was also transferred to the Department of Commerce in 1923. Finally, in May 1941, the Bureau of Statistics was transferred to its current home within the U.S. Census Bureau. Trade data collection has been ongoing nearly as long as the U.S. has been a nation. Over that time, the range of data collected has expanded tremendously to serve the needs of its various users. A summary of the types of trade data available on livestock and livestock products is provided below with hot links for each source provided at the end of this Fact Sheet.

Monthly Data Sources

Monthly trade numbers originate with the U.S. Census Bureau in the Department of Commerce, which shares the data with USDA's Foreign Agricultural Service (FAS). These data are deemed the "official data" for all purposes. Internationally traded items are categorized by standardized commodity codes defined in the Harmonized Tariff Schedule (HTS). Several levels of codes that denote varying levels of details needed by various users exist, and are changed over time to reflect actual products traded internationally. The U.S. Census Bureau administers export codes, referred to as Schedule B codes in the U.S., whereas the U.S. International Trade Commission administers the designation of import codes. The most detailed HTS codes are those at the 10-digit level.

FAS and the U.S. Census Bureau data are very detailed (frozen boneless beef to chicken paws to sheep pelts) and are reported by country and aggregated to U.S. totals. It is critical to recognize that those data are reported on a product weight (e.g., metric ton, liters) and value (dollar) basis. Annualized data, which is the summation of the monthly data, may be reported on a calendar or non-calendar year basis by those government agencies. It takes considerable time for the U.S. Census Bureau to compile the monthly data (i.e. the January data are not released until mid-March). FAS and the U.S. Census Bureau often do not report revisions to the monthly data in a timely manner. Annual revisions are made in what is referred to as the "13th month report," which is typically released three months after the December data are reported.

Once FAS releases the monthly data, USDA's Economic Research Service (ERS) automatically converts the meat and poultry import and export product weight data (not variety meats and other items that are not part of a carcass) to a carcass weight basis, typically reported in thousands of pounds. The calculation used by ERS accounts for differences in product type (i.e., bone-in, mixtures) but does not account for other differences related to source country. Therefore, any meat

[1] Much of this information came from the U.S. Census Bureau, Department of Commerce, and is available online at: http://www.census.gov/foreign-trade/guide/sec1.html

or poultry product differences among countries are ignored as imports and exports are multiplied by the same factor for the carcass weight base equivalent value.[2] This is a useful calculation for evaluating data and making calculations on a common basis (e.g., percentage of U.S. beef exported), but it is also a limitation of the data given that carcasses are not typically imported or exported by the U.S. It is critical to understand that product weight and carcass weight cannot be used interchangeably. Analyses that report both types of data may be confusing if not properly specified or incorrect if the two types of data are combined.

In addition, FAS and the U.S. Census Bureau report imports and exports of live animals (cattle, hogs, etc.) on a per country basis. The live animal data are reported by weight category for cattle and hogs, but only total numbers are provided for sheep. Those weight categories (HTS codes) and animal descriptions (e.g., breeding versus animals for slaughter) are changed at times and for cattle, current breakout categories overlap and are rather confusing.[3] Additionally for cattle, an animal may be counted in both weight and description categories, requiring careful attention when aggregating live cattle trade numbers.

Weekly Data Sources

USDA's Animal and Plant Health Inspection Service (APHIS) tracks imports of live animals and some products (e.g., hatching eggs, semen) through U.S. ports, mostly as part of ongoing disease response, prevention, and surveillance activities. These data are entered into the APHIS Import Tracking System (ITS), an internal agency database. Although APHIS does not report this information, the data for imports of live animals from Canada and Mexico are supplied to USDA's Agricultural Marketing Service (AMS), which compiles the data into two publicly available weekly reports (typically released one week after the data collection week) on live animal imports. The data imports from Canada are reported according to both port (state) of entry and destination of animals on a regional basis, whereas data from Mexico are reported as a total country number and by state of import. In terms of information on animal types and weights being imported by the U.S., these weekly data have more detail than is often provided in the official monthly data from the U.S. Census Bureau. While the data have some benefits, there are limitations in the system that must be considered when using these data. Due to the process used to collect the data and enter them into the APHIS tracking system, the data cannot be verified in a timely manner. Further, the reporting procedures constrain APHIS' ability to check the data for consistency and provide timely revisions to AMS, when warranted. If a question does arise, the data are checked for consistency, but this often takes time and AMS does not have a mechanism to easily incorporate and publicly report revisions should they occur. Therefore, the weekly data reported by AMS can contain errors that may go unnoticed. Comparing these weekly data over several years is risky because of methodology changes and data reporting issues. Overall, these data should be treated as preliminary, and they will not necessarily sum to the official monthly total. At times differences between APHIS ITS data and Census Bureau data have been have been quite large.

