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# TPP and the Future of Food Policy in Japan

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# TPP and the Future of Food Policy in Japan

## 1. Introduction

The statement by Japan's then Prime Minister Naoto Kan in October 2010 that Japan would seriously consider participating in the Trans Pacific Partnership (TPP) ignited a debate on the merits of TPP membership for Japan that has continued ever since, furiously at first, and subsequently in more muted tones after the tragedy of the Great Eastern Japan earthquake and tsunami and its aftermath necessarily became overwhelmingly the central preoccupation of politicians, officials, and all sections of Japanese society. New impetus was given to the debate by the announcement at APEC's November 2011 leaders' meeting in Hawaii by Prime Minister Yoshihika Noda of Japan's intention to begin consultations with TPP economies towards joining the TPP negotiations.

The expectation that TPP could involve the eventual removal of most if not all of Japan's formidable agricultural trade barriers against imports from other TPP members ensured that the impact of the TPP on Japanese agriculture inevitably became a central focus of the TPP debate. The TPP debate in turn galvanised the debate in Japan on agricultural reform in a dramatic way over the past three years. Agriculture moved from the fringes of public debate, the realm of obscure specialists and vehemently-defended vested interests, to an issue on which many people offered views, from a wide range of perspectives. One factor was the realisation that Japan's economic, diplomatic and political interests, not just the interests of the agriculture sector, were at stake in the debate. Another was the rediscovery in the public mind of the issues facing the agricultural sector, and the possibility that it could be much more than an important, but static, resource-draining sector, and might indeed become a dynamic part of Japan's future through recasting it as agri-food industry.

The opponents of TPP, centring on Japan Agriculture (JA) cooperatives and indeed the Ministry of Agriculture Forestry and Fisheries (MAFF), mobilised quickly, and produced a number of publications with sensational claims, to the effect that participation in TPP would destroy not just Japanese agriculture, but Japan's very identity, which according to them is encapsulated in farming. Edited volumes such as Nobunkyo ed. (2010) gathered views from the sceptical to the adamantly opposed. Supporters of radical agricultural reform in Japan (for example Yamashita (2011) were more welcoming of the TPP, and were gradually joined by a growing number of divergent voices expressing views that TPP participation might not be entirely negative for agriculture, and that the agriculture lobby risked holding Japan's economic and political future to ransom. By 2012, some began to turn the agriculture lobby's views on their heads and argue that it that it is the policy framework supported by the agriculture lobby that risks destroying Japanese agriculture, and that if agricultural reforms were carried out, Japan might become a significant exporter of agriculture products: the most effective way of bringing about reform would be through participation in TPP. Asakawa's (2012) title "Japan Will

Become the World's Greatest Agriculture Nation Through TPP" most sensationally, if somewhat extravagantly captured a view which emerged from around 2011.

Following its victory in the December 2012 lower house election, the newly-elected government of Prime Minister Shinzo Abe, after some careful political manoeuvring, took the decisive step of seeking Japan's entry into the TPP negotiations. Existing TPP participants have confirmed their agreement, and Japan aims to formally join the negotiations at the negotiating round scheduled for July 2013 in Malaysia.

Prime Minister Abe has presented Japan's participation in the TPP as a key element in the "third arrow" of the economic revival strategy now known as "Abenomics", aimed at restoring Japan's economic vitality and power. The first two "arrows" comprise, respectively, monetary expansion and fiscal stimulus. The third "arrow" consists of a "growth package" aimed at encouraging renewed growth by stimulating private investment, by means of a range of measures including extensive deregulation and greatly increased internationalisation of the economy through TPP and other initiatives (Aso 2013). The imagery of the "three arrows", derived from an old Japanese legend, emphasises that the success of "Abenomics" depends on the simultaneous effective implementation of all three components of the strategy (Nishimura 2013).

Having placed the TPP squarely within the context of a comprehensive strategy for revitalising the Japanese economy, ministers in the Abe government have been seeking to shift the ground of the debate over the implications of TPP for Japanese agriculture, emphasising that "regardless of the TPP, agriculture itself needs to change in Japan" (Nishimura 2013) and arguing that the agricultural sector needs to attain export competitiveness in order to realise its potential as a growth sector, in line with the objectives of "Abenomics". MAFF has been co-opted to support this approach with the introduction of an "A-Five" strategy for "Active Agriculture, Forestry and Fisheries", promoting a vision of a rejuvenated agricultural sector.

On the other hand the agriculture lobby and its political supporters continue to fight a determined rear guard action, seeking to pressurise the government into reaffirming that it will maintain the traditional insistence on exemption of large parts of the agricultural sector from trade liberalisation commitments. The inclusion of agriculture in commitments to be made under the TPP thus remains a bitterly contested issue within Japan. It remains to be seen how this domestic controversy will be reflected in the stances adopted by Japan in the TPP negotiations.

The purpose of this report is to explore the connection between TPP and the imperative for agricultural reform, and in so doing to underline the case that a) the Japanese agricultural sector and agriculture policy are in need of reform, regardless of TPP, and b) that with far-reaching reforms (but not incremental ones) the agriculture sector could in fact prosper under trade liberalisation, to the benefit of Japanese society.

The report proceeds in six stages. First, some brief observations are offered on how TPP may fit within Japanese trade policy, its economic objectives, and its connection with agricultural policy. Second, an outline is provided of key features of Japanese

agriculture that illustrate the imperative for agricultural revitalisation in Japan. This is followed, thirdly, by more detailed analysis of key agricultural sectors, including some that are widely seen as potentially problematic under the TPP, such as rice and dairy products. Fourth, although specification of measures to revitalise Japanese agriculture is beyond the scope of this report, some evidence is provided suggesting that revitalisation is indeed feasible as well as necessary, drawing in part on ideas and proposals emerging from the ongoing debate in Japan. Observations are also offered on how the process of revitalisation could be successfully combined with adjustment to trade liberalisation under the TPP. Fifth, results are presented of an economic modelling exercise simulating the impact of the TPP on the Japanese economy, with special emphasis on the agricultural sectors. This exercise differs from other simulation-based studies, most importantly by including the impact of a productivity increase assumed to arise from the revitalisation of Japanese agriculture. The results, and the way that they differ from the results of other studies, can therefore be taken as an illustration of the outlook for Japanese agriculture under the TPP if necessary measures to revitalise the sector are undertaken in the meantime. The sixth and final stage is a discussion of the opportunities under TPP for a revitalised Japanese agriculture and Japanese food processing industries, drawing both on the modelling results and on analysis in the earlier sections of the report.

## **2. The TPP and Japan's Trade Policy**

The TPP is one of two initiatives in which Japan is now participating for the creation of large region-wide trade agreements within the Asia-Pacific region. As the vehicle for trans-Pacific integration the TPP offers Japan the opportunity to deepen its trade and investment linkages across the Pacific with the United States and its NAFTA partners Canada and Mexico, as well as with the resource-rich economies of Australasia, Australia and New Zealand, with Chile and Peru in South America, and with Singapore, Malaysia, Viet Nam and Brunei Darussalam in Southeast Asia. The TPP negotiations began in March 2010, and the end of 2013 is the targeted completion date most recently announced by the participants, although most observers believe that a completion date of mid- or end-2014 is now more realistic.

The other major region-wide trade initiative is the Regional Comprehensive Economic Partnership (RCEP). The RCEP has now definitively emerged as the vehicle for the East Asian approach to region-wide trade integration that had earlier been reflected in proposals for an East Asia Free Trade Agreement (EAFTA) among the ASEAN Plus Three group comprised of the ten ASEAN members plus China, Japan and Korea, or a Comprehensive Economic Partnership for East Asia (CEPEA), based on the ASEAN Plus Six group, in which Australia, New Zealand and India are added to the ASEAN Plus Three group. The RCEP was put forward by ASEAN both as a response to the TPP and as a way of consolidating its existing "ASEAN Plus" FTAs with China, Japan, Korea, Australia and New Zealand, and India, while avoiding the need for a formal choice to be made between the EAFTA and CEPEA proposals. The

latter issue is neatly resolved by providing that membership of RCEP is open to any of the "Plus Six" partners that wish to participate. In November 2012 ASEAN and its partners announced that negotiations for the RCEP would begin in early 2013, with completion of the negotiations envisaged for 2015. Negotiations have now commenced, and at this stage all of the "Plus Six" partners are participating.

The TPP and RCEP can also be seen in the context of the proposed eventual establishment of a Free Trade Area of the Asia Pacific (FTAAP), which was endorsed by APEC leaders at their Yokohama meeting in 2010 as "a major instrument to further APEC's Regional Economic Integration (REI) agenda", now needing to be "translated from an aspirational to a more concrete vision" that is to "be pursued as a comprehensive free trade agreement by developing and building on ongoing regional undertakings", such as the TPP and those under consideration in East Asia. From this perspective the TPP and RCEP can be viewed as representing, respectively, what Petri et al. (2012) have called the "trans-Pacific track" and the "East Asian track" toward establishment of the FTAAP. The eventual contents of the TPP and RCEP, and the differences between them, take on added significance in the light of the status of both agreements as building blocks and potential models for an FTAAP.

In providing Japan with a trans-Pacific avenue and an East Asian avenue, respectively, for engaging with region-wide integration, the TPP and RCEP represent complementary approaches to the increased internationalisation of the Japanese economy envisaged in the "Abenomics" strategy as an essential element in the programme for revitalising the Japanese economy. Increased internationalisation will make an important contribution to the improved productivity performance required to sustain more acceptable rates of growth in the face of the projected substantial decline in Japan's population and labour force, in part by increasing Japan's openness to, and attractiveness to, foreign direct investment. Productivity growth will be stimulated through the introduction of increased competition, increased dissemination of technological and organisational innovation, and increased interchange of skills and knowledge (OECD, 2006). The trade agreements likely to be most effective in delivering these benefits are those with other OECD developed countries. The TPP, which includes the United States and three other OECD developed country members (Australia, Canada and New Zealand), meets this criterion, along with Japan's planned FTA with the European Union, negotiations for which are scheduled to begin in 2013. (By contrast Japan's only existing FTA with an OECD developed country is its EPA with Switzerland.) The RCEP offers a complementary boost to productivity by further enhancing the advantages of East Asia as a region-wide production base for Japanese firms.

Both the TPP and the RCEP offer an additional boost to growth through important increases in access to export markets. Together with the planned FTA with the European Union, the TPP is likely to be especially important in maintaining Japan's competitive position in the United States and European Union markets, in particular by matching the market access secured by Korea through its FTAs with the United States and European Union. The RCEP, in combination with the proposed China-



Japan-Korea (CJK) FTA, negotiations for which are also scheduled to begin in 2013, will likewise be important in maintaining Japan's competitive position in the China and Korea markets. As will be highlighted later in this report, the RCEP may also be important in opening overseas exports from a revitalised Japanese agriculture.<sup>1</sup> The analysis of the distinct and complementary contributions to Japan's trade policy objectives offered by the TPP and the RCEP supports a position that Japan should simultaneously pursue participation in both the TPP and the RCEP.

There is little hard information as yet available on which to base a detailed assessment of the likely outcomes of the TPP and RCEP in relation to agriculture. In the case of the TPP it appears that resolution of the most sensitive agricultural issues is being deferred until the final stages of the negotiations. Issues remaining to be resolved include not only tariffs but also the role of tariff rate quotas and a range of non-tariff issues including the enforceability of SPS provisions. The RCEP negotiations have only just commenced and no details can reasonably be expected to be available as yet. In these circumstances assessments of the likely effects of the two agreements tend to rely heavily on agreed statements of the parties as to the intended content and level of ambition of the agreements.

The parties to the TPP negotiations have been consistently firm in their insistence that the TPP is to be a "high quality", "twenty-first century" agreement with "comprehensive coverage" of goods and services. There is a clear understanding that no products or services will be excluded from the negotiations, and this understanding extends at least in principle to an expectation also that no products or services will be completely excluded from the eventual agreement. This has been taken to imply an expectation that all agricultural products will be covered, although it remains to be seen how far the ambition of comprehensive product coverage will be realised in the final outcome. It does appear to have been agreed that tariffs will be phased out over periods ranging up to a maximum of 7-10 years. Countries seeking to join the TPP negotiations, including Japan, have been required to enter into a consultation process for the purpose of satisfying existing participants that they share these understandings. The wide range of issues covered in the twenty-nine proposed chapters of the TPP is intended to embody a comprehensive approach to economic integration through trade and investment.

The modalities and scope of the RCEP have yet to be clearly articulated. The "Guidelines and Objectives" document agreed by the prospective participants sets out the objective of achieving a "modern, comprehensive, high quality and mutually beneficial partnership", that will "have broader and deeper engagement with significant improvements over the existing ASEAN+1 FTAs", while at the same time recognising "the individual and diverse circumstances of the participating countries" and including "appropriate forms of flexibility". The RCEP will be ASEAN-centred and will follow ASEAN's preferred approach to the design of its FTAs by focusing on trade in goods, trade in services, investment, and economic and technical cooperation, while also being open to the inclusion of provisions on "intellectual property, competition, dispute settlement and other issues". The emphasis on "flexibility" and

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<sup>1</sup> Among other things, this obviously depends on how relevant agricultural sectors are treated in the RCEP.

accommodation of “individual and diverse circumstances of the participating economies”, as well as on ASEAN centrality, is clearly intended to differentiate the RCEP from the TPP. (Das 2012)

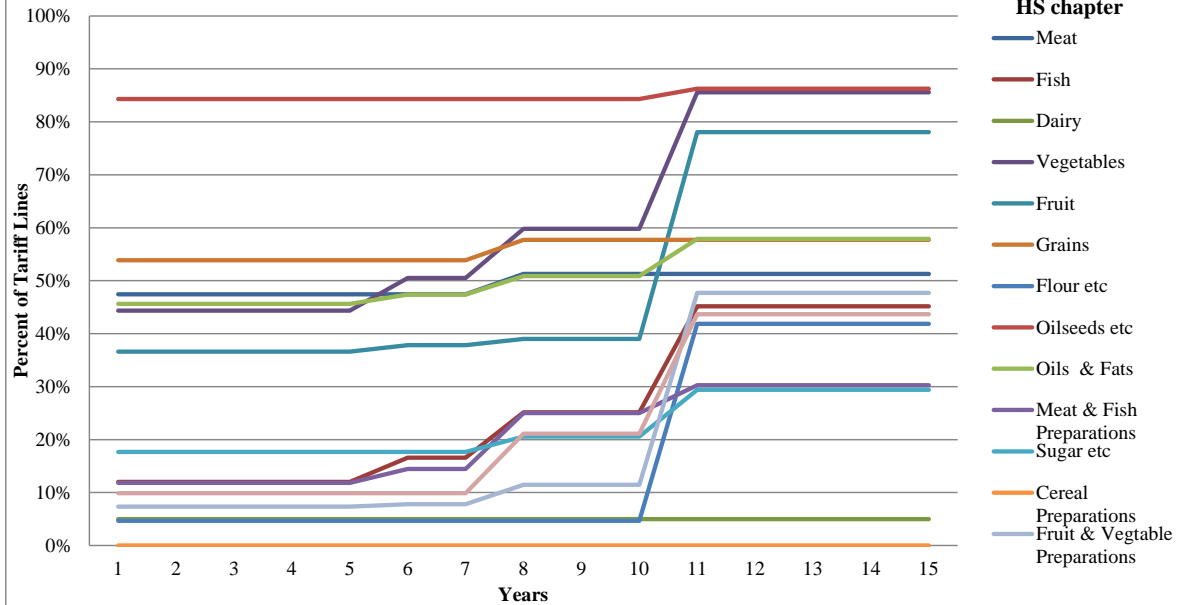
It could be premature however to assume that the emphasis on “flexibility” in the RCEP “Guidelines and Objectives” opens the way for wholesale exemptions of agriculture from that agreement. Fukunaga and Kuno (2012), summarising analysis undertaken for ERIA’s<sup>2</sup> project on Comprehensive Mapping of FTAs in East Asia (Lee and Okabe 2011), propose that RCEP participants should agree on a target of elimination of tariffs on a minimum of 95% of tariff lines in order to both meet the RCEP objective of “significant improvements over the existing ASEAN+1 FTAs” and also meet the “competitive challenge” of the TPP. Their analysis shows that a target of tariff elimination on 95% of tariff lines implies a need for Japan to lift the percentage of duty-free tariff lines above the level committed in its existing FTA with ASEAN, and this in turn is likely to require a substantial increase in the proportion of agricultural tariff lines subject to tariff elimination. Japan is likely in any case to find itself under pressure from agricultural producing countries in the RCEP negotiations to substantially increase its level of agricultural liberalisation. As George Mulgan (2012) suggests, the Japan-Australia FTA negotiations may provide something of a “litmus test” in that regard. She notes that those negotiations appeared to be heading toward an outcome where Japan will substantially increase its liberalisation commitments for key products such as beef, dairy products, wheat and sugar, while Australia will reciprocate by offering increased flexibility in the periods over which tariffs are eliminated and by agreeing to the total exclusion of rice from the agreement. In any event, the value to agricultural protectionist interests of retaining substantial exemptions for agriculture in the RCEP is likely to be diminished to the extent that Japan has in the meantime made substantial commitments to agricultural liberalisation within the TPP. Furthermore, as already noted earlier, Japan itself may find that it has an interest in increased agricultural liberalisation within the RCEP in order to open markets for increased agricultural exports under its government’s new economic strategy.

The degree of agricultural liberalisation required under the TPP and likely to be required under RCEP implies a sharp break from Japan’s practice in existing agreements with ASEAN and individual ASEAN countries, where it has been able to limit the coverage of agricultural products and typically to achieve the complete exclusion of many agricultural products considered sensitive, rice in particular. This is illustrated in Figure 1, depicting the proportion of tariff lines in various agricultural and food product categories covered by Japan’s commitments in the AJCEP, its FTA with ASEAN. It should be noted that in addition to the tariff profiles illustrated in Figure 1, non-tariff barriers of various kinds have also been used to powerful effect for products such as cereals, meats and dairy products.

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<sup>2</sup> ERIA is the acronym for the Economic Research Institute for ASEAN and East Asia, established to support East Asian economic integration initiatives.

**Figure 1: ASEAN - Japan FTA: Japan Commitments**  
**Percentage of Tariff Lines Reducing to Zero Duty Over Time**  
**HS Food Chapters**  
*Source: Scollay (2012)*



The pattern of protection illustrated in Figure 1, and intensified by accompanying non-tariff barriers, has reflected the determination of traditional agricultural lobby groups and their political supporters to minimise disturbance to the status quo in Japanese agriculture. Their most ferocious opposition has to date been directed at the TPP because it is perceived as portending the most far-reaching disturbance to agriculture. Similar opposition can be expected in future to any proposals emerging in the RCEP negotiations that would require substantial increases in agricultural liberalisation by Japan.

The debate on the future of Japanese agriculture triggered by the TPP controversy has, however, led to a growing recognition of the need for agricultural reform, extending across commentators holding a wide range of views on the TPP. The next section of this report briefly summarises key features of Japanese agriculture that underscore the necessity and arguably also the inevitability of change, with or without TPP, before going on to make the case that change could lead to the emergence of a rejuvenated Japanese agriculture that may in fact prosper under TPP.

### 3. Japan's Agriculture: Crisis or Opportunity?

#### 3.1. Long-Term Trends: Cultivated Land, Production, Consumption, Population

Japan Bureau of Statistics data shows that the area of cultivated land in Japan has steadily declined over the past 50 years, from 6.09 million hectares on 1961 to 4.59 million hectares in 2010, a fall of almost 25%. The area of cultivated land classified "under management" in 2010 was substantially less than this, at 3.63 million hectares.<sup>3</sup> This land was being farmed by 1.68 million "agricultural management entities,"<sup>4</sup> of which 1.63 million, or 97%, were classified as "commercial farm households" (MAFF 2011b).

Over the same period the value of agricultural output, illustrated in Figure 2, rose steadily until 1985, when it reached over 11.5 trillion yen, before dropping by over 30% to just over 8 trillion yen in 2009. As Figure 2 also shows, the share of the main products in this total value of output changed dramatically over the same period. The share of rice fell from over 50% in 1955 to little more than 20% in 2009, while the share of vegetables moved in the opposite direction, more than trebling from 8% in 1955 to 25% in 2009. The share of livestock more than doubled between 1955 and 1980, from 15% to over 30%, but was then no higher in 2009 than in 1980, after dipping and then recovering in the intervening years. The shares of both livestock and vegetables had exceeded the share of rice by 2009. Thus in terms of the value of output, rice, the traditional mainstay of Japanese agriculture, gradually became a much less dominant component of Japanese agricultural output over the period, while vegetables and livestock became much more important, with each of their shares in the total value of output exceeding the share of rice by 2009.

