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The Impact of Recent Trade Agreements on Japan's Pork Market

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Abstract

Since the turn of the century, Japan has relied on domestic pork production to supply around half of its pork consumption. In part, this production has been aided by import barriers that have helped shield domestic pork producers from foreign competition. Between 2018 and 2021, Japan ratified trade agreements with the United States, European Union, United Kingdom, and Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) countries that will virtually eliminate these import barriers by 2028. With essentially all of Japan's pork imports coming from these trade agreement partners, Japan's pork market could change considerably in the next 6 years, with imports taking a larger share of domestic consumption. For the United States, this change is estimated to lead to an additional $281 million worth of pork exports to Japan. This report uses a global economic model to estimate the impacts of these trade agreements. Results from the Global Trade Analysis Project (GTAP) model suggest that when the trade agreements are fully implemented in 2028, there could be a 3.6- to 13.9-percent increase in pork imports into Japan in 2028 relative to 2018 levels. This increased exposure to foreign competition could also reduce Japan's pork production between 4.2 and 11.8 percent.

Keywords: Japan, pork, trade agreements, production, imports

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About the Authors

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A report summary from the Economic Research Service *May 2023*

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What Is the Issue?

Following its accession to the World Trade Organization (WTO) in 1995, Japan relaxed its trade barriers. Even so, Japan continues to employ three (gate-price, ad-valorem, and safeguard) tariff mechanisms on most pork product imports. The gate price tariff effectively acts as a minimum import price so that if the value of a shipment of pork is below the minimum price, then a tariff (equal to the difference between the minimum price and the value of the shipment) is levied. Pork products also face ad valorem tariffs, which increase the price of a product by a fixed percentage of the value, depending on the product category. For pork product, the tariffs range from 4.3 to 8.5 percent. Additionally, Japan employs safeguard mechanisms, which increase the gate price and ad valorem tariff rates when imports of pork reach a certain threshold. These trade instruments have helped domestic producers maintain a 50-percent share of domestic consumption. However, Japan has recently ratified numerous trade agreements that will virtually remove these restrictions. Given that essentially all of Japan's pork imports originate in these trade agreement partner countries, the trade agreements may greatly impact the Japanese pork market.

What Did the Study Find?

Japan has ratified trade agreements with the United States, European Union (EU), United Kingdom (UK), and Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) countries, which comprises Australia, Brunei, Canada, Chile, Malaysia, Mexico, New Zealand, Peru, Singapore, and Vietnam. Pork exports to Japan are estimated to increase as a result of these trade agreements, with the United States having the highest estimated gains.

Results in this report indicate that the changes outlined in Japan's recent trade agreements could greatly improve the competitiveness of trade agreement partner countries in Japan's pork market. This potential boost in foreign competitiveness could result in lower domestic production, higher import volumes, and thus increased availability of lower-cost foreign pork for Japanese consumers. This can be seen in the following model estimates that assume the gate price system imposes a burden equal to a 10-percent ad valorem tariff. The estimated changes in value in 2028, relative to the 2018 baseline, are as follows:

- By 2028, Japan's pork imports would increase by 3.6 percent for carcasses and half-carcasses, 12.2 percent for unprocessed meat cuts, and 13.9 percent for processed pork products.
- Japan's domestic production would decrease by 4.2, 11.6, and 11.8 percent for carcasses and half-carcasses, unprocessed meat cuts, and processed pork products, respectively.
- Total pork exports to Japan would increase in value (in millions) by $281.0, $244.5, $232.8, and $0.21 for the United States, EU, CPTPP, and UK, respectively.
- Most of these export gains to Japan would come from the unprocessed pork sector, with gains of $168.6, $201.3, $210.5, and $0.21 million for the United States, EU, CPTPP, and UK, respectively.
- The remainder of the gains would primarily be from the processed pork sector, with an additional $112.3, $43.1, and $22.3 million in exports from the United States, EU, and CPTPP, respectively. The UK does not currently compete in this sector.
- The carcass and half-carcass sector is extremely small, and export increases in this sector would only have a marginal impact on the total pork exports of each country.
- Societal well-being of the United States, CPTPP, and EU would increase by $59.3 million, $32.8 million, and $17.8 million, respectively.

If the U.S.-Japan Trade Agreement (USJTA) agreement did not exist, the United States would be subject to Japan's WTO gate price tariff system. In this hypothetical scenario, results indicate that the United States would lose a large portion of its market share to Japan's other trade agreement partners, with the 2028 U.S. market share falling from 34 to 23 percent. The total value of U.S. pork exports to Japan also would decline by $385.9 million from 2018 levels.

How Was the Study Conducted?

This work reviews Japan's import barriers on pork, including the country's gate price tariff system and safeguards. Production, consumption, exchange rate, bilateral trade, and demographic data were taken from sources that include Trade Data Monitor; USDA's Foreign Agricultural Service; the Japanese Ministry of Agriculture, Forestry and Fisheries; and the U.S. Department of Commerce, Bureau of the Census. The likely impact of the various Japanese trade agreements is analyzed by the Global Trade Analysis Project (GTAP) computable general equilibrium model. Using 2018 (the year before Japan's first trade agreement as a baseline year), the authors simulate three separate scenarios: (1) assuming a 10-percent tariff equivalent to the gate price system in the base year, (2) assuming a 10-percent tariff equivalent and assuming that the USJTA had not come into force, and (3) assuming a 15-percent tariff equivalent in the base year. Results for the first two scenarios are provided in the main text, whereas the third scenario is included in the appendix.

The Impact of Recent Trade Agreements on Japan's Pork Market

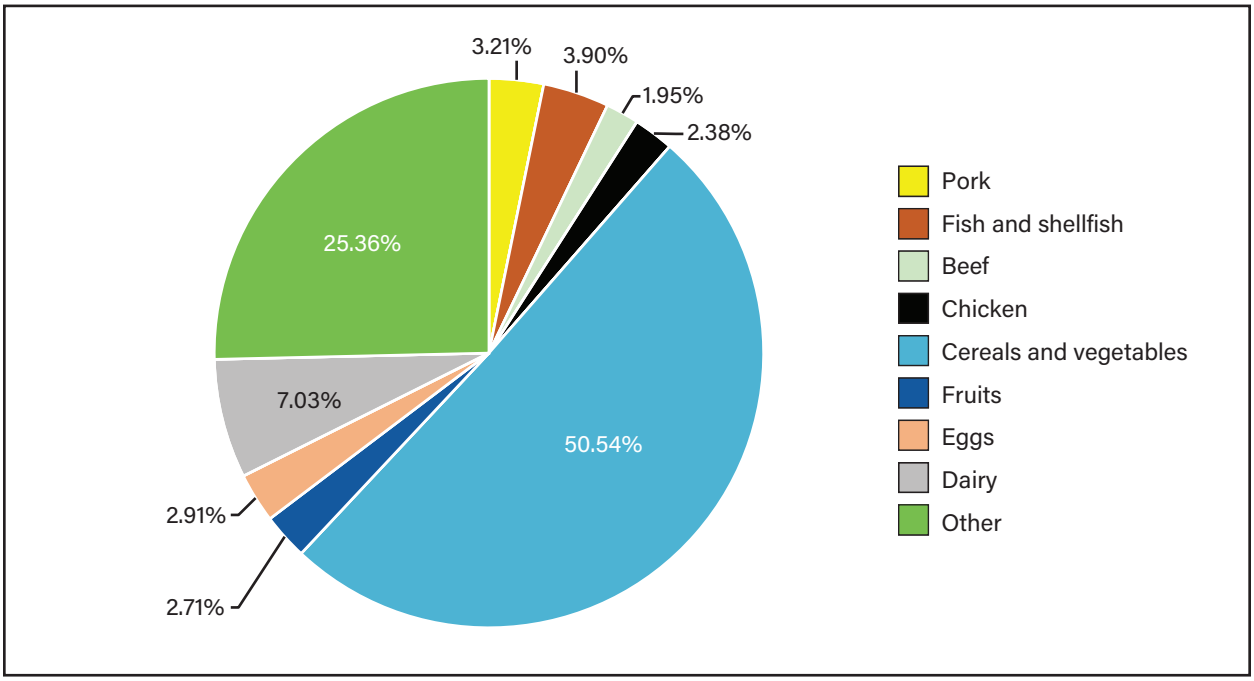
Introduction

Japan's Pork Market Overview

Domestic Consumption and Production

Pork is an important commodity for Japanese consumers. From 1990 to 2021, Japan's consumption of pork increased from 2.1 million metric tons to 2.8 million metric tons (USDA, FAS, 2022c). In 2019, pork was the second largest source of calories among animal proteins (figure 1), accounting for 3.2 percent of the daily average and second only to fish and shellfish (Japanese Ministry of Agriculture, Forestry, and Fisheries, 2022). In addition, pork supplied almost 8 percent of Japanese consumers' daily requirement for protein.

Figure 1
Sources of calories for Japanese adults, 2019



Source: USDA, Economic Research Service using data from the 95th Statistical Yearbook of the Japanese Ministry of Agriculture, Forestry and Fisheries, 2022.

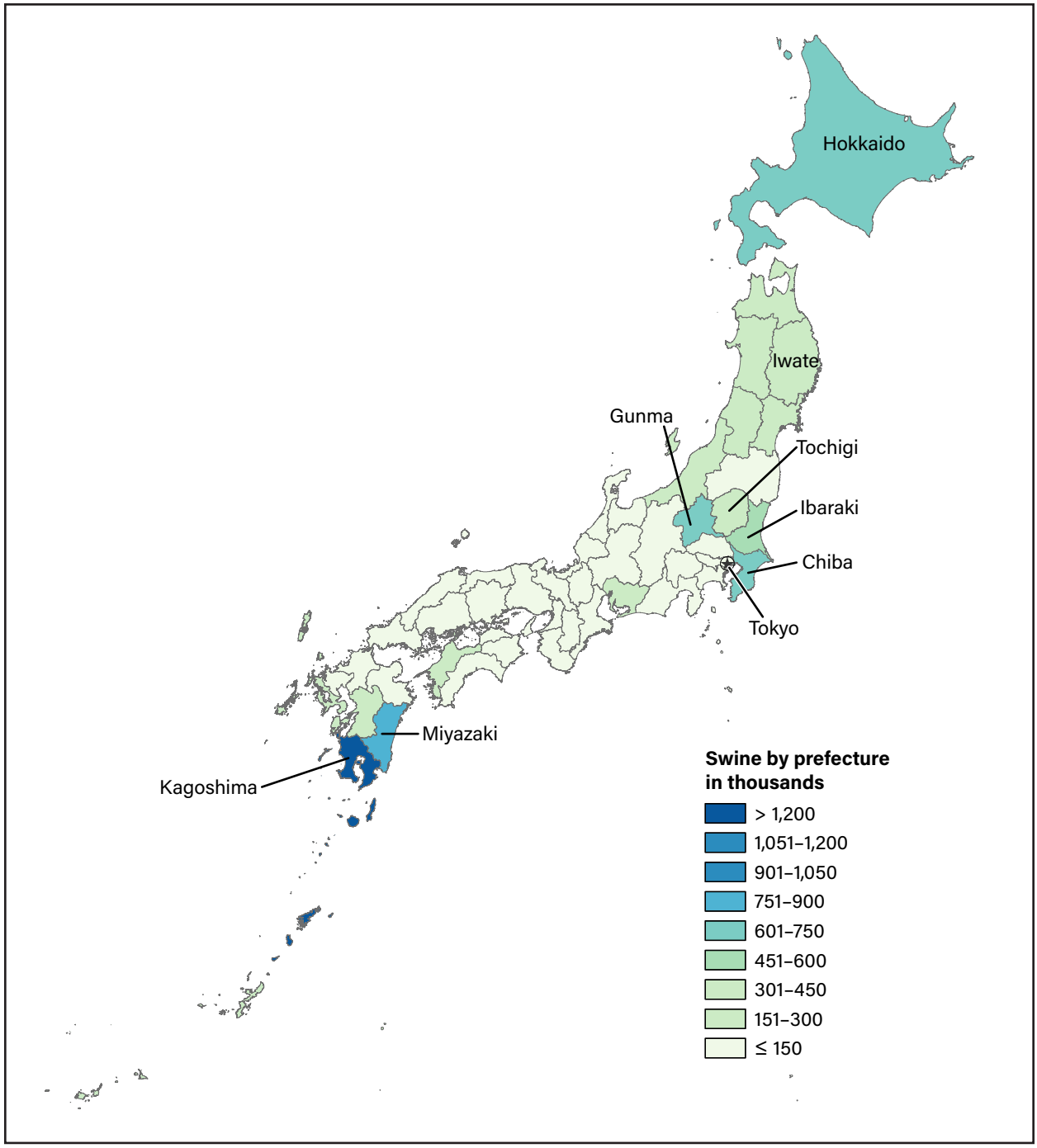
Despite relatively high domestic production costs (Obara et al., 2003), Japan produces approximately 50 percent of its pork consumption domestically.[1] The largest stocks of swine by headcount (figure 2) are located on the southern island of Kyushu, in Kagoshima and Miyazaki prefectures.[2] Two other zones also have signif-

[1] USDA, 2022a; U.S. Department of Commerce, Bureau of the Census. The definition of pork products used here and by USDA's Foreign Agricultural Service (FAS) includes fresh, chilled, and frozen pork.

