

Module 1

Overview of Global Agricultural Trade

Introduction

Trade in agricultural products has increased dramatically since the end of WWII. Countries choose to trade because consumers benefit from having more choices and because some countries are better able to produce particular agricultural products than others. It is important to understand the motivations for trade and the history of global agricultural trade since WWII.

Objective

After completing this module you should understand the reasons for the growth of trade in agricultural products and why countries want to trade globally rather than protect domestic markets.

Some key concepts you will learn about in this section are:

- underlying drivers of trade for consumers, producers, and policymakers in countries that produce and consume agricultural products,
- trends in U.S. agriculture since WWII,
- the importance of trade to the American diet.

Section 1 - Why Do We Care About Trade?

Objectives

In this section you will learn about

- why countries trade
- comparative and competitive advantage
- and, how trade can benefit consumers in all countries.

Introduction

Global markets are important because they provide producers with more buyers for their goods and consumers with more choices in the grocery store. If we think about a closed economic system, like the former USSR, producers and consumers are both limited by the productive capabilities of resources (land, labor, managerial abilities, and capital) in that system only. With the introduction of trade countries can exchange goods, services, and technology. Two important concepts that help us to understand why countries choose to trade and how benefits from trade are distributed across countries are comparative advantage and competitive advantage.

Comparative Advantage

A comparative advantage in production means that the opportunity cost of producing that good is lower for the producer than for any other product they might produce. Opportunity costs are the costs of not choosing the next best alternative. So, for a college student, it might be the wage he or she could have earned in the job not taken after high school. These foregone wages are the student's opportunity cost of going to college. Some might argue that U.S. farmers have a comparative advantage in corn production since we have an abundance of fertile land and a relatively mechanized agricultural sector. The opportunity cost of producing corn to a U.S. farmer would be the value of the crop he could raise on his land instead of corn, sugar beets for example, or the value of his labor in the next best job, say, working at a farm supply store.

Competitive Advantage

A competitive advantage means that the institutions shaping commerce between trading countries give one country a decided advantage over another. For example, global rules that establish intellectual property rights can give particular businesses the exclusive rights to produce a product. Some global rules have allowed U.S. seed producers to capitalize on new product developments by serving as the exclusive seedstock supplier across the world. If the rules governing trade allowed anyone to buy and reproduce seedstock that is normally protected, what would be the incentive for developing new products? How would the winners and losers in the system change?

Consumers, Producers, and Trade

Consumers benefit from trade because they are given more choices in the marketplace. For example, only a few producers in the U.S. are capable of growing bananas, while bananas are the fruit most often consumed by U.S. consumers. Without trade, consumers would be unable to satisfy their demand for bananas since very little land in the U.S. is suitable for efficient banana production.

Consumers and producers in other countries benefit from trade as well since consumers there also gain more choices and foreign producers have additional outlets for their products. The level of global agricultural trade has increased considerably since WWII, and since 1995, 146 countries have committed to a consistent set of rules governing trade under the World Trade Organization (WTO).

Conclusion

In this section you have learned about global trade and the potential to improve conditions for world consumers and producers. You have also learned about comparative and competitive advantage and how these concepts can increase the incentives to trade. In the next section, you will learn more about U.S. agricultural trade.

Key Terms

Comparative Advantage – a comparative advantage arises when opportunity cost of producing a product is lower for the producer than for any other product they might produce

Competitive Advantage – a competitive advantage arises when the institutions shaping commerce between trading countries give one country a decided advantage over another

Opportunity Cost – the cost of the next best alternative forgone, for example, the income a student might have made had they not gone to college