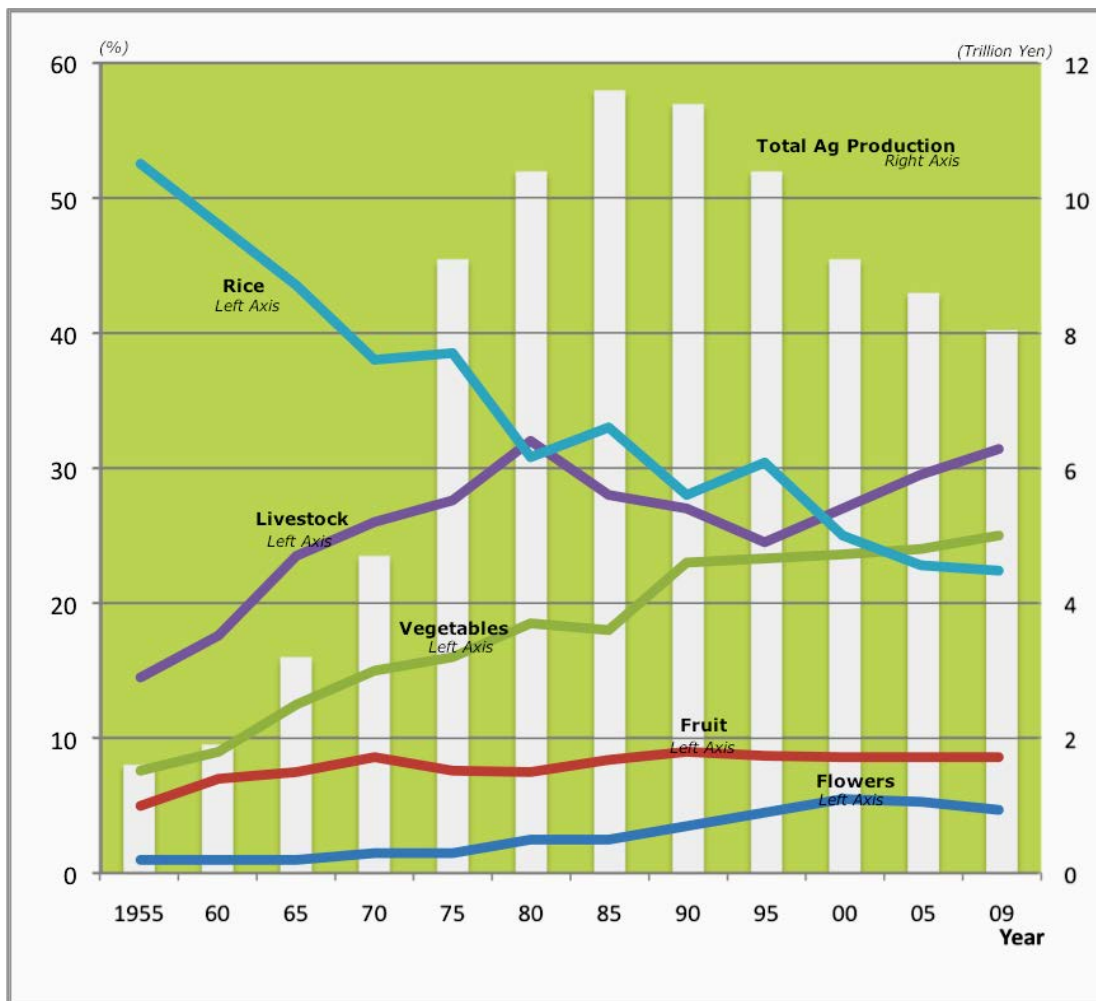
Parallel to the changes in production there have been very substantial changes in consumption since 1960, illustrated in Figure 3. There have been steady declines in per capita consumption of rice over the entire 50 year period and of vegetables since around 1968, such that per capita rice consumption almost halved over the period and per capita vegetable consumption has fallen by almost 30% from its 1968 peak. There have been offsetting increases in per capita consumption of fruit, milk, chicken, pork, beef and eggs, but these flattened out in the 1970s for fruit, and during the 1990s for table milk, chicken, pork, beef and eggs during the 1990s, with consumption of fruit, table milk and eggs subsequently beginning to decline, while consumption of pork and chicken have recently shown signs of a renewed upward trend. Only per capita consumption of processing milk has exhibited an upward trend over the entire period.

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<sup>3</sup> Yamashita (2008-09a) points out that: "Of the 2.5 million hectares of land Japan has lost over the past 50 years – equivalent to the total area of rice paddies in Japan today – about half has been converted for residential or industrial use."

<sup>4</sup> The definition of "agricultural managements units" excludes "non-commercial farm households", which numbered 896,742 in 2010, and "non-farm households possessing cultivated land", which numbered 1,374,000 in 2010 (MAFF 2011a).

**Figure 2: Trends in Total Value of Agricultural Production and Shares of Main Product Categories in Total Value of Agricultural Output: 1955-2009**

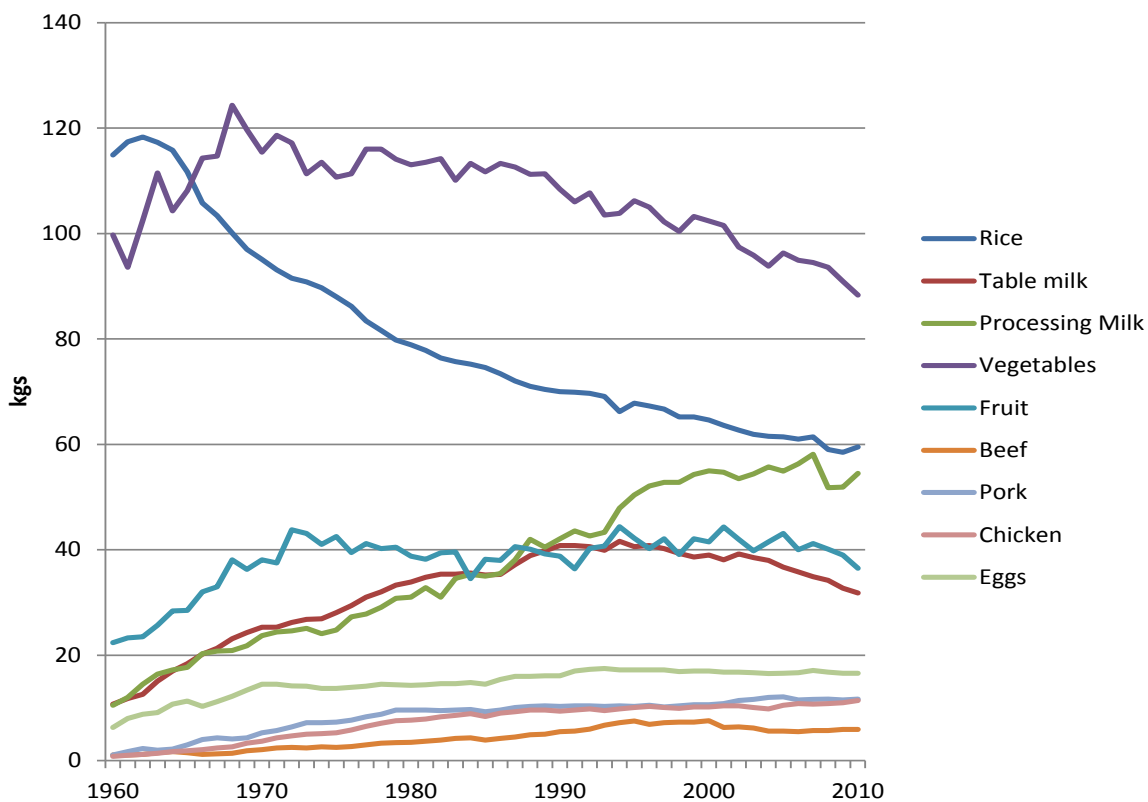


Source – Kawashima 2011: 99; original source MAFF Seisan nogyo shotoku tokei

These changes in per capita consumption take on added significance when viewed against the background of the projected decline in Japan's population, which peaked in the early 2000s after rising continuously over most of the period since 1960, and has now entered a period of gradually accelerating long-term decline. Figure 4 shows the population projections to 2060 by the National Institute of Population and Social Security Research (NIPSS), for a range of fertility assumptions and based on their medium mortality assumption. Under the medium fertility assumption, the population will have declined from its 2005 peak by 4% or 5 million people to 122.7 million by 2020, by 17% or 22 million people to 105.6 million by 2040, and by 34% or 43 million people to 84.6 million by 2060. These projected population declines must necessarily have very significant implications for the future consumption demand for food in Japan. This consideration underpins the arguments of commentators such as Yamashita that the future viability of Japanese agriculture will depend to an increasing extent on development of an expanded export capability.

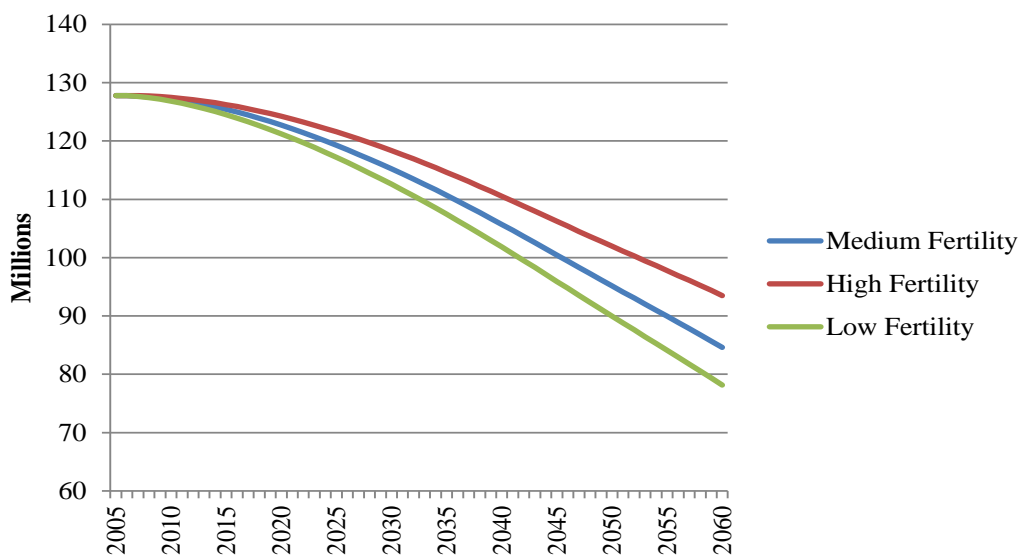
**Figure 3: Apparent Annual Per Capita Consumption 1960-2010**  
**Major Food Items**

Source: MAFF Food Balance Sheets



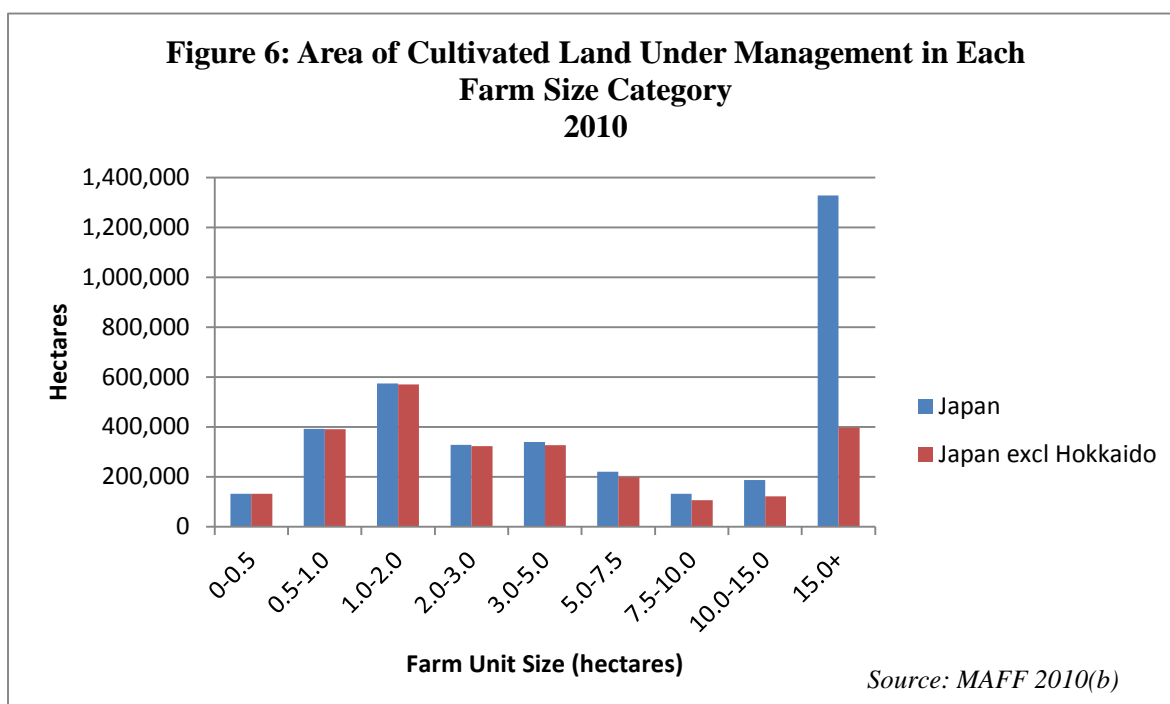
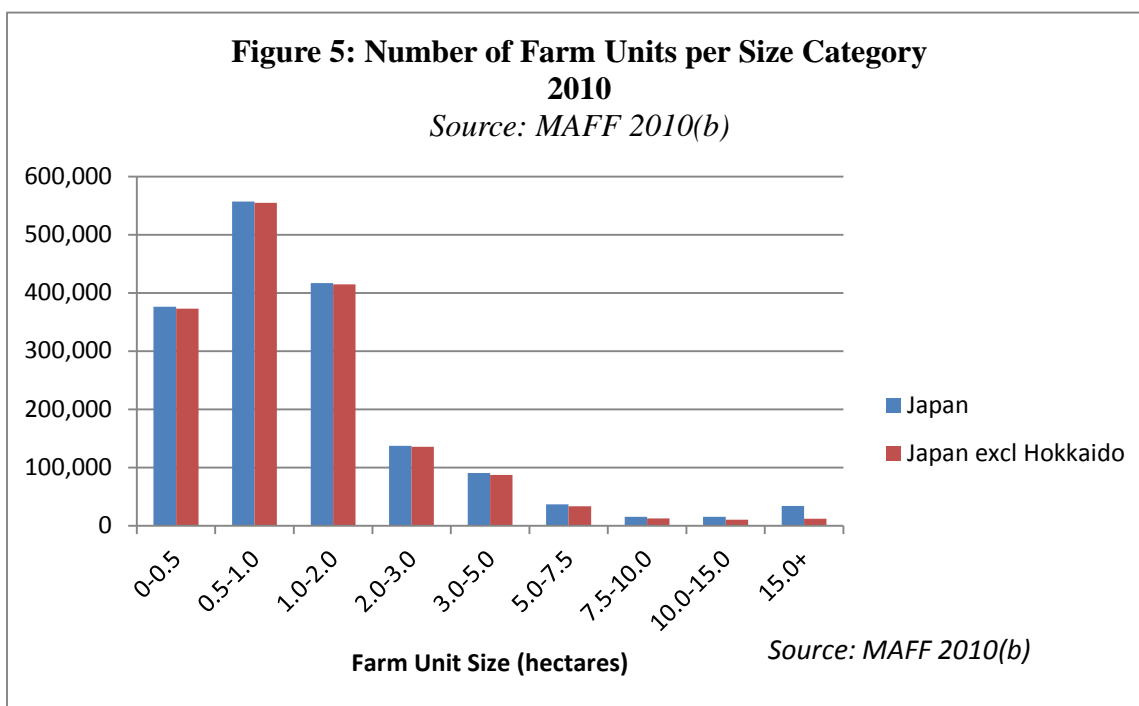
**Figure 4: Japan Population Projections 2005-2060**  
**(Medium Mortality Assumption)**

Source: National Institute of Population and Social Security Research



### 3.2 Predominance of Small-Scale Farming

The small size of most Japanese farms, a key feature of Japanese agriculture, is clearly illustrated in Figure 5, which shows that in 2010 over 55% of agricultural management units were less than 1 hectare in size, and over 80% were less than 2 hectares. The proportion of “cultivated land under management” occupied by these very small farm units was naturally much smaller than this, as Figure 6 illustrates, with 14% of the area occupied by units smaller than 1 hectare in size, and 30% by units smaller than 2 hectares.



A further one third of the cultivated area was occupied by farms between 2 hectares and 15 hectares in size. Compared to the rest of Japan the proportion of farmland occupied by large farms is much higher in Hokkaido, where 87% of the cultivated area was occupied by farms of 15 hectares or larger <sup>5</sup> in 2010, as against 15% in the rest of Japan<sup>6</sup>.

### 3.3 Economic Characteristics of Farm Households and Trends in Farm Household Numbers

The census definition used by MAFF divides commercial farm households into business farm households, semi-business farm households, and side-business farm households. Not included in the definition of commercial farm households are non-commercial farmers, essentially operating on a smaller scale than commercial farm households, and non-farm households, which own very small units of agricultural land that they may or may not farm. The definitions of these categories of households are set out in Table 1.

<b>Table 1: Classification of farm households (Definitions used since the 1990 World Census of Agriculture and Forestry)</b>	
Farm household	Household engaged in farming and managing cultivated land of 0.1 hectares or more, or earning more than 150,000 yen per year from sales of agricultural products.
Commercial farm household	Farm household managing cultivated land of 0.3 hectares or more, or earning more than 500,000 yen per year from sales of agricultural products.
Business farm household	Farm household whose main source of income (50% or more) is farming, and which possesses at least one family member under the age of 65 who is engaged in self-employed farming for more than 60 days a year.
Semi-business farm household	Farm household whose main income (50% or more) is from sources other than agriculture and which possesses at least one family member under the age of 65 who is engaged in self-employed farming for more than 60 days a year.
Side-business farm household	Farm household without any members under the age of 65 engaged in self-employed farming for more than 60 days a year (farm households other than business and semi-business farm households).
Non-commercial farm household	A farm household managing cultivated land of less than 0.3 hectares, and earning less than 500,000 yen per year from sales of agricultural products.
Non-farm household possessing cultivated land	A household other than a farm household possessing 0.05 hectares or more in cultivated land.

*Source: MAFF 2011(a)*

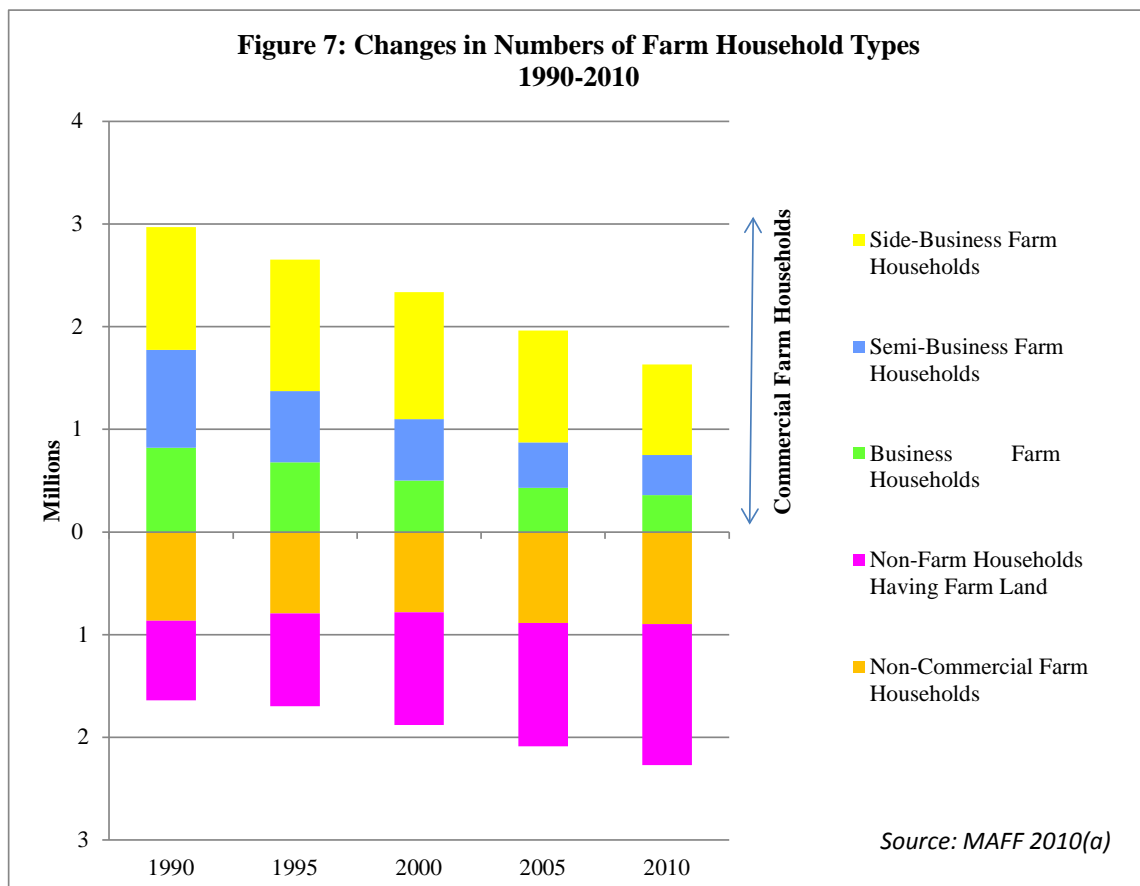
Census results depicted in Figure 7 show a steady decline in the number of commercial farm households over the last 20 years, from 2.97 million in 1990 to 1.63 million in 1990, a drop of 45%. The falls over that period in the number of business farm households, from 0.82 million to 0.36 million (or by 56%), and semi-

<sup>5</sup> Correspondingly, in terms of numbers, in Hokkaido in 2010 10% of farms were smaller than 1 hectare, 15% smaller than 2 hectares, 38% between 2 hectares and 15 hectares, and 47% over 15 hectares.

<sup>6</sup> In the rest of Japan the shares of the cultivated area occupied by farms smaller than 1 hectare, smaller than 2 hectares, and between 2 hectares and 15 hectares were respectively 20%, 42% and 45%.



business farm households, from 0.95 million to 0.39 million, or by almost 65%, have been especially precipitous, whereas the fall in the number of side-business farm households has been more moderate, from 1.2 million to 0.88 million, or by just over 25%. MAFF (2011a) cites the conversion of business farm households into side-business farm households, non-commercial farm households and non-farm households as a major factor behind the decline in the number of business farm households, and this assessment would appear to be supported by the data depicted in Figure 7. The combined total of non-commercial farm households and non-farm households rose by almost 40% from 1.64 million to 2.27 million over that same 20 year period, with the largest increase coming in the number of non-farm households, from 0.77 million to 1.37 million, an increase of 77%. In 1990 commercial farm households outnumbered non-commercial farm households and non-farm households with cultivated land by 1.81 to 1, but by 2010 the relative positions had been reversed, and the combined total of non-commercial farm households and non-farm households with cultivated land outnumbered business farm households by 1.4 to 1.<sup>7</sup>

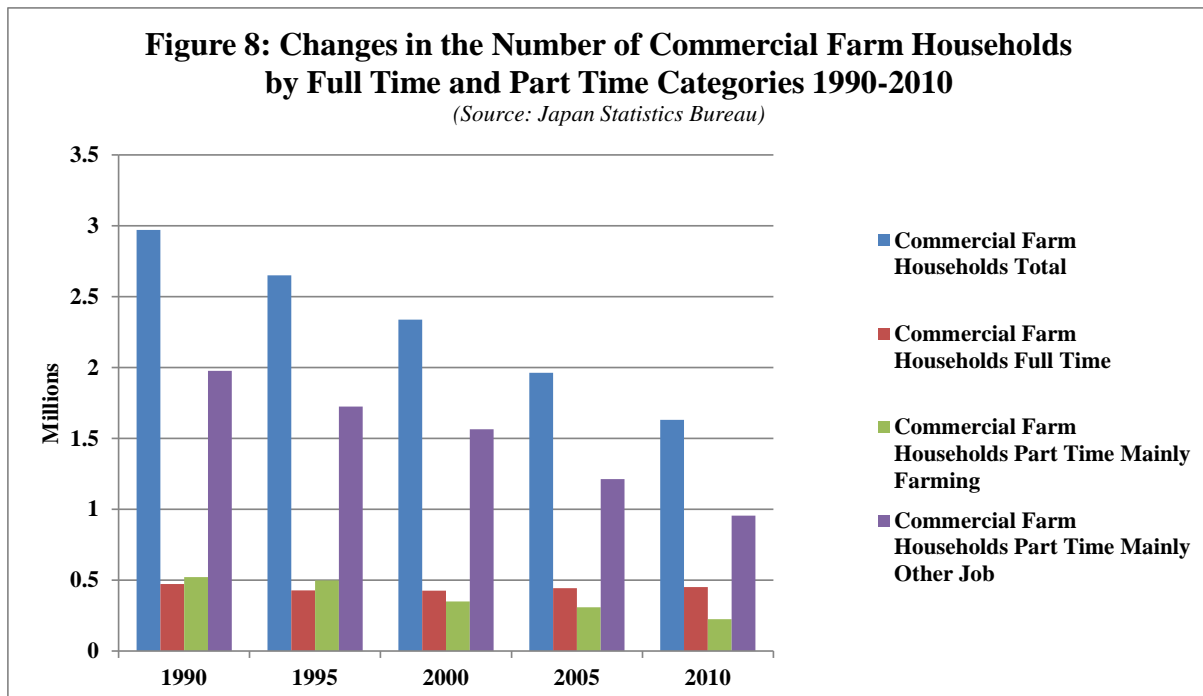


<sup>7</sup> As previously noted, non-commercial farm households are not counted in the analysis of the distribution of farm sizes in Figures 5 and 6. If they are included, and if it is assumed that all units farmed by non-commercial farm households are less than 1 hectare in size, the proportion of farms under 1 hectare in size would be over 70%, with 87% less than 2 hectares.