[2] A Japanese prefecture is roughly equivalent to a U.S. State.

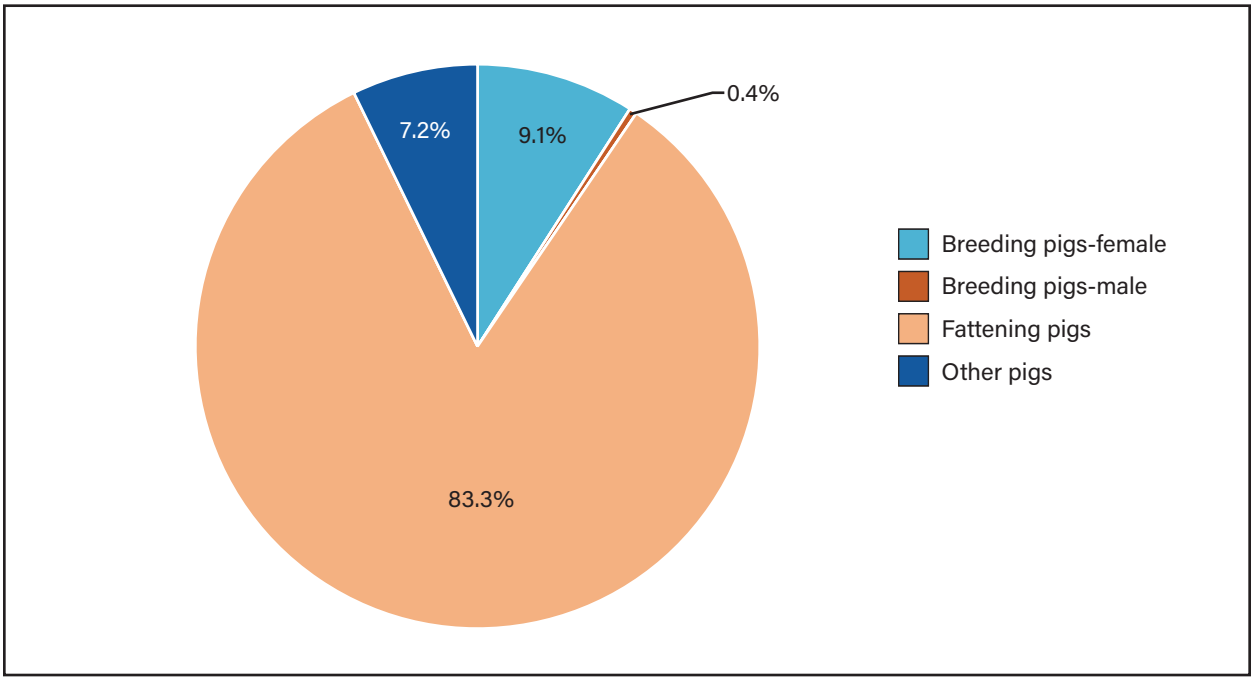
icant swine populations: the four prefectures that form a rough semicircle around Tokyo (Gunma, Tochigi, Ibaraki, and Chiba), each with more than 400,000 pigs in 2020, and the northern Japanese prefectures of Hokkaido and Iwate. From 2016 to 2019, 83.3 percent of all pigs were being fattened for consumption (figure 3), 9.1 percent were female breeding pigs, 0.4 percent were male breeding pigs, and 7.2 percent were "others" (Japanese Ministry of Agriculture, Forestry, and Fisheries, 2022).

Figure 2
Number of swine by Japanese prefecture, 2020



Source: USDA, Economic Research Service using data from the 95th Statistical Yearbook of the Japanese Ministry of Agriculture, Forestry and Fisheries, 2022.

Figure 3
Uses of swine in Japan, 2016 to 2019 average

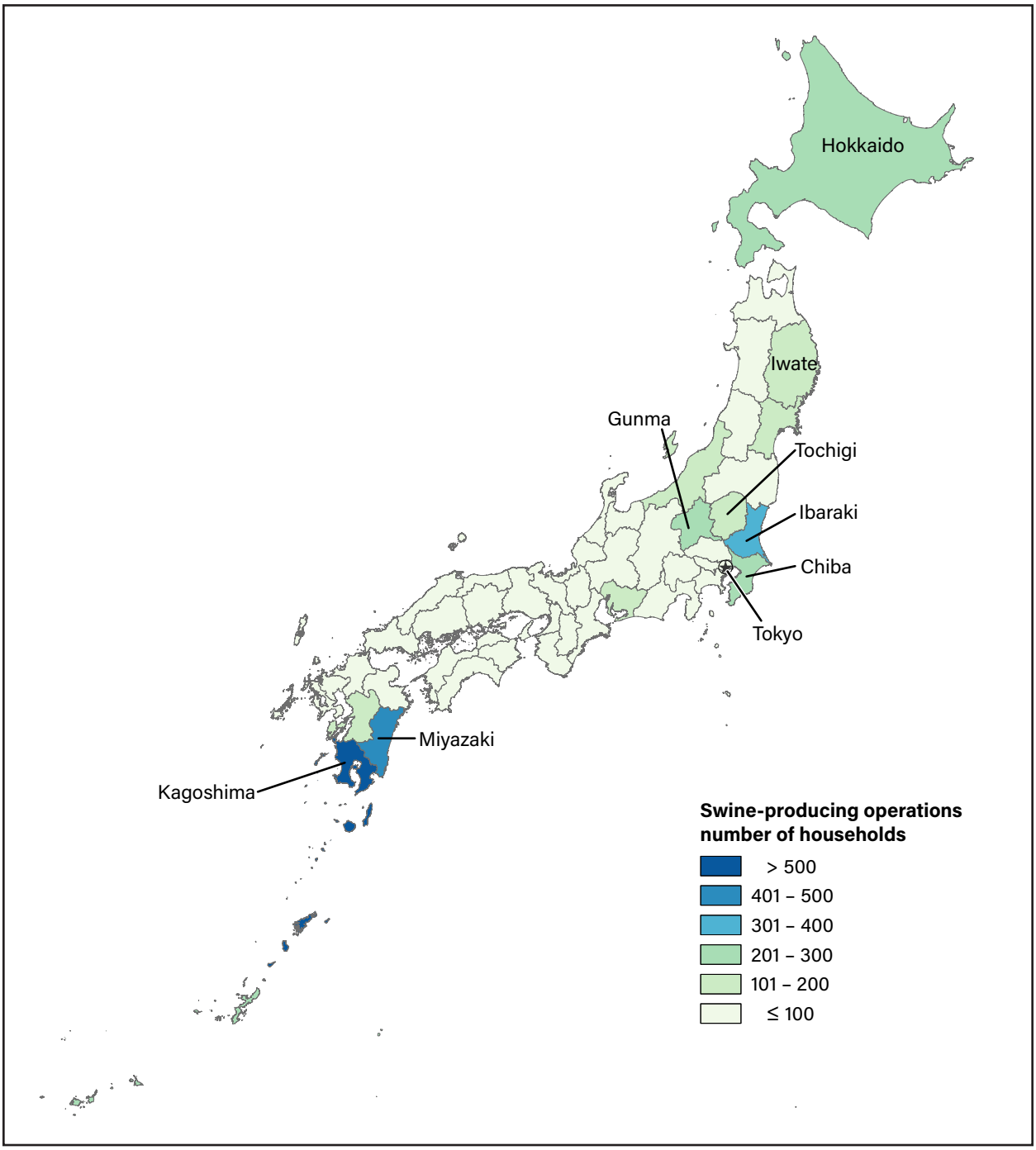


Note: This figure details the share of pigs in Japan that are used for breeding, consumption (fattening pigs), and other uses.

Source: USDA, Economic Research Service using data from the 95th Statistical Yearbook of the Japanese Ministry of Agriculture, Forestry and Fisheries, 2022.

Figure 2 shows that the largest concentration of pigs in Japan is located on the southern island of Kyushu, and figure 4 highlights that this island also houses most of the industry's swine-producing household operations. Conversely, Hokkaido prefecture had between 600,000 and 700,000 pigs in 2020 (figure 2) but had a low number of swine-producing household operations relative to Kyushu. This suggests that Hokkaido household operations are larger than those in Kyushu. Overall, Japan had 4,830 swine-producing household operations in 2016 (Japanese Ministry of Agriculture, Forestry, and Fisheries, 2022). However, that number has decreased over time, and in 2020, there were only 4,317 swine-producing household operations (MAFF, 2022).

Figure 4
Japanese swine-producing household operations, by prefecture, 2020

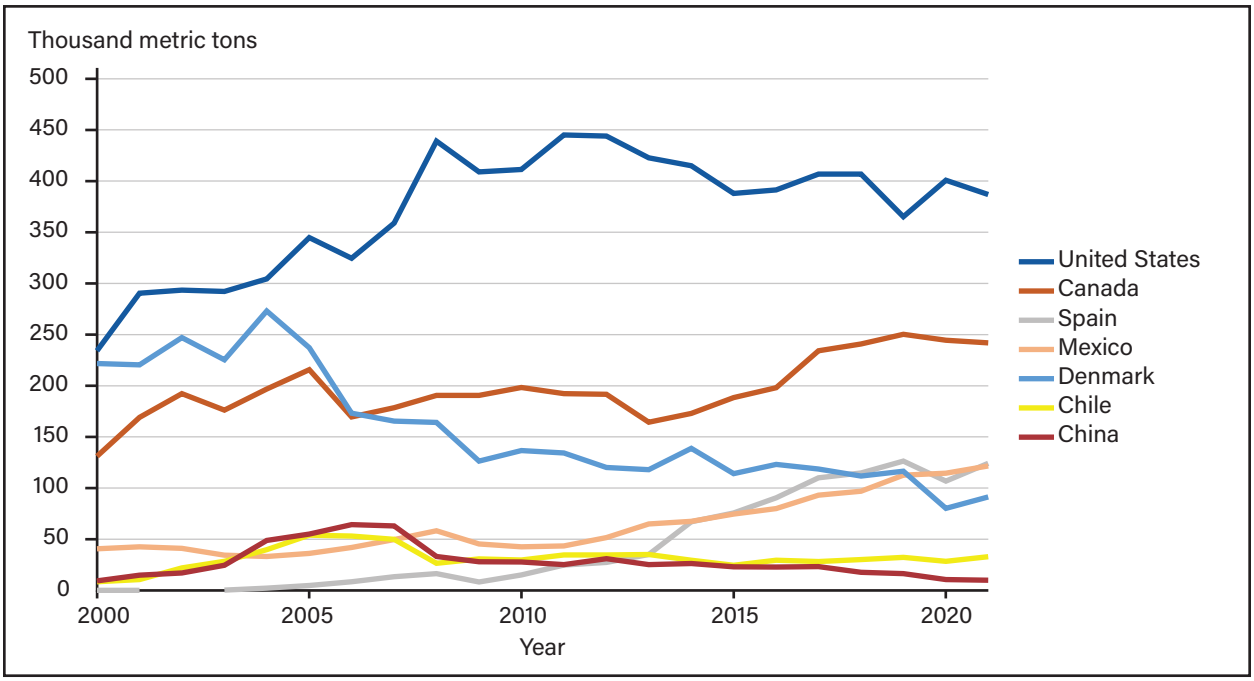


Source: USDA, Economic Research Service using data from the 95th Statistical Yearbook of the Japanese Ministry of Agriculture, Forestry and Fisheries, 2022.

