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# **An Emerging Agricultural Problem in High-Performing Asian Economies<sup>1</sup>**

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# **An Emerging Agricultural Problem in High-Performing Asian Economies**

Yujiro Hayami

## **Abstract**

Policies to tax farmers in low-income countries and policies to subsidize them in high-income countries have been identified as a major source of the disequilibrium of world agriculture. Recently, as many high-performing economies in Asia advanced from the low-income to the middle-income stage through successful industrialization, they are confronted with the problem of a widening income gap between farm and non-farm workers corresponding to rapid shifts in comparative advantage from agriculture to manufacturing. In order to prevent this disparity from culminating in serious social and political instability, policies have been reoriented toward supporting the income of farmers. At the same time, governments in middle-income countries must continue to secure low-cost food to the urban poor who are still large in number. The need to achieve the two conflicting goals under the still weak fiscal capacity of governments tends to make agricultural policies in the middle-income stage tinkering and ineffective. Greater research inputs in this area are called for in order to prevent the growth momentum of high-performing economies in Asia from being disrupted by political crises, as illustrated by the bent of Japan toward militarism during the period between the two World Wars.

This paper aims to identify the nature of a new agricultural problems emerging in high-performing economies in Asia, as they have advanced from low-income to middle-income stage. The “agricultural problem” is here defined as the problem of an overriding concern to policymakers with respect to designing and implementing policies for agriculture as part of policies to promote national economic development in their own country. As such, it may well be called the “basic problem in determining agricultural policies”.

For a past half century East Asia has been the growth pole of the world economy. Japan's jump from a middle-income to a high-income economy associated with very rapid industrialization in the two decades from the 1950s was followed by a more compressed growth of so-called Asian NIES – Korea, Taiwan, Hong Kong and Singapore – from the 1960s. Equally remarkable in this period was the advancement of low-income agrarian economies in Southeast Asia, such as Indonesia and Thailand, to the middle income stage. Within three decades from the 1960s they were able to achieve significant industrialization with the major share of their export shifting from primary to manufactured commodities. Shortly after the take-off of these high-performing economies in the Association of South-East Asia (ASEAN), China began to emerge as “the workshop of the world” with its successful market-oriented reforms. This experience has been followed by another transitional economy in East Asia, Vietnam. Furthermore, it appears that this ‘East Asian Miracle’ (World Bank 1993) is now being transmitted to South Asia, where India and Bangladesh have seen accelerating economic growth rates since the 1990s, though they have not yet escaped from the low-income status.

As high-performing developing economies in Asia have advanced or will advance to a middle-income stage, they are bound to face a new agricultural problem. What is the nature of this problem? What is its root? What policies might be appropriate and effective in solving the problem? These are the questions addressed in this paper.

Following this introduction, the next section defines three agricultural problems, each corresponding to a major development stage. The third section elaborates on the political economy mechanism giving rise to a unique problem in the middle-income stage. The fourth section gives a historical perspective in terms of the experiences of Thailand and Japan. The final concludes with a plea for more serious research on this problem for sustaining development of high-performing economies in Asia.

### **Three agricultural Problems**

First, the nature of the agricultural problem in the middle-income stage is specified in comparison with the problems confronted by the low-income and high-income countries. In his classic treatise,

Schultz (1953) specified the two different agricultural problems confronted by low-income and high-income economies. The ‘food problem’ in his terms is the problem faced by low-income economies; these economies characterized by rapid population growth and high food demand elasticity are under the constant risk to be beset by shortage in the supply of food relative to demand; the resulting high food prices raising the costs of living and the wage rates of workers in non-farm sectors and thereby suppressing industrialization and overall economic growth; therefore, the prime policy concern in low-income economies is to prevent food shortage from occurring. Schultz argued that the ‘farm problem’ faced by high-income economies is diametrically different from the food problem; population growth slow down and food consumption is saturated in the high-income stage, while the food production capacity is strengthened due to their ability to advance technology; therefore, high-income economies have a chronic tendency for food demand to be exceeded by supply with the result that food prices and farm incomes decline; under the powerful lobbying by farmers, agricultural policies in high-income economies are mainly geared toward preventing farm incomes from falling; their demand for agricultural protection policies tends to be easily accepted because high-income consumers are lenient to high food prices and farm subsidies.