The Japan Bureau of Statistics presents an alternative classification of commercial farm households, based on a division between full-time and part-time farmers, as follows:

- Full time farmers
- Part time farmers mainly engaged in farming (farming income exceeds non-farm income)
- Part time farmers mainly engaged in other jobs (non-farm income exceeds farm income)

Figure 8 shows the changes in the numbers and distribution of these different types of commercial farm households from 1990 to 2010. It shows that the number of full time commercial farm households remained relatively stable<sup>8</sup> over the period within a range of 0.42 million and 0.48 million, while the number of each category of part time farm households more than halved, from 0.52 million to 0.23 million in the case of part time commercial farm households engaged mainly in farming, and from 1.97 million to 0.96 million in the case of part time commercial farm households engaged mainly in other jobs. In 2010 part time farm households still accounted for 72.5% of all commercial farm households, with part time farm households engaged mainly in other jobs accounting for 59% of the total, but these numbers are down respectively from 84% and 67% in 1990. The two main factors balancing the fall in the number and proportion of part time commercial farm households appear to have been the 77% increase in the number of non-farm households possessing cultivated land, and the fall of 15%, from 4.6 million to 3.9 million, in the total number of all types of households having cultivated land, both illustrated in Figure 7.



<sup>8</sup> Underlying this apparent stability, however, is an alarming trend: 'Today the overwhelming majority of those in the full time category are elderly farmers who graduated from the type-2 class when they lost their other sources of income due to retirement. Thus males less than 65 years of age who farm full time represent only 9.5% of the total' (Yamashita 2008-09c).

It appears reasonable to infer that the dramatic fall in the number of business farm households shown in Figure 7 mainly reflects the number of part time rather than full time business farm households exiting from business farming.

### 3.4 Farm Size, Farm Household Type, and Farm Incomes

MAFF survey data suggests, not entirely surprisingly, a significant relationship between the level and sources of farm income, and both the size of farms and the business status of farm households.

Table 2 presents MAFF survey data on the relationship between average farm household income and average farm unit size. Unsurprisingly, it shows that the average net agricultural income, gross income and disposable income all rise with average unit size. The average household with a unit of less than 1 hectare has negative farm income, and depends on off-farm earnings and payments from government to achieve positive gross income and disposable income. On the other hand the proportion of an average household's gross income derived from off-farm sources declines as the unit size increases, and the absolute level of income from off-farm sources also shows some tendency to fall with rising unit size between 1 and 20 hectares. Income from government sources declines absolutely as well as proportionately to total income as unit size increases. Income from agriculture-related business is modest or non-existent for all sizes of unit.

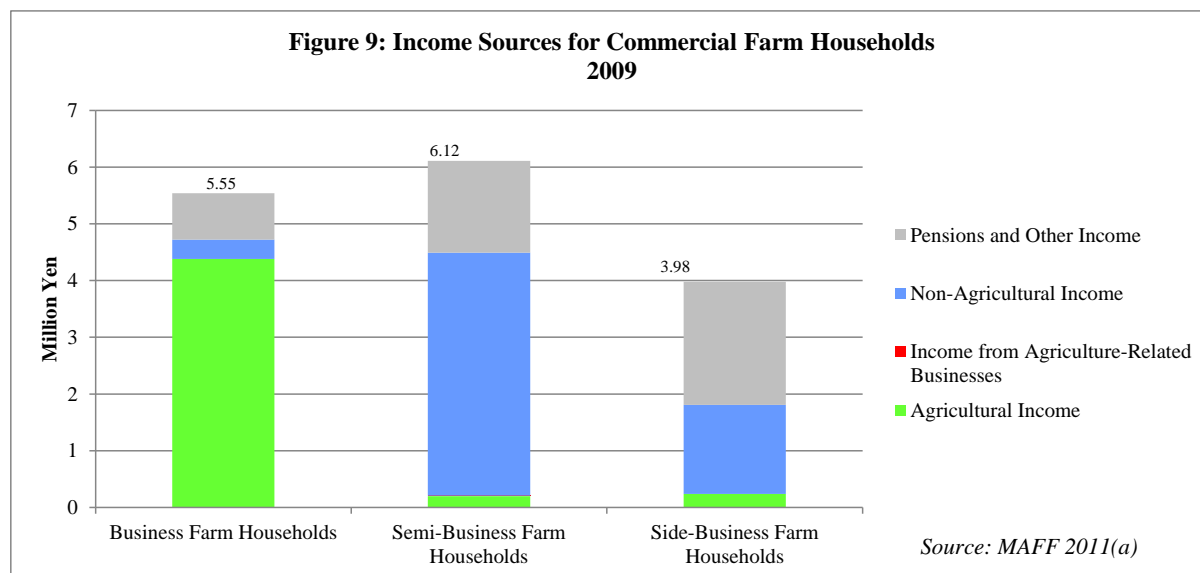
**Table 2: MAFF Survey Data on Relationship Between Agricultural Unit Size and Incomes of Farm Households**

	Agriculture Income (thousand yen)													
	Farming Income			Agriculture-Related Business Income			Off-Farm Income			Govt Payment	Total Gross Income	Tax	Disposable Income	Living Expenses
	Revenue	Cost	Net Income	Revenue	Cost	Profit	Revenue	Cost	Profit					
<0.5ha	579	695	-116	-	-	0	1,281	20	1,261	2,403	3,548	451	3,097	3,580
0.5-1.0ha	1123	1,140	-17	1	1	0	2,689	225	2,464	2,124	4,571	655	3,916	3,755
1.0-2.0ha	2233	1,746	487	0	0	0	1,928	104	1,824	2,055	4,366	525	3,841	3,915
2.0-3.0ha	3967	2,879	1,088	-	-	-	2,127	96	2,031	1,520	4,639	584	4,055	4,416
3.0-5.0ha	6325	4,261	2,064	34	21	13	2,317	115	2,202	1,125	5,404	709	4,695	4,408
5.0-7.0ha	8339	5,530	2,809	19	6	13	1,769	179	1,590	997	5,409	572	4,837	4,171
7.0-10.0ha	12251	7,670	4,581	-	-	-	2,007	298	1,709	916	7,206	919	6,287	5,192
10.0-15.0ha	18078	11,416	6,662	3	1	2	1,157	152	1,005	668	8,337	1,314	7,023	5,554
15.0-20.0ha	23688	14,533	9,155	59	31	28	1,469	90	1,379	531	11,093	1,493	9,600	6,184
>20.0ha	38175	25,210	12,965	28	32	-4	2,239	411	1,828	585	15,374	2,267	13,107	6,949

Source: MAFF Survey Data

Figure 9 summarises MAFF survey data on the relation between income sources and the business status of farm households. It shows that only business farm households depend predominantly on income from agriculture (79% of total income), and derive a relatively small proportion of their income from non-agricultural earnings (6%) or pensions and other sources (15%). The average semi-business farm household has a higher income than the average business farm household, and 70% of this comes from non-agricultural earnings, with a further 27% from pensions and other sources, and only 3% consisting of agricultural income. The average side-business farm household has substantially lower total income than either business farm households or semi-business farm households,

and the highest proportion of this (55%) comes from pensions and other sources, with a further 39% from non-agricultural earnings, and only 6% consisting of agricultural income. Income from agriculture-related businesses is zero or minimal in all three cases.



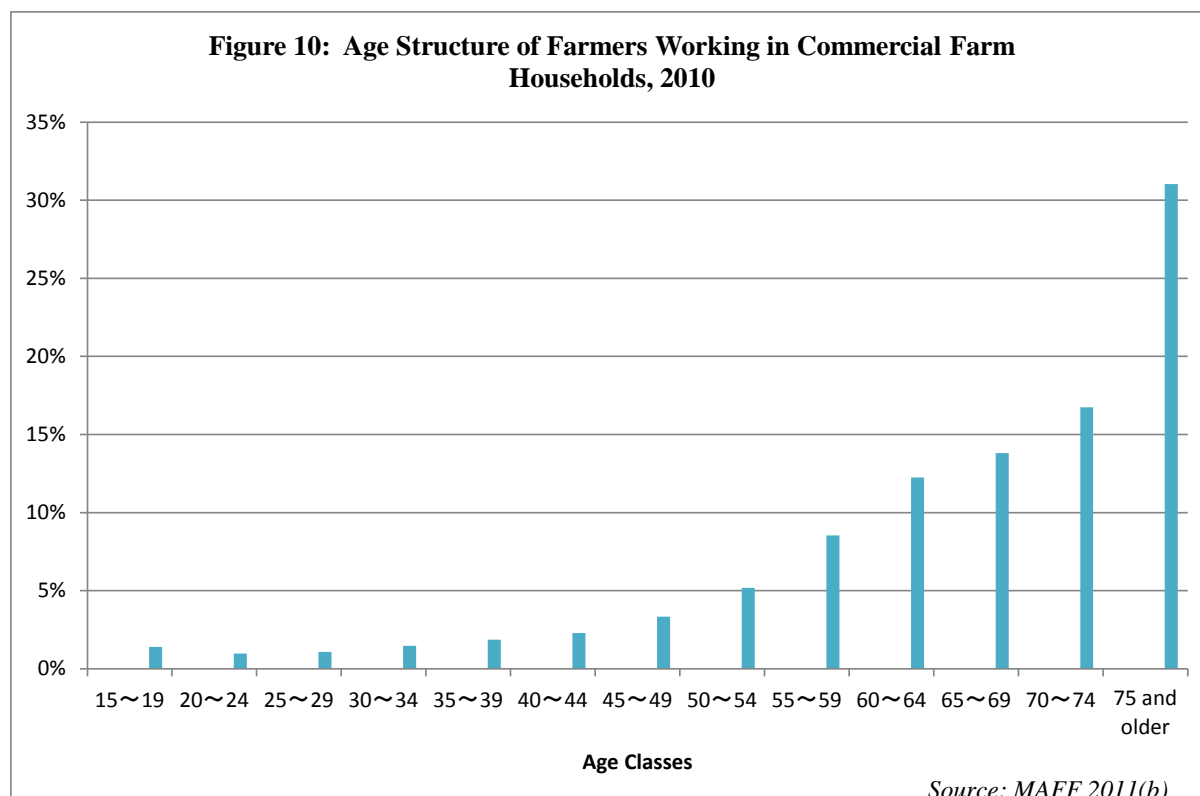
The data presented in Table 2 and Figure 9 are of course all averages, and they are also survey-based rather census-based, so they must necessarily be treated with caution. To the extent that they can be relied upon however they suggest that the number of farm household depending on agricultural income for their livelihood is relatively small, perhaps as low as 400,000. The majority of these are business farm households, and it may also be a reasonable inference from the data that a substantial proportion of them are operating on farm units with a size of greater than 2 hectares.

### 3.5 Age Profile of Japanese Farmers

It is likely that the trends summarised in the previous section are related to the evolution of the age profile of Japanese farmers. The increasing average age of Japanese farmers, which reached 68.6 in 2010, has of course been the subject of widespread comment, both inside and outside Japan. The implications of this are strikingly apparent from the breakdown of the age profile of Japanese farmers presented in Figure 10. Not only are 48% aged 70 and over, as would be expected with an average age of 68.6, but 31 % are also aged 75 and over. A further 35% are aged between 55 and 69, and only 7% are aged between 20 and 39.

A MAFF survey reported in MAFF (2011a) of commercial farm households aged between 65 and 70 and operating a rice paddy area of less than 2 hectares reported that 25% of these households have no successors. A further 28% reported

uncertainty over whether their successors would engage in agriculture, and 14% reported that their successors are unlikely to engage in agriculture.



This brief summary analysis strongly suggests that further substantial changes in the structure of Japanese farming and farm households are inevitable in the coming years.

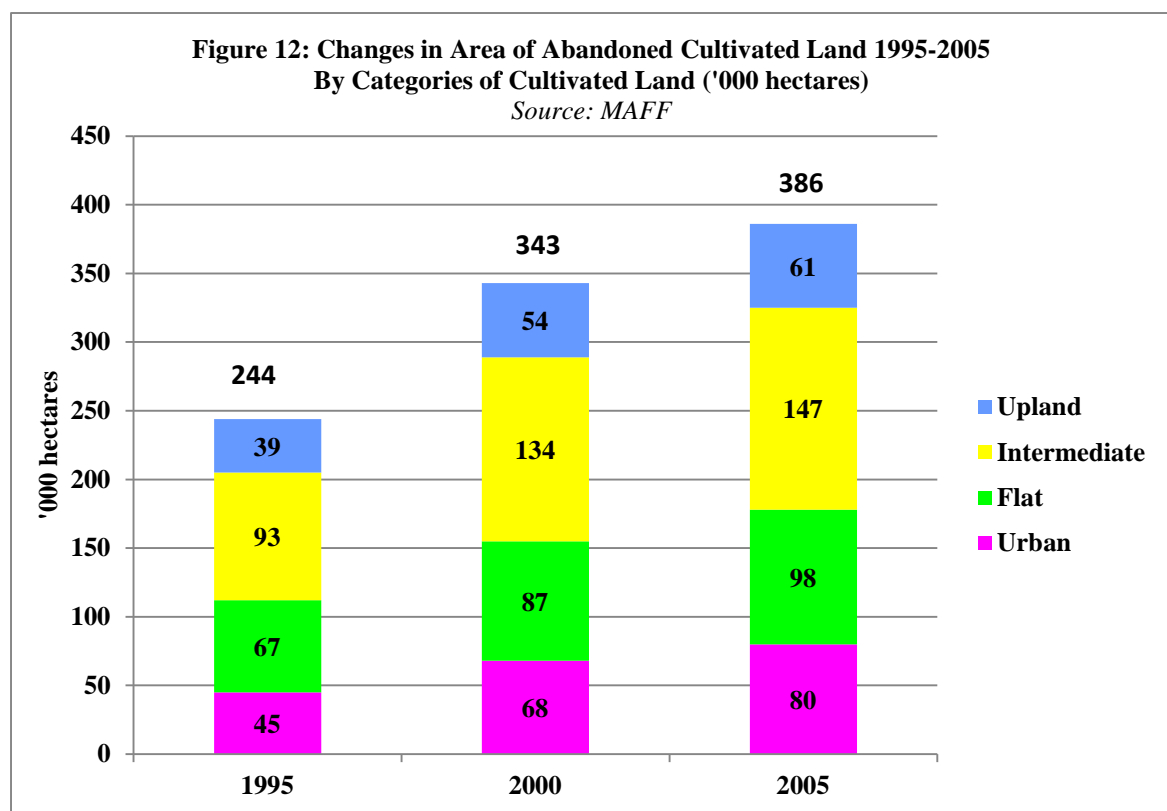
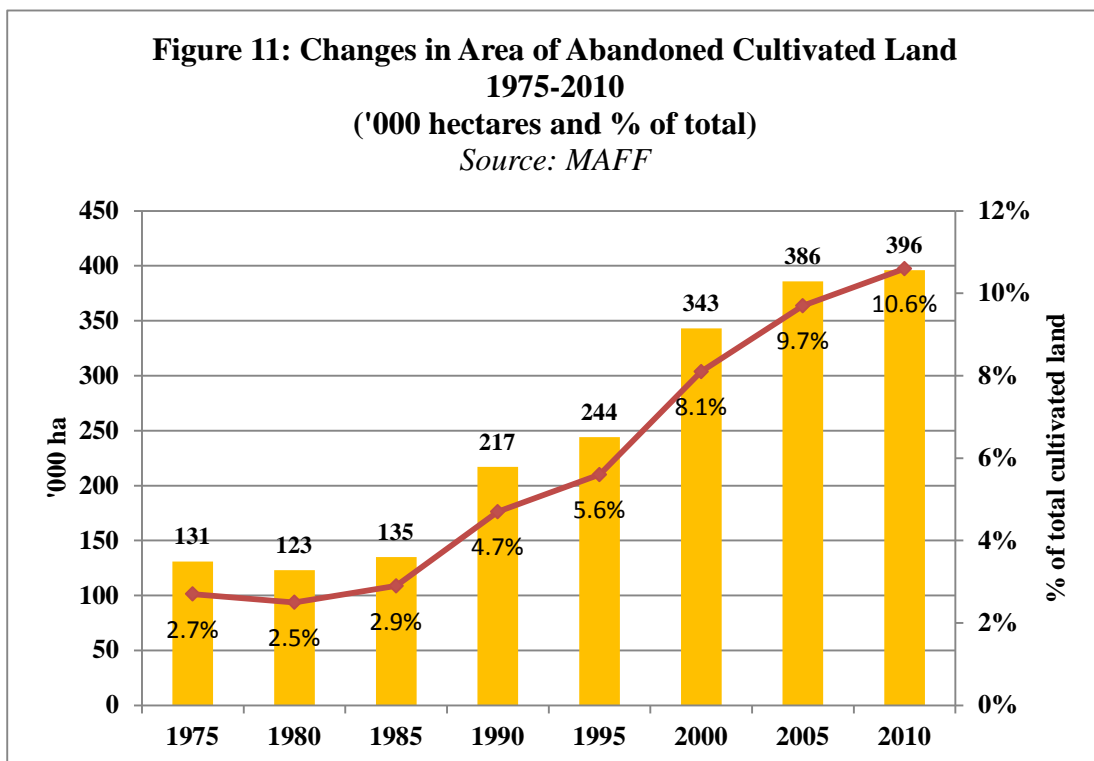
### 3.6 Abandoned Cultivated Land

Against the background of the trends presented in the preceding sections, the phenomenon of abandoned cultivated land is not surprising. This has been occurring since 1980, and by 2010 396,000 hectares, or 10.6% of the total cultivated area had been abandoned (MAFF 2011c), as shown in Figure 11.

A breakdown of this abandoned cultivated land, covering the shorter period from 1995 to 2005, is depicted in Figure 12. The 9.7% of cultivated land abandoned in 2005 is disaggregated into urban land (2%), flat rural land (2.5%), mountainous rural land (3.7%) and intermediate rural land (1.5%). All of this is land that was previously cultivated.

It seems likely that the increase in abandoned land is associated to some extent with the trends of falling numbers of farm households, increasing numbers of farm households moving into the non-farm household category, the ageing of farmers, and the lack of successors for ageing farmers. It would be surprising if the area of

abandoned land did not increase in the absence of effective measures to counter these trends.



### *3.7 Conclusion: Far Reaching Change is Inevitable – With or Without TPP*

The analysis briefly summarised in the preceding sections can leave no doubt that far-reaching changes in Japanese agriculture are inevitable in the coming years, regardless of whether Japan participates in the TPP or any other new trade agreements. Subsequent sections of this report will summarise the case, already being made by reform-minded commentators in Japan, that the opportunity exists for policy interventions to revitalise Japanese agriculture. It is difficult to avoid the conclusion that further decline would be inevitable in the absence of effective policy interventions. The impact on Japanese agriculture of the TPP, or any other large new trade initiative, is likely to be very different depending on which path is chosen.

## **4. Issues in Key Sectors of Japanese Agriculture**

### *4.1. Rice*

As noted earlier, the share of rice in the value of Japanese agricultural production fell from over 50% in 1955 to little more than 20% in 2009, and per capita consumption almost halved between 1961 and 2010. Since 1971 the Japanese government has actively sought to restrict rice plantings in line with declining rice consumption by means of a series of rice diversion policies, designed to avoid the over-production of rice that would have otherwise have resulted from farmer responses to the very high prices of rice sustained by government policies. Under these rice diversion policies farmers have been offered financial incentives to divert their rice paddies to the production of other crops. The area diverted rose steadily and by 2010 amounted to just over 1 million hectares, or almost 60% of the area planted in that year, and over 30% of Japan's rice paddy area has continued to be diverted. Another way of expressing the effect of the rice diversion policies is to note that the area diverted in 2001 represented almost 90% of the difference between the areas planted in rice in 1970 and 2001.

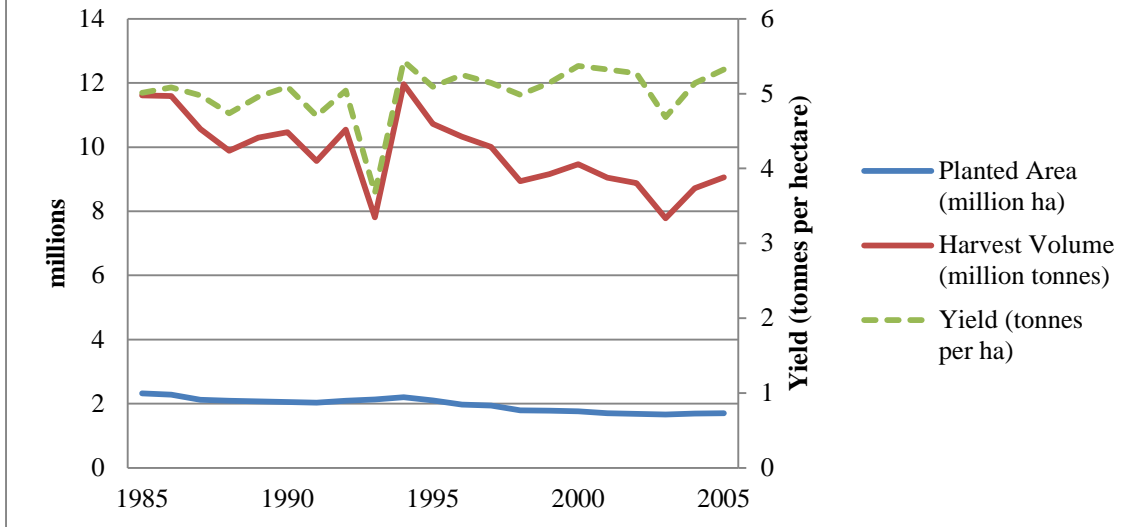
The current version of the rice diversion policy is the Production Adjustment Promotion Program (PAPP), under which farmers who agree to abide by government guidelines for the proportion of their paddy fields to be maintained in rice production receive per hectare payments for the alternative crops that they grow on the diverted land. These payments vary according to the crop and are additional to the revenue received from the sale of the crops.

