

World Agriculture & Trade



The Services Sector: Its Role in World Food Production & Trade

The U.S. and other developed economies are now dominated by the services sector, accounting for more than two-thirds of their gross domestic product (GDP). Individual sectors such as the food system are also increasingly affected by the growing dominance of the service sector.

Consumers, for example, are paying more for services than for the raw materials in the foods they buy at the grocery store. They are also spending more of their disposable income at restaurants and at other eating establishments, where the service component is very large. On the supply side, purchased inputs and off-farm services are making up a growing share of farmers' total production costs. While most attention in trade policy is focused on farm-level and commodity policies, it is clear that growth in the relative importance of services in the food system merits closer examination.

Trade in services has grown faster than merchandise trade in the past two decades. As estimated from balance-of-payments statistics, total transactions of commercial service trade accounted for

over 20 percent of cross-border world trade in 2000, at more than \$1.44 trillion. Trade in services became a major issue in the Uruguay Round negotiations, and is a continuing source of trade friction. It is also a major focus of the new World Trade Organization (WTO) Doha Development Agenda, launched in November 2001.

Services cover a variety of sectors, each with distinct characteristics. Large sectors such as banking, insurance, and financial services have become increasingly necessary as world trade has expanded. Opening overseas markets to these sectors has become a growing issue for developed countries, the main producers of these services. Services in wholesale and retail trade and transportation industries are also very large sectors in many countries and are closely linked to trade in commodities. Reducing the costs of services (e.g., marketing, communications, and transportation costs) is now a key driver in the expansion of world trade.

Service sectors such as finance, telecommunications, and transportation are the backbone of any modern economy, and

these sectors are similarly vital to the world food system. Well-functioning service industries contribute to the efficiency of the world food system in a variety of ways.

An efficient financial sector helps deploy resources where they bring the highest return within the food production sector and along the distribution chain. Shippers need access to short-term credit to facilitate the flow of food products from one market to another. Farmers need credit to modernize their equipment and to apply new technologies. Farmers and ranchers need access to insurance to minimize the risk of loss from natural disasters and economic misfortune.

Improved telecommunication efficiency generates economywide benefits; it is a vital intermediate input and contributes to the diffusion of knowledge, including new agricultural technology. The growing trade in perishable products makes rapid dissemination of information about market conditions and shipping options crucial for timely delivery and freshness.

Transportation systems and wholesale and retail services contribute to the efficient distribution of food and agricultural products within a country and in overseas markets. Business services such as legal advice and market analysis can reduce costs of penetrating new food markets. Improvement in education and health services can contribute to the accumulation of human capital in rural areas, making them more attractive for investment.

Service Trade in the World Food System

Service sector growth not only dominates the economic landscape of developed economies, but is also an integral component of economic development. Most of the value-added production activities in the U.S., the European Union (EU), and Japan are concentrated in trade, public services, financial, and other business services, while primary agricultural production constitutes less than 3 percent of GDP. Primary agriculture in low-income developing countries, like the Association of Southeast Nations (ASEAN) members, China, and especially many nations in South Asia, contributes a much larger share of GDP

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Services & Services Trade

A critical distinction between goods and services is that services are consumed as they are produced, involving a direct interaction between consumer and producer. Services can be differentiated by those requiring close physical proximity between consumer and producer, and those that do not. The General Agreement of Trade in Service (GATS) defines four modes of service trade, making a distinction between cross-border and local supply of services:

One involves no direct proximity:

- **Cross-border supply**—services supplied from one country to another (e.g., international telephone calls);