Imports

In the 21st century, 46 different countries exported pork products to Japan (Trade Data Monitor, 2022). Of these, seven countries accounted for more than 87 percent of the total volume of imports across this period (figure 5). The United States, with an average market share of 37.8 percent, and Canada, with an average market share of 19.9 percent, are the largest exporters to Japan. Denmark was the second largest pork exporter to Japan in 2000, but Danish exports to Japan have since decreased and are increasingly redirected to China, which has also become a major buyer. Since 2000, Spain and Mexico gradually increased their pork exports to Japan, and both countries recently surpassed Denmark as the third and fourth largest pork suppliers to Japan, respectively.

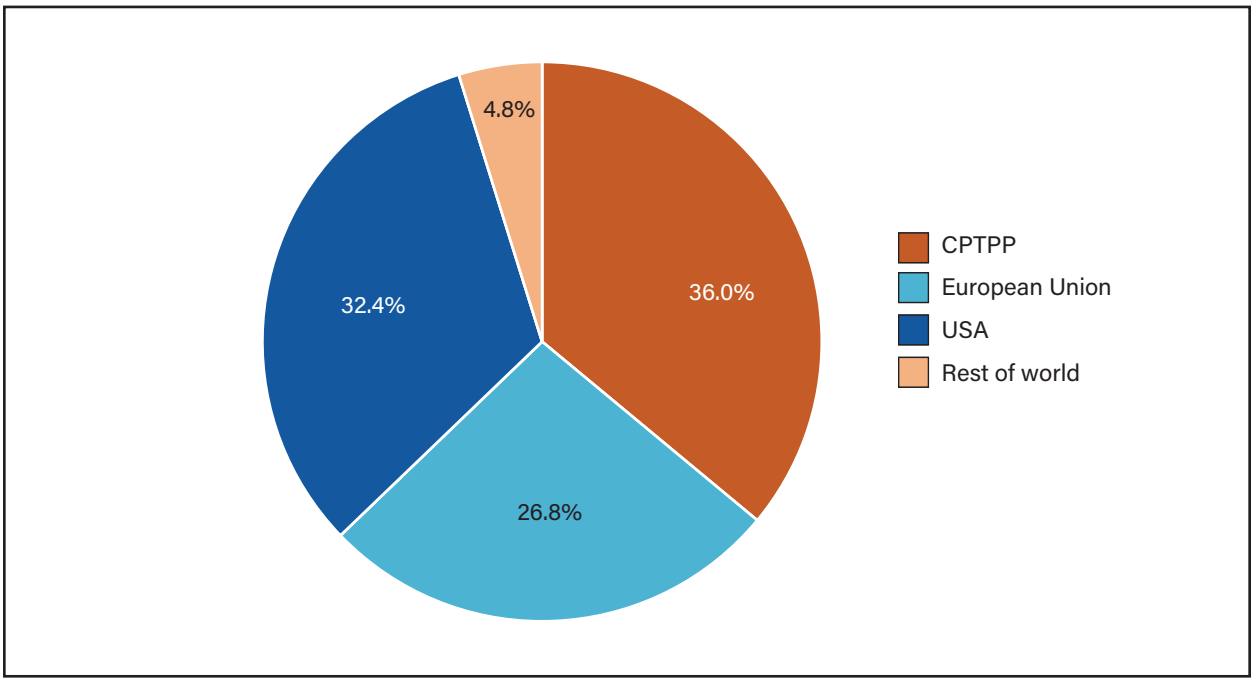
Figure 5
Major pork suppliers to Japan, 2000–21



Source: USDA, Economic Research Service using Trade Data Monitor data.

In 2020, the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) countries were the largest suppliers of pork products to Japan (figure 6), providing 36 percent ($1,967,591,978) of Japan's total pork imports (Trade Data Monitor, 2022). Canada and Mexico supply the bulk of the CCTPP contribution, as is shown in figure 5. In the same year, the United States provided 32.4 percent ($1,462,873,988) of Japan's total pork imports—and the European Union, led by Spain and Denmark, supplied 26.8 percent ($1,767,664,223).

Figure 6
Major pork exporting regions, 2020



CPTPP = Comprehensive and Progressive Agreement for Trans-Pacific Partnership; USA = United States of America.

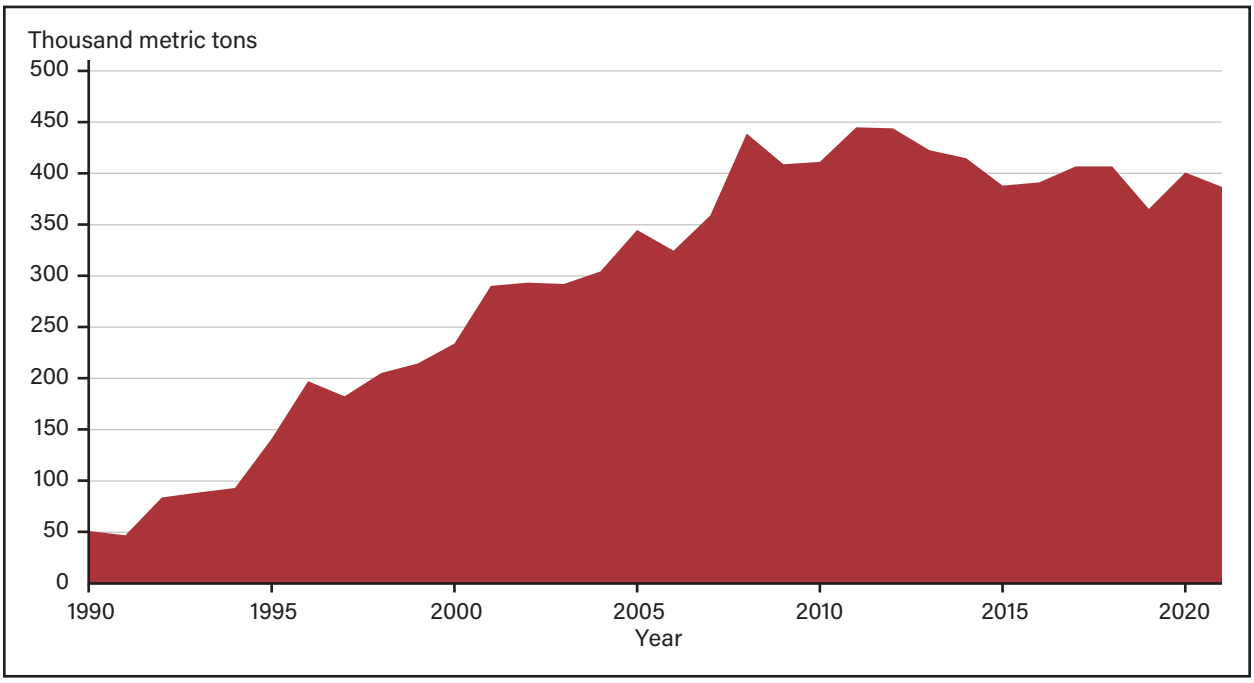
Source: USDA, Economic Research Service using Trade Data Monitor data.

Japan's Pork Imports From the United States

In 1970, Japan imported only 7,293 metric tons of pork (USDA, FAS, 2022a). However, with the evolution of chilled pork exports via ship (rather than cargo plane) in the 1980s, the costs associated with transporting pork were greatly reduced, allowing for greater shipment volumes on a per cost basis.[3] Another substantial change came in 1995 with the formation of the World Trade Organization (WTO), which led to Japan transitioning from a variable levy to a gate price tariff system for all WTO member countries. These developments, along with Japan's increase in pork consumption, cumulatively helped to open Japan's pork sector to international markets and led to a considerable increase in U.S. pork exports to Japan over the last 30 years (figure 7).

[3] See USDA, Foreign Agricultural Service's Global Agricultural Information Network (GAIN) report number JA9512 for more details.

Figure 7
Japanese pork imports from the United States (1990–2020)



Source: USDA, Economic Research Service using Trade Data Monitor data.

Main Categories of Japanese Pork Imports

Japanese pork imports can be grouped into three main categories: (1) carcasses and half-carcasses, (2) unprocessed meat cuts, and (3) processed pork products. The trade agreements Japan has implemented in the last 5 years will have varied impacts on imports from these three sectors due to differences in the gate price and safeguard policies that are applied. (See the section, Japan's Trade Agreements, on page 16 for more information).

Carcasses and Half-carcasses

While the United States has become the leading foreign provider of pork to Japan (USDA, FAS, 2022a), Japan's supply of pork carcasses and half-carcasses comes primarily from just one country in the European Union: Spain. Spain supplied more than 90 percent of all the products in this category to Japan from 2015 to 2021.[4] Furthermore, the United States exported products in this category in only 2 years from 2015 to 2021, gaining a market share of 6 percent in 2016 and 5 percent in 2017. Overall, the carcass segment (where the gate price is lowest) amounts to less than 1 percent of the total value of pork imports into Japan, with total imports of just $125,711 in 2021 (Trade Data Monitor, 2022).

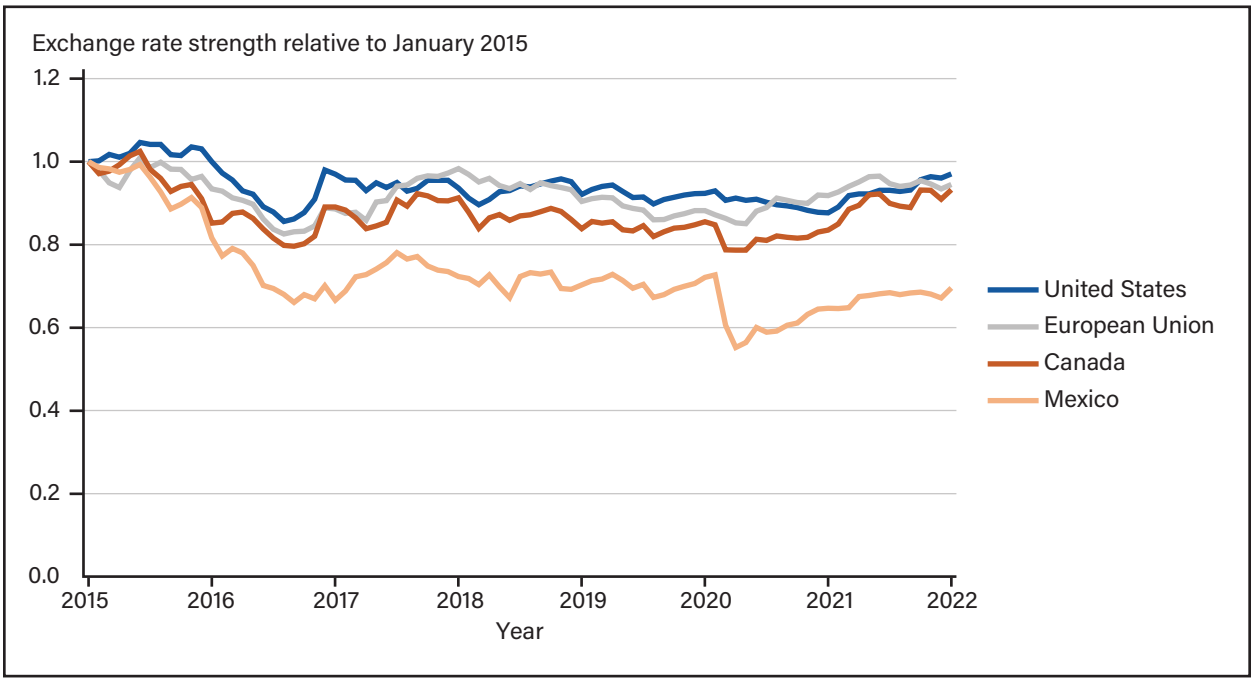
[4] Based on Trade Data Monitor data regarding Japanese pork imports.