Figure 13, focusing on the period from 1985 to 2005, illustrates the steady decline in the area planted with rice and the harvested rice volume, and also highlights the very minor increases in yield per hectare achieved over the same period.

Data from the five-yearly farm censuses from 1990 to 2010, summarised in Figure 14 shows that despite rice plantings having occupied a declining share of a falling area of cultivated land, paddy rice plantings still accounted *for* 30% of the total cultivated area in 2010.

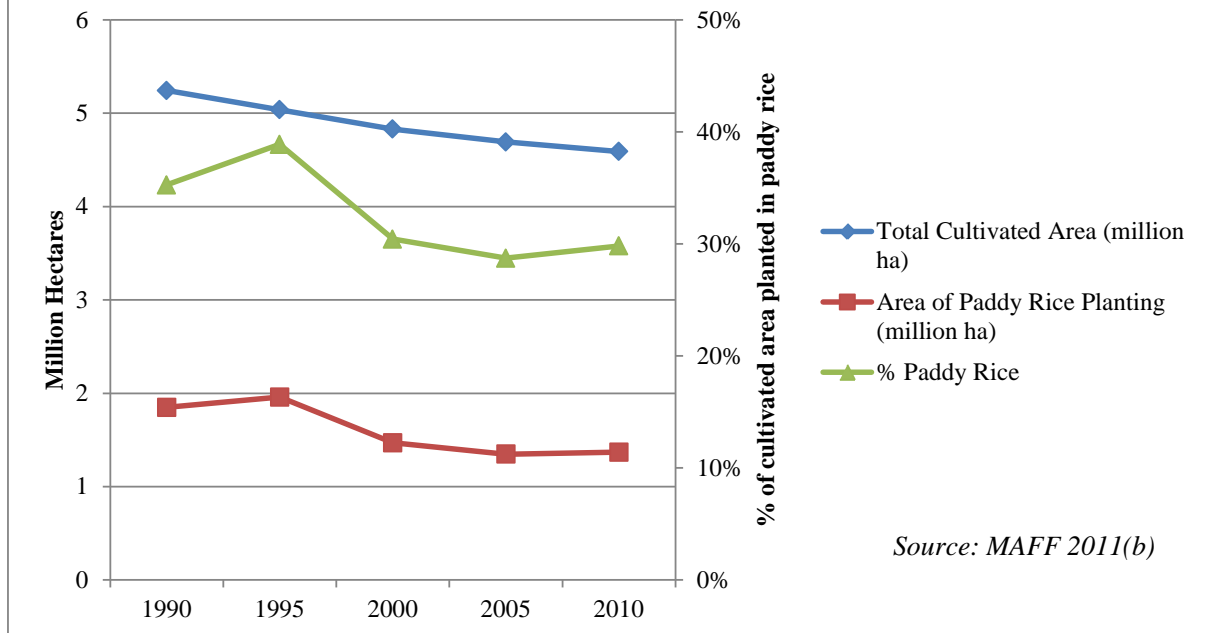
**Figure 13: Rice: Planted Area, Harvest Volumes, Yields  
1985-2005**

Source: MAFF Crop Statistics



**Figure 14: Cultivated Area and Paddy Rice Plantings  
1990-2010**

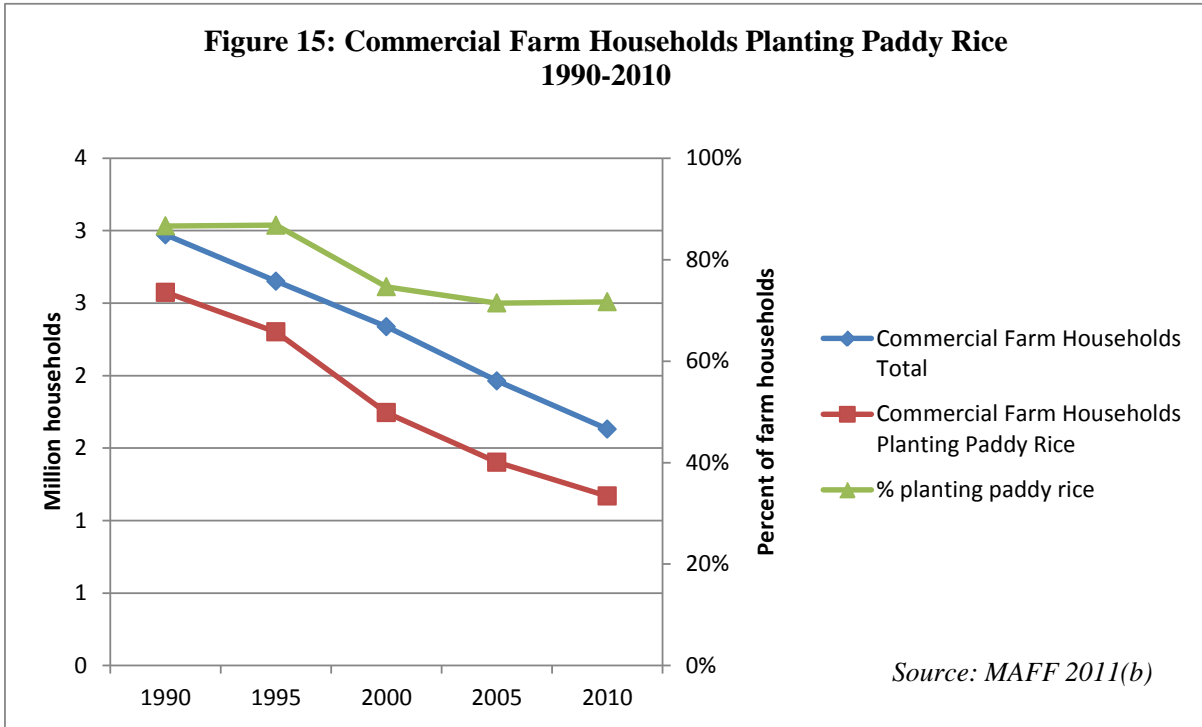
Source: MAFF 2011(b)



Nevertheless, while rice has become a much smaller component of agricultural output, it continues to loom much larger in the activities of Japanese farm households. Figure 15 shows that while the number of commercial farm households planting paddy rice has declined in parallel with the total number of commercial farm households, in 2010 72% of commercial farm households continued to plant paddy rice.

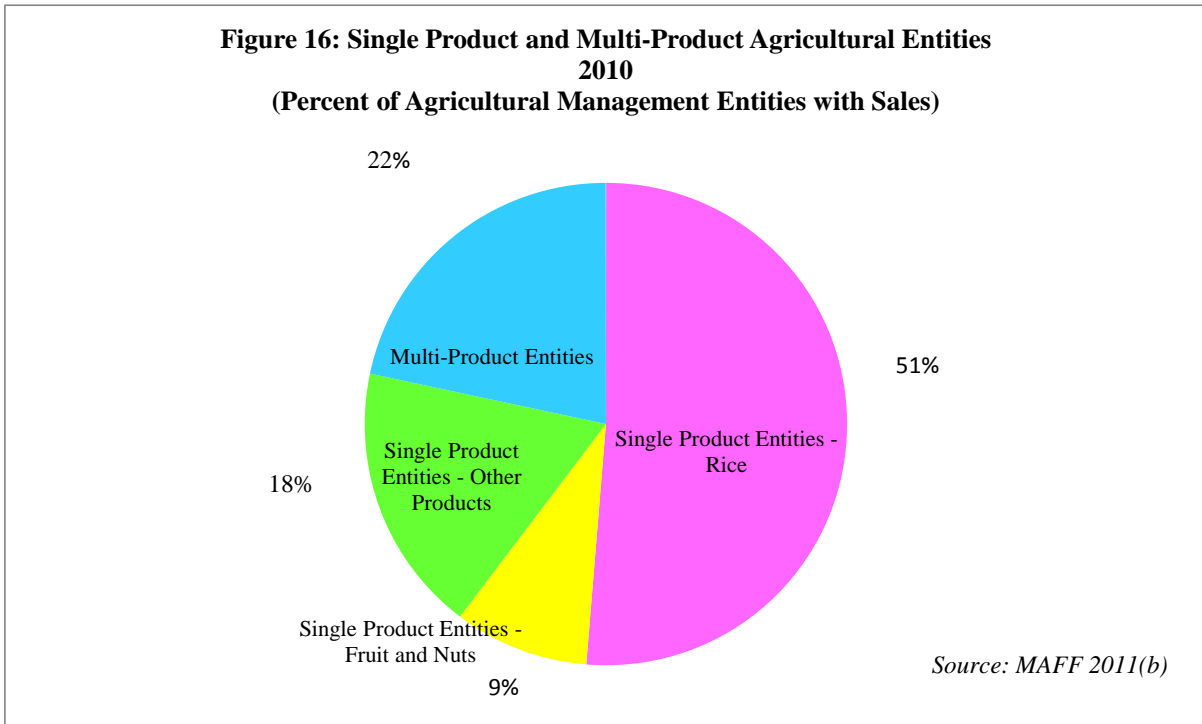


**Figure 15: Commercial Farm Households Planting Paddy Rice 1990-2010**



Furthermore, among the 78% of the agricultural management entities with sales that are classified by MAFF as single product entities, 51% have rice as their main crop, meaning that rice accounts for more than 80% of the output of over half of these agricultural entities.<sup>9</sup> This is shown in Figure 16.

**Figure 16: Single Product and Multi-Product Agricultural Entities 2010 (Percent of Agricultural Management Entities with Sales)**



<sup>9</sup> Units are classified as “single product entities” if their main crop or product accounts for more than 80% of their sales.

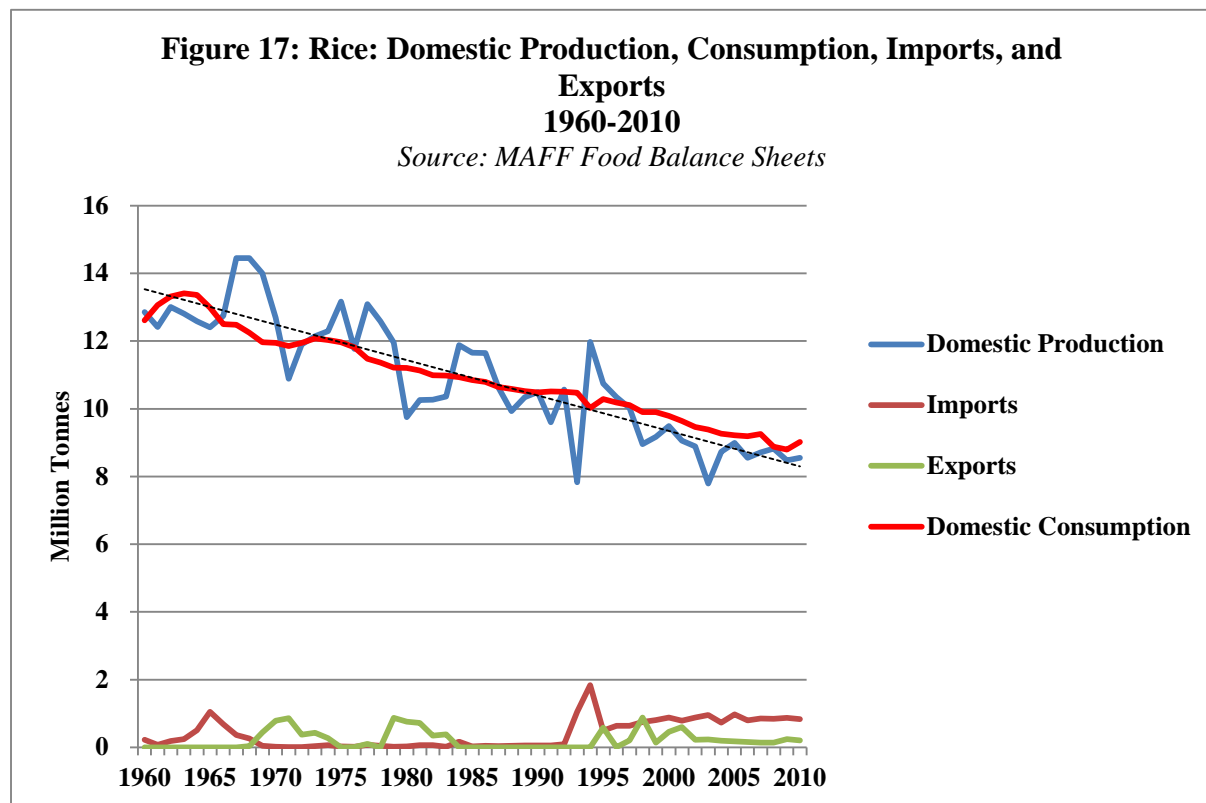
Since 1998 the government has also operated income stabilisation programmes for rice farmers who choose to participate in them. Participation in the production adjustment programmes is required in order to get the full benefits of the stabilisation programmes. In 2008 a reform was introduced with aim of concentrating assistance on larger, more efficient farms. In 2010 this approach was replaced by a new system of income support payments available to all farmers regardless of farm size, introduced initially as a pilot programme for rice farmers, to be subsequently extended to producers of crops such as wheat, barley, soybeans, sugar, and starch potatoes. Under the new Income Support Direct Payment for Rice Farming, as described in MAFF (2011a), farmers receive a fixed payment of 15,000 yen per 0.1 hectares of planted rice, designed to cover the gap between the assessed standard production cost of 13,700 yen per 60kgs and a standard selling price of 12,000 yen per 60kgs. An additional price-contingent payment is triggered if the average producer price in any current year falls below the standard selling price. In 2010-11 a price contingent payment of 15,100 yen per 0.1 hectares was triggered in this way.

According to MAFF (2011a) the number of recipients in 2010 under the pilot Income Support Direct Payment programme for rice farmers was 1.16 million, of which 1.15 million were independent farms. These numbers can be compared with the figure of 1.17 million commercial farm households recorded as planting paddy rice in 2010, as shown in Figure 15. Among the recipients 36% have units larger than 5 hectares, 10% between 3 hectares and 5 hectares, 25% between 1 and 3 hectares, and 29% less than 1 hectare.

With these internal policies in place the Japanese rice market has hitherto been insulated from overseas competition by a prohibitive tariff of 341 yen per kg. On the basis of prices quoted in the FAO's April 2012 rice price report, and an exchange rate of 80 yen per US dollar, this equates to an *ad valorem* tariff of 534% on US medium grain California rice, 800% on Thai rice, and 1082% on Vietnamese rice. Under its WTO commitments Japan imports small specified quantities of rice under a tariff rate quota system (TRQ) at zero tariff rates. MAFF's Food Agency has the sole right to import rice under the TRQ. Part of the quota is delivered into Food Agency stocks, from where it can be sold into the Japanese domestic market with a mark-up determined by the Food Agency, and the remainder is sold to private traders under a Simultaneous Buy-Sell (SBS) auction system under which the Food Agency's mark-up is effectively determined by the traders' bids.

Figure 17 highlights the near completeness of the insulation of the Japanese market from import competition. After 24 years of minimal imports from 1969 to 1992 and a brief upsurge in imports in 1993/94 to offset an especially low Japanese harvest, imports settled into the pattern of low level of annual imports conceded by Japan in its WTO Uruguay Round commitments. Throughout the period the downward adjustment of Japanese rice production, responding to the long term decline of domestic consumption, has been able to proceed virtually undisturbed by any significant impact from international markets. Of some interest is the emergence in some periods, including the period since 1997, of modest levels of exports despite

the high production costs in Japan, suggesting potential for the development of niche export markets for Japanese rice.



#### 4.2 Dairy

In the national debates about agriculture reform and trade liberalisation, dairy is seldom mentioned, perhaps because the 20,000 farms engaged in dairying is a small number when compared with 1.6 million rice farmers. A decline in the number of dairying units, moreover, has been accompanied by a steady increase in the number of cows per farm, as well as yield per cow. In some respects, then, dairy appears as a relative success story, yet many of the issues discussed with respect to rice farming also apply to dairy farming, calling into question the sector’s future sustainability even without trade liberalisation.

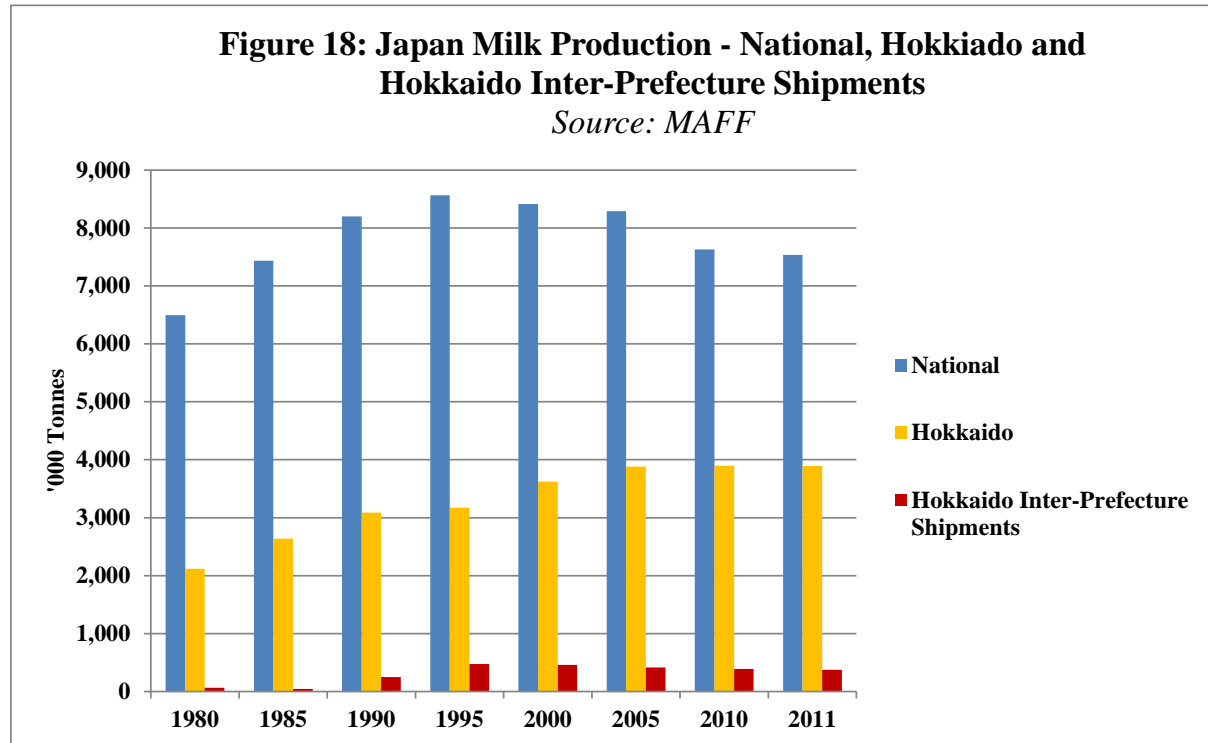
Despite government attempts to encourage the expansion of production, Figure 18 shows that national output of raw milk output has declined continuously since the mid-1990s, with a slight upturn in 2012 in Hokkaido and Tohoku in 2012 after a disaster-induced dip in 2011.

Figures 18 and 19 also illustrate the bifurcated structure of raw milk production in Japan, with over half (52%) of the 7.5 million tons produced in Hokkaido on farms with an average of almost 70 cows, primarily (76%) for processing, and just under half produced elsewhere, on farms with an average of 35 cows, predominantly (88%) for drinking. The decline in total raw milk output since the mid-1990s has been due to a substantial decline in production outside Hokkaido, and largely reflects

the decline in consumption of drinking milk. An increase in production of processing milk, and the related increase in milk production in Hokkaido, was not sufficient to offset the fall elsewhere in production of drinking milk. More recently, both production of processing milk and Hokkaido milk production appear to have flattened out.