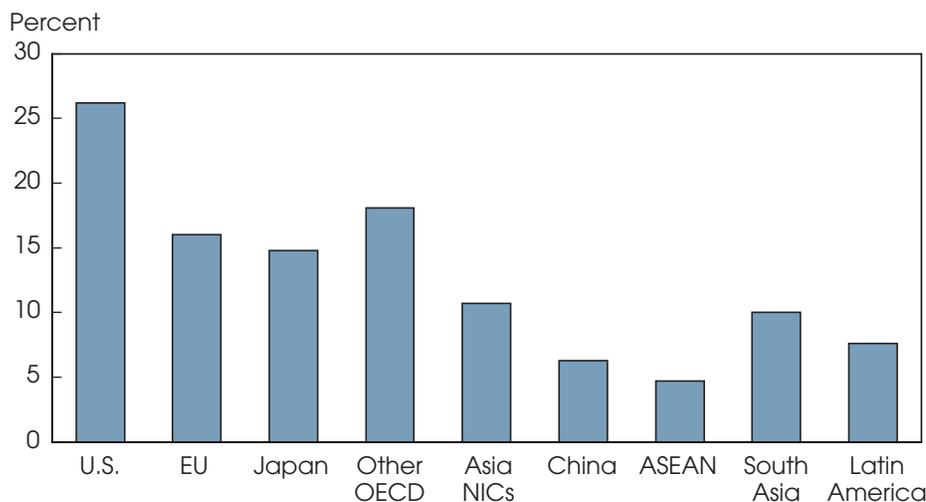
The other types involve close proximity:

- **Consumption abroad**—consumers or firms use a service in another country (e.g., tourism);
- **Commercial presence**—a foreign company sets up subsidiaries or branches to provide services in another country (e.g., an agricultural consulting firm);
- **Individual presence**—individuals travel from their own country to supply services in another country (e.g., agricultural machinery consultant).

Trade in services performs a dual function in an economy. First, it contributes directly to trade, as when a seed company undertakes field trials in another country. Second, services are linked closely to merchandise trade, wholesaling, retailing, and transport services are obvious examples.

Source: WTO Website (<http://www.wto.org>); Joseph Francois and Ian Wooton "Market Structure, Trade Liberalization and the GATS," *European Journal of Political Economics*, Vol. 595(2001).

Services Make Up a Larger Share of Ag Production Costs in Developed Countries



Primary ag production costs only. Excludes processing costs.
Source: Global Trade Analysis Project, Purdue University, 1997 data.
Economic Research Service, USDA

(12, 18, and 26 percent in 1997, respectively) but is trending downward.

The following patterns have emerged in the composition of value-added production:

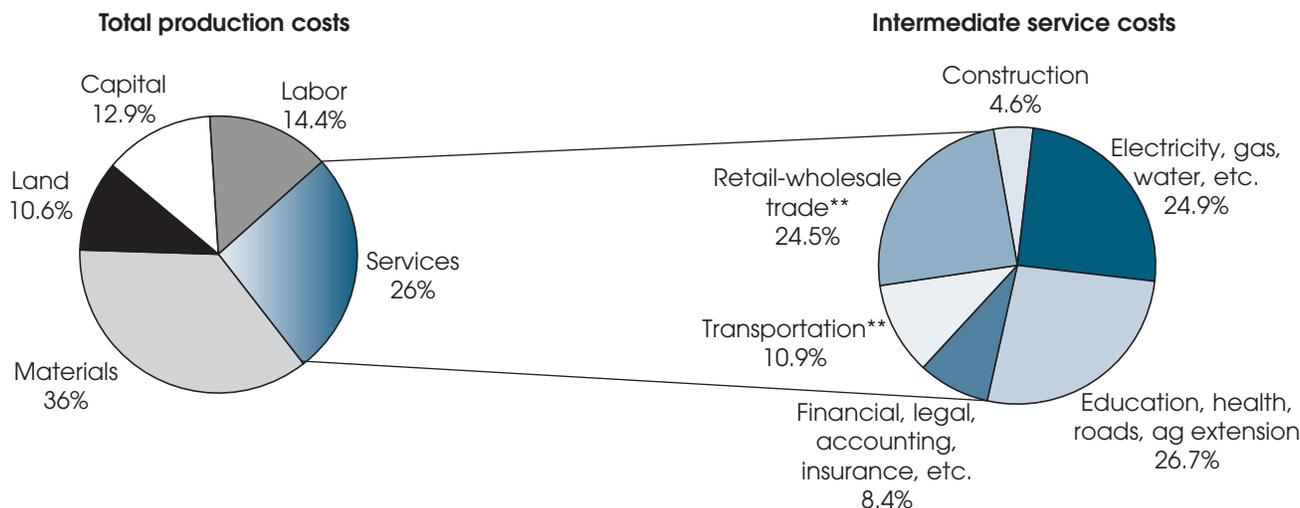
- All economies have relatively large intermediate and durable goods manufacturing sectors, with the exception of South Asia. Asia's Newly Industrialized Countries, or NICs, China, and ASEAN members have the highest share, indicating that Asia is a major manufacturing center in today's world.
- Public service, wholesale and retail trade, and transportation are large value-added sectors in almost all economies, reflecting their crucial role.
- Financial and other business services are significant value-added sectors for developed countries and the Asian NICs, but are relatively smaller in developing economies.