Unprocessed Meat Cuts

The unprocessed meat cut segment is by far the largest of the three pork segments, accounting for 86 percent of all of Japan's pork imports. In fact, Japan imports more than $4.5 billion worth of non-processed meat cuts, and this market is much more diversified. In 2015, 33 percent of Japan's imports of such meat cuts were supplied by the European Union, and in 2021, the European Union supplied 30 percent. Meat cut imports from the United States accounted for 34 percent of the total in 2015 and 28 percent in 2021. Meat cut imports from Canada increased from 21 percent in 2015 to 26 percent in 2021, and imports from Mexico increased from 9 percent to 12 percent.

Part of the reason for the declining U.S. and EU shares and the increasing shares from Canada and Mexico might be changes in exchange rates over that period. To illustrate this, figure 8 shows each country's currency normalized to 1 in January 2015 and the monthly change in each currency's purchasing power relative to the Japanese yen to January 2022. This figure displays how the relative value of the currencies has changed over time and how the currencies of Canada and especially Mexico have weakened more significantly against the Japanese yen than the U.S. and EU currencies.

Figure 8
Monthly changes in exchange rates between various currencies and the Japanese yen relative to their exchange rate in January of 2015

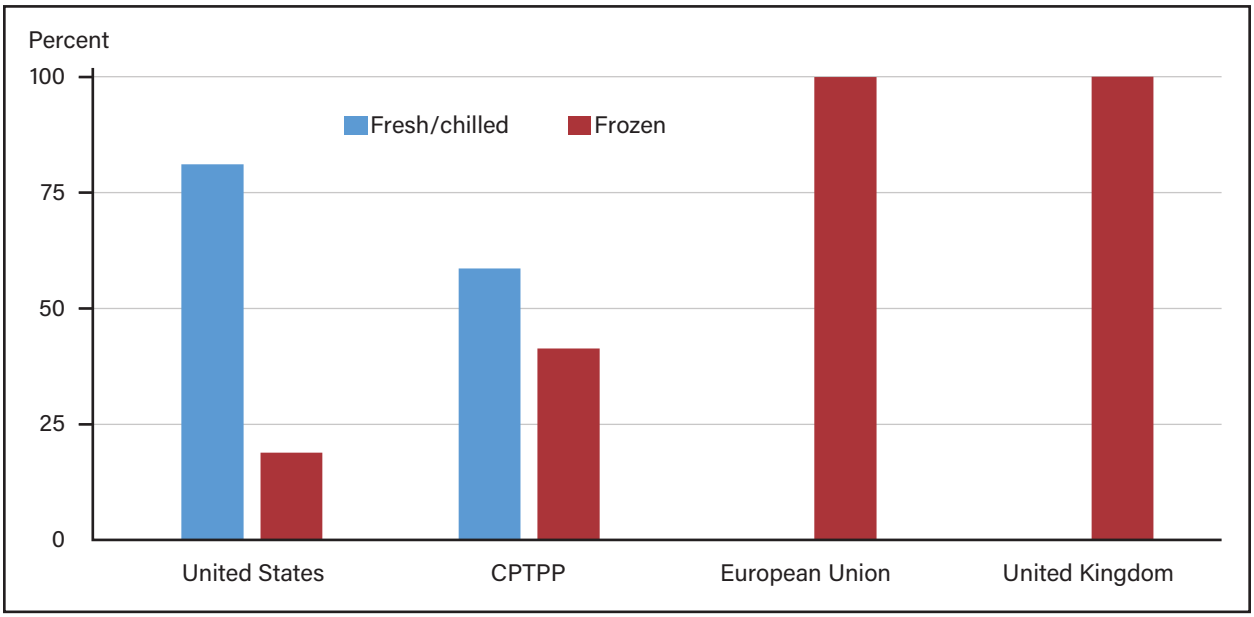


Source: USDA, Economic Research Service, Monthly Nominal Exchange Rates database.

An added complexity in the unprocessed meat cuts segment of the market is the fact that it contains both frozen and fresh/chilled goods, which is characterized by low substitutability. That means that the major meat-cut suppliers are sometimes not as much direct competitors as they are suppliers to different sectors of this market (figure 9). For example, 81.1 percent of U.S. exports in 2021 were of high-value fresh and chilled unprocessed meat (Trade Data Monitor, 2022) that has a limited shelf life and is primarily consumed by the hotel, restaurant, and institutional (HRI) sector. The remaining 18.9 percent of exports were low-value frozen goods that are largely used as inputs into goods that are further processed before being sold. Conversely, only 0.03 percent of the EU's exports were high-value fresh and chilled unprocessed meat, with 99.97 percent

being low-value frozen goods. The ratio for the United Kingdom was even more skewed, with 100 percent of its exports being frozen goods. Among the CPTPP countries, there is more balance: 58.6 percent of CPTPP exports were high-value fresh and chilled unprocessed meat, and 41.4 percent were low-value frozen goods.

Figure 9
Fresh/chilled and frozen share of unprocessed meat cuts exported to Japan, by trade agreement trading partner, 2021



CPTPP = Comprehensive and Progressive Agreement for Trans-Pacific Partnership.

Source: USDA, Economic Research Service using Trade Data Monitor data.

Processed Pork Products

The final pork segment is the processed pork products sector, a segment in which the United States is the dominant player (USDA, FAS, 2022a). In 2015, the United States supplied 53 percent of Japan's imports, and by 2021, the U.S. share had increased to 62 percent. In this sector, China is also a large player, supplying 15 percent of Japan's imports in 2015 but only 7 percent in 2021. While the United States held a dominant position in the processed pork product segment in 2021, this segment represented only 14 percent of Japan's pork import market, with Japan's global imports of processed pork products valued at $760 million (Trade Data Monitor, 2022).

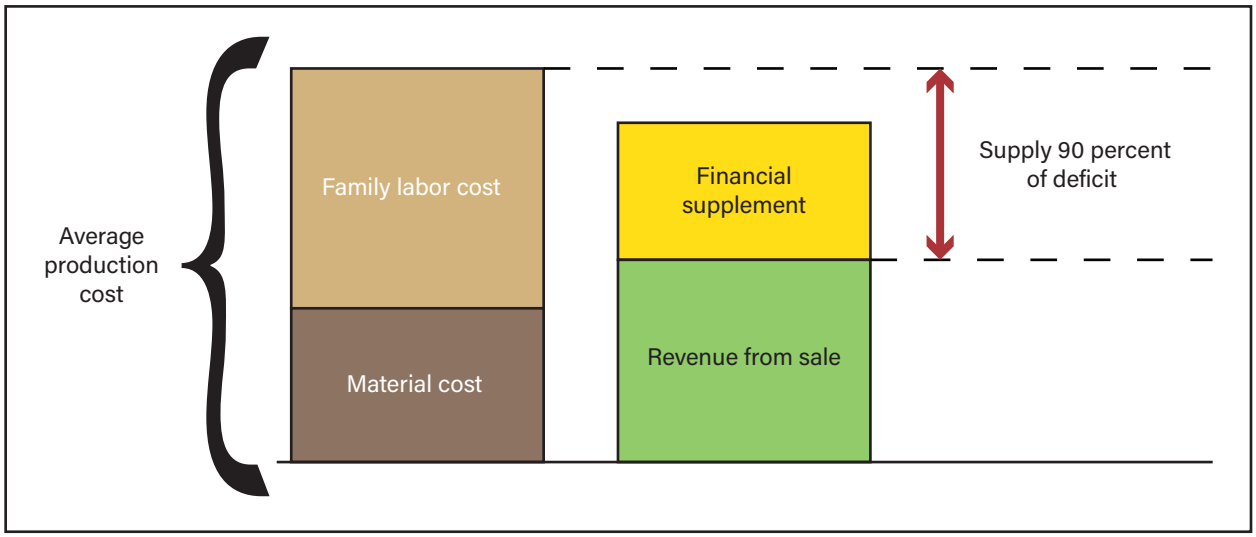
Japan's Pork Policies

Domestic Pork Policies

Japan utilizes several domestic policies to aid its pork sector, which are aimed at stabilizing the prices and incomes of domestic producers. For example, the Hog Growers Business Stabilization Program (also called Pork Marukin) is a loss coverage program (figure 10) that enables financial compensation to producers for price declines. The Pork Marukin program issues payments, as determined by the Japanese Government, when the quarterly average cost of production exceeds gross profit per hog. Payments come from a fund that

was originally comprised of contributions evenly split between the Government and producers, with each contributing 50 percent of the fund total. At that time, the fund paid 80 percent of the difference between production costs and income. With the adoption of the CPTPP in December 2018, Japan increased domestic subsidies provided by the Pork Marukin program. The fund now pays 90 percent of the difference between costs and revenue. The Government increased its fund contribution to 75 percent, while farms reduced their fund contributions to 25 percent.

Figure 10
Marukin stabilization measure for livestock producers



Source: USDA, Economic Research Service using information from the Japanese Ministry of Agriculture, Forestry and Fisheries.

To be eligible to receive fund payouts, a pork operation must have no more than 300 employees and a market cap of less than 300 million yen or approximately $2.73 million.[5] While large pork producers benefit from the program, these conditions limit the ability of these producers to offset the decline occurring in their domestic household operations. The program's fund is managed by an incorporated administrative agency, the Agriculture and Livestock Industries Corporation (ALIC). The most recent domestic support data provided to the WTO Committee on Agriculture indicate that in Japanese fiscal year[6] 2018, the Japanese Ministry of Agriculture, Forestry and Fisheries (MAFF) designated $100 million toward deficiency payments.

Payments under the Marukin program are conditional and typically not active on an annual basis. Payments for pork were last activated in March 2013 at 4,250 yen, or approximately $39 per head. Even if payments are not triggered, funding toward price stabilization is still provided from MAFF to ALIC, and the funding may be redirected if it is not used (Imaizumi, 2021). In 2018, MAFF provided 340 billion yen (or $3.1 billion) toward swine meat price stabilization. In the Japanese fiscal year 2021 budget, a total of 647 billion yen ($5.9 billion) was allocated to programs designated to improve Japanese livestock production.

[5] The 2021 nominal exchange rate (¥109.7558:$1) was used here and throughout this report for all yen/dollar conversions, based on the USDA, Economic Research Service, Monthly Nominal Exchange Rates database.

[6] Japan's fiscal year is from April 1 to March 31.

Japanese Border Policies

Gate Price System

Until its entry into the WTO, Japan used a variable levy system on pork imports to offer protection to its domestic producers. The variable levy was replaced in 1995 with a gate price system that Japan applied to pork imports from WTO member countries. The country's initial gate prices (for the 1995 calendar year) were reduced in yearly steps through 2000.[7] From 2000 onward, Japan's most-favored nation WTO gate price policy and the gate prices themselves have remained unchanged.

Japan's gate price policy serves to increase the overall tariff rate in certain situations and, in so doing, provides additional protection for Japan's domestic pork producers by further shielding the producers from international competition. When the value of pork being imported into Japan is at or above the gate price, gate price protections are not triggered, and the importer pays only the ad valorem tariff rate.[8] However, when the price of imported pork[9] is below the gate price, imports then face an additional tariff equal to the difference between the gate price and the import price.

