Shifting Patterns in Asian Agricultural Trade

This article describes major forces underlying shifting patterns in agricultural trade between the United States and Asia, and it considers both long-term and short-term patterns. Short-term patterns suggest a pause in U.S. exports to Asia. By contrast, long-term patterns lead to an optimistic outlook for U.S. exports to Asia. U.S. agricultural exports to Asia are very diversified and sizeable, and the major markets are wheat, corn, soybean and products, meat products, cotton, hides, tobacco, and fruits and vegetables. Despite the “crisis” in 1998, U.S. exports reached levels higher than 1994 levels. For example, the United States exported $9.4 billion to Japan, $2.2 billion to Korea, and almost $2 billion to Taiwan in 1998. These three countries are the United States’ largest agricultural trade partners in Asia, and among its five largest agricultural trade partners in the world. In addition, China, combined with Hong-Kong, now imports in excess of $3 billion of U.S. agricultural goods.

Changes in both supply and demand conditions affect long-term trade patterns with Asia. Most Asian countries have been enjoying continued income growth exceeding population growth. This per capita income growth has been interrupted in a few Asian countries, such as South Korea, Indonesia, and Malaysia, but most macroeconomic forecasters expect the Asian continent to resume growing at an annual rate of 5 percent or better after 2000.

Rising income per capita means that major shifts in diet are occurring in these countries. These changes in diet tend to have a universal dimension (across cultures). For example, consumption of vegetable oil, meat, and sugar increases sharply with personal income. As an illustration, Korean meat consumption per capita increased by 140 percent between 1970 and 1995. Further, the consumption of traditional/coarse grains typically decreases with income gain, and consumers switch from rice to wheat. Southeast Asian wheat consumption per capita was about 5 kg in 1961, reached 15 kg in 1993, and is expected to reach 30 kg in 2020.

Urbanization occurring in Asia is also a contributing factor to the westernization of the Asian diet toward more wheat, dairy and meat products, and fruits. Many Asian countries are still in a transitional phase, and rural migration is still massive, contributing to the rapid growth of urban food markets, which are the growth markets for high-value products that the United States exports to Asia. The Asian continent is becoming a deeper and larger market, with rising incomes and a population expected to reach between 4.4 to 6.5 billion people by 2050.

Trade liberalization is also contributing to U.S. export growth in Asian markets. Historically, Asian countries have a tradition of seeking self-sufficiency in grains. Many Asian countries are now World Trade Organization (WTO) members and are committed to opening their agricultural markets. Market access is being improved with minimum import requirements and tariffication of quantitative barriers. Further, these tariffs are being progressively lowered. Reductions of producer subsidies are also part of the last WTO agreement. For instance, South Korea has increased its meat imports under market access and is decreasing farm subsidies to its grain and oilseed sectors.

In addition to market access achieved through multilateral trade agreements, the United States has been using the threat of sanctions to open foreign agricultural markets, under Section 301 of the 1974 U.S. Trade Act, known as “unilateralism.” Unlike with the European Union (EU), these threats of retaliation have been effective with Asia, especially in meat and tobacco product markets. Section 301 actions have...
improved market access for tobacco products in Thailand and for meat products in Korea, reducing trade impediments induced by labeling requirements. Unilateralism is a risky strategy and should be used as a last-resort weapon, only after the dispute settlement mechanism under the WTO has failed. Trade wars do occur and can undo significant gains achieved in other markets. They also destroy goodwill and may slow further liberalization because of political tensions.

On the supply side, natural resource endowments in many Asian countries do not favor agriculture. Land, and especially arable land, is scarce in many Asian countries. High population density exacerbates competition for land use arising from urbanization and economic development. For these reasons arable land is at a premium in Taiwan and Korea. China is poorly endowed with arable land as well. Hence, many of these countries are at a disadvantage to produce land-intensive crops, including feed crops. In turn, this constraint on feed production in many countries taxes the livestock sector, which, as a result, relies on imported feed. For example, Korea and Taiwan are major importers of feed grains, and China is expected to become a major importer of corn in the coming decade. The Asian continent is also characterized by a predominance of small farms both for livestock and crops. Until 1993, Korean governmental regulations limited farm size for many operations to 3 hectares. Economies of scale do not take place easily because structural adjustment in the agricultural industry is “socially” costly.

Environmental endowments are also scarce in many parts of Asia. Rising income has induced concerns for environmental degradation. Water quality is a major concern in Taiwan for instance. These concerns, combined with the high population density, increase the scarcity of environmental amenities such as water quality. Chemical-intensive agriculture and livestock production are at a disadvantage in many countries for these reasons. For example, hog production in Taiwan is now being scrutinized and progressively more regulated. One can expect environmental regulation efforts to increase sharply in coming years and further constrain livestock production in Southeast Asia.