The fall of agriculture's share and the rise of the service sector's share of GDP during economic development are usually attributed to the relatively low price and income elasticities of food demand, as well as the rapid diffusion and application of new technologies. These lead to relatively faster productivity growth in agriculture.

The changing role of primary agriculture and services also results from the increasing importance of post-farmgate value-adding activities along the food marketing chain, such as assembling, processing, transporting, warehousing, and retailing. Farmers are receiving a declining share of the retail value of food products while consumers are paying more for services. In the U.S., the farm value of consumer food expenditures has declined from more than 30 percent to less than 20 percent in the past three decades.

Another contributing factor in the declining share of agriculture and rising share of services is farmers' increasing use of purchased intermediate inputs and off-farm services. Manual farm jobs associated with spreading manure and weeding crops, for example, have disappeared as the use of

Services Play a Prominent Role in U.S. Agricultural Production Costs



**A large share of retail/wholesale trade and transportation services is represented by the difference between the factory price of farm inputs and the price farmers pay at retail/wholesale outlets.

Source: Global Trade Analysis Project, Purdue University, 1997 data.

Economic Research Service, USDA

farm chemicals has increased. As a result, the value added by farm households' own labor, land, and capital is declining as a share of the gross value of agricultural output. Farm use of intermediate inputs has also changed. According to time-series input-output data for the U.S., there has been a 30-year shift in the cost structure of U.S. food and agricultural production, with a declining share of material intermediates, especially primary agricultural intermediates (seed, feeder stock, etc.), and a rising share of service intermediates (financial services, insurance, etc.). Such a shift in the input structure of U.S. agricultural and food production reflects the increasing degree of specialization in the U.S. food sector and its rising dependence on the rest of the economy.

The increased role of various services as intermediate inputs in food and agricultural production is a trend observed around the world. As a growing component of total intermediate inputs in farm and food production, services account for more than 26 percent of primary agricultural production costs in the U.S., about 20 percent of processed agricultural production costs in the EU and Japan, and more than 11 percent of dairy and meat production costs in all major world economies.

The cost share of service inputs in the food and agricultural sectors of advanced economies, especially the U.S., are much higher than in developing countries because of a deeper division of labor and a greater degree of economic specialization. However, services also constitute a significant proportion (15-30 percent) of total intermediate inputs for almost all food and agricultural production, even in developing countries such as China and many South Asian nations.

Among various intermediate service inputs, financial, other business services, trade and transportation, and public services are the leading sectors. These sectors constitute more than three-fourths of total service costs in U.S. agricultural production.