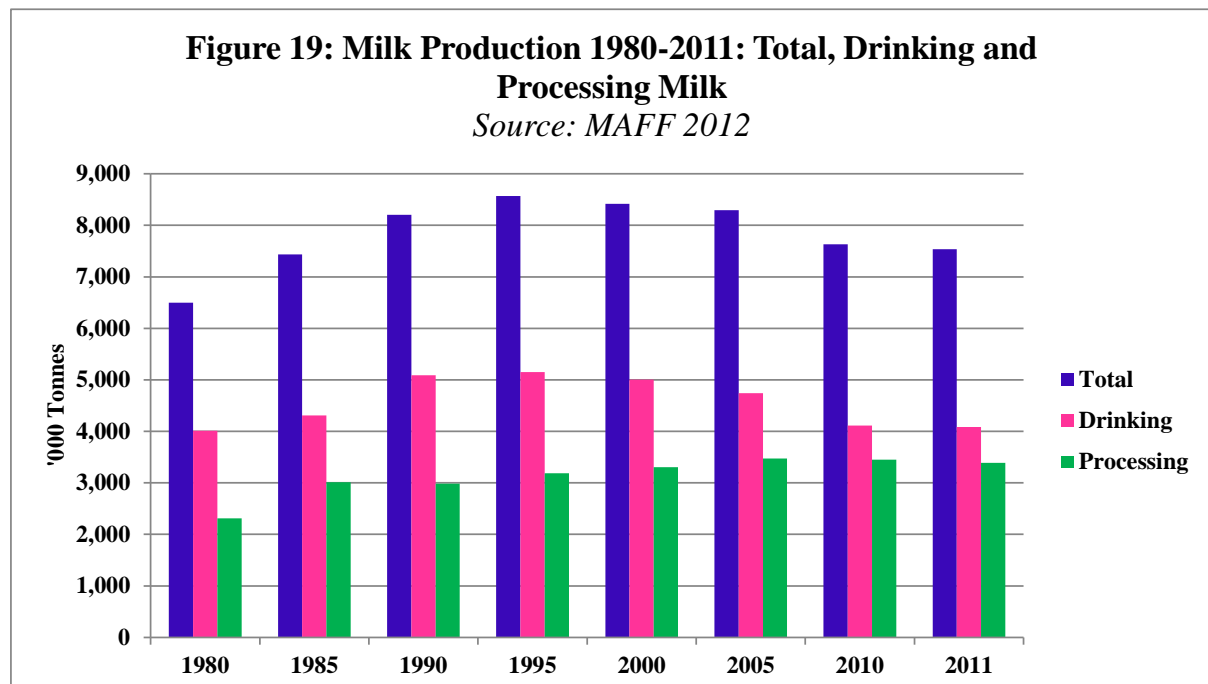
**Figure 18: Japan Milk Production - National, Hokkaido and Hokkaido Inter-Prefecture Shipments**

*Source: MAFF*

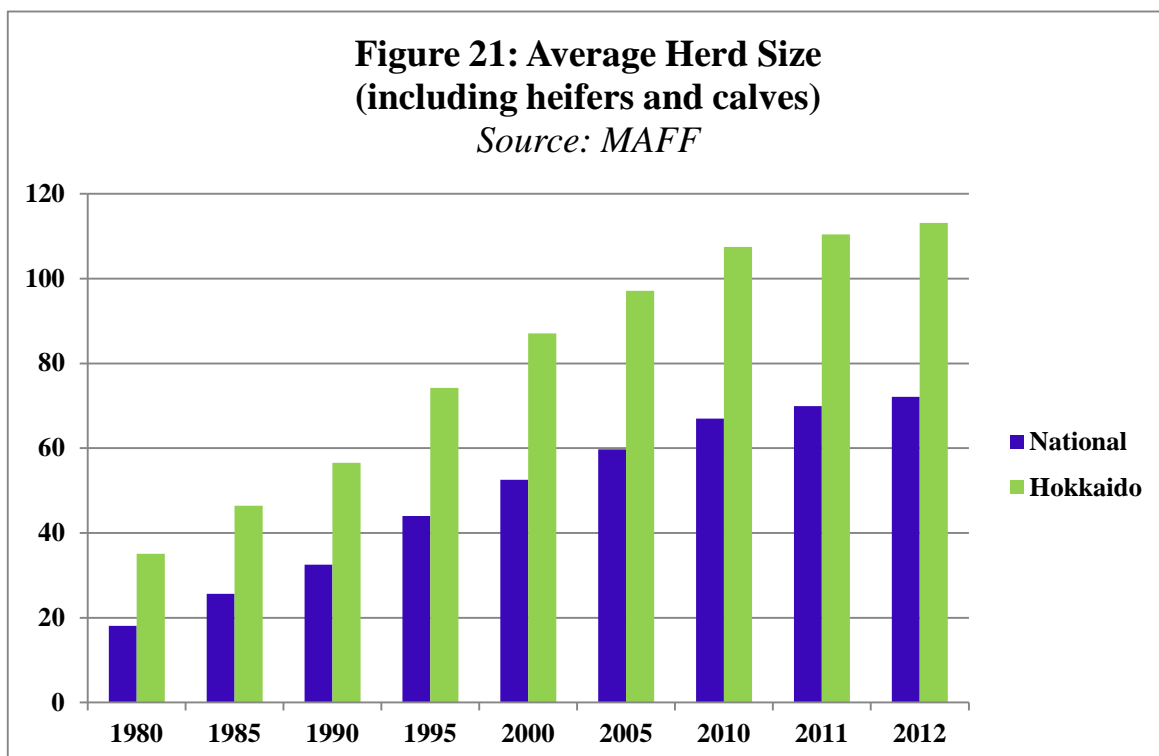
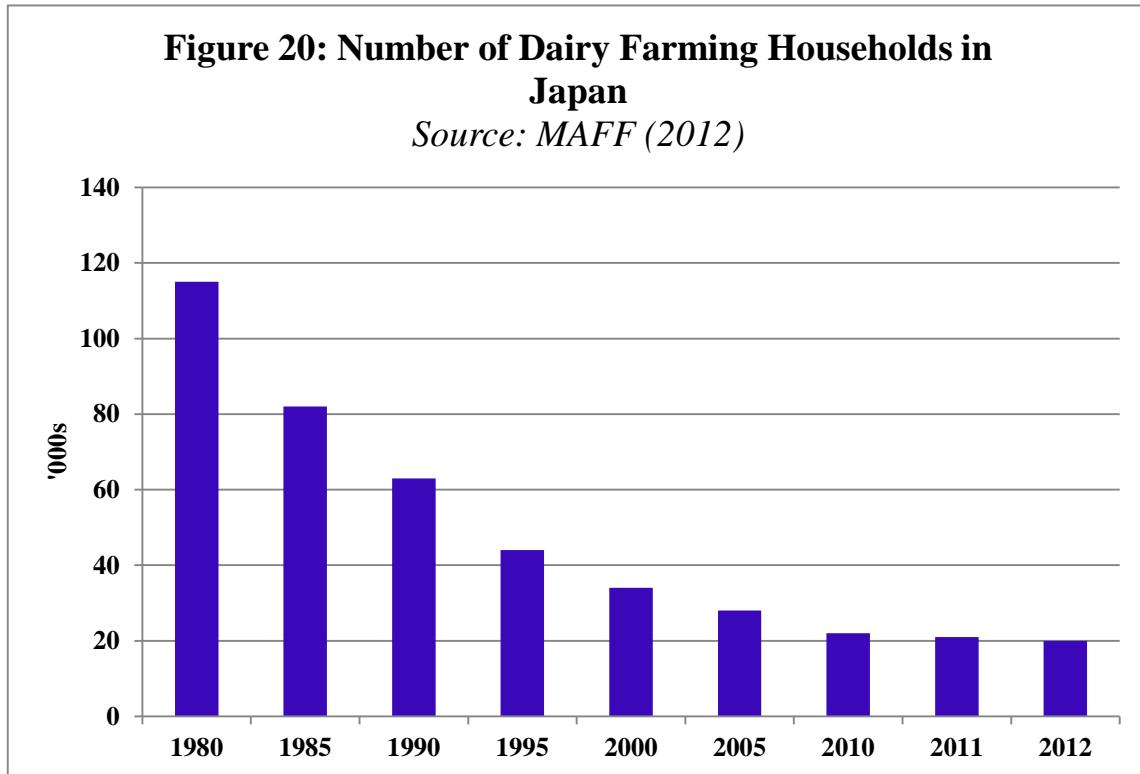


**Figure 19: Milk Production 1980-2011: Total, Drinking and Processing Milk**

*Source: MAFF 2012*

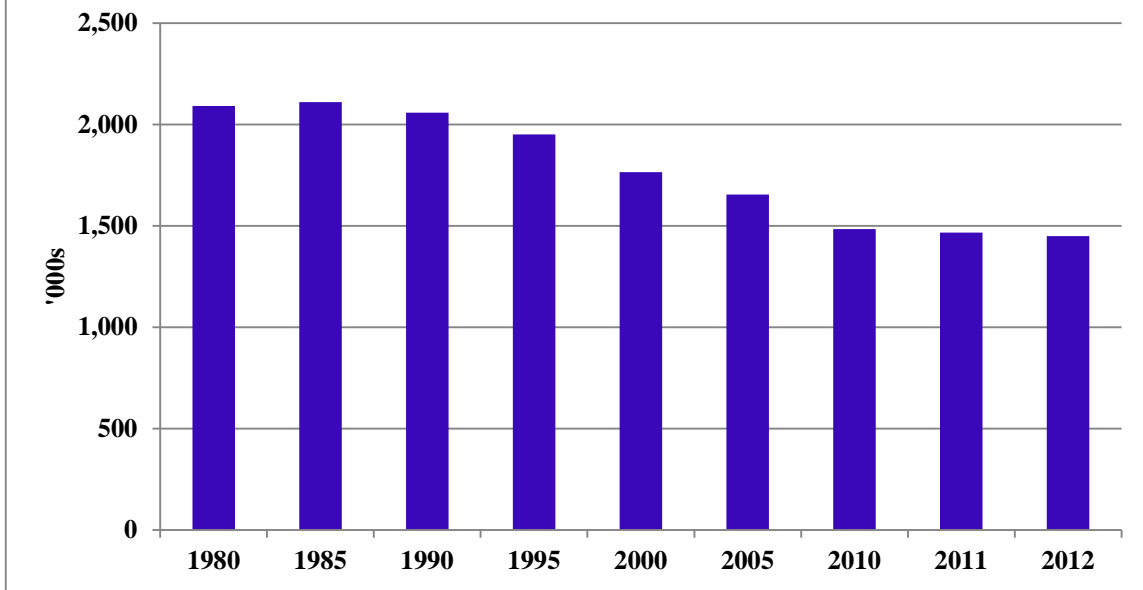


As Figures 20-23 show, in both Hokkaido and elsewhere there has been an ongoing change in the structure of dairy farms since at least the early 1980s, with a sharp fall in the number of farms being largely but not completely offset by an increase in the average herd size on individual farms, and the fall in cattle numbers being largely but again not wholly offset by a rise in the milk yield per cow.



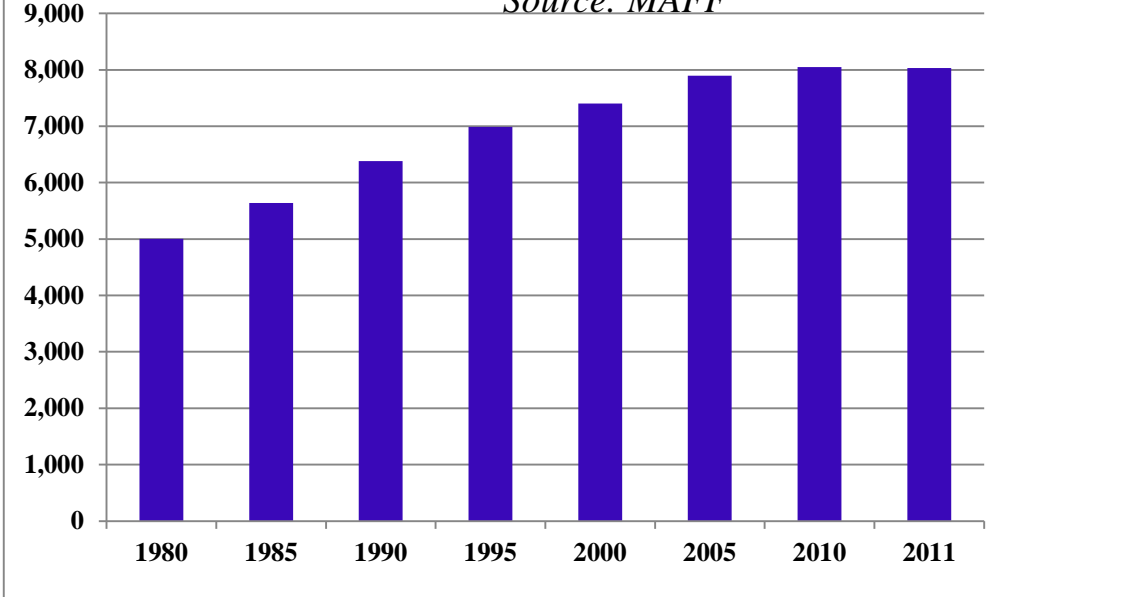
**Figure 22: Number of Dairy Cattle**

*Source: MAFF*



**Figure 23: Milk Yield (kg/cow)**

*Source: MAFF*



The bifurcated structure, which makes production costs in Hokkaido significantly lower in Hokkaido than the rest of the country, is maintained through a system of regional production quotas allocated to regional associations under the Japan Dairy Association, as well as a subsidy for manufacturing milk to compensate for the lower price farmers receive relative to drinking milk. By agreement, Hokkaido milk can be diverted to Honshu for drinking, as has happened in the wake of the Tohoku and

Fukushima disasters. Around 4 million tons of dairy products (milk equivalent basis) are imported into Japan as well – these are subject to tariffs and tariff quotas, and are used for manufacturing.

The processor and manufacturer structure is also somewhat bifurcated. On the one hand there are about 500 small makers of drinking milk, who mainly supply school lunches locally. With the decline in school pupils, this number is also declining, but so far there has been little consolidation, and it increases the scope for retailers to put pressure on manufacturers. On the other hand, there are a number of large, manufacturers, notably Meiji, Morinaga and Snow/Meg, who produce both drinking milk and a wide range of other dairy products. The manufacturers are under considerable pressure from retailers, particularly on prices for drinking milk, which have declined over the past two decades. There is little scope – or incentive – for them to pass this pressure on to producers, however, and manufacturers themselves talk about producers and processors as being part of a “village” (while retailers have become semi-detached). Thus their public position on trade liberalisation has been one of “village solidarity”. Faced with mature or declining domestic markets, the leading producers are seeking to expand international operations, but these are from a low base, and cautious. There are few businesses which integrate production and processing (let alone retailing), and those that there are, are relatively small and tend to operate locally. The overall structure projects an emphasis on stability, but one which is subject to increasing pressures and overall shrinkage.

As noted above, raw milk output has declined continuously since the mid-1990s, despite government attempts to encourage the expansion of production. If expansion is to happen anywhere, it is likely to be in Hokkaido, but even there, few believe this will happen to any significant extent. Industry participants point to future uncertainty, which makes investment risky. With increasing farm scale, the risk rises further. It is further intensified by volatile feed prices, where a significant amount of feed is imported. (Feed accounts for some 30% of production costs in Hokkaido; it is higher elsewhere in Japan.) At the same time, government support through various subsidies is expected to shrink, and the possibility of trade liberalisation is a further factor.

The investment environment is not the only factor, moreover. Increasing the farm scale can necessitate taking on employees and increasing capital intensity, and requires new management skills. “Mega farms” are thus viewed with some ambivalence. For some observers we spoke to in Hokkaido, the very measures used to raise productivity in the industry – measured in terms of fat content and output per cow – may have decreased the attractiveness of the industry for successors, potential spouses and new entrants. They increased reliance on feed mixes which had to be imported, as well as equipment to process it. This requires daily routines organised around largely sedentary –and very large – Holstein cows, including effluent processing, which is at odds with idyllic images portrayed on milk packages, or on TV. The productivity and performance targets, and the business model needed to achieve them, leave relatively little scope for experimentation, for example with other breeds, or with mixed grazing methods.

Thus many of the ageing and succession problems found in rice farming are also found in dairy. The average age of dairy farmers in Hokkaido is increasing as it is elsewhere in Japanese agriculture, and there are succession problems even in bigger farms in the eastern Tokachi/ Obihiro region. Although somewhat dated, one report (Norin suisan choki kin'yu kyokai, 2005) cited the main reasons for farmers moving out of dairy in Hokkaido as ageing, retirement or lack of a successor; management problems or concern about the future; death, sickness or accident; conversion to another type of farming; and conversion to a company form of management. In fact, driving past a number of farms growing crops like sugar beet which were once dairy farms in the heartland of Tokachi/Obihiro, one gets a sense that dairy is not an easy industry to be in, despite what outsiders think.

Even the potential beneficiaries of trade liberalisation, such as dairy farmers in Hokkaido, or manufacturers, feel they could easily be swamped by significant change. Thus it is not surprising to see producers lobbying to have individual income support extended to dairy (eg, Kobayashi ed., 2011).

## **5. Revitalising Japanese Agriculture and Adjusting to the TPP**

### *5.1. Revitalisation of Japanese Agriculture as a Feasible Goal*

It is not the purpose of this report to set out detailed proposals for the revitalisation of Japanese agriculture. That must be a task for Japanese experts. This report does set out to make the case, firstly, that Japan faces a choice between a future in which agriculture is revitalised, and a future in which agriculture faces a continuation of long term decline, and secondly, that a revitalised Japanese agriculture is more likely to emerge under TPP than without it.

A necessary condition for agriculture to prosper under TPP is that a substantial proportion of production across a range of major agricultural sectors takes place at costs that enable domestic production to compete effectively with unrestricted imports. The existence of the potential to achieve the improvements in productivity and associated reductions in production costs that would enable this condition to be met is therefore central to the argument advanced in this report.

Evidence of potential for these productivity improvements and cost reductions can be sought at both the macro level and in relation to specific products. At the macro level, the Agricultural Policy Committee of the Japan Productivity Center<sup>10</sup> notes that the productivity level of Japan's agricultural sector is approximately 50% of that of Western countries, and argues that the productivity of Japan's agriculture must be enhanced to arrest and reverse the sector's decline. It may be anticipated that the assessment now under way in Japan of possible lessons to be drawn from Dutch agriculture may yield insights into effective strategies for improving the productivity of Japanese agriculture. Given the preponderance of small farms in Japan, and survey evidence that agriculture on small-scale Japanese farms is, on average, unprofitable, it may be natural to conclude that increasing the scale of Japanese

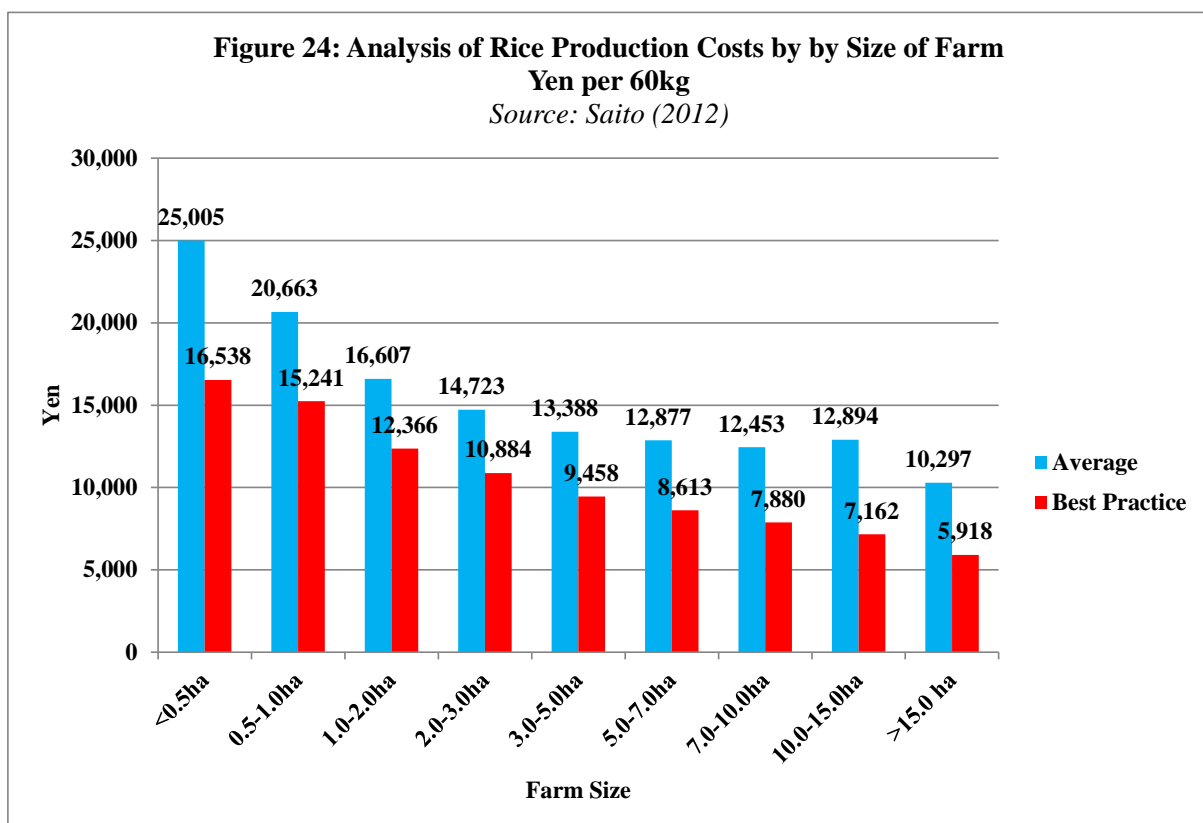
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<sup>10</sup> <http://www.jpc-net.jp/eng/committee/committee12.html>, accessed 2 August 2012



farms will lead to substantial improvements in productivity. On the other hand, there are Japanese experts such as Godo who argue that there are risks associated with increasing scale, and that the central problem facing Japanese agriculture is the decline in skill levels of Japanese farmers, and that reversing this decline holds the key to raising the productivity of Japanese agriculture.<sup>11</sup>

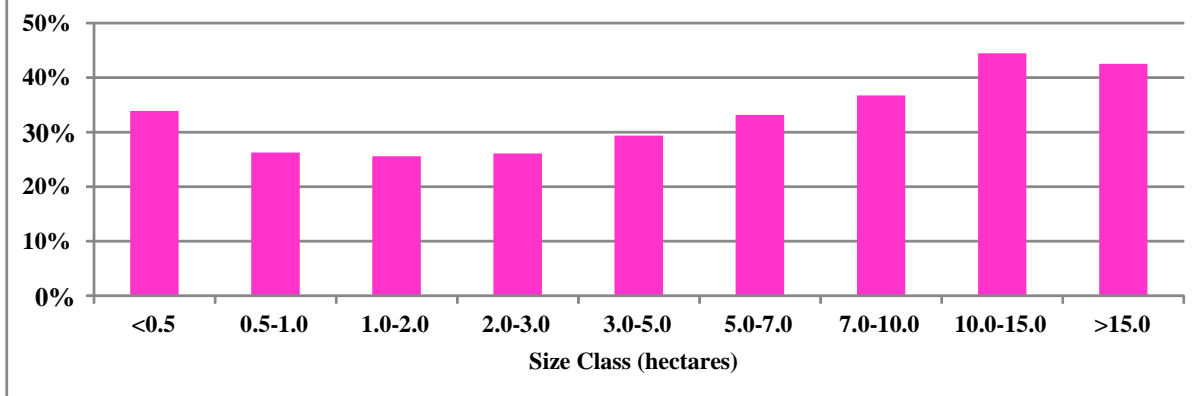
Analysis of production costs in Japanese rice farming by Saito (2012) can be interpreted as providing support for both approaches. Saito compared average production costs and the production costs of the most efficient farmers in each farm size class. The results are summarised in Figure 24.



The very large gap between the production costs of average and most efficient farms is highlighted in Figure 25. The difference ranges from 26% for farms between 0.5 and 2 hectares in size to 44% for farms between 10 and 15 hectares in size, and is also particularly large for farmers greater than 15 hectares in size and the very small farms below 0.5 hectares.

<sup>11</sup> Y. Godo, personal communication.