By contrast, the United States has abundant land (and capital) and absorptive capacity. The environmental by-product of agricultural production is manageable; although it is sometimes controversial, such as in the hog industry. Further, the U.S. farm sector tends to rapidly exploit potential economies of scale, and it is well integrated with processing industries. All these factors make our farm sectors very competitive in Asian markets. Hence, the United States should be well placed to benefit from the long-term expansion in food consumption expected in Asia. However, there are competitors. The increase in cheese consumption in Asia is likely to primarily benefit New Zealand’s and Australian agriculture. In the soybean market, the United States remains the major exporter of beans, but in the meal and oil markets, fierce competition originates in Brazil and Argentina and as these latter markets expand, they should benefit more than the United States.

In the short term, several countries are experiencing a slow down in growth, such as in China, or a recession with a real decrease of income, such as in Indonesia, Malaysia, and Korea. Further, several of these countries have had a foreign exchange crisis that induced major devaluation, which has increased the local price of imported food items and penalized U.S. exports in the short run. According to macro forecasters, currency devaluation and economic recession should stop in 2000 in virtually all the countries experiencing the current crisis. Trade growth should resume its course after 2000.

### Table 1. Swine feed supply, pork cost of production, and protective measures on pork imports

<table>
<thead>
<tr>
<th>Percent of Supply Imported</th>
<th>Cost&lt;sup&gt;1&lt;/sup&gt;</th>
<th>Protection</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Corn</td>
<td>Soymeal</td>
</tr>
<tr>
<td>Hong Kong</td>
<td>100.00</td>
<td>100.00</td>
</tr>
<tr>
<td>Japan</td>
<td>99.99</td>
<td>22.30</td>
</tr>
<tr>
<td>South Korea</td>
<td>98.75</td>
<td>47.86</td>
</tr>
<tr>
<td>Taiwan</td>
<td>95.35</td>
<td>3.81</td>
</tr>
</tbody>
</table>

<sup>1</sup>In liveweight equivalent. Japan’s live price is derived from the wholesale meat price of excellent grade pork. Hong Kong’s cost is from live farm prices. South Korea’s cost is a 1995 estimate.

### Expanding Pork Trade Potential In Asia

Pork is the meat of preference in Asia, the European Union (EU), and Central and Eastern Europe Countries (CEEC). Of the top 12 pork consuming countries in the world, five are Asian countries - Hong Kong, Taiwan, Mainland China, South Korea, and Japan. However, unlike the CEECs in the top 12 and the EU, which are all net exporters of pork, all the Asian countries (excluding Mainland China) are net importers of pork. Mainland China’s net pork exports are also fast declining, from a high of 235 thousand metric tons (tmt) in 1990 to only 87 tmt in 1998.

Almost all of the Asian countries lack the productive capacity to meet their strong consumer demand for pork. Their arable land area is limited, and labor cost is high. The feed sector in Asia, which accounts for 65 to 70 percent of production costs, is very dependent on imported feed grains and oilmeals.

Table 1 shows that Hong Kong, Japan, South Korea, and Taiwan import almost all their corn requirements. For oilmeals, they either import soymeal directly or import soybeans for domestic crushing and import the remaining soymeal requirement for feeds. The lack of comparative advantage in pork production is evident by their high cost of production when compared to the world price of $0.51 per pound in 1997.

As a result, Asia has been the main driver in the growth of pork trade. During the 1980s pork imports grew 7.96 percent per year in Asia, while total world pork imports (excluding Asia) grew by an average of 5.25 percent. In the 1990s
of Asia’s pork imports were supplied 1990 to 1996, more than half, 57 percent, internally in the region, specifically by Taiwan and South Korea.

This paper argues that the same fundamental forces (i.e., lack of comparative advantage in pork production) that shaped the evolution of Japan’s swine-pork sector will be repeated in Taiwan and South Korea, releasing their share of the pork import market in Asia to pork suppliers outside of the region.

This trend is already evident in the case of Taiwan. As the Japanese swine-pork sector was declining, Taiwan’s was growing at 6.46 percent, driven by the 60.64 percent growth in exports to Japan. At the peak of Taiwan’s export expansion, 40 to 42 percent of the annual swine slaughter was destined for the Japanese export market. Table 2 shows that Taiwan captured 47 to 57 percent, almost half, of the fresh-chilled pork imports in Japan and 38 to 46 percent of the frozen pork imports. Japanese consumers’ preference for Taiwanese pork, along with geographic proximity and established marketing arrangements with Japanese importers are the main reasons for Taiwan’s dominance in the market. Taiwan shipped the quality cuts to Japan and retained the non-muscle meat portions such as pork offals, bones, head, feet, and internal organs in the domestic market, where these cuts were in demand. This has also shaped the trade policy of Taiwan where importation of these pork cuts is banned.