Table 1 outlines the various pork products that are subject to the gate price policy and the specific gate price and ad valorem tariffs. As previously noted, there are three different categories of pork products that are subject to potential gate price levies: (1) carcasses and half-carcasses, (2) unprocessed meat cuts, and (3) processed pork products. Carcasses and half-carcasses face an ad valorem tariff of 4.3 percent and are subject to the gate price tariff if the import price is less than 393 yen per kilogram. For unprocessed meat cuts, the ad valorem tariff is also 4.3 percent. However, the price under which imports are subject to the gate price tariff is 524 yen per kilogram. Lastly, for processed pork products, the ad valorem tariff is 8.5 percent, and the gate price threshold is 897.59 yen per kilogram.

[7] This policy is outlined in detail in Obara et al. (2003).

[8] This tariff rate varies depending on the specific pork product. See table 1 for a detailed exposition of Japan's tariff rates and gate prices for pork products.

[9] Note that the import price used when implementing the gate price system is the "CIF price" (which is the cost, insurance, and freight price) and includes the costs associated with shipping and insuring the goods from port to port.

Table 1
Japan's gate price system for pork products

HS code	Description	Gate price (per kilogram)	Ad valorem tariff (percent)
Fresh or chilled			
0203.11	Carcasses and half-carcasses	¥393	4.3
0203.12	Meat of swine, hams, shoulders, and cuts thereof	¥524	4.3
0203.19	Other meat of swine	¥524	4.3
0206.30	Edible offal of swine	¥524	4.3
Frozen			
0203.21	Carcasses and half-carcasses	¥393	4.3
0203.22	Meat of swine, hams, shoulders, and cuts thereof	¥524	4.3
0203.29	Other meat of swine	¥524	4.3
0206.49	Edible offal of swine, except livers*	¥524	4.3
Processed			
0210.11	Meat of swine, hams, shoulders, and cuts thereof	¥897.59	8.5
0210.12	Meat of swine, bellies (bacon, etc.), and cuts thereof	¥897.59	8.5
0210.19	Other meat of swine	¥897.59	8.5
1602.41	Hams and cuts thereof*	¥897.59	8.5
1602.42	Shoulders and cuts thereof*	¥897.59	8.5
1602.49	Meat, meat offal, or mixtures of swine*	¥897.59	8.5

HS = Harmonized System; ¥ = Japanese yen.

*Certain subsets of these categories, while subject to ad valorem tariffs, are excluded from the gate price system.

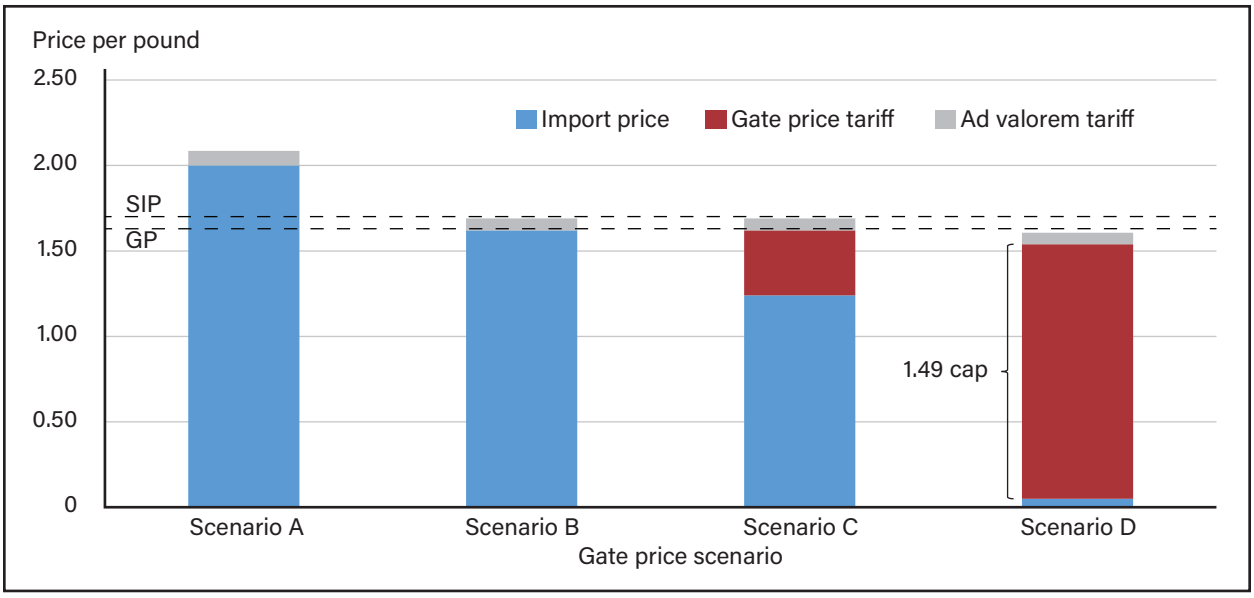
Source: USDA, Economic Research Service using data from the Japanese Ministry of Foreign Affairs, Economic Partnership Agreement and Related Initiatives web page.

For each shipment of pork imported into Japan, when the import price is below the gate price, the gate price and ad valorem tariffs are combined into one tariff. This is accomplished by mathematically generating a standard import price, which is equal to the gate price times one plus the ad valorem tariff rate. Thus, for carcasses and half-carcasses, the standard import price is 409.90 yen per kilogram (393 yen per kilogram times 1.043), and the standard import price for unprocessed meat cuts is 546.53 yen per kilogram (524 yen per kilogram times 1.043). For processed pork products, the standard import price is 973.89 yen per kilogram (897.59 yen per kilogram times 1.085). Using the 2021 nominal exchange rate of ¥109.7558 to $1, this equates to standard import prices of $1.69 per pound, $2.26 per pound, and $4.02 per pound, respectively. See figure 11 along with the description below for an illustration of this policy in practice, but please note that the figure is only an illustration and that the dollar-per-pound values will change as the dollar-to-yen exchange rate changes.

When the import price (per kilogram) of a shipment of pork is below the gate price (and thus both the gate price and ad valorem tariffs are levied), the value of the total levy is equal to the standard import price minus the pre-tariff import price. One important caveat is that there is a cap on the gate price tariff. For carcasses and half-carcasses, which have a gate price threshold of 393 yen per kilogram ($1.62 per pound), the maximum gate price levy is capped at 361 yen per kilogram ($1.49 per pound). For unprocessed meat cuts, which have a gate price threshold of 524 yen per kilogram ($2.17 per pound), the maximum gate price levy is capped at 482 yen per kilogram ($1.99 per pound). For processed pork products, which have a gate price threshold of 897.59 yen per kilogram ($3.71 per pound), the maximum gate price levy is capped at 614.85 yen per kilogram ($2.54 per pound).

Figure 11 provides an illustration of four potential gate price tariff scenarios using pork carcasses and half carcasses, which again face a 4.3 percent ad valorem tariff and are subject to the gate price tariff if the import price is less than 393 yen per kilogram ($1.62 per pound). In these scenarios, U.S. dollar values are used for simplicity. Scenario A depicts a shipment of carcasses imported at $2 per pound, which is above the $1.62 per pound gate price. Because the price of the shipment is above the gate price, no gate price tariff is levied, and the importer pays only the 4.3 percent ad valorem tariff (grey area). Scenario B depicts a shipment of carcasses imported at $1.62 per pound, which is exactly equal to the gate price. Here as well, the gate price tariff is not levied, and the importer pays only the 4.3-percent tariff (grey area). Note that the price paid by the importer in scenario B is equal to the standard import price, as the standard import price for pork carcasses is calculated by multiplying the gate price of $1.62 per pound by 1 plus the 4.3-percent tariff rate, which yields a standard import price of $1.69 per pound. Scenario C is a shipment of carcasses imported at $1.24 per pound. Since this price is below the gate price, the importer pays both the gate price tariff (orange area) and the ad valorem tariff (grey area). However, as previously stated, in practice this price is levied as one specific tariff equal to the difference between the standard import price and the value of the shipment. That price totals a specific tariff rate of $0.45 per pound ($1.69 per pound minus $1.24 per pound). Scenario D depicts a situation where a shipment of pork carcasses is imported at $0.05 per pound. In this case, the difference between the standard import price and the value of the shipment would be $1.64 per pound ($1.69 minus $0.05 per pound) but the gate price cap would limit the tariff assessed to $1.49 per pound.

Figure 11
Illustration of gate price policy for pork carcasses in Japan



GP = gate price; SIP = standard import price.

Note: There is a $1.49 per pound cap on the gate price. The $/pound values used here will change based on the U.S. dollar to Japanese yen exchange rate. This figure should be used only as an illustration of the gate price policy.

Source: USDA, Economic Research Service using information from the Japanese Ministry of Foreign Affairs, Economic Partnership Agreement and Related Initiatives web page.

In implementing the gate price system, the value of pork imports is assessed as the average value of all products within a shipping container. Thus, pork exporters mix different pork products in 40,000-pound containers in such a way that the average value of the shipment is at least equal to the gate price, which helps exporters avoid the gate price-driven tariffs and pay only the ad valorem tariffs. An additional important consideration is that all exporters of pork to Japan face the same yen gate price. As displayed in figure 8, exchange rates fluctuate in the global market, which changes the optimal mix of products per container.[10]

Japanese Domestic Pork Producer Safeguards and Special Safeguards

Japan has employed two safeguards to protect its domestic pork producers: (1) the safeguard and (2) the special safeguard.[11] These tools have allowed Japan to temporarily increase its pork import barriers under certain conditions. The safeguard was designed to be triggered when the import volume reached 119 percent of the average of the previous 3 years. The safeguard was assessed on a quarterly basis and, when triggered, increased the gate price from that quarter through the end of the fiscal year. However, once the fiscal year ended, the safeguard would fall off automatically, and the gate price would return to its original level.[12] Following ratification of the Japan-EU trade agreement and the CPTPP, the safeguard was changed to a double-trigger system in which there was one trigger for all countries (both trade agreement and non-trade agreement countries) and another trigger specifically for non-trade agreement countries. In this double-trigger system, both trigger conditions had to be met for the safeguard to take effect.[13] Once the USJTA was signed on October 7, 2019, however, the vast majority of Japan's pork imports came from trade agreement partner countries and so were covered by trade agreement-specific safeguard measures. Consequently, the safeguard was deemed unnecessary, and in December 2019, Japan announced that it would no longer apply the safeguard on imported pork from non-trade agreement WTO member countries (Imaizumi, 2019).

The other safeguard, the special safeguard, increases the ad valorem tariff by one-third of the initial tariff rate for the remainder of the fiscal year. For example, if triggered, the 4.3-percent tariff on fresh pork carcasses imported from non-trade agreement partners would increase to 5.7 percent (4.3 + (4.3/3) = 4.3 + 1.4 = 5.7). The trigger condition for the special safeguard is dependent on the import share of domestic consumption. If the import share of domestic consumption is 10 percent or less, then the special safeguard is triggered when import volume in the current year is greater than or equal to 1.25 times the average volume of imports over the previous 3 years. If the import share is 30 percent or less but above 10 percent, then the trigger condition is 110 percent. If the import share is above 30 percent, then the trigger condition is 105 percent. The special safeguard was last triggered in September 1996, but it is still in force for imports from non-trade agreement WTO member countries.

[10] This study is unable to analyze variables such as exchange rates, trade servicing, and product mixing because computable general equilibrium (CGE) models are not predictive of future exchange rates and the corresponding behavioral responses. Thus, the model results presented in this study are based on initial market conditions, tariff rate changes, and supply and demand elasticities.

[11] There is an additional safeguard measure available to Japan that is outlined in the Uruguay Round Agreement on Safeguards, but Japan has not utilized this measure for pork imports.

[12] If the safeguard was triggered in the fourth quarter, then the gate price would return to its original level at the end of the first quarter in the following fiscal year.

[13] See USDA, Foreign Agricultural Service's Global Agricultural Information Network (GAIN) report number JA9006 for more details.