**Figure 25:**  
**Percentage Difference in Rice Production Costs**  
**Average v Most Efficient Farms in Each Size Class**  
*Source: Saito 2012*



**Figure 26: Rice Production Costs on Smaller Farms Compared to Farms Over 15 Hectares (Percentage Difference)**

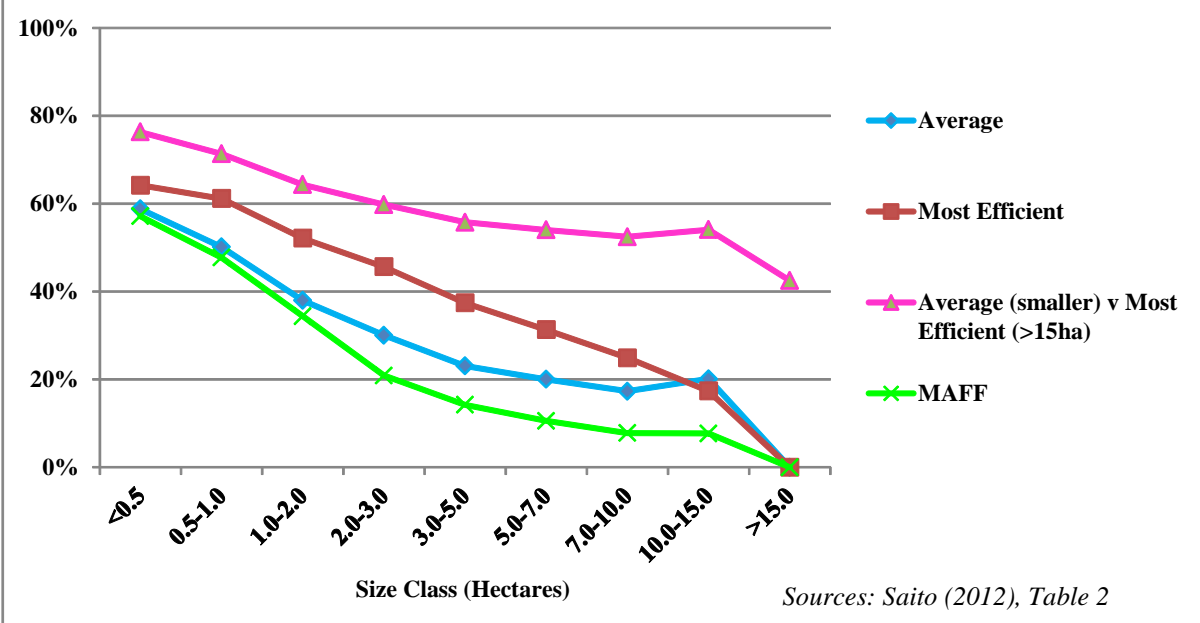


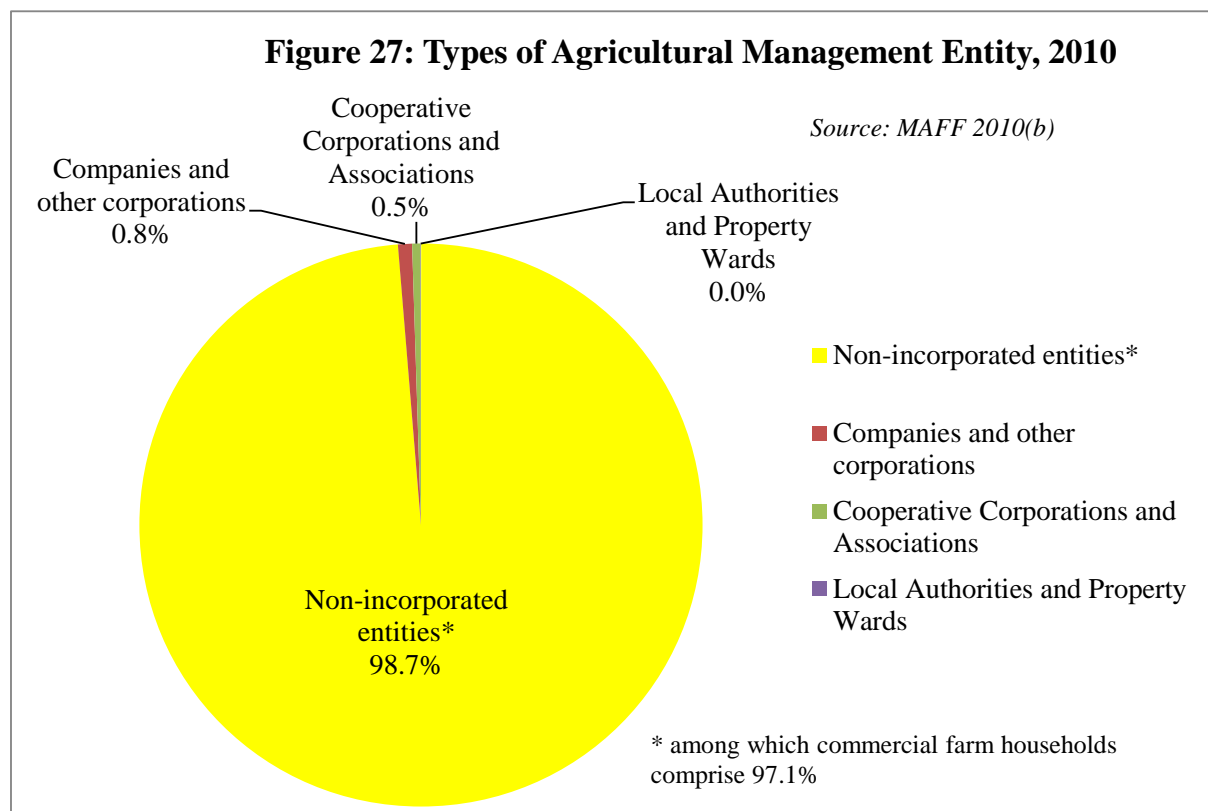
Figure 26, summarising the extent to which production costs on smaller farms exceed the costs on farms over 15 hectares, shows clearly that production costs also increase sharply with decreasing farm size, as would be expected. In Saito's analysis the cost differential for farms smaller than 0.5 hectares reaches 59% when average farms are compared and 64% when the most efficient farms are compared. The differential is 50% of more for all average farms smaller than 2 hectares and all "most efficient" farms smaller than 2 hectares. When costs for smaller farms in the

average category are compared with the most efficient farms larger than 15 hectares, the differential is 76% for the smallest farms and 43% even for farms between 10 and 15 hectares. Figure 26 also shows corresponding figures from the MAFF survey data summarised in Table 2 above, which follow a pattern similar to those in Saito (2012) but at a slightly lower level. The MAFF data however is not specific to rice. To the extent that it can be relied on it may be taken tentatively as an indication that the relationship between farm size and production cost may hold across the agriculture sector as a whole.

Comparable product-specific data for other crops and for livestock products does not appear to be available. Hatayama et al (1998) provide data indicating a difference between the production costs of average and most efficient dairy farms in Hokkaido of approximately 17%.

The data does strongly suggest that increasing the average farm size through land consolidation and wider dissemination of existing best practices can potentially lead to very substantial increases in productivity. The development and introduction of new technologies and farming practices could further enhance the potential for raising productivity levels.

There has been considerable discussion about allowing corporations to become more involved in agriculture, and opposition to this idea appears to have diminished somewhat. An amendment to the Farmland Law in 2009 aimed to encourage the entry into farming of corporations as well as individuals, by allowing any corporation to lease land, and permitting land rental contracts with duration up to 50 years. MAFF 2011(a) notes with apparent approval an increase in the number of corporate entrants into the agriculture sector since the



end of 2009. Nevertheless the number of corporations engaged in agriculture is still very small, as Figure 27 shows. Commercial farm households remain overwhelmingly the dominant form of organisation in Japanese farming.

### 5.2. *Obstacles to Fundamental Change in Japanese Agriculture*

As the debate over TPP has unfolded, questions over the sustainability of the current model of Japanese agriculture have come increasingly to the forefront. Recognition that change is inevitable extends beyond the longstanding advocates of reform, such as Yamashita, Honma and Godo, and is now evident across a wide spectrum of agricultural experts, as well as at high levels of today's Abe government. Change has in fact been taking place in Japanese agriculture, but the pace of change has been very slow and falls well short of the fundamental changes that Yamashita and others argue are necessary to secure the long term sustainability of Japanese agriculture. To understand the obstacles to more fundamental change we must understand something of the policies, politics and institutional structures which shape agriculture in Japan.<sup>12</sup>

In fact, many of the issues raised in today's debates are not new, and have been recognised by MAFF for a very long time. Land reform after World War II may have democratised Japanese agriculture and empowered former tenants, but the resulting fragmentation has long been seen as problematic. Thus: 'The Agricultural Basic Law, which came into force in 1961, was aimed at structurally reforming an agricultural sector dominated by micro-farms, but the lack of political enthusiasm for structural reform meant that there was no drive to carry out fundamental revisions to the Agricultural Land Law' (Yamashita, 2008-09a. In fact, a parliamentary bill to promote consolidation was defeated twice in 1964.) This has continued to be the case, even though a new impetus for change was generated in the late 1980s and early 1990s during the Uruguay Round, for example.

The "lack of political enthusiasm" can be attributed to the interlocking "iron triangle" of politicians from the Liberal Democratic Party who relied on rural votes for election and delivered rents to rural constituencies in return, MAFF bureaucrats who benefited from a regime of intervention, and the *nokyo/JA* complex, which became very powerful through its political, economic and social positioning.

With regard to MAFF, George-Mulgan (2005) argues that the Ministry has had a vested interest in sustaining an architecture of intervention, and hence resisting market-oriented reforms, and that "agricultural support and protection in Japan are *not only politically demand-driven but also bureaucratically supply-driven* irrespective of demand" (p.2). Moreover, "the interests of the MAFF in maximising intervention should be perceived as a separate and distinct causal factor contributing to the preservation of Japan's agricultural policy regime." Indeed, she predicts (2006: 182): "change will always observe 'first principles', that is, it will always observe the MAFF's intervention-maximising principle. There will be no substantial

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<sup>12</sup> An extended discussion is beyond the scope of this paper; for this, see for example Aurelia George Mulgan (2000; 2005; 2006).

deregulation; agricultural spending will be rejigged but only retrenched by dint of 'global' budget cutbacks; and direct market participation will be maintained in all those areas where it generates monetary gains for the bureaucracy." Policies developed and implemented by MAFF, aiming for example to encourage consolidation of rural land holdings, attract young people into farming, and revitalise rural villages, have to be understood within this context: MAFF is institutionally conditioned to minimise the impact of these policies on its own interventionist role within the architecture of Japan's agricultural policy regime.

Commentators such as Honma have repeatedly emphasised the "blocking power" of *nokyo* in relation to agricultural policy change. The power of *nokyo* derives from the size of its membership, its role in the operation and distribution of government support for agriculture, and its pervasive role in the commercial life of the rural sector.

According to MAFF's "Statistics on Agricultural Cooperatives" for the 2009 Business Year, in 2009 *nokyo*'s membership comprised 4,127,031 Regular Member Households and 3,931,565 Associate Member Households, a total of just over 8 million. This contrasts with statistics showing 2.1 million commercially active farm households. *Nokyo*'s membership, and the potential political power derived from the size of its membership, is thus much greater than would be indicated by the share of agriculture in total employment or total economic activity. Its political power is further accentuated by the disproportionate weight given to rural votes in Japan's electoral system.

*Nokyo* also derives power from being the designated channel for some forms of government financial support to agriculture, and also from its role in enforcing conditions under which government support is provided. In the dairy sector, for example, prices are supported by a system of market segmentation in which production levels are allocated to each region, and within each region to each producer. This system is administered by *nokyo*, who are also responsible for the distribution of government subsidies to the dairy sector. Eligibility for these subsidies is in turn made conditional on participation in the *nokyo*-administered system of production control.

*Nokyo* also provides a near complete range of commercial services to the rural sector, including marketing of outputs, supply of inputs, and supply of banking, insurance and travel services. Although its near monopoly in the supply of these services is gradually being weakened, its dominant role in the supply of rural banking services in particular is a major source of influence, and helps to explain why *nokyo*'s membership is so much larger than the number of active farmers, since most of *nokyo*'s members are customers for its banking services. Profits from *nokyo*'s banking services are important in covering any losses in *nokyo*'s other commercial services. At the same time, the importance to *nokyo* of maintaining its numerical strength provides an incentive to ensure that its banking arms continue to support uneconomic farmers.

The power that *nokyo* derives from its centrality in most aspects of rural life is intimately linked to the maintenance of government agricultural policies and the resulting high prices for agricultural outputs, as Yamashita (2008-09c) explains: "JA's development into a powerful organisation and farm lobby was inextricably tied to inflated rice prices. Demand for staple foods like rice is inelastic, which means that over the short term, at least, higher prices simply boost net sales, translating into higher commissions for JA. Under the staple food control system, moreover, any surplus rice produced as a result of these increases in prices was disposed of at the government's expense. In addition, the government's rice payments to farmers were automatically transferred into JA accounts, putting these ballooning deposits at the organisation's disposal. Furthermore, the Norinchukin Bank, the nationwide organisation of JA financial services, where the government deposited the advance payments, was able to make huge profits by managing the funds on the call money market before the time came to forward payment to the local JA cooperatives. Higher producer prices also make it possible for farmers to pay more for the supplies they buy from their local JA cooperatives, such as chemical fertiliser, pesticides and machinery... Furthermore, since JA provided loans to the fertiliser industry using member's bank deposits, high fertiliser prices helped secure high returns on those deposits...".

While *nokyo* is often allocated a key role in implementing government reform or restructuring policies in agriculture, Honma and others emphasise that *nokyo* has no incentive to facilitate the success of any policies that result in a reduction in the number of farmers or a reduction in prices for farm products, given the importance to it of maintaining its membership numbers, and given that its revenue from marketing activities is based on a percentage of price.

There is clearly a need to limit both the capacity and incentives for *nokyo* to resist reform, but achieving this will not be easy. One set of measures suggested by supporters of reform involves deregulating rural banking, so that *nokyo's* banking operations face greater competition in future, and also separating *nokyo's* commercial operations into separate entities dealing with trading, banking and insurance. Godo (2006) argues that in fact financial liberalisation in the 1990s already began to weaken JA/*nokyo*, leading to some unravelling of its systemically interlocking parts. Nevertheless *nokyo* remains a force very much to be reckoned with in agricultural politics, as its ability to mobilise opposition to the TPP attests.

These dynamics help to explain the existence within debates over the future of Japanese agriculture of two fundamentally opposed visions for change in Japanese agriculture. One is an essentially gradualist approach promoted in recent times by MAFF, implemented with the ambivalent assistance of JA, and favoured by researchers close to the plethora of organisations they support. The other is a vision of fundamental market-oriented reforms favoured by those who see the "iron triangle" as a core feature of the agriculture problem. In the middle ground are a small number of researchers who try to bridge the chasm between the two camps by questioning the feasibility rather than the desirability of fundamental market-oriented reforms. All three groups accept the need for change in Japanese agriculture and agriculture policy, the first adamantly opposes TPP participation, the

second favours it as a lever to overcome institutional resistance, while the intermediate position is somewhat ambiguous, but argues for feasible institutional reform.

An example of the first approach is the “sixth industry” (*rokuji sangyo* – primary industry x secondary industry x tertiary industry) concept. The term was coined by Imamura Naraomi, an agricultural economist and chair of the Agriculture and Fisheries Village Culture Association, an organisation vehemently opposed to TPP.<sup>13</sup> It was incorporated by MAFF into its 2010 Basic Plan, and subsequently into a new law passed in 2011. It refers to the linking of agricultural production (primary industry), processing (secondary industry) and sales and marketing, extending into export markets (tertiary industry), but from the logic of upstream growers moving downstream, rather than the reverse. Imamura created the concept as a response to the perceived trend of producers getting smaller and smaller returns for their produce in increasingly globalised value chains. While proposed as a way forward for farming villages, it may also be seen as basically congruent with the multiple income stream concept which led to the growth of part time farming in the high growth era, as opposed to the pursuit of consolidation.

Somewhat related, but of interest across the reform spectrum, is the concept of “Dutch-style” agriculture. Harada (2011) points out that despite its size, Holland exports US\$80 billion in agricultural products, in sharp contrast to Japan (cf. also Kawashima, 2011). Like Japan, moreover, Holland has a high population density per hectare of agricultural land. There are several concepts which jostle amongst the literature on ‘Dutch-style’ agriculture:

- 1) Holland is a tiny country in land area, but has huge agricultural exports. The exports are not just based on its own agricultural crops, but it also imports food, adds value and exports food products. If Holland can do this, why not Japan?
- 2) Another way forward is through the application of science in ‘agriculture factories’ – crops grown indoors through scientific means, obviating the need for large amounts of pesticide, allowing relative standardisation, etc. A somewhat idealised image is projected onto Holland as having a very clever approach to managing all aspects of commercialisation of agricultural products, including human resource management.
- 3) An image of a community-based agriculture combined with environmental considerations.

With a plethora of new initiatives and policies, issues of policy coherence have been thrust into the spotlight, and these issues tend to be highlighted by researchers taking an intermediate position between the two extremes. Some issues are longstanding, like the underlying tension between acreage control policies and self-sufficiency targets. More recently, the ‘individual producer income compensation’ scheme which at least in part carried the Democratic Party of Japan to power in

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<sup>13</sup> Japan Knowledge: <http://www.jkn21.com.ezproxy.auckland.ac.nz/body/display>, accessed 20 July 2012; cf. also Shinoda Masato in Keiei online: [http://keiei-online.jp/column/noshoko/post\\_258.html](http://keiei-online.jp/column/noshoko/post_258.html), accessed 21 July, 2012

2009 threw sand into the wheels of the slow movement towards consolidation. Indeed, Shogenji (2010) writes of “agriculture policy deterioration” in addition to “agriculture production deterioration” and “rural village deterioration”. Moreover, Shogenji points to a number of developments which will make policy reform – and coherence – more difficult than ever in the coming years.

Shogenji (2010) argues that to be effective, agriculture policy must distinguish between paddy rice, grown on flat areas, and agriculture (predominantly rice farming) carried out in intermediate and mountainous areas (*chusankan chiiki*). The former, he argues, requires targeted, market-conforming or enhancing policies, coupled with human resource development. The latter, however, require integrated policies with a focus on local regeneration, and a new set of ‘3K’ themes (*kankyo* – environment – *kyoiku* – education – and *kenko* – health), coupled with direct subsidies. In fact, there needs to be discussion about which villages are viable to maintain and support, and which should be ‘returned to nature.’

To achieve nuanced policy, there must be decentralisation. In fact, in a reversal of the centralised thrust of post-war policy the new Basic Law of 1999 finally envisaged a role for local bodies to take part in both policy formulation and implementation. However, concurrent developments have undermined their ability to do so.

First, the amalgamation of local bodies, which began around 1999, saw the number almost halve from 3252 to 1750. The more rural the area, the larger the scale of the amalgamations, as well as the resulting job losses, which were greater in agricultural services than other areas. Thus the ability of local bodies to engage in more nuanced policy formation was undermined, as new expectations were being thrust on them. Second, new bodies were mandated to engage in decentralised policy deliberation and implementation – so-called deliberation councils (*kyogikai*) – on a policy-by-policy basis. These included budget allocations, which were difficult for local government bodies to monitor, reinforcing the tendency to look to the centre for advice, and increasing the danger of accountability slippage, if not corruption. Indeed, some local bodies have complained that they can’t implement new policies because they cannot ensure accountability. In many cases, moreover, JA-related staff have filled key positions, potentially reinforcing the status quo.

Faced with the looming sustainability issues suggested in our analysis, the very slow pace of agriculture reform and the difficulties of working with entrenched interests and institutions, as well as the potential for continued policy deterioration, the advocates of fundamental reform see a combination of “game-changing” initiatives, including far-reaching trade liberalisation and institutional reform of both MAFF and JA structures as essential to achieving a breakthrough to the changes they argue are crucial for the future of Japan’s agriculture. While also recognising that new measures are needed to encourage new entrants into agriculture, and to nurture skills, they argue that this is best done by allowing market forces to create the incentives for this to happen.



### 5.3. Scope for Successful Adjustment to the TPP

While measures to facilitate productivity improvements and reinvigorate rural communities have been under way for some time, it is recognised that the development of a comprehensive policy package for the revitalisation of Japanese agriculture is a challenging task likely to extend over a number of years, involving difficult issues related to land use and ownership and likely also to require far-reaching administrative changes. A commitment to join the TPP would undoubtedly create an imperative for this task to be addressed effectively and expeditiously. This leads naturally to the question of how the process of revitalising Japanese agriculture can be sequenced and eventually merged with the implementation of the TPP and the resulting adjustment process, to which the report now turns.

It is important to recognise from the outset that a commitment to the TPP will not involve immediate liberalisation of Japanese agriculture. Even under an optimistic scenario, negotiation, conclusion, ratification and entry into force of the TPP is likely to take at least another three years. Based on precedents with other agreements as well as understandings reportedly reached within the TPP negotiations it can be anticipated that implementation by Japan and other members of commitments to liberalise sensitive sectors like agriculture will be spread over up to ten years. The time period available for Japanese agriculture to prepare for the full impact of the TPP could thus be up to 13 years.

The sectors facing the greatest adjustment challenges from TPP are well-known: rice, dairy products, wheat, beef and sugar. Tariff protection for a number of other sectors is already low or zero. In particular, tariffs on vegetables, which now account for about 35% of the value of Japanese agricultural production, typically range between 3% and 10%, with many tariffs in the 3% to 5% range. This is generally taken as evidence that Japan's vegetable production is already competitive or nearly competitive with imports, and should not face great difficulty in adjusting to the TPP.

Among the sensitive agricultural sectors, Japanese beef producers successfully adjusted to the earlier liberalisation of beef imports, essentially involving the replacement of severe quota restrictions by a 38.5% tariff, by successfully developing the *wagyu* brand, now so well established that the market for *wagyu* beef may realistically be regarded as a market segment distinct from the market for imported beef. Sales are now being developed of *wagyu* beef in export markets, including China and Hong Kong. With this market separation in place there may be grounds for anticipating that even the removal of the current 38.5% tariff under TPP, which in any event may not be completely implemented until 2025 as noted earlier, would not significantly affect Japanese domestic demand for *wagyu* beef. While there would likely be some impact on domestic production of some other types of beef, such as dairy beef, a market-based assessment suggests that the overall effect of TPP on Japanese beef production would not be large.

Rice obviously needs special attention, as it is both the product that involves the highest proportion of Japanese farmers, and also one of the most highly protected agricultural products. A useful initial starting point to discuss adjustment of the rice

sector to the TPP is to note that there is now substantial “water”<sup>14</sup> in Japan’s rice tariff, due to the impact on the domestic price of rice of the combination of falling consumer demand for rice and the replacement of direct price support by more market-based mechanisms for supporting rice farmers. This is illustrated in Table 3, based on the data taken from Godo and Owens (1998), the price for United States medium grain rice quoted in the FAO April 2012 rice price support (FAO 2012), a recently reported Japanese retail price for “Akitakomachi”, a popular variety of rice with Japanese consumers, and an exchange rate of 80 yen per US dollar.