Trade – the exchange of goods and/or services between two countries

Quiz

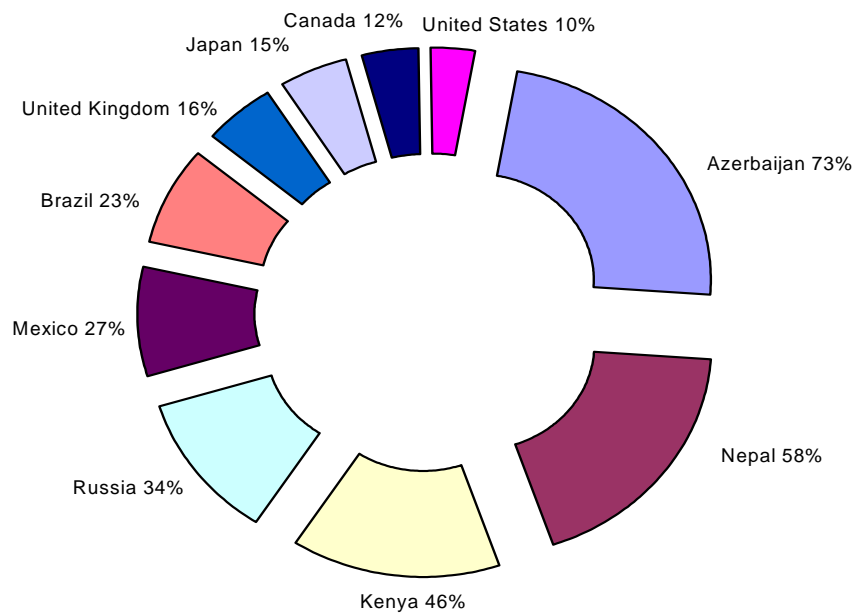
1. A country with a comparative advantage in wheat production, but not orange production, should produce wheat.
True False
(answer is True)

2. Country A has no taxes on profits from the sale of exported potatoes, while its neighbor, Country B has a 30 percent tax on all potatoes sold for export. Which of the following best describes the situation all producers in these two countries are facing?
 - a. The situation is equal for all producers
 - b. Producers in Country A have a comparative advantage in exporting potatoes
 - c. Producers in Country B have a comparative advantage in exporting potatoes(answer is B)

Anecdote: Total food expenditure in the world

Access to cheap food products is important for poor countries. Evidence from research carried out by USDA confirmed that consumers in low-income countries spend a greater portion of their total household budget on necessities, such as food, compared with the wealthier countries. In poor countries people can expend more than 70 percent of their income in food. In wealthier countries, such as the U.S people only spend around 10 percent of their income on food. A greater share of consumer's income in rich countries is spent on other activities such as recreation and services.

Food expenditure as a percentage of total income



Source: Seale, James, Regmi, Anita, Bernstein, Jason “International Evidence on Food Consumption Patterns” United States Department of Agriculture (USDA) Economic Research Service (ERS) October, 2003. : <http://www.ers.usda.gov/data/InternationalFoodDemand/>

We have the most affordable food supply in the world!

For 1 gallon milk, 1 dozen eggs, 5 lbs. sugar,

2 lbs. sirloin steak and 2 lbs. apples:

\$18.79 USA

\$30.10 Paris, France

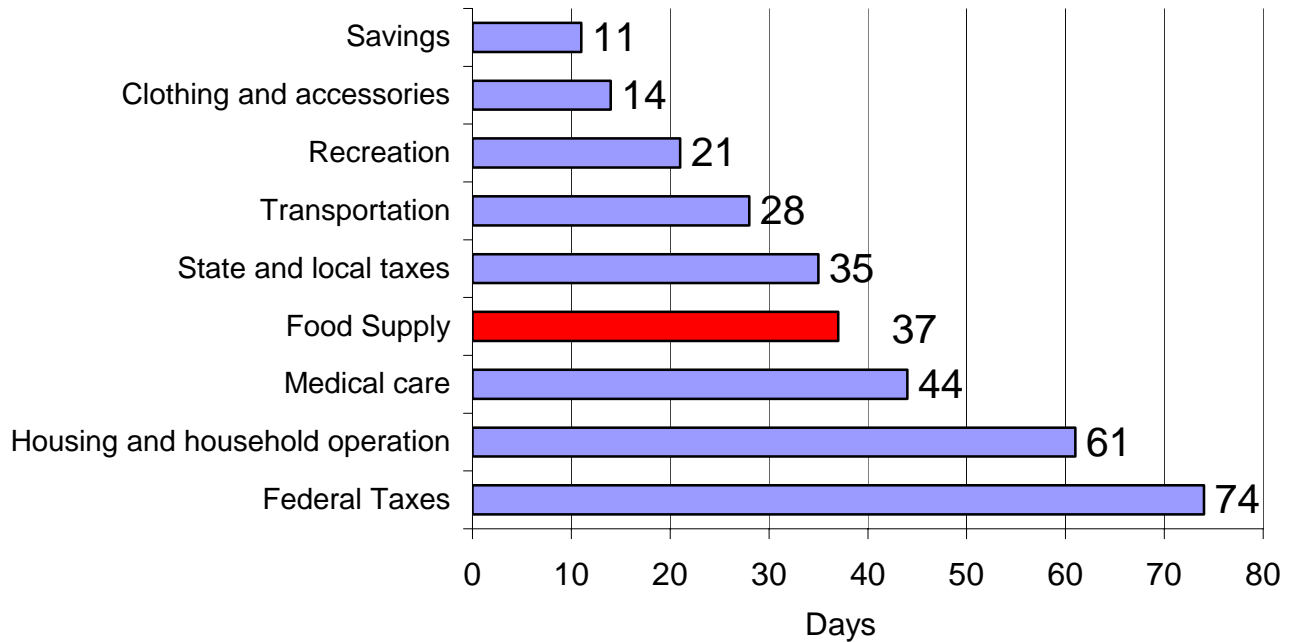
\$74.23 Tokyo, Japan

Source: Oregon Agricultural Education Foundation. Fun Facts about Agriculture. USDA.

Available at <http://www.open.org/~oaf/funfacts.html>

According to Tax Foundation, a non-profit organization that research on tax and budget policy, the average American will have earned enough income to pay for his/her family's annual food supply by February 5.

Number of Days that Americans work in a year to pay for household budget items



Source: Moody, J. Scott. 2003. America Celebrates Tax Freedom Day. Special Report. Tax Foundation, April 2003. No 122. Available at <http://taxfoundation.org/SR122.pdf>

Section 2 - U.S. Agriculture and Global Agricultural Trade

Objectives

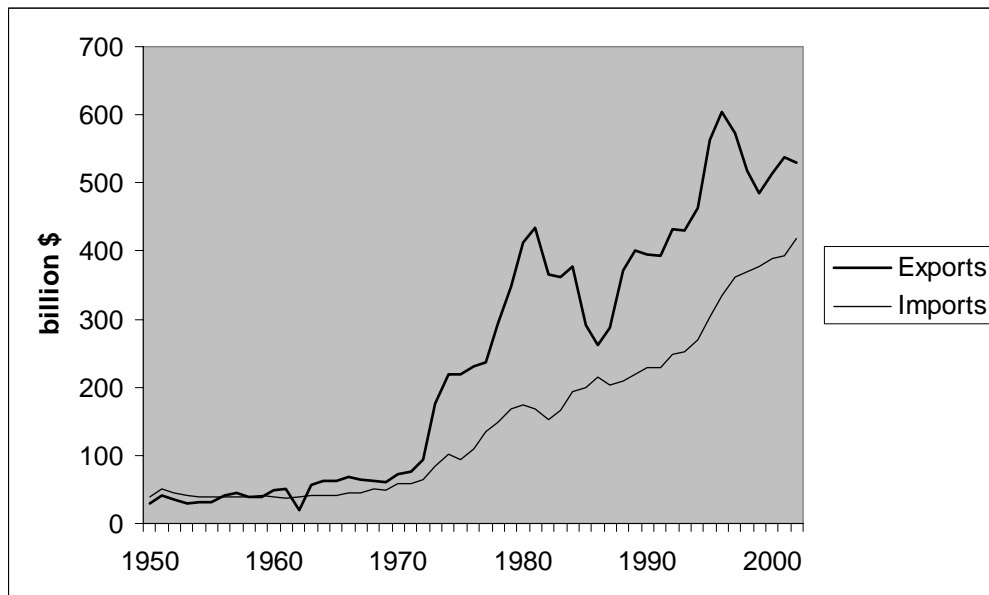
In this section you will learn about

- the increase in agricultural trade over the past 50 years
- the value of agricultural trade flows to the U.S. over the past 50 years
- and, the reasons for more global agricultural trade.