Japan's Trade Agreements

From December 2018 to January 2021, Japan entered into trade agreements with the United States via the United States-Japan Trade Agreement (USJTA), the United Kingdom via the Japan-United Kingdom Comprehensive Economic Partnership Agreement (CEPA), 10 countries via the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP), and the European Union via the Japan-European Union Economic Partnership Agreement (JEFTA). One major outcome of these agreements is that the countries that signed these agreements with Japan are now subject to ad valorem tariff rates that are lower than the 4.3- and 8.5-percent WTO pork tariff rates. Table 2 shows the differences between Japan's WTO and trade agreement tariff rates for Japanese fiscal year 2022.[14]

Table 2
Japan's WTO and trade agreement pork tariffs and import policies for Japanese fiscal year 2022

HS code	Description	Ad valorem tariff	
		WTO	Trade agreement
Fresh or chilled			
0203.11	Carcasses and half-carcasses	4.3%	1.2%
0203.12	Hams, shoulders, and cuts thereof, bone in	4.3%	1.2%
0203.19	Other meat of swine	4.3%	1.2%
0206.30	Edible offal of swine	4.3%	1.2%
Frozen			
0203.21	Carcasses and half-carcasses	4.3%	1.2%
0203.22	Hams, shoulders, and cuts thereof, bone in	4.3%	1.2%
0203.29	Other meat of swine	4.3%	1.2%
0206.49	Edible offal of swine, except livers*	4.3%	1.2%
Processed			
0210.11	Hams, shoulders, and cuts thereof, bone in	8.5%	2.2%
0210.12	Bellies (bacon, etc.) and cuts thereof	8.5%	2.2%
0210.19	Other meat of swine	8.5%	2.2%
1602.41	Hams and cuts thereof*	8.5%	2.2%
1602.42	Shoulders and cuts thereof*	8.5%	2.2%
1602.49	Meat, meat offal, or mixtures of swine*	8.5%	2.2%

HS = Harmonized System; WTO = World Trade Organization.

*Certain subsets of these categories, while subject to ad valorem tariffs, are excluded from the gate price system.

Source: USDA, Economic Research Service using information from the Ministry of Foreign Affairs of Japan, Economic Partnership Agreement and Related Initiatives web page and Cabinet Secretariat of Japan, text of the Trans-Pacific Partnership.

These trade agreements will also lower the gate price tariffs and tariff caps over time. This sequenced "phase-out" of Japan's import barriers is intended to give Japan's domestic producers time to adjust to the increased competition they will face. Tables 3, 4, and 5 show the WTO tariffs and the sequence of the trade agreement tariff reductions for each of the product groups. By the end of the phase-out period (which is in Japanese fiscal year 2028 for each agreement), the ad valorem tariffs will have been eliminated, and the gate price tariffs and tariff caps will have been significantly reduced, if not eliminated. In fact, once Japan's trade agreements are fully phased in, the maximum gate price will be only 50 yen per kilogram (~$0.16 per pound), a result that should decrease the incentive for exporters to continue mixing products within a shipping container (discussed in the "Gate Price System" section that begins on page 12).

[14] Japan's fiscal year is from April 1 to March 31.

Table 3

Tariff schedule for pork carcasses and half-carcasses, 2021–28

Year*	Standard import price (per kilogram)	Gate price tariff cap (per kilogram)	Ad valorem duty (percent)
WTO countries			
2021–28	¥409.90	¥361.00	4.3
Trade agreement signatories			
2021	¥398.50	¥93.75	1.4
2022	¥397.72	¥52.50	1.2
2023	¥396.54	¥49.50	0.9
2024	¥395.75	¥46.50	0.7
2025	¥394.57	¥43.50	0.4
2026	¥393.79	¥40.50	0.2
2027	¥393.00	¥37.50	0.0
2028	¥393.00	¥37.50	0.0

WTO = World Trade Organization; ¥ = Japanese yen.

*Refers to a Japanese fiscal year, which runs from April 1 to March 31.

Note: Trade agreements include the U.S.-Japan Trade Agreement (USJTA), Japan-European Union Economic Partnership Agreement, Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP), and Japan-United Kingdom Comprehensive Economic Partnership Agreement.

Source: USDA, Economic Research Service using information from the USDA, Foreign Agricultural Service, Agricultural Tariff Tracker database and the Ministry of Foreign Affairs of Japan, Economic Partnership Agreement and Related Initiatives web page.

Table 4

Tariff schedule for unprocessed meat products, 2021–28

Year*	Standard import price (per kilogram)	Gate price tariff cap (per kilogram)	Ad valorem duty (percent)
WTO countries			
2021–28	¥546.53	¥482	4.3
Trade agreement signatories			
2021	¥531.34	¥125	1.4
2022	¥530.29	¥70	1.2
2023	¥528.72	¥66	0.9
2024	¥527.67	¥62	0.7
2025	¥526.10	¥58	0.4
2026	¥525.05	¥54	0.2
2027	¥524.00	¥50	0.0
2028	¥524.00	¥50	0.0

WTO = World Trade Organization; ¥ = Japanese yen.

*Refers to a Japanese fiscal year, which runs from April 1 to March 31.

Note: Trade agreements include the U.S.-Japan Trade Agreement (USJTA), Japan-European Union Economic Partnership Agreement (JEFTA), Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP), and Japan-United Kingdom Comprehensive Economic Partnership Agreement (CEPA).

Source: USDA, Economic Research Service using information from the USDA, Foreign Agricultural Service, Agricultural Tariff Tracker database and the Ministry of Foreign Affairs of Japan, Economic Partnership Agreement and Related Initiatives web page.

Table 5
Tariff schedule for processed pork products, 2021-28

Year*	Gate price tariff formula	Gate price tariff cap	Ad valorem duty (percent)
WTO countries			
2021–28	973.89 ¥/kg - CIF	¥614.85/kg	8.5
Trade agreement signatories			
2021	(81.2% of CIF Price + 192.75 ¥/kg) - CIF	¥192.75/kg	2.7
2022	(85.0% of CIF Price + 154.38 ¥/kg) - CIF	¥154.38/kg	2.2
2023	(87.5% of CIF Price + 128.65 ¥/kg) - CIF	¥128.65/kg	1.8
2024	(89.9% of CIF Price + 102.91 ¥/kg) - CIF	¥102.91/kg	1.4
2025	(92.5% of CIF Price + 77.19 ¥/kg) - CIF	¥77.19/kg	1.1
2026	(95.0% of CIF Price + 51.46 ¥/kg) - CIF	¥51.46/kg	0.7
2027	(97.4% of CIF Price + 25.72 ¥/kg) - CIF	¥25.72/kg	0.3
2028	N/A	¥0.00/kg	0.0

CIF = cost, insurance, and freight; N/A = not applicable; WTO = World Trade Organization; ¥/kg = yen per kilogram.

*Refers to a Japanese fiscal year, which runs from April 1 to March 31.

Note: Trade agreements include the U.S.-Japan Trade Agreement (USJTA), Japan-European Union Economic Partnership Agreement (JEFTA), Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP), and Japan-United Kingdom Comprehensive Economic Partnership Agreement (CEPA).

Source: USDA, Economic Research Service using information from the USDA, Foreign Agricultural Service, Agricultural Tariff Tracker database and the Ministry of Foreign Affairs of Japan, Economic Partnership Agreement and Related Initiatives web page.

Trade Agreement-Specific Safeguard Mechanisms

Like the original WTO safeguards, Japan's trade agreement-specific safeguards are only triggered when certain conditions are met. For example, for carcasses/half-carcasses and unprocessed meat cuts (table 6) in Japanese fiscal year 2021, Japan would apply its trade agreement safeguard if pork imports exceeded 116 percent of the largest annual import volume from the previous 3 years. This trigger condition applies to Japan's trade agreement partners separately. In other words, if Japan's pork imports from the United States exceed 116 percent of the previous 3-year high, but pork imports from CPTPP countries do not, then the safeguard is applied to imports from the United States but not to imports from CPTPP countries.

After Japanese fiscal year 2021, the safeguard trigger conditions are dependent on threshold prices. Specifically, Japan may apply its safeguard on pork imported at or above the threshold price if the volume of pork imports exceeds 116 percent (for Japanese fiscal year 2022 and 2023) or 119 percent (for Japanese fiscal year 2024–28) of the largest import volume from the previous 3 years. This over-threshold trigger condition applies to Japan's trade agreement partners separately. However, for pork imported below the threshold price, Japan may apply its safeguard if aggregate pork imports (U.S. and CPTPP combined imports or EU and UK combined imports) exceed the specified volume for that fiscal year. For example (in Japanese fiscal year 2022), if a shipment of pork is imported from the United States below the threshold price, then Japan may apply its safeguard to that shipment if the year-to-date aggregate volume of pork imported from the United States and CPTPP countries exceeds 90,000 metric tons.[15] Similarly, the threshold trigger condition for EU and

[15] Office of the U.S. Trade Representative (USTR) Fact Sheet on Provisions of the U.S.-Japan Trade Agreement, Pork and Pork Products.

UK pork imports is dependent on Japan's aggregate volume of imports from the European Union and United Kingdom in that fiscal year.

Table 6
Trade agreement safeguard triggers for carcasses/half-carcasses and unprocessed meat cuts, 2021–29

Year*	Safeguard trigger		
2021	116 percent of largest volume in previous 3 years		
	Price < Threshold price		Price ≥ Threshold price
	USA and CPTPP**	EU and UK**	
2022	90,000 metric tons	63,000 metric tons	116 percent of the largest volume in previous 3 years
2023	102,000 metric tons	71,400 metric tons	
2024	114,000 metric tons	79,800 metric tons	119 percent of the largest volume in previous 3 years
2025	126,000 metric tons	88,200 metric tons	
2026	138,000 metric tons	96,600 metric tons	
2027	150,000 metric tons	105,000 metric tons	
2028	150,000 metric tons	105,000 metric tons	
2029	N/A		

CPTPP = Comprehensive and Progressive Agreement for Trans-Pacific Partnership; EU = European Union; UK = United Kingdom; USA = United States of America; N/A = not applicable.

*Refers to a Japanese fiscal year, which runs from April 1 to March 31.

**Combined import volume.

Notes: Trade agreements include the U.S.-Japan Trade Agreement (USJTA), Japan-European Union Economic Partnership Agreement (JEFTA), Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP), and Japan-United Kingdom Comprehensive Economic Partnership Agreement (CEPA). Threshold prices: 399 yen per kilogram for unprocessed meat cuts and 299.25 yen per kilogram for carcasses and half-carcasses.

Source: USDA, Economic Research Service using information from the USDA, Foreign Agricultural Service, Agricultural Tariff Tracker database.

If the trade agreement safeguard is triggered, then the tariffs increase, but which over-safeguard tariff is applied (gate price or ad-valorem) depends on the import price (including cost, insurance, and freight (CIF)) (table 7). Specifically, if the import price is greater than or equal to the gate price, then the only change is that the ad valorem tariff increases. For example, if the safeguard is triggered in Japanese fiscal year 2022 and the import price is greater than or equal to the gate price, then the ad valorem tariff rate would increase from 1.2 to 3.4 percent. If, however, the CIF price is below the gate price when the safeguard is triggered—then the gate price and (depending on the year) the gate price cap would increase. Again, using Japanese fiscal year 2022 numbers, the gate price for carcasses and non-carcasses would increase from 397.72 to 406.36 yen per kilogram, and the gate price cap would increase from 52.50 to 75 yen per kilogram.

Table 7

Trade agreement over-safeguard schedule for carcasses/half-carcasses and unprocessed meat cuts, 2021–29

	12	CIF < GP			
		Unprocessed meat cuts		Carcasses and half-carcasses	
Year*	Ad valorem duty (percent)	Gate price (¥/kg)	Cap (¥/kg)	Gate price (¥/kg)	Cap (¥/kg)
2021	3.4	541.82	125	406.36	93.75
2022	3.4	541.82	100	406.36	75
2023	3.4	541.82	100	406.36	75
2024	2.8	538.67	100	404.0	75
2025	2.8	538.67	100	404.0	75
2026	2.8	538.67	100	404.0	75
2027	2.2	535.53	70	401.65	52.5
2028	2.2	535.53	70	401.65	52.5
2029	0.0	N/A	0.0	N/A	0.0

CIF = cost, insurance, and freight inclusive price; N/A = not applicable; GP = gate price; ¥/kg = yen per kilogram.