A very useful but relatively new weekly beef export data set is also provided by FAS. FAS introduced the Weekly Beef Export report and a number of meat and livestock price reports in December 2001, under the directive of Federal Mandatory Price Reporting (MPR) legislation. The weekly export report provides data on U.S. exports (shipments) and export sales of fresh, chilled, and frozen whole muscle beef cuts. Because beef items that are not "whole" muscle are excluded,

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[2] http://www.ers.usda.gov/Data/MeatTrade/

[3] In 2003, the U.S. International Trade Commission accepted a proposal for more categories to be defined for U.S. imports and exports of feeder pigs. Prior to 2003, the only category was "less than 50kg," while now there are four additional categories. The adjustment to the number of defined feeder pig categories, as well as the collection of data corresponding to these categories has become very useful to the industry. Similar adjustments may also be useful with respect to categories of cattle (feeder cattle, cows, etc).

it is somewhat difficult to compare these data to the official monthly data. These data are timely with reports typically released on Thursday for the prior week's data. The report provides beef export data on a metric ton basis for all U.S. trading partners with the data reported for each country. The most valuable parts of the report are the actual shipments, as the sales data do not provide a timeframe for delivery. Nonetheless, this report has been very useful for the beef industry. (Note that the U.S. pork industry declined participation in this report when MPR rules were under development.) For example, in 2007 and 2008, the data were used to identify product moving to markets reopened to U.S. beef products following BSE restrictions. The data have also helped in identifying concerns and questions regarding the official monthly beef data.

The U.S. Commerce Department is required to collect and report U.S. imports for products for which there are Tariff Rate Quotas (TRQ). Beef is one of those commodities, but not all products or countries are reported. Specified countries include Canada, Mexico, Australia, New Zealand, Japan, Argentina, Uruguay and a category combining other countries. Even though the U.S. no longer charges tariffs for several of the countries reported (e.g., Canada), TRQ imports are still reported for those countries because some countries are still limited on the amount of product allowed under each TRQ. The TRQ data are timely (about a one-week delay) and tend to include "high value beef cuts."[4] Import data for pork, poultry, and lamb are not included in these data, however a range of dairy products and wool is included in the TRQ weekly data. These data are only reported on a year-to-date basis as tariffs are only charged when the annual designated import level for a country is exceeded.[5] Of note, TRQ products are assigned separate HTS codes and once the TRQ limit is reached, any additional U.S. imports are reported in other non-TRQ HTS codes. As with other weekly data reported, the TRQ data should be used with some caution. The TRQ data are also compiled and released by AMS on a weekly basis. The AMS version provides extensive detail in terms of the number of countries listed, however, the AMS report is not timely (weekly data are not released with a useable lead-time compared to the monthly official data).[6]

Other Data Sources

FAS provides the World Markets and Trade Report for livestock, poultry, and dairy every six months. Those reports contain annual historical data and forecasts of meat production, poultry production, numbers of live animals, and products for major trading countries. Additional annual historical data are available on the FAS website (see hot links at the end of this Fact Sheet).

Global Trade Information Services (GTIS) publishes both the Global Trade Atlas and the World Trade Atlas. These both serve as additional sources of data for imports and exports of live animals and animal products. The Global Trade Atlas (GTA) reports imports and exports between countries outside of the U.S., as well as U.S. imports and exports. Import and export data are acquired from the official data source from each reporting country. In the case of the U.S., GTIS sources the data from the U.S. Census Bureau. The World Trade Atlas (WTA), on the other hand, provides detailed trade statistics for the U.S., Canada, and Mexico and also contains U.S. state export data. Data are reported on both a monthly and annual basis for all countries. Of note, exports by state are reported by origin of movement into the export market, not from the production region, which tends to overstate the importance of those states along U.S. borders. GTA is the most easily accessible source of data for trade that occurs between countries outside of the U.S. However, this database is

[4] Note that the definition of "high value" includes most of the beef items imported by the U.S.
[5] Currently these data are available in an Adobe Acrobat (pdf.) file with all data listed according to three groups: TRQ data associated with a Free Trade Agreement, Quotas established in the HTS or through GATT and Tariff Preference Levels for textiles. Note, this is a continuous data file, which makes use of this data rather challenging.
[6] USDA-AMS report WA_LS421 available at www.ams.usda.gov/mnreports/wa_ls421.txt

not available without a subscription unlike those housed within USDA agencies, and the subscription is relatively expensive.

Similar to the WTA, ERS also estimates state exports on an annual basis, which are based on each state's share of U.S. agricultural production (e.g., beef). In this case, commodities are aggregated into broader categories. As with the state export data reported by WTA, using production as an estimation basis for these exports has limitations. For example, large beef exporting states are those with slaughter facilities, not necessarily those with large cattle inventories.