The existence of substantial “water” in Japan’s rice tariff provides a considerable “breathing space” for adjustment to the TPP. According to the illustration in Table 3, it would take eight years for the tariff to fall below the prohibitive level if the phasing of tariffs is spread over 15 years, and six years if the phasing is spread over 10 years. With three years likely to elapse before the TPP enters into force, this means that the TPP would not have any direct impact on Japan’s rice sector until at least 2021 and possibly not until 2023, even if no measures are taken to improve the cost competitiveness of Japanese rice farming in the meantime. If an effective programme to improve cost competitiveness is pursued in parallel to the negotiation and implementation of the TPP, it could be several more years before any direct impact is felt.

The extent of any eventual direct impact would depend on the extent to which rice production in Japan becomes internationally competitive. In that connection it can be noted from Figure 19 that the average cost of production of the largest Japanese rice farms, at 5918 yen per 60kg is already close to the level estimated in Table 3 to be necessary to compete with imports, 5813 yen per kg. The emergence of admittedly modest levels of Japanese rice exports over recent years, as shown in Figure 17, is also an indication that at least some parts of the Japanese rice sector are already producing rice with a combination of price and quality that is competitive in international markets. These indications should give grounds for confidence that implementation of an effective programme for productivity enhancement would enable Japan to maintain a substantial level of rice production able to compete directly with imports in the Japanese domestic market as well as achieving useful levels of exports.

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<sup>14</sup> “Water” in the tariff is the term used to describe the extent to which a tariff exceeds the level required to be prohibitive. For example, if 50% is sufficient to be prohibitive but the tariff is in fact 80%, then 30% of the tariff is “water”.

<b>Table 3:</b>	
<b>Price Comparisons (yen per 60kg) and Tariffs Calculations</b>	
<b>US Medium Grain Rice and Japanese Akitakomachi Rice</b>	
<b>US Medium Grain Rice</b>	
<b>(A) US f.o.b. Export Price Jan-Apr 2012</b>	3,830
L/C and Finance	105
Trading Company Commission	600
Charges at Port	626
Freight and Insurance	652
<b>(B) Landed Price in Japan</b>	<b>5,813</b>
<b>Akitakomachi Rice</b>	
<b>Retail price in Japan</b>	22,200
Less wholesale and retail margins	6,730
<b>(C) Price of imports required for price parity</b>	<b>15,470</b>
<b>Tariff Calculation</b>	
<b>(D) Implicit Prohibitive Tariff, yen (C - B)</b>	9,657
<b>(E) Implicit Prohibitive Tariff Rate, % (C/A)</b>	252%
<b>(E) MFN Tariff, yen (341 yen per kg)</b>	20,460
"Water in Tariff", yen (E - D)	10,803
<b>(F) Ad Valorem MFN Tariff Equivalent, % (E/A)</b>	534%
"Water in Tariff", % (F - E)	282%
Annual reductions over 15 years	1364
Number of years to fall below prohibitive level	8
Annual reductions over 10 years	2046
Number of years to fall below prohibitive level	6

There can also be little doubt that the structure of Japanese rice farming will have changed significantly by the time any direct impact of the TPP begins to be felt. Referring back to Figure 10, it can be seen that by 2021 the cohort of Japanese rice farmers aged 75 and over, which in 2010 accounted for 31% of farmers, would be 86 and over, while the 70-74, 65-69, and 60-64 cohorts, accounting in 2010 respectively for 17%, 14% and 12% the total, would have advanced respectively to 81-86, 76-80, and 71-75, so that by 2021 over 75% of the farming population as at 2010 would be aged over 70.

A further consideration relevant to the potential adjustment process is the evidence from survey data summarised in Figure 9 and Table 2 that, on average, farm households other than business farm households and farms smaller than 1 hectare

derive minimal net income from their agricultural production. While this data relates to the agricultural sector as a whole rather than to rice farming specifically, viewed in conjunction with the production cost data in Figures 24-26 it does suggest that the development of an efficient rice producing sector in Japan will necessarily have to be based around expanding the role in rice production of larger farms operated by business farm households and perhaps also corporate farming entities. At the same time, exit from rice production would not involve a substantial sacrifice of income for the apparently large number of farmers who already derive little or no net income from this source. While the complexity and difficulty of the issues involved should never be underestimated, the evidence presented here suggests that scope exists for a successful adjustment to TPP by the Japanese rice sector at relatively low social cost, at the end of which a vibrant and efficient sector would continue to supply a large part of domestic demand as well as some export markets.

Adjustment both in the rice sector and in sectors that are already more competitive, such as vegetables, can also be facilitated by a range of other programmes directed towards strengthening the attractiveness of Japanese produce to Japanese consumers as well as to consumer overseas for products with export potential. Some programmes of this kind have already been initiated by MAFF and other agricultural organisations. These include programmes aimed at enhancing food safety and food quality, as well as increasing consumer awareness of the distinctive quality and other features of food produced in Japan.

A detailed analysis of possible adjustment in the dairy sector, with its complex existing arrangements, is beyond the scope of this report, but some general observations can be offered. First, since large scale imports of drinking milk are unlikely it will be the domestic market for processing milk that bears the main impact of increased imports due to TPP, whether of milk powder or processed dairy products such as butter, cheese and others. The average price of milk received by domestic producers will fall as a result of the associated fall in the price of processing milk. This potential fall in price may however be at least partly offset by ongoing increases in world market prices for dairy products.

Second, efficient adjustment will necessarily require the dismantling of the regional supply controls that currently segment the national market into separate regional markets. This deregulation is needed to allow for a reallocation of resources within the domestic dairy industry in response to the changed price signals resulting from TPP liberalisation. It will allow efficient producers, primarily in Hokkaido, who are able to supply profitably at the lower prices, to capture shares of the markets in other parts of the country that will be relinquished by producers for whom production at the new prices is uneconomic. The latter are likely to be predominantly small-scale producers in more remote and less productive districts, some of whom may convert to other forms of farming, while older farmers may over time exit from agriculture by retiring. Dairy farmers conveniently located to cities and producing for town supply are likely to be relatively unaffected. Dairy farmers in Kyushu may be able to compensate for any of loss of market share in domestic markets by developing exports to Korea, Taiwan and China.

A possible outcome of such an adjustment process can be envisaged in which a somewhat larger domestic market for dairy products is supplied at significantly lower prices, with the total share of the domestic market supplied by domestic producers and total domestic milk production both having fallen, the latter by significantly less than the former. The market share and total production of more efficient producers such as those in Hokkaido will have risen, while some part of the reduced milk production elsewhere will have been compensated by increased output of other agricultural products as farmers convert to other types of farming. This scenario is consistent with the results of the modelling exercise presented in the next section of this report. Taking into account also that some exits from dairy farming will involve retirements of aged farmers, often without successors, it is likely that the social costs associated with the adjustment will be relatively small, and well within the capacity of government to compensate.

## **6. Modelling the Impact of TPP on a Revitalised Japanese Agriculture**

### *6.1. Rationale and Method*

The TPP debate has prompted something of a minor rush to produce or use new computable general equilibrium (CGE) simulations of the impact of the TPP on the Japanese economy, often with a special focus on apocalyptic projections of the impact on Japanese agriculture. Examples include Suzuki (2011), Takamasu and Xi (2012) and Saito (2012), all of which use the internationally recognised GTAP (Global Trade Analysis Project) model and database.

CGE simulations, and those based on the GTAP model and database in particular, have important advantages for analysing the impact of trade agreements. Because they are multi-sectoral and multi-country in scope they are able to capture the complex network of economy-wide and region-wide feedback and flow-through effects resulting from the multifaceted ways in which domestic and international markets are linked together. The modelling is based on standard economic assumptions about the behaviour of firms and households, the GTAP database used for GTAP-based simulations is arguably the most comprehensively updated and validated database available for this purpose, and the internal consistency of the results is assured because the model is strictly constrained to operate within the resources available in each economy. Despite these very important advantages, the results from GTAP simulations can be heavily influenced by assumptions introduced into the model, and the apparent policy implications can be significantly influenced by the exercise of selectivity in the organisation of the data and presentation of the results. This section of the report presents the results of new simulations based on assumptions incorporating considerations that are omitted in the studies cited above. These results are argued to present a more balanced picture of the opportunities and challenges for TPP Japanese agriculture under TPP.

The simulations reported here utilised the standard GTAP model,<sup>15</sup> assuming constant returns to scale and perfect competition. The TPP is assumed to involve the complete elimination of all tariffs on trade among the member economies, and the effects are modelled as a once-and-for-all change, with no attention paid to the dynamic time path of the adjustment to the tariff changes. The simulations were based on the latest version of the GTAP database, GTAP 8, which has a base year of 2007. Since many of the effects of the TPP on Japanese agriculture are likely to take some years to emerge, as explained earlier, the key economic characteristics of Japan are projected forward to 2020, so that the modelling simulates the effects of the TPP on the Japanese economy as it may have evolved by that date. Given the long run nature of the potential changes, results are presented from simulations utilising a long run closure,<sup>16</sup> in which all factors except natural resources are assumed to be fully mobile across economic activities, and returns to capital converge to a steady-state equilibrium across all sectors in each economy, with the capital stock allowed to adjust in order to produce this result. This ‘steady state’ closure allows the effects of the capital accumulation that would occur in a dynamic model to be approximated at a relatively low computational cost.<sup>17</sup> As is typically the case with GTAP simulations, results given in value terms are expressed in US dollars.

As is generally the case with GTAP-based simulations, in the interests of computational efficiency some aggregation is undertaken of the full range of sectors and regions available in the GTAP database. The world is divided into 21 individual economies (including 19 of the 21 APEC economies) and five regions each of which is an amalgamation of multiple economies<sup>18</sup>. Each economy is divided into 31 sectors. Since the main focus here is on the impact on agriculture a substantial degree of disaggregation of agriculture and food production is maintained, with ten separate primary agricultural producing sectors and seven food processing sectors. This is a greater degree of disaggregation than is found in some other studies<sup>19</sup>, and is intended to provide for the capture as far as possible of structural changes that might arise due to reallocation of resources within the agricultural and food processing sectors.

For the purpose of these simulations two further important features are introduced. First, a number of adjustments have been made to the standard GTAP 8 parameters and baseline information for the Japanese economy, reflecting factors identified earlier in this report. Second, the importance of measures to increase productivity in Japanese agriculture is recognised by modelling the effect of a substantial

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<sup>15</sup> With the exception of adjustments specifically mentioned here all model equations are as in the standard GTAP model. A detailed description and discussion can be found in Hertel (1997).

<sup>16</sup> Simulations were also performed using a medium run closure, and the results of these simulations are available on request.

<sup>17</sup> See Wang and Schuh, 2002, Gilbert and Wahl, 2003.

<sup>18</sup> Although the focus here is on the impact on Japan, inclusion of the full global economy, and separate identification of major relevant trading partners, is necessary to ensure that the trade effects are adequately captured.

<sup>19</sup> For example, Saito (2012) has four primary agriculture producing sectors and four food processing sectors.

increase in the productivity of Japanese agriculture, in parallel to the effect of the TPP.

The most important parameter adjustment concerns the so-called Armington elasticity, a parameter routinely introduced into CGE simulations of trade policy changes to capture the reality that consumers typically do not regard domestic and foreign goods as perfect substitutes, and in fact divide their purchases between the two even in the presence of obvious price differences. The Armington parameter incorporated in GTAP 8 has been econometrically estimated for the world as a whole.<sup>20</sup> Japanese consumers are well-known to have a particularly strong preference for food produced in Japan over foreign-produced food, suggesting that the substitutability in consumption between domestic and foreign produced foods in Japan is lower than the global average. The preference for Japanese produced food can be expected to be accentuated by campaigns already under way and likely to be intensified in future both to encourage Japanese consumers to focus their consumption on Japanese food and also to increase the appeal of Japanese food through quality improvements and branding initiatives. Cultural factors and culinary practices support a particularly strong preference for Japanese-produced rice over foreign rice. Reflecting these considerations, in the present simulations the Armington elasticities applied to Japan for rice and other foods are respectively 50% and 75% of the globally estimated elasticities in GTAP V8.<sup>21</sup>

Three further adjustments are made to reflect realities in Japan. First, obstacles to changing land use in Japanese agriculture and the potential for institutional and policy changes to mitigate those obstacles are reflected by first tightening and then relaxing the relevant transformation elasticity as applied to Japan. Second, the existence of substantial areas of abandoned agricultural land is reflected by an increase of 2.65% in the area of land available for agriculture specified in the baseline data. This figure corresponds to the proportion of the total cultivated area classified as abandoned land in the “flat” category in 2009. Third, the baseline tariff on rice is adjusted to 242%<sup>22</sup> to take account of the substantial amount of “water” in Japan’s rice tariff.

The potential for increasing productivity in Japanese agriculture is reflected by simulating a “productivity shock” in parallel with the “trade shock” represented by the TPP. Based on evidence cited earlier in this report the “productivity shock” is implemented as a 32% increase in productivity in the production of rice and other crops, a 17% increase in productivity in the dairy sector and an 8.5% increase in productivity in other livestock production. It is emphasised that the results from the

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<sup>20</sup> The Armington elasticities incorporated in GTAP versions prior to GTAP 7 were not econometrically estimated and researchers frequently increased them for simulation purposes, which has the effect of increasing the impact on trade as indicated by the simulations. Similarly, in his estimates of the TPP effects on Japanese agriculture Suzuki increases the GTAP Armington elasticity by a factor of 25%.

<sup>21</sup> Sensitivity tests were performed using the standard GTAPV8 Armington elasticities. These affected the size of changes as would be expected, sometimes substantially. In general the impacts were not outside reasonable ranges of expectations, especially when outlying observations were excluded, although it was notable that the impacts on the changes in trade were small relative to the size of the elasticity adjustment.

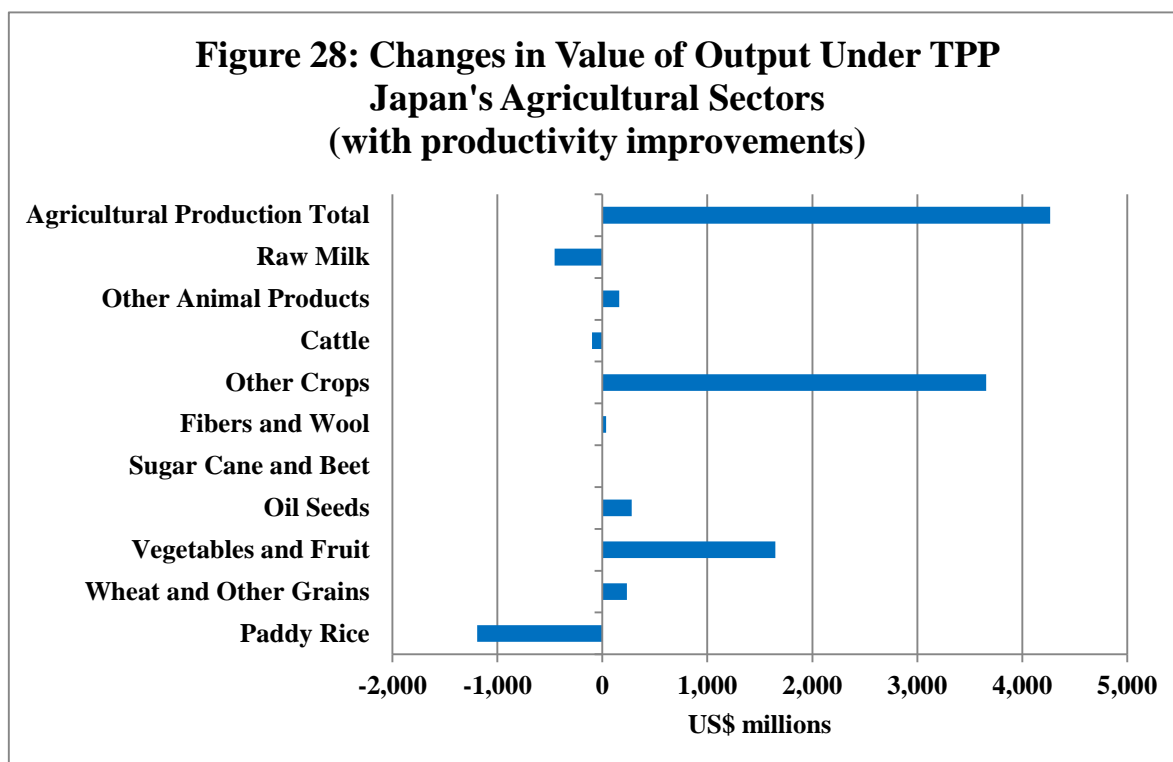
<sup>22</sup> This change is implemented using the ALTERTAX procedure.

“productivity shock” are not claimed to be predictive or definitive but are intended to illustrate the importance of increasing productivity in the agricultural sector for the outcome of the TPP, or by implication for any liberalisation of agricultural trade by Japan. The “trade shock” and “productivity shock” are implemented separately, so that the effects of each shock can be separately identified. The effect of the TPP in the absence of any improved productivity performance in Japanese agriculture can thus be compared with the effects if the potential for a substantial improvement in productivity is in fact realised.

## 6.2 Simulation Results

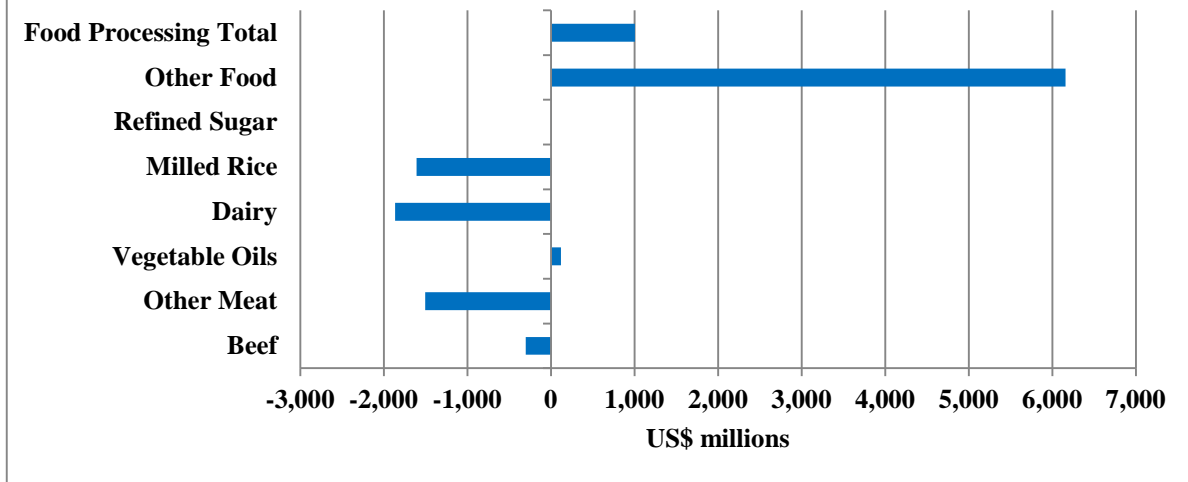
The simulations yield a vast array of results both for Japan and for the other 25 economies covered by the simulations. The emphasis here is on the results for Japan’s agriculture and food processing sectors, and only brief reference is made to relevant results for other sectors and economies.

The overall changes in the value of output in Japan’s agricultural sectors under TPP, assuming the parallel improvements in productivity, are depicted in Figure 28, while the corresponding changes in the value of the food processing sectors are depicted in Figure 29.





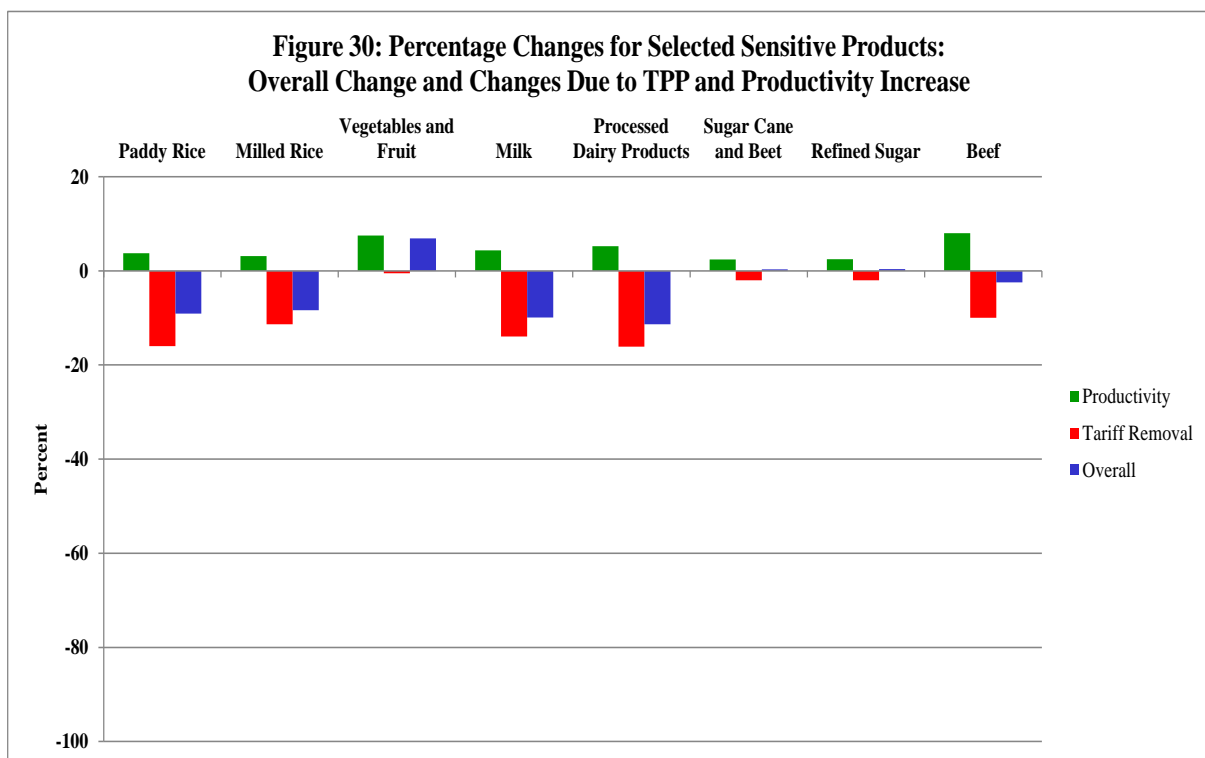
**Figure 29: Changes in Value of Output Under TPP  
Japan's Food Processing Sectors  
(with productivity improvements in agriculture)**



Perhaps the most important point to note from Figures 28 and 29 is that they show that the overall output in both agriculture and the food processing industries actually increases. In the case of agriculture, the not unexpected decrease in output of rice and smaller decrease in the output of milk are more than offset by increases in the output of vegetables and fruits and other crops. There are smaller decreases in the output of the cattle sector and increases in the production of other animal products, oilseeds, and wheat and other grains. In the case of the food processing sector, falls in the output of dairy products, milled rice, beef and other meats are more than offset by increases in the production of other processed food products. The important implication is that in assessing the overall effect of TPP it is misleading to focus only on falls in the output of products such as rice and dairy products, since these changes are part of an overall reallocation of resources in agriculture and food processing which need not involve any shrinkage in the overall size of the two sectors, but which rather allows them to expand while improving their efficiency and overall contribution to the economy.