*Refers to a Japanese fiscal year, which runs from April 1 to March 31.

Note: Trade agreements include the U.S.-Japan Trade Agreement (USJTA), Japan-European Union Economic Partnership Agreement, Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP), and Japan-United Kingdom Comprehensive Economic Partnership Agreement.

Source: USDA, Economic Research Service using information from the USDA, Foreign Agricultural Service, Agricultural Tariff Tracker database.

For processed pork products, table 8 outlines Japan's trade agreement-specific special safeguard policy and the phase-out of its ad valorem and over-safeguard tariff rates through Japanese fiscal year 2028 for these products.

Table 8

Trade agreement special safeguard and ad valorem tariff rates for processed pork products, 2020–29

Year*	Ad valorem duty (percent)	Safeguard trigger	Over-safeguard duty (percent)
2020	3.20	118% of largest volume in previous 3 years	7.20
2021	2.70	118% of largest volume in previous 3 years	7.20
2022	2.20	118% of largest volume in previous 3 years	5.10
2023	1.80	118% of largest volume in previous 3 years	5.10
2024	1.40	121% of largest volume in previous 3 years	5.10
2025	1.10	121% of largest volume in previous 3 years	5.10
2026	0.70	121% of largest volume in previous 3 years	5.10
2027	0.30	121% of largest volume in previous 3 years	3.80
2028	0.00	121% of largest volume in previous 3 years	3.80
2029	0.00	N/A	0.00

N/A = not applicable.

*Refers to a Japanese fiscal year, which runs from April 1 to March 31.

Source: USDA, Economic Research Service using information from the USDA, Foreign Agricultural Service, Agricultural Tariff Tracker database.

Modeling the Impact of Reductions in Japan's Pork Tariffs

To get an understanding of how the changes negotiated in these various trade agreements will cumulatively affect the Japanese pork market, a computable general equilibrium (CGE) model called the Global Trade Analysis Project (GTAP) model (Aguilar et al., 2019) was used for this report. One difficulty in using this model for this analysis was that the default GTAP sector that contains pork also contains other meats such as the meat of poultry and rabbits. To deal with this issue, this sector was divided into four subsectors: (1) pork carcasses and half-carcasses, (2) unprocessed pork meat cuts, (3) processed pork products, and (4) non-pork products. This was done using the SplitCom program (Horridge, 2008), which takes user-supplied information on production and trade and rebalances the database.

A medium-run setup was used in GTAP (where capital and labor are mobile and able to switch between sectors) that approximates an 8- to 10-year timeframe. This report looks forward and tries to assess the situation in Japanese fiscal year 2028, when each of the four major trade agreements will have reduced ad valorem, gate price, and safeguard tariffs to virtually zero for signatory countries. Given that the trade agreements entered into force across multiple years,[16] the last year before the first trade agreement entered into force (2018) served as the base year for the analysis. While tariffs for other products will also change due to the trade agreements, in this analysis, these tariffs were held constant so that the effect of the pork market changes could be isolated.[17] As such, the results likely overestimate the impacts of the trade agreements since (for example) beef tariffs will also be lowered, and those changes may affect the demand for pork.

Another issue with modeling the impact of these changes is that it is difficult to derive an effective tariff equivalent for the gate price system. Previous modeling work done by USDA's Economic Research Service (in collaboration with Pennsylvania State University) estimated the effective tariff (gate price + 4.3 percent ad valorem tariff) to be in the 15- to 25-percent range (Obara, 2003). That tariff would put the gate price alone at between 10.7 and 20.7 percent. Given that background, the estimated impact of the trade agreement-related changes with the gate price policy equated to the lower bound, a 10-percent ad valorem tariff. Additionally, an alternate scenario where the tariff equivalent to the gate price system was assumed to roughly equal the midpoint of the previous estimate (a 15-percent ad valorem tariff) was also tested for this report, and the results are presented in the appendix. A final simulation, which uses the 10 percent ad valorem tariff, estimates the impacts of the trade agreement-related changes if the U.S.-Japan Trade Agreement (USJTA) had not been ratified.

In the first 10-percent tariff-equivalent scenario, this study estimates that (by Japanese fiscal year 2028) the trade agreement-induced tariff changes will lead to a decrease in Japan's domestic pork production between 4.2 and 11.8 percent across the three pork categories (table 9). The United Nations' Food and Agriculture Organization reported that Japan produced 1,284,213 tons of meat in 2018. Using that volume, the level of production for Japanese fiscal year 2028 is estimated to be between 1,132,804 and 1,230,790 tons, which

[16] The CPTPP entered into force on December 30, 2018, the EU-Japan Trade Agreement on February 1, 2019, the U.S.-Japan Trade Agreement on January 1, 2020, and the UK-Japan Trade Agreement on January 1, 2021.

[17] For this work, the authors note, as have others (e.g., Plevin et al., 2015), that the Armington parameter is very important. This parameter, which governs the substitutability among domestic and imported products, is by default set to 4.4. However, Kee et al. (2004) estimated a smaller import elasticity for pork relative to poultry. This value averages to be around 2.0, which is the value used in this work. Using the 4.4 value leads to larger production losses and import gains for Japan. For example, the difference in processed pork products is -30.2 percent, using 4.4 and -11.8 percent for the value of 2.0. The smaller Armington elasticity is more along the lines of the Marukin program, which might limit Japan's decrease in production. There are likely differences in import demand among the four sub-sectors of pork used in this work, but varying this elasticity leads to somewhat unrealistic results (for example, some of the individual elasticities from Kee et al. (2004) are positive while some are negative for the sub-sectors).

amounts to a reduction of between 53,423 and 151,409 tons from 2018. Conversely, we estimate that pork imports into Japan will increase between 3.6 and 13.9 percent, depending on the commodity. That translates to an increase in carcass and half-carcass imports of 0.27 tons, with increases in non-processed and processed meat imports of 115,845 and 29,825 tons, respectively.

Table 9
Estimated effect of trade agreements on Japan's pork production and imports, 2018–28

	Production (percent)	Imports (percent)
Carcasses and half-carcasses	-4.2	3.6
Unprocessed meat cuts	-11.6	12.2
Processed pork products	-11.8	13.9

Note: The gate price is assumed to be equivalent to a 10-percent ad valorem tariff.

Source: USDA, Economic Research Service using the Global Trade Analysis Project (GTAP) model.

The four trade agreements are expected to positively affect the volume of pork exported to Japan (table 10). The United States gains the most, in monetary terms, with pork exports to Japan increasing by approximately $281 million. The European Union has the next largest increase at $244.5 million, and the gain is roughly $232.8 million for CPTPP countries collectively. Finally, the United Kingdom (the smallest player among the four groups) is expected to increase its unprocessed meat cut exports, the only products that it exports to Japan, by $206,302.

Table 10
Increases in pork product exports to Japan due to trade agreements, by category and trade partner, 2018–28

Trade partner	USA	EU	CPTPP	UK
Carcasses and half-carcasses	$0	$3,220	$88	$0
Unprocessed meat cuts	$168,644,92	$201,337,922	$210,515,57	$206,302
Processed pork products	$112,326,78	$43,116,712	$22,271,969	$0
Total	**$280,971,713**	**$244,457,854**	**$232,787,636**	**$206,302**

CPTPP = Comprehensive and Progressive Agreement for Trans-Pacific Partnership; EU = European Union; UK = United Kingdom; USA = United States of America.

Note: The gate price is assumed to be equivalent to a 10-percent ad valorem tariff.

Source: USDA, Economic Research Service using Trade Data Monitor data and the Global Trade Analysis Project (GTAP) model.

Model results also indicate that the USJTA, which was the last trade agreement to enter into force, will keep the United States competitive with the signatories of the other three trade agreements and allow the country to maintain its share of Japan's pork import market. This result can be seen by comparing the estimates in table 11, which provides the results from the scenario in which the USJTA did not come into force, to the estimates given in table 10. Without the USJTA, U.S. pork exports would decrease by $385.9 million from the value exported in 2018. This is a decrease of more than $666.9 million from the estimated value in Japanese fiscal year 2028 with the USJTA. The EU and CPTPP countries would capture most of the U.S. loss, with their Japanese fiscal year 2028 pork exports increasing by an additional $288.2 million and $271.6 million, respectively, relative to the estimated value with the USJTA in force.

Table 11

Increases in pork product exports to Japan due to trade agreements, by category and partner region, 2018–28 (assuming USJTA was not ratified)

	USA	EU	CPTPP	UK
Carcasses and half-carcasses	$0	$3,304	$91	$0
Unprocessed meat cuts	-$325,076,739	$432,899,781	$452,819,334	$443,732
Processed pork products	-$60,838,785	$99,789,968	$51,556,776	$0
Total	**-$385,915,524**	**$532,693,052**	**$504,376,201**	**$443,732**

CPTPP = Comprehensive and Progressive Agreement for Trans-Pacific Partnership; EU = European Union; UK = United Kingdom; USA = United States of America; USJTA = U.S.-Japan Trade Agreement.

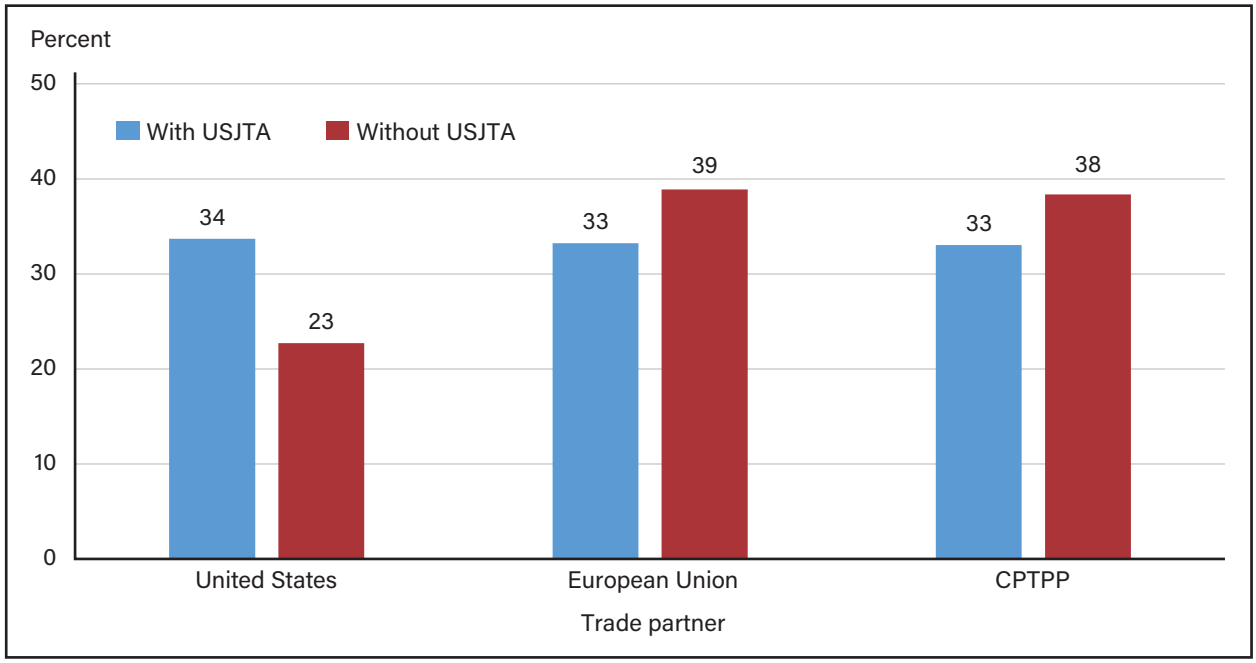
Note: The gate price is assumed to be equivalent to a 10-percent ad valorem tariff.

Source: USDA, Economic Research Service using Trade Data Monitor data and the Global Trade Analysis Project (GTAP) model.