The prominent role of purchased services in food and agricultural production provides a channel for transmitting gains from trade liberalization in the services sector to the world food system. When services trade is liberalized, services as intermediate inputs become cheaper, thus

Calculating the Cost of Services in Agricultural Production

The growing importance of services has not made the calculation of their cost any easier. There is a great deal of ambiguity in defining, not to mention in measuring, service costs in the economy in general and the food system in particular. For example, the inputs used in U.S. farm production as reported in the U.S. national input-output (IO) table (BEA, Dept. of Commerce) are valued at the factory level while in ERS' farm cost estimates, they are valued at the farm level. This in part explains the difference between the 1997 ERS farm cost estimates attributed to services (14 percent) and the IO calculation of 26.2 percent. Similarly, it is difficult to allocate service costs that are strictly attributable to the farm operation. Many farm households depend to a growing extent on off-farm employment, so only a portion of a service like fire insurance for the operator's dwelling can be attributed to the cost of the farm operation.

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lowering the cost of world food and agricultural production. At the same time, more employment in the services sector, particularly in developing economies, will increase final demand for food and agricultural products, leading to increased world food production and trade.

Many Countries Erect High Barriers to Services Trade

The Uruguay Round established general rules for services trade and a framework for services trade negotiations, but was not greatly successful in reducing barriers. Since restrictions on trade in services are more complex than barriers to trade in goods, protection levels for services are difficult to quantify. Barriers in goods trade usually take the form of tariffs, which directly affect the price of foreign goods and can be measured relatively easily by the size of the tariff. In contrast, restrictions on services trade usually take the form of prohibitions, quantitative restrictions, and government regulations, which may affect entry and operations not only of foreign services suppliers, but also of domestic suppliers.

The World Bank made an early attempt to quantify barriers to services trade by using the presence or absence of offers made to liberalize policies during the General Agreement of Trade in Services (GATS) negotiations as an indicator of the protection level for different types of barriers to services trade. These protection rates, which ranged from zero being the most open, to 200 being the most protected, were essentially “guesstimates.” They do, however, provide a crude initial estimate of the relative magnitude of protection levels for various service sectors. The estimates show that barriers to service trade are relatively higher in the retail-wholesale trade, transport services, and private business services, which are vital inputs in the global food system.

More recently, the Center for Global Trade Analysis at Purdue University estimated two gravity models of trade—for business services and for construction services—using bilateral services export data from the U.S. These gravity models predict levels of service trade that would occur in the absence of barriers, using Hong Kong and Singapore as “free trade” benchmarks. The models allow tariff equivalents for the

Public Policies & Investment Priorities Can Distort Food Transport Services

Cabotage laws, found in more than 40 major maritime nations, raise transportation costs by restricting shipments within a country to domestic, often more expensive, carriers. Examples of the results of cabotage laws follow.

- It can be cheaper for a Hawaiian feed mill to purchase grain from Canadian or Australian sellers than from U.S. grain suppliers.
- It may be cheaper in some instances to deliver Midwest corn to distant markets like Japan than to locations within the U.S. like California's Imperial Valley.

Despite plentiful high-quality grapes produced in northwest China, inadequate infrastructure and high tolls can make it more expensive and time-consuming to get them to Guangzhou, China's biggest fruit market, than for Guangzhou to import grapes from California, which is 3 times farther away.

China's corn production is concentrated in the north and northeast and its livestock production in the southeast. But lack of adequate rail service and other infrastructure have made it cheaper for livestock producers in southern China to import corn from the U.S. or other foreign sources rather than from domestic growers. China's massive public investments in upgrading its rail system will reduce transaction costs and boost north-south agricultural trade.

In the Philippines, transporting agricultural products from remote producing areas to processing and consuming areas in and around metropolitan centers is costly due to inadequate infrastructure. The cost of moving corn from the growing areas of Mindanao to the poultry growers located near metropolitan Manila is estimated to be higher than importing corn from Bangkok, Thailand.

unobserved trade barriers to be estimated for services trade in business and construction in other markets.