Furthermore, in the sectors where output declines neither the overall decreases nor the part of the decrease attributable specifically to the trade provisions of the TPP are as large in proportionate terms as indicated in other studies. This is shown in Figure 30, where changes in the output of key sensitive agricultural and processed food products are shown in percentage terms, with the shares of the changes due to the tariff elimination and productivity increase identified separately as well as the changes in overall output. The largest percentage falls in output attributable to the trade provisions of the TPP are in paddy rice, milled rice, milk, dairy products and beef, with falls respectively of 16%, 11%, 14%, 16% and 10%, but these are offset by increases attributable to the productivity increase of respectively 4%, 3%, 4%,

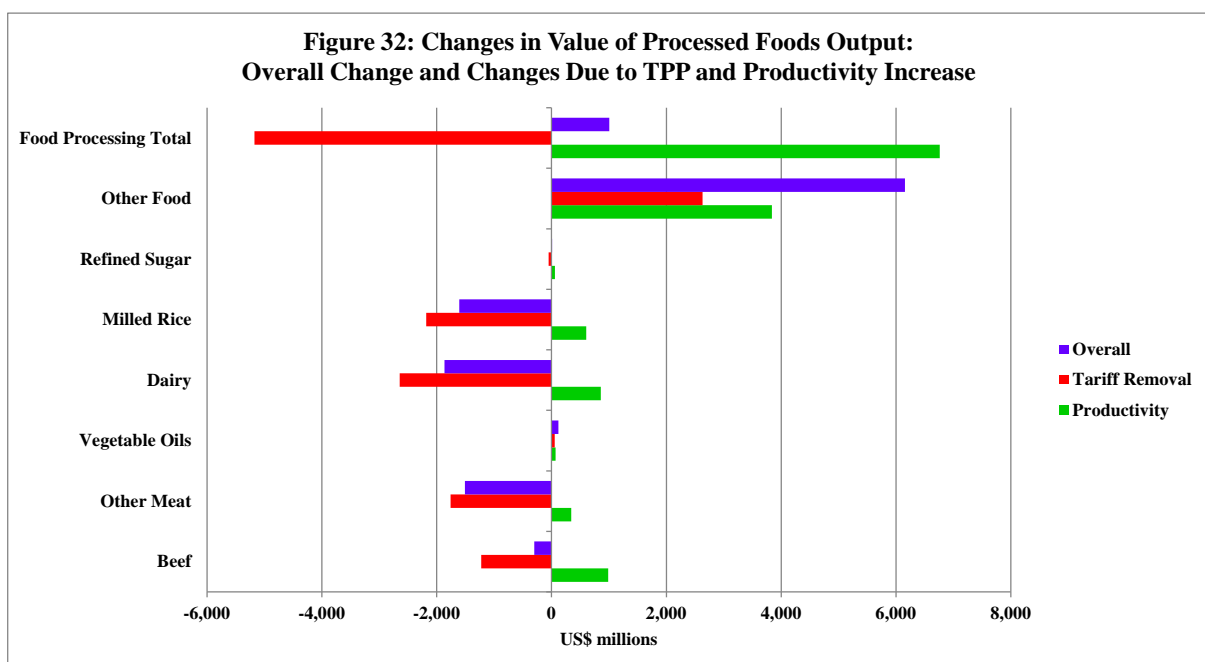
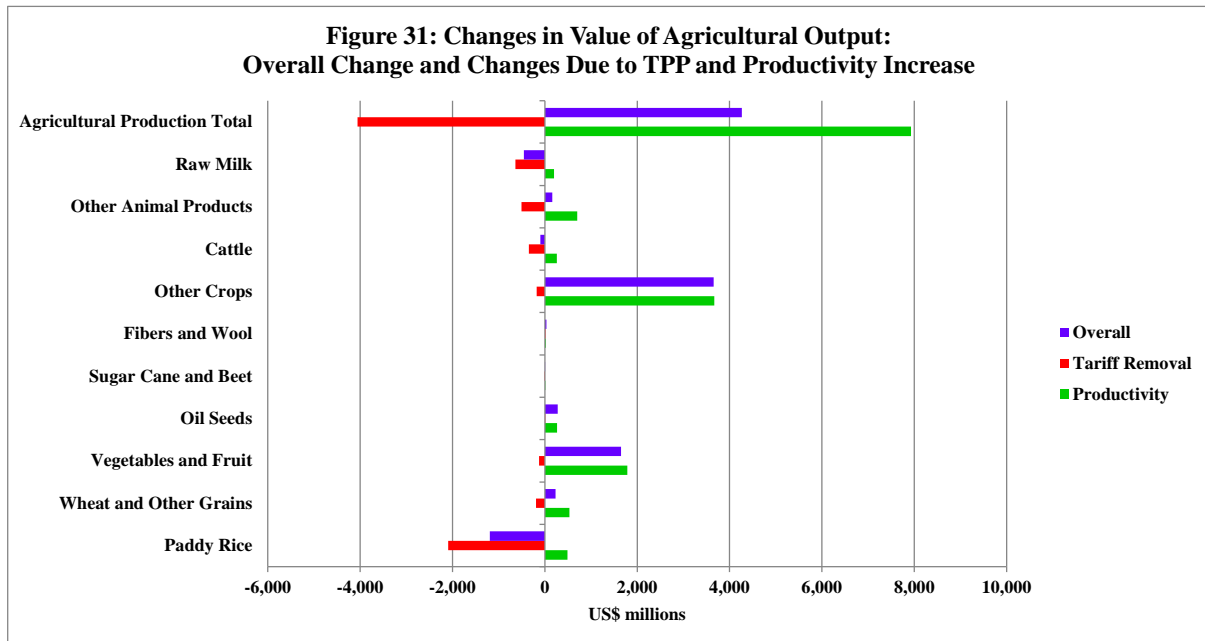
5% and 8%, so that the respective decreases in overall production are respectively 9%, 8%, 10% 11% and 2%. In no case does the decrease in production attributable to the TPP reach as high as 20%, and the overall falls in production are all lower than 12%. These findings contrast with the findings in other studies such as Suzuki (2011) and Saito (2012), where for example projected falls in the production of rice range from 94% to 55%, and contrast also with MAFF predictions of falls in rice production of 90%, in wheat production of 99%, in sugar production of 100%, in beef production of 75% and in dairy products of 56% (MAFF 2010). Figure 24 also shows an increase of 7% in the production of fruit and vegetables, which is more than fully explained by the productivity increase, with the TPP in fact having a very small impact on production. Figure 30 is deliberately drawn with the same vertical scale as the corresponding graph in Suzuki (2011), to facilitate comparison with the changes depicted there.



The breakdown of output in value terms into the TPP-induced and productivity-induced components for all agriculture and processed food sectors is shown in Figures 31 and 32. These figures highlight both the relatively small impact of the TPP on the value of output in most sectors, and also the importance of the projected productivity increase in agriculture in generating the overall increase in the value of output not only in agriculture itself but also in the processed food industries.

In the case of agriculture, illustrated in Figure 31, the TPP has a relatively small impact on the value of output in all sectors except paddy rice, where the 16% fall in output equates to a fall in value terms of \$2.1 billion. The overall decrease due to

the TPP of \$4 billion in the value of agricultural output is offset by a projected increase of \$8 billion due to the productivity increase, giving an overall increase in the value of output of approximately \$4 billion. The falls in the value of output of paddy rice, milk and beef occur because the productivity- induced increase is insufficient to offset the decrease due to the TPP. Paddy rice is the sector where the dominant effect of the TPP is most pronounced, with the relatively small productivity-induced increase leaving an overall decline in the value of output of \$2.1 billion, or 9%.



In the case of processed foods, the TPP has a negative impact on the production of processed rice, dairy products, beef and other meats, which is only partly offset by the impact of the increased productivity in agriculture on the output of each sector, so that the overall value of output falls in each case, although the falls are relatively small in percentage terms. On the other hand the TPP has a strong positive effect on the value of output of other processed foods, which in combination with the positive impact of the productivity improvement in agriculture generates an overall increase in output sufficient to outweigh the declines in other processed food industries, so that the value of the total output of processed foods rises.

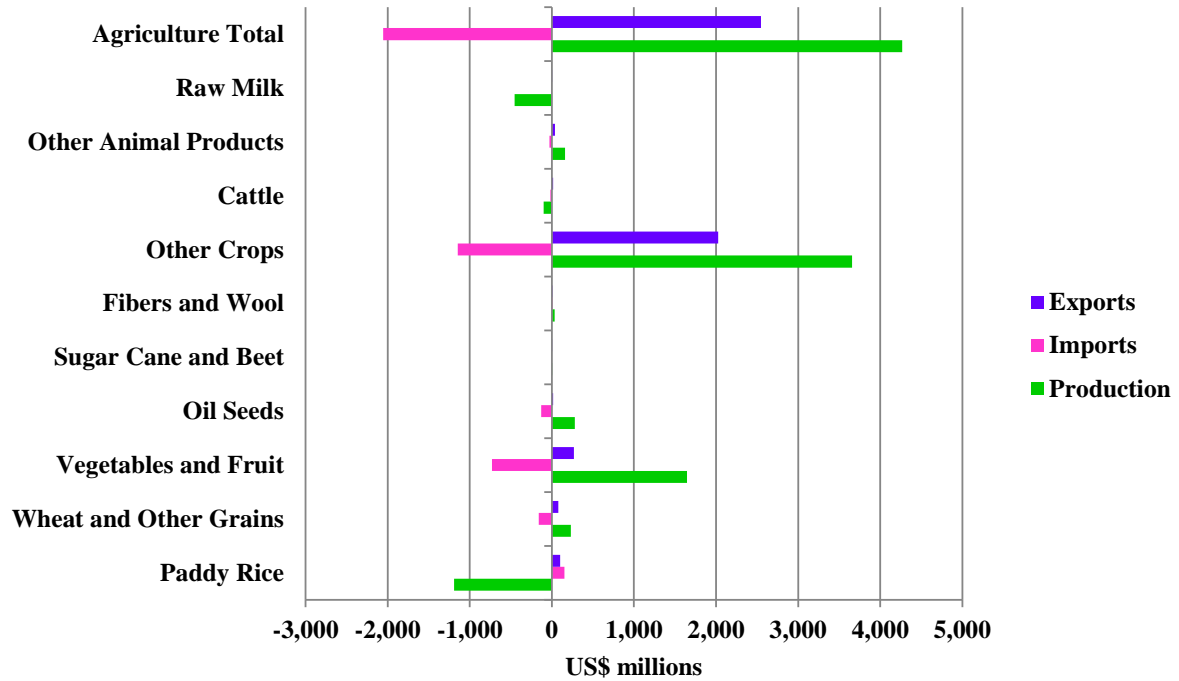
In broad terms, the results of the simulations can be interpreted as illustrating how the TPP and increases in the productivity of Japanese agriculture can play complementary roles in sustaining agriculture and the food processing industries in Japan. Increases in productivity are essential for maintaining, or perhaps even expanding the overall level of output across the agriculture and food processing sectors. Exposure to international competition through the TPP has the effect of reallocating resources across the sectors, so that the more internationally competitive sectors expand while those that are less competitive shrink in size. The logical conclusion is that the combination of TPP and measures to increase the productivity of Japan's agriculture can strengthen both agriculture and food processing in Japan, although this will involve some significant structural change in both areas of economic activity.

Consideration of the simulation results for the impact of the TPP in isolation also leads to the conclusion that if increases in productivity do not precede or accompany the implementation of TPP in Japan the overall level of output in the agricultural and food processing sectors is indeed likely to decline, although the decline may be much smaller than some of the more apocalyptic projections produced by other studies.

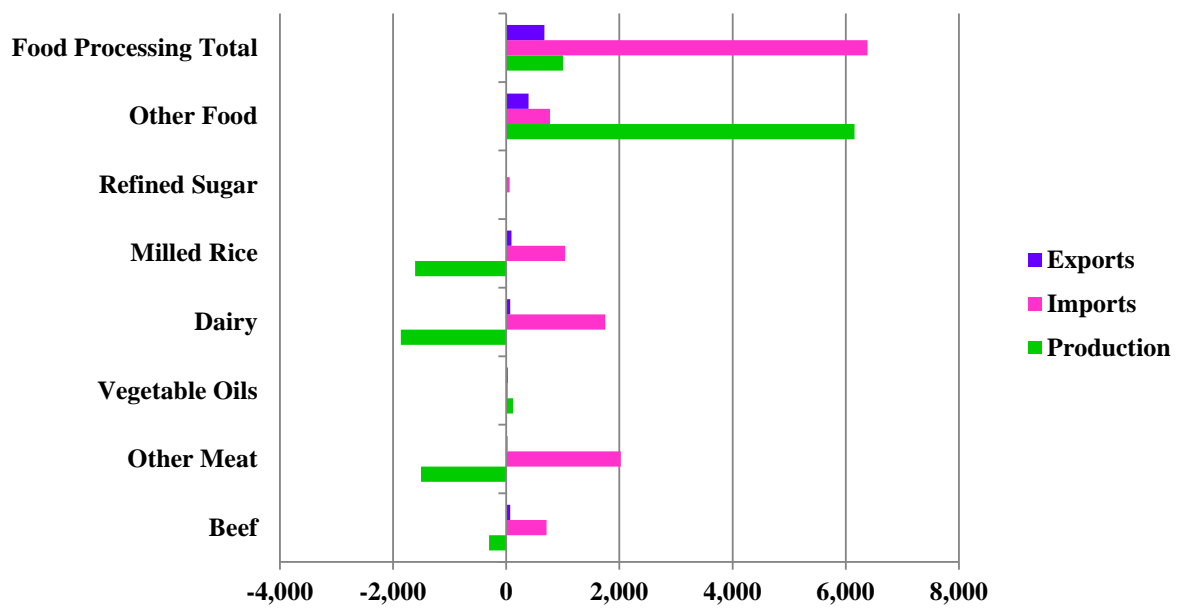
Further evidence of the likely efficiency enhancing effect of combining the TPP with measures to facilitate productivity enhancement in Japanese agriculture is provided in Figures 33 and 34, which show the changes in imports and exports associated with the changes in production, as indicated in the simulation results. In the agriculture sectors increases in production are associated with falls in imports, and in the case of the other crops category also with an increase in exports. In the processed food sectors imports rise in the sectors where production falls, while an increase in production in the "other foods" category is associated with modest increases in both imports and exports.

Finally, Figure 35 compares the changes in exports and imports with the changes in household consumption, and provides a perspective on how the maintenance of production levels is also facilitated by the increase in household consumption stimulated by the fall in prices resulting from the greater exposure to international competition. The very large increase in consumption of other processed foods, supplemented by a small increase in exports, far outweighs the increase in imports. Increases in consumption also absorb a significant proportion of the increases in imports of dairy products, beef and other meats.

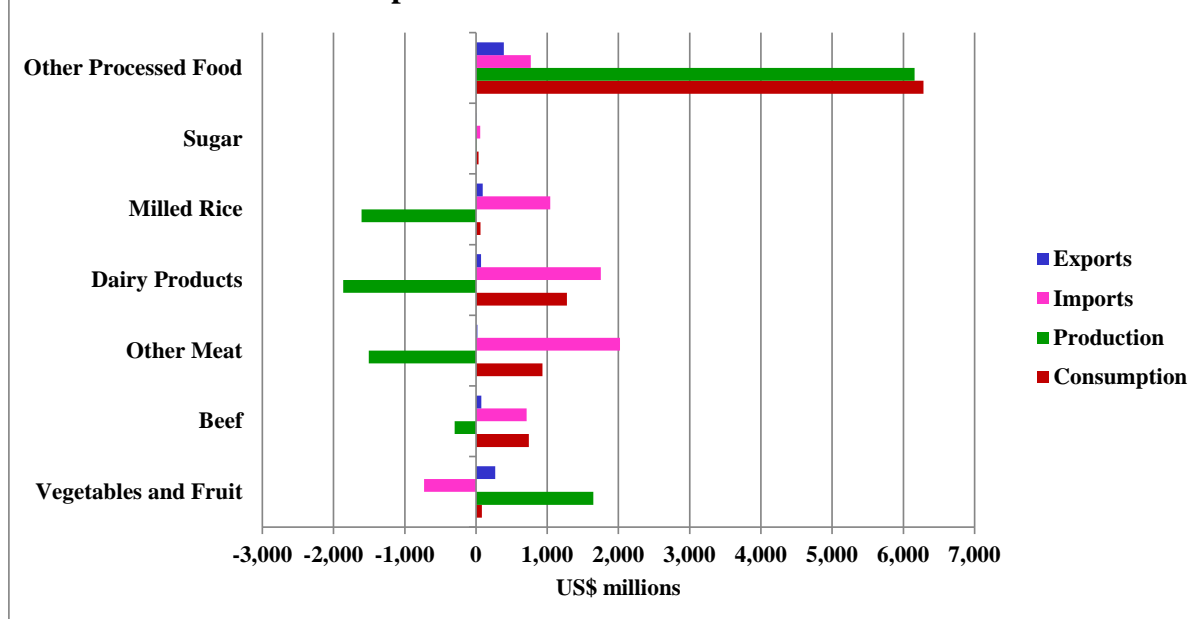
**Figure 33: Changes in Production, Imports and Exports - Agriculture**



**Figure 34: Changes in Production, Imports and Exports - Processed Foods**



**Figure 35: Changes in Consumption, Production, Imports and Exports - Selected Sensitive Products**



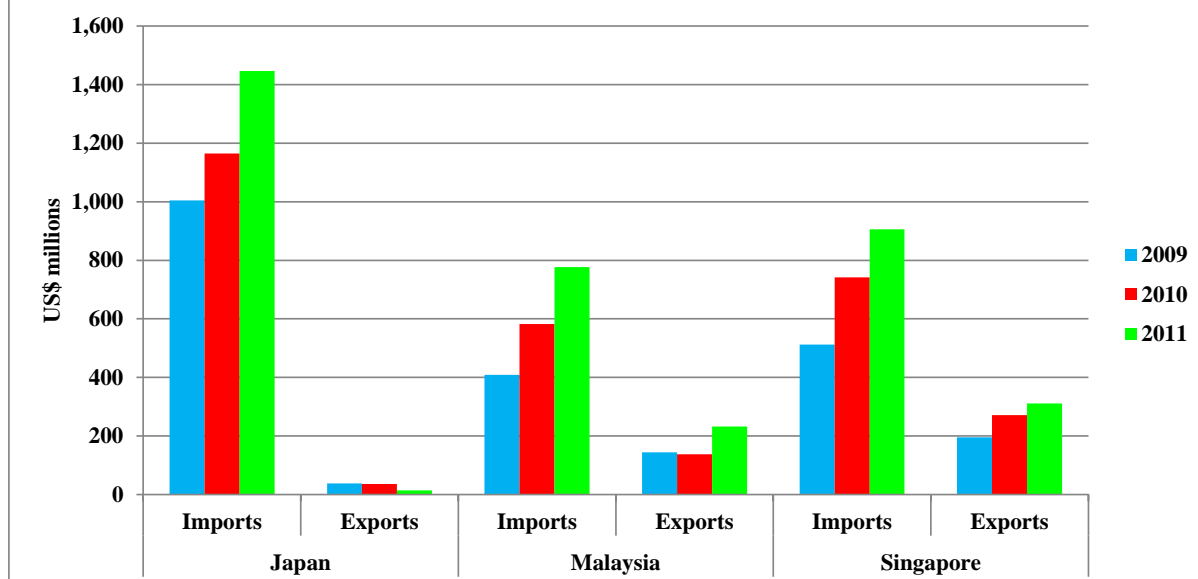
## 7. Opportunities in for Japanese Food Processing Industries Under TPP

The TPP has the potential to fundamentally change the economic opportunities open to Japanese food processing industries that have hitherto been severely handicapped by the high cost of inputs sourced from within Japan or imported from overseas across high tariff barriers. With the removal of these tariff barriers on imports from TPP members, and the corresponding competitive pressure on Japanese producers, the cost to Japanese food processors of those inputs that are produced at internationally competitive prices within the TPP membership can be expected to align with world prices. This effect should of course be reinforced by the RCEP. With the removal of the severe cost disadvantage hitherto faced by Japanese food processors, the ability of these food processors to compete in world markets will become much more dependent on their technological capacity and the maintenance and enhancement of their reputation for producing safe, high quality food.

As an example, with access to internationally competitive supplies of milk, Japanese dairy producers may be able to develop Japan as an international centre for the production and export of dairy products. A comparison of the dairy trade of Japan, Singapore and Malaysia in Figure 30 is suggestive of the possibilities. In Singapore and Malaysia the pattern of increasing dairy imports is balanced by a similar pattern of exports at lower levels, indicating that a significant proportion of the dairy imports of these two countries are utilised in the production of processed dairy products for export. By contrast, the growing dairy imports of Japan are much larger than those of Singapore and Malaysia (although much smaller of

**Figure 36: Dairy Product Import and Exports of Japan, Malaysia and Singapore 2009-11**

*Source: Comtrade*



course on a per capita basis), but Japan's exports of dairy products have been minimal and showing no signs of growth.

Development of dairy exports by Singapore and Malaysia will be based on combining efficient logistics and processing capacity with supplies of milk imported at world prices and access to international markets, especially in the neighbouring region. In the case of Japan, the TPP can facilitate access to milk at internationally competitive prices and provide some additional market access. The conjuncture of favourable factors could become especially potent if combined with the increased access to Northeast Asian markets that could be provided for example by the proposed CJK FTA and/or RCEP.

Developments along these lines are likely to involve changes in supply chain structures and operations, and associated changes in commercial arrangements, that are not taken into account in our modelling exercise, and their potential is accordingly not reflected in our modelling results. Detailed examination of these and other possibilities for increasing Japan's agricultural exports is beyond the scope of this report, and they are mentioned here only to draw attention to their potential importance. It is noteworthy however that serious attention is already being given in Japan to achieving substantial increases in agricultural exports, for example by JETRO (JETRO 2012). The importance of agricultural exports is also being emphasised by the architects of Abenomics (Nishimura 2012), and ambitious targets are set out in the MAFF policy document outlining the new "Active Agriculture Forestry and Fisheries" initiative (MAFF 2013).

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