Moreover, the relative pork market shares of the EU, United States, and CPTPP countries are greatly altered in this scenario (figure 12). Model results indicate that, had the United States not ratified the USJTA, it would have lost 11 percentage points of market share.

Figure 12

Effect of USJTA on 2028 shares of Japan's pork imports, by trade partner



CPTPP = Comprehensive and Progressive Agreement for Trans-Pacific Partnership; USJTA = U.S.-Japan Trade Agreement.

Note: The gate price is assumed to be equivalent to a 10-percent ad valorem tariff.

Source: USDA, Economic Research Service using Trade Data Monitor data and the Global Trade Analysis Project (GTAP) model.

Impacts on Consumer Well-Being

These changes can also be viewed through the lens of the overall impact on consumer well-being, or societal welfare, of each party to these trade agreements. Results can be thought of as showing whether consumer well-being will be helped or harmed by the changes in the trade agreements. For a more detailed explanation of this term, please see the box, "Understanding the GTAP Model's Measure of Consumer Well-Being."

Understanding the GTAP Model's Measure of Consumer Well-Being

Consumer well-being (aka societal welfare) in the Global Trade Analysis Project (GTAP) model is a measurement of equivalent variation, which can be broken down into changes in (1) allocative efficiency, (2) terms of trade, (3) endowments, and (4) the ability to attract foreign investment. In brief, equivalent variation measures the degree that income would have to be changed to provide as much benefit to consumers as from the price changes driven by the tariff reductions in the trade agreements. In other words, it measures how much money these trade agreements have given to or taken away from the people in each region. It should not be mistaken for gross domestic product, which is a measure of production and investment (Dynan and Sheiner, 2018).

In the 10-percent tariff equivalent scenario with all four trade agreements in force, the authors estimate that (by Japanese fiscal year 2028) the free trade agreement-induced changes will lead to increases in consumer well-being (table 12) for Japan, the United States, the CPTPP countries, and the European Union of $115.7 million, $59.3 million, $32.8 million, and $17.8 million, respectively.

Table 12
Effect of trade agreements on consumer well-being, 2018-28

	Change in consumer well-being (millions of U.S. dollars)
Japan	115.7
United States	59.3
CPTPP	32.8
European Union	17.8
United Kingdom	-4.5

CPTPP = Comprehensive and Progressive Agreement for Trans-Pacific Partnership.
Source: USDA, Economic Research Service using the Global Trade Analysis Project (GTAP) model.

For Japan, this gain is driven in part by the reduction in distortionary tariff impacts and, thus, deadweight loss, which should make the Japanese pork market more efficient. The gain is also driven by the benefit Japanese consumers accrue from lower market prices for pork (table 13). The gains for the United States, CPTPP countries, and the European Union are due to changes in the terms of trade with Japan and the increased volume of pork exports to Japan. The United Kingdom is the only country that is estimated to see a decline in consumer well-being ($4.5 million). In spite of having a new trade agreement, the UK's pork export prices are estimated to decline, thus reducing the country's welfare.

Table 13
Effect of trade agreements on the market price of pork in Japan in 2028

	Change in price (percent)
Carcasses and half-carcasses	-8.5
Unprocessed meat cuts	-1.3
Processed pork products	-1.3

Source: USDA, Economic Research Service using the Global Trade Analysis Project (GTAP) model.

In the 10-percent tariff equivalent scenario without the USJTA, this study estimates that the largest increases in consumer well-being will be in the CPTPP countries and the European Union (table 14), which should see gains of $93.8 million and $77.7 million, respectively. These are increases of $61.0 million and $59.9 million, respectively, higher than would be estimated with the USJTA in force. Japan is also estimated to see a welfare increase ($37.3 million), but that gain is $78.4 million less than the gain with the USJTA in force. The United Kingdom would see a slightly smaller decline in social welfare than it would with the USJTA in force ($3.8 million). The country with the biggest decline would be the United States, which would experience a welfare loss of $125.0 million. That loss represents a decrease in consumer well-being of $184.3 million relative to the scenario with the USJTA in place. These measures of consumer well-being suggest that both the United States and Japan improved their respective welfare by signing the USJTA.

Table 14
Effect of trade agreements on consumer well-being, 2018–28 (assuming USJTA was not ratified)

	Change in consumer well-being (millions of U.S. dollars)
CPTPP	93.8
European Union	77.7
Japan	37.3
United Kingdom	-3.8
United States	-125.0

CPTPP = Comprehensive and Progressive Agreement for Trans-Pacific Partnership; USJTA = U.S.-Japan Trade Agreement.

Source: USDA, Economic Research Service using the Global Trade Analysis Project (GTAP) model.

Conclusion

Japan produces approximately 50 percent of the pork that it consumes through domestic production (USDA, FAS 2022a). This is, in part, due to import barriers that have helped to shield domestic pork producers from foreign competition. From 2018 to 2020, however, Japan ratified trade agreements with all of its major foreign pork suppliers, which will reduce Japan's import barriers in annual steps through Japanese fiscal year 2028. Domestic pork producers are likely to face increased competition from foreign competitors, which will put downward pressure on Japan's pork industry and could potentially reduce the number of Japanese household operations working in the industry.

With essentially all of Japan's pork imports originating in trade agreement partner countries, the future of Japan's pork market will be strongly influenced by its border policies outlined in these agreements. This report summarizes the changes to Japan's gate price tariffs and safeguard mechanisms outlined in these various trade agreements and estimates the impacts of the changes up to their culmination in Japanese fiscal year 2028,

after which ad valorem tariff rates will be zero percent, gate price tariffs will be significantly reduced, and safeguards will be removed. These estimates are performed using the Global Trade Analysis Project (GTAP) model. Using 2018 (the year before the earliest trade agreement) as a base year, three scenarios were analyzed: (1) assuming in the base year that the gate price is equivalent to a 10-percent ad valorem tariff, (2) assuming in the base year that the gate price is equivalent to a 10-percent ad valorem tariff and assuming that the USJTA was not ratified, and (3) assuming in the base year that the gate price is equivalent to a 15-percent ad valorem tariff.

In scenario 1, the model suggests that the reductions in import barriers outlined in Japan's trade agreements will precipitate an increase in Japanese pork imports from 3.6 to 13.9 percent (depending on the pork product category). This scenario also suggests that increased exposure to foreign competition will reduce domestic pork production by up to 11.8 percent. Since the United States is the top feed grain exporter to Japan, supplying 24.6 percent of all such imports in 2021 (Trade Data Monitor, 2022), this decrease in Japan's domestic pork production may have a sizable impact on U.S. feed grain exports. An intriguing future study could compare the losses of U.S. feed grain exporters with the gains of U.S. pork exporters. Pork producers in Japan's trade agreement partner countries benefit—as the value of pork exports to Japan increase by as little as $206,000 for UK exports to as much as $281 million for U.S. exports by Japanese fiscal year 2028. Though Japan's domestic pork producers will face increased competition from foreign competitors, the increased availability of lower-priced foreign pork should prove beneficial to Japanese consumers, increasing societal well-being by an estimated $115.7 million. Scenario 2 shows similar changes for Japan's domestic pork production and imports but with U.S. competitors gaining much of the U.S. market share in Japan's pork import market. In this scenario, the value of U.S. pork exports to Japan is estimated to be $666.9 million lower in Japanese fiscal year 2028 than exports would be with the USJTA in force (a result that highlights the importance of the USJTA to U.S. pork producers). The trade agreement impacts from the third scenario are slightly larger than the impacts from the first scenario, which is expected, as scenario three assumes a larger 15-percent tariff equivalent in the base year.

The results of this report show how international trade can impact domestic markets. Japan has moved to decrease its trade barriers, which will ultimately affect domestic pork production and the price that Japanese consumers pay. There are trade-offs in any trade deal, however, and Japan will benefit from the CPTPP, USJTA, Japan-EU EPA, and Japan-UK EPA trade agreements with an increase in export potential for products in which Japan has a comparative advantage in producing and/or increased access through trade agreement terms. For example, in the USJTA, the United States will have increased access to Japan's agricultural products, such as green tea, soy sauce, and industrial goods, of which Japan is a major exporter. In addition, this report's results highlight the importance of trade agreements in maintaining, or even growing, market share for the United States. Japan is the third largest agricultural export market for the United States. However, Japan has ratified several trade agreements that, without the USJTA, would have decreased the U.S. share of Japan's markets and would have also reduced Japanese welfare by $78.4 million. Thus, it appears that both the United States and Japan had strong incentives to bring the USJTA into effect, and that trade agreements are implemented both as reactionary measures to preserve existing market share and as proactive measures to expand markets.

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Appendix

GTAP Modeling: 15-Percent Tariff Equivalent Scenario

When running the Global Trade Analysis Project (GTAP) model (using 15 percent as the gate price tariff equivalent), Japan's domestic pork production shrinks by an additional 1.4 to 3.7 percentage points relative to the 10-percent tariff equivalent scenario, resulting in a total reduction in pork production between 5.6 and 15.3 percent (table A.1) by Japanese fiscal year 2028. Pork imports into Japan add an extra 1.3 to 4.3 percentage points for a total increase of between 4.9 and 18.1 percent.

Table A.1
Estimated effect of trade agreements on Japan's pork production and imports, 2018–28

	Production (percent)	Imports (percent)
Carcasses and half-carcasses	-5.6	4.9
Unprocessed meat cuts	-15.3	16.5
Processed pork products	-14.8	18.1

Note: The gate price is assumed to be equivalent to a 15-percent ad valorem tariff.

Source: USDA, Economic Research Service using United Nation's Food and Agriculture Organization data and the Global Trade Analysis Project (GTAP) model.

Pork exports from Japan's trade agreement partner countries increase even more under this scenario (table A.2). The United States gains the most, with pork exports increasing by an additional $88.6 million relative to the 10-percent tariff equivalent scenario, for a total increase of $369.5 million. Pork exports from the European Union to Japan increase an additional $81.7 million, while exports from CPTPP countries increase an additional $79.5 million. Finally, the United Kingdom gains an extra $72.1 thousand over the 10-percent tariff equivalent scenario.

Table A.2
Increases in pork product exports to Japan due to trade agreements, by category and partner region, U.S. dollars, 2018–28

	USA	EU	CPTPP	UK
Carcasses and half-carcasses	0	4,338	119	0
Unprocessed meat cuts	227,631,673	271,705,448	284,147,376	278,405
Processed pork products	141,905,000	54,466,376	28,136,688	0
Total	**369,536,673**	**326,176,162**	**312,284,183**	**278,405**

CPTPP = Comprehensive and Progressive Agreement for Trans-Pacific Partnership; EU = European Union; UK = United Kingdom; USA = United States of America.

Note: The gate price is assumed to be equivalent to a 15-percent ad valorem tariff.

Source: USDA, Economic Research Service using Trade Data Monitor data and the Global Trade Analysis Project (GTAP) model.

When the overall impact of these free trade agreement-induced changes on consumer well-being is examined, only the United Kingdom is estimated to experience a decline in welfare (table A.3). Japan is estimated to see the largest increase, $173.4 million. This increase is driven by the reduction in distortionary tariff impacts and lower market prices for pork (table A.4). The United States, CPTPP countries, and the European Union see gains of $74.1 million, $41.8 million, and $22.4 million, respectively—which are due to the improved terms of trade with Japan and the increased volume of pork exports.

Table A.3
Effect of trade agreements on consumer well-being, 2018-28

	Change in consumer well-being (millions of U.S. dollars)
Japan	173.4
United States	74.1
CPTPP	41.8
European Union	22.4
United Kingdom	-5.8

CPTPP = Comprehensive and Progressive Agreement for Trans-Pacific Partnership.

Source: USDA, Economic Research Service using the Global Trade Analysis Project (GTAP) model.

Table A.4
Effect of Trade Agreements on market prices of pork in Japan in 2028

	Change in price (percent)
Carcasses and half-carcasses	-11.2
Unprocessed meat cuts	-1.7
Processed pork products	-1.6

Source: USDA, Economic Research Service using the Global Trade Analysis Project (GTAP) model.