A number of factors have recently converged to burst the growth bubble in Taiwan’s swine-pork sector.

- **The island-wide FMD epidemic in 1997 that caused an estimated swine loss of 4 million head.** The most damaging impact of the FMD outbreak was that it practically eliminated Taiwanese pork in the Japanese market. In 1997, its share in the fresh-chilled pork market dropped to zero, and the frozen pork share dropped to 2.15 percent. The United States’ share jumped from 46 percent in 1996 to 75 percent in 1997 in fresh-chilled imports, while the share of other counties (South Korea in particular) jumped from 18 percent in 1996 to 34 percent in 1997 in frozen imports. It is unlikely that Taiwan will be able to recapture its Japanese market or penetrate new markets with its expensive pork.

- **Taiwan’s accession to the World Trade Organization (WTO).** In February 1998, Taiwan and the United States signed a bilateral market-access agreement in connection with Taiwan’s bid for membership in the WTO. This agreement allows 5,000 metric tons (mt) of pork belly and other previously banned cuts and 7,500 mt of pork offals into Taiwan. The agreement has a cumulative rollover provision and is open only to the United States until final accession is approved. At that time, such concessions will be converted into an estimated tariff rate quota (TRQ) at 37 tmt (based on 5 percent of consumption in the base year) that will be open to all countries, with increasing quantities and decreasing duties in successive years.

- **The environmental impact of pork production.** It is reported that the drastic drop in swine-pork production resulting from the FMD epidemic reduced pollution levels in the most polluted river by 67 percent. This has prompted environmental activists to call for a radical change in the swine-pork sector. A new drinking water regulation was recently declared, and the environmental protection authorities are preparing to closely

---

### Table 2. Japan’s pork import source shares by product (percent)

<table>
<thead>
<tr>
<th></th>
<th>Fresh-Chilled Pork</th>
<th>Frozen Pork</th>
</tr>
</thead>
<tbody>
<tr>
<td>U.S.</td>
<td>38.09</td>
<td>47.27</td>
</tr>
<tr>
<td>Taiwan</td>
<td>57.25</td>
<td>47.69</td>
</tr>
<tr>
<td>Denmark</td>
<td>0.40</td>
<td>0.09</td>
</tr>
<tr>
<td>Others</td>
<td>1.71</td>
<td>1.99</td>
</tr>
</tbody>
</table>
monitor the enforcement of regulations, especially those limiting swine-pork production in river watersheds that are used as drinking water sources.

For these reasons, it is unlikely that Taiwan will recover its glory days. All indications suggest that it will follow the Japan swine-pork sector, where in the short-run a productive capacity to meet the domestic demand is maintained and then the sector slowly contracts as cheap imports become increasingly available in the market.

As Taiwan enters its downward phase, South Korea is in the growth bubble, increasingly gaining shares in Japan’s pork import market. Even before the FMD outbreak in Taiwan, the Government of South Korea was already promoting the export of pork to Japan by providing subsidies of 8,000 to 10,000 won per head (951.29 won per U.S. dollar). This allowed exporters to establish contacts in the distribution channel in Japan and allowed them to capture some market share when Taiwan was forced to abandon the Japanese market. South Korea’s exports to Japan were 14 tmt in 1995 and increased to 37 tmt in 1996, 55 tmt in 1997, and 70 tmt in 1998. However, with the cost of pork production approximately double that of the cost of production in the United States, it very unlikely that this growth can be sustained in the long run. It is just a matter of time that the weight of the same fundamental forces that shaped the swine-pork sector of Japan and Taiwan will bear upon South Korea.

Iowa State University

Iowa State does not discriminate on the basis of race, color, age, religion, national origin, sexual orientation, sex, marital status, disability, or status as a U.S. Vietnam Era Veteran. Inquiries can be directed to the Director of Affirmative Action, 318 Beardshear Hall, 515-294-7612

FAPRI Bulletin
578 Headly Hall
Iowa State University
Ames, Iowa 50011-1070
515/294-7519
e-mail: fapri@iastate.edu

SUBSCRIBE ON-LINE
Visit our web site, www.fapri.iastate.edu to register to receive the FAPRI Bulletin.