Additional data on the quantity of U.S. meat exports are reported by AMS within a report developed to comply with Federal Mandatory Price Reporting legislation, but those data were not specifically required in that legislation. Those weekly data began in January 2001 and are reported under "type of sales" in the national Comprehensive Boxed Beef Cutout report. AMS has reporting responsibility and the data cover boxed beef sales destined for export. Because the data report sales, they do not have a specific delivery or shipping date or any specifics on the sale (price, terms, etc). In late May 2007, AMS began to report sales of beef in two categories, "fresh exports" and "frozen exports". Those data are based on submissions from the largest beef packing companies in the U.S. Similar data do not exist for other species. As of the date of this publication, use of those data has been limited. However, the data may have value in short-term analysis, such as providing perspective on large beef packer sales for export relative to their domestic sales.

Uses of Data and Comments

International trade data are needed for commercial, economic, and policy purposes, with the primary focus being foreign policy issues, international trade agreements, and market analysis. Additionally, the data are used to comply with legal and regulatory requirements. An example of this would be the use of detailed import data to assess import duties, administer embargoes and quotas, restrict the entry of counterfeit items, and implement control policies.[7]

An understanding of the types, sources and limitations of data available on international trade is critical to accurate and timely analysis. In meat and poultry trade, it is important to avoid mixing product weight with carcass weight equivalent data. Most economic research and analysis regarding meat trade uses the carcass weight equivalent data calculated by ERS. When using carcass weight equivalent data, byproducts of production (e.g., hides, tallow, etc) are not part of the carcass and need to be accounted for separately. There are several data sources, but the U.S. Census Bureau, not a USDA agency, administers the official statistics on livestock and products trade. Weekly data collected and reported by USDA agencies should be viewed as preliminary and will not necessarily sum to the official monthly numbers.

Quality and timeliness of international trade data are on-going concerns of the livestock industry and the U.S. government. A challenge for agriculture is to emphasize to the U.S. Census Bureau the importance of these data to a broad range of users, both private and public. In the future, as more livestock products are sold in a more highly processed form (e.g., part of a frozen meal); keeping account of the variety and magnitude of products traded will become more challenging.

[7] Much of this information came from the U.S. Census Bureau and is available online at: http://www.census.gov/foreign-trade/guide/sec1.html.

Trade Data Sources

GTIS: Global Trade Atlas - http://www.gtis.com/gta/

GTIS: World Trade Atlas – U.S. State Export Edition – http://www.worldtradestatistics.com/state/

USDA-FAS: U.S. Trade Internet System (HTS Codes) - http://www.fas.usda.gov/ustrade/

USDA-FAS: Livestock and Poultry: World Markets and Trade - http://www.fas.usda.gov/dlp/pubs.html

USDA-FAS: Dairy: World Markets and Trade - http://www.fas.usda.gov/dlp/pubs.html

USDA-FAS: Weekly U.S. Export Sales Reports - http://www.fas.usda.gov/export-sales/

USDA-ERS: Monthly Livestock and Meat Trade Data -http://www.ers.usda.gov/Data/MeatTrade/

USDA-ERS: State Export Data - http://www.ers.usda.gov/Data/StateExports/

USDA-AMS: Weekly Comprehensive Boxed Beef Cutout Value - http://marketnews.usda.gov/gear/browseby/txt/LM_XB463.TXT

USDA-AMS: Weekly Canadian Live Animal Imports Into the U.S. by State of Entry - http://marketnews.usda.gov/gear/browseby/txt/WA_LS635.TXT

USDA-AMS: Weekly Canadian Live Animal Imports Into the U.S. by Destination - http://marketnews.usda.gov/gear/browseby/txt/WA_LS637.TXT

USDA-AMS: Weekly Mexico to U.S. Imports - http://marketnews.usda.gov/gear/browseby/txt/AL_LS625.TXT

USDA-AMS: U.S. to Mexico Weekly Livestock Export Summary - http://marketnews.usda.gov/gear/browseby/txt/AL_LS635.TXT

USDA-AMS: Additional Weekly Mexico to U.S./U.S. to Mexico Import/Export Reports - http://marketnews.usda.gov/portal/lg?paf_dm=full&paf_gear_id=4300008&startIndex=1&dr=1&rowDisplayMax=25&commodity=INTERNATIONAL&sub_commodity=MEXICO&sub_commodity2=&publication=any&state=any

U.S. Customs and Border Protection TRQ Import Data - http://www.cbp.gov/xp/cgov/trade/trade_programs/textiles_and_quotas/commodity/

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