According to their analysis, barriers to trade in services can be quite high in some countries, at least as large as the tariffs on many agricultural and manufactured products. The average agricultural tariff rate is about 62 percent for all WTO members, which includes over-quota tariffs for tariff-rate quota (TRQ) regimes, while the post-Uruguay Round world average tariff for manufactured products is under 10 percent. Generally, estimates for the business and construction sectors show that Asian and South American economies have medium to high barriers to services trade, while European and North American economies tend to have lower protection levels.

Probable Impacts of Trade Liberalization

Services have become increasingly significant as intermediate inputs and cost components in the world food system. Trade liberalization would not only directly affect

world services production and trade, but would also have significant implications for the global food system. The major channels for such impacts are through trade relationships among industries and regions. While trade represents a relatively small share of output in the services sector in most regions, the services sector in many countries is large and protection levels may be relatively high. There could be significant improvements in welfare from services trade liberalization.

Based on a recent study conducted by the Australian Productivity Commission, the world as a whole is projected to be better off by more than US\$260 billion annually in terms of real purchasing power as a result of eliminating all post-Uruguay Round trade barriers. About half of the gains would come from liberalizing services trade. These are the projected gains for 10 years after liberalization, when resources have fully adjusted.

One study estimated the probable impacts of service sector trade liberalization on agricultural and food production, consumption, and trade in major economies.

Despite the use of “guesstimates” from the World Bank for services sector protection, their results reveal potential impacts of services trade liberalization on the world food system. As expected, when trade barriers in the services sector are reduced, services production and exports expand, thus increasing the demand for other intermediate inputs, including food and agricultural products. At the same time, the fall in service prices reduces production costs in sectors that use services as intermediate inputs, including the food system. Production and consumption of food and agricultural products increase in almost all regions, especially in developing economies. The only exception is a

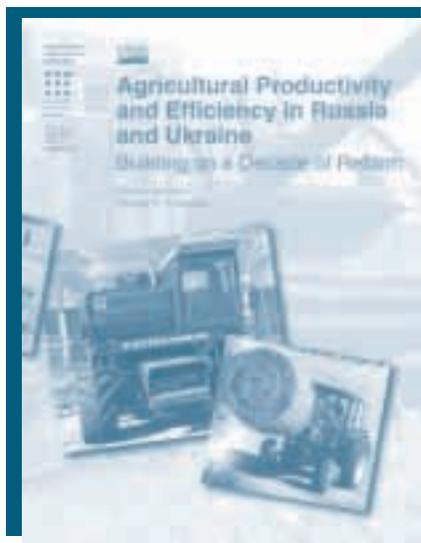
slight decline in processed food production in ASEAN countries and the U.S. Since the U.S. has a comparative advantage in producing most services, the dramatic expansion of services production and increased profitability relative to other economic activities after deregulation draws resources into services from other U.S. industries, including the processed food sector. However, world prices in all industries decline, indicating the crucial role of services as inputs in most economic activities.

Much of today’s agricultural focus in the WTO is on reducing distortions in commodity markets, including import barriers,

export subsidies, and government support to producers. As the contribution of primary agriculture to GDP has shrunk to less than 3 percent in developed economies, it may be time to shift the policy reform focus from production agriculture to the broader food system, where the services sector plays an increasingly significant role and may have a larger distortionary impact on the food system than commodity and farm-level policies. **AO**

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Tracking the progress of transition economies

Despite 10 years of economic reform in Russia and Ukraine, agricultural productivity continues to lag on many of their farms. The situation might be different if these countries succeeded in completing institutional reforms in the agricultural sector and economywide. How would full implementation of reforms affect ag-sector efficiency in Russia and Ukraine? How would it affect their potential to become significant grain exporters?

Agricultural Productivity and Efficiency in Russia and Ukraine: Building on a Decade of Reform

A new report featured on the Economic Research Service website

www.ers.usda.gov/Features/TransitionEconomies/