Introduction

The value of world agricultural exports increased over ten-times in nominal terms between 1966 and 1996, from \$43 billion to \$464 billion (Reed 2001). On average, between 1948 and 1997, global trade in all products increased by 6 percent, nearly twice the rate of growth in production. Trade in agricultural products is very important to U.S. agriculture. There have been significant increases in agricultural trade in the U.S. since the end of WWII (Graph 1).

Graph 1. The Value of U.S. Agricultural Exports and Imports, 1950 to 2002



(Source: Putnam et al., 2003 and Reed, 2001)

Drivers of Global Trade

Factors that influence the quantity of imports and exports from any country include, among others: the ability of that country to produce the product, products that are cheaper to import than to produce, tastes and preferences of consumers, the relative strength of the country's currency compared to other trading partners' currency, transportation costs, and technology. Rules governing agricultural trade have played an increasingly important role in determining trade flows.

In the case of U.S. agricultural trade, some factors that have contributed to growth since WWII include:

- changes in tastes and preferences as GIs returning from war wanted to find some of the same products they had overseas
- growing demand for new products among immigrant populations
- increasing supplies of agricultural products from countries where costs of production are lower than in the U.S., making them cheaper to import than produce domestically
- decreasing costs of transportation as a result of technological changes
- improvements in transportation technology allowing the shipment of fresh products over long distances
- improvements in communication technology

Conclusion

Over the past fifty years, trade in all products has increased dramatically, with trade in agricultural products being no exception. The value of agricultural exports from the U.S. has increased from less than \$50 billion in 1950 to more than \$500 billion in 2000. Some of the drivers of this increase include, among others, advances in transportation technology coupled with decreases in relative transportation costs, changes in tastes and preferences among consumers world-wide, and more consistent rules on trade between countries.

Quiz

1. Since the end of WWII, there has been some increase in agricultural trade in the U.S., but it was not very important to the U.S. economy.
T or F (answer is F)
2. Some of the factors which have led to increases in agricultural trade over the past 50 years are:
 - a. Improvements in transportation technology
 - b. Improvements in communication technology
 - c. Changes in tastes and preferences
 - d. All of the above

Answer is D

Anecdote: U.S. Food Consumption and Imports

In recent years, health concerns have played an increasingly important role in consumer decisions about what they eat. In the face of rising obesity in the U.S., agencies like the United States Department of Agriculture and the Centers for Disease Control have issued broad recommendations that citizens reduce consumption of fats, sweets, and red meats and increase consumption of whole grains and fruits and vegetables.

Between 1980 and the early 2000s, yearly U.S. per capita consumption of food increased from 1,800 pounds to 2,000 pounds. The share of imports in domestic food consumption increased from 8 percent to over 11 percent during the same period. In 2001, the products with the highest import share were fish/shellfish, fruit juices and nuts, while products with the lowest import share were dairy products and animal fats.

In the case of fruits and vegetables, consumers are able to increase year-round consumption as more and more products are available from foreign sources when they are out of season in the U.S. Fresh fruits with the fastest growing import shares between 1985 and 2001 include: avocados, mangos, melons, grapes, and pears. Its important to note that avocados and mangos, similar to bananas, can only be produced in limited quantities by small regions in the U.S.; and, as with most fruits, melons, grapes, and pears are highly seasonal products. While consumption of red meat products (beef, veal, lamb, pork) decreased between 1985 and 2001, the share of imported pork and lamb increased.

It should be noted that over this same time period incomes in the U.S. were increasing, meaning that consumption of higher valued products, like imported produce, likely increased. While the price elasticity of demand for food is generally inelastic, demand for relatively more expensive items, like produce, in the consumer’s food budget tends to increase as incomes increase.

In addition, over the same time period, the U.S. dollar, especially between 1996 and 2001, was exceptionally strong making imported products relatively cheaper to U.S. consumers. Also, the U.S., Mexico, and Canada entered the North American Free Trade Agreement which established a common set of rules on trade and also reduced or eliminated many barriers to trade between the three countries.

Source:

Putnam, Judy, Jane Allshouse, and Linda Scott Kantor. “U.S. Per Capita Food Supply Trends: More Calories, Refined Carbohydrates, and Fats.” USDA-Economic Research Service, available at <http://www.ers.usda.gov/publications/FoodReview/DEC2002/frvol25i3a.pdf> - Accessed October, 2003.

Reed, Michael R. (2001). International Trade in Agricultural Products. Prentice Hall, New Jersey USA. First Edition.

Game: U.S. Agricultural Trade

Can you guess the U.S. agricultural commodity with the highest value of sales in 2002?

The student needs to rank five products. Highlighted products will be given to them.

Rank	Items	Value of sales in 2002 (million dollars)
1	Cattle and calves	37,968
2	Dairy products	20,547
3	Corn	17,489
4	Greenhouse/nursery	14,275

5	Soybeans	13,473
6	Broilers	13,435
7	Hogs	9,626
8	Wheat	5,541
9	Hay	4,635
10	Chicken eggs	4,263

Can you guess the top agricultural commodities exported by the U.S. in 2002 by value?

Rank	Commodity	Value of exports in 2002 (million dollars)
1	Soybeans	7,326
2	Feed grains	6,779
3	Live animals and meat	6,097
4	Wheat a	4,787
5	Vegetables	4,551
6	Fruit	3,433
7	Poultry and products	2,279
8	Cotton and linters	2,052
9	Feeds and fodders	1,951
10	Hides and skins	1,776

Can you guess the top agricultural commodities imported by the U.S. in 2002?

Rank	Commodity	Value* (millions of dollars)
1	Fruits, juices and nuts	4,680
2	Vegetables and preparations	4,586

3	Red meats and products	3,515
4	Grains, feeds and oil meal	3,117
5	Malt beverages	2,203
6	Wine	2,128
7	Other competitive products	2,098
8	Live animals	1,591
9	Dairy products	1,472
10	Coffee	1,393

*Total value from January to October, 2002

Source:

Economic Research Service (ERS). State Export Data: Top 10 Exporting States by Commodity. Available at <http://www.ers.usda.gov/data/stateexports/>

Anecdote: The top exporting states in 2002
(Map will go next to the game that refers to U.S. exports)

States producing the highest value of selected agricultural exports in 2002 were

Soybeans	Feed grains	Live animals and meat	Wheat	Vegetables	Fruit
Iowa	Illinois	Nebraska	Kansas	California	California
Illinois	Iowa	Kansas	North Dakota	Washington	Florida
Indiana	Nebraska	Texas	Washington	Idaho	Washington
Minnesota	Indiana	Iowa	Texas	Wisconsin	Oregon
Nebraska	Kansas	Colorado	Oklahoma	Minnesota	Michigan

Source: Economic Research Service (ERS). State Export Data: Top 10 Exporting States by Commodity. Available at <http://www.ers.usda.gov/data/stateexports/>

Conclusions

In this module, you have learned about the importance of trade to the global consumer, characteristics of a country that enable it to trade, the global rise of trade since WWII, and increases in trade in the U.S. over the same period. One of the key drivers of the increase in global trade since WWII is the development of a set of rules which guide the development of international trade rules and regulations. The World Trade Organization (WTO) oversees the development of rules and policies which influence international trade. The WTO is discussed in more depth in modules 2-5 of this series. (Link to GlobalEdge).

Game: World Agricultural Production

This is a matching game. The list of countries will be provided as choices to match with products. The student will choose one product, he/she will be giving either the country that is the main producer or the main exporter of an agricultural product. He/she should fill in the blank with the correct (or incorrect) answer, which he/she will have to choose from. When they choose either the correct or incorrect answer, an explanatory comment will appear.

In 2002, the largest producer of _____ in the world was _____

Product	Main Producer	Main Exporter
Corn	U.S.	U.S.
Dry Beans	Brazil	U.S.
Sunflower	Argentina	Argentina
Beef and Veal	U.S	Australia
Pork meat	China	European Community
Sugar	EU	Brazil

Corn The U.S. is the world's largest producer of corn (42%), the world's largest exporter of corn (70%), and is also the world's largest consumer of corn.

China is the largest producer of grain (including wheat, rice, corn, barley and sorghum) in the world, accounting for approximately 14 percent of world production. Individually, China is the world's largest producer of wheat and rice, and second largest producer of corn. However, its vast population, limited agricultural land, and rising livestock production have contributed to its variable supplies in the world grain markets.

Dry Beans Brazil is the largest producer of dry beans in the world (16.5% of world production in 2002), followed closely by India (16.3%). African countries represent 13% of total production in the world, with the main African producer being Uganda (22% of African production), Tanzania (11%), Burundi(10%), and Rwanda (10%). Other producers include Mexico (9%), the U.S (7%) and China (7%). Most of these countries produce to satisfy their own consumption, with the exception of the U.S., which is a major exporter.

Sunflower In 2002, Argentina was the leading producer of sunflower seeds accounting for 16% of world production. Russia was second with 15%, followed by Eastern Europe (12%). Among Eastern European countries, the biggest producers are Romania, Hungary and Bulgaria. China was also an important producer in year 2002 representing 8% of world output. Other important sunflower producers are the U.S. (5%) and Spain (3%).

Beef and Veal The U.S is the largest producer of beef in the world accounting for 21% of total production. Followed by the South American common market, known as MERCOSUR (Argentina, Brazil, Paraguay and Uruguay) which controls about 18% percent of the world's production. Australia is the leading beef exporter (approximately 21% of global market share of beef exports), followed by the U.S. (18%) and Brazil (15%).

Pork meat China is the major producer of pork meat in the world, with a total share of 47% of production in year 2002. Also in 2002, the U.S. produced approximately 9.5%, Germany 4.4%, Spain 3.2%, France 2.5%, and Brazil 2.2% of total world pork meat output. The E.U. accounts for 35% of total pork exports, Canada and the U.S. 20% each.

Sugar The EU, Brazil, and India are the largest sugar producers in the world. The leading export countries are Brazil, EU, Australia and Thailand. India is the largest consumer in the world.

Source:

FAOSTAT dataset, 2004. Available at <http://www.fao.org>

Spectrum Commodities web page. Available at <http://www.spectrumcommodities.com>

Food and Agricultural Policy Research Institute. 1999. China: A Wildcard Player in the World Grain Market. Available at

<http://www.fapri.iastate.edu/bulletin/jan99/chinaWorldGrainMarket.htm>

Questions

1. How are comparative advantage and opportunity costs important to the concept of a country benefiting from trade?
2. What is your opportunity cost of staying at home and not going to college?
3. What factors influenced growth in agricultural trade between countries?
4. Why did agricultural trade increase between 1950 and today?
5. Why has the import share of fruit and vegetable consumption in the U.S. increased since 1985?
6. Why do you think a common set of rules governing trade would lead to an increase in trade?

Glossary

Comparative Advantage – a comparative advantage arises when opportunity cost of producing a product is lower for the producer than for any other product they might produce

Competitive Advantage – a competitive advantage arises when the institutions shaping commerce between trading countries give one country a decided advantage over another

Opportunity Cost – the cost of the next best alternative forgone, for example, the income a student might have made had they not gone to college

Trade – the exchange of goods and/or services between two countries

Sources of More Information

Economic Research Service - www.ers.usda.gov

GlobalEdge - <http://ciber.msu.edu/globalEDGE/default.asp>

Reed, Michael R. (2001). International Trade in Agricultural Products. Prentice Hall, New Jersey USA. First Edition.

U.N. Foreign Agriculture Organization – www.fao.org

World Trade Organization Website – www.wto.org