Later, Schultz (1978) identified these two agricultural problems as underlying the policies to exploit or tax agriculture commonly adopted in low-income countries in contrast to the policies to protect or subsidize agriculture in high-income countries. His hypothesis has been established as a paradigm among agricultural economists as it found support from several empirical studies (Anderson and Hayami 1986; Hayami 1988; Krueger et al. 1991). Under the serious constraint of foreign exchange common among low-income economies, it is generally not feasible for them to counteract food shortage and rising food prices by increasing commercial imports. Instead, lowering domestic food prices by such means as taxation on food exports, government compulsory procurement of farm products from producers at lower-than-market prices and accepting that foreign dumping in domestic markets is commonly practiced in low-income countries for securing the supply of cheap food to non-farm workers at the expense of farmers. In contrast, policies to raise agricultural product prices by such means as border protection and domestic production control are commonly used in high-income countries for supporting farmers’ incomes at the expense of consumers and taxpayers. In this paper, the agricultural problem underlying policies to depress food prices and farm incomes in low-income countries is called the “food problem”

following Schultz's terminology, but the agricultural problem underlying policies to support farm incomes in high-income countries is called the "protection problem", instead of Schultz's "farm problem" or Hayami's (1988) "agricultural adjustment problem".

Despite the change in terminology, I adopt as the basic framework the Schultz theory on the two agricultural problems. In addition, I would propose it useful to identify another agricultural problem specifically faced by middle-income countries. This problem is brought about by a lag in productivity growth in agriculture behind non-agriculture as a result of the successful industrialization that raised these economies to a middle-income stage. At this stage as compared with the previous low-income stage, the food supply capacity rises and factors causing demand growth are weakened, but people's per-capita incomes do not yet reach a level at which food consumption is completely saturated as in the high-income economies. As a result, the terms of trade between agriculture and non-agriculture remain largely stable, despite significant decreases in agriculture's productivity relative to non-agriculture due to rapid progress in industrialization. Therefore, farmers' income levels tend to decline relative to non-farmers' corresponding to the widening inter-sectoral productivity gap. By observing non-farm workers' rapid escape from poverty, farmers who are left behind begin to realize how poor they are, even if their income level did not decrease or even slightly increased from the previous stage. Dissatisfaction of the farm population who remained poor, despite visible improvements in other sectors often became a significant source of social instability. Thus, at the middle-income stage, it becomes a prime concern of policymakers to prevent rural-urban income disparity from widening. This agricultural problem is here called the "disparity problem". It is by nature the problem of income disparity between the farm and the non-farm sectors. This problem is looming large and will continue to become more serious among high-performing economies in Asia as they advance to the middle-income stage upon their success in industrialization.

### **The political equilibrium of the disparity problem**

The disparity problem is considered a political equilibrium in which the political influences of farm and non-farm interests are more or less balanced. Figure 2 illustrate how the objective of

politicians in designing agricultural policies changes in the process of economic development. The food-problem becomes dominant where politicians' major concern, in order to stay in office, is how to secure low-price food to urban dwellers; and the protection-problem becomes dominant where their major concern is how to keep farmers' income level balanced with non-farm workers. In contrast, the disparity-problem emerges where these two concerns are more or less equally important.

At the stage in which the disparity-problem is dominant, the prime concern of politicians is to relieve farmers from poverty. However, 'poverty' here means not absolute poverty but relative poverty. Absolute poverty among farm population is less severe in middle-income countries than low-income countries. In the middle-income stage, with the progress of industrialization by means of borrowing technology from developed countries, newly-risen well-to-do families, including workers employed in large-scale modern enterprises, form a new social class in urban areas enjoying a modern comfortable life. Observing the income difference from the newly-risen urban families, farmers become envious and eventually develop grudge against the social system to keep them in poverty, which may culminate in social disruptions.

This relative poverty problem is closely related with the so-called 'dual structure' which emerged in the process of industrialization. The dual structure refers to the situation characterized by the coexistence between a formal sector consisting of large-scale, capital-intensive enterprises paying high wages to their employees and an informal sector consisting of small-scale, labor-intensive enterprises based on cheap labor. The formal sector is largely closed to laborers in the informal sector including employees in small-scale enterprises, casual laborers working on a daily contract basis, and self-employed manufactures and traders. With labor codes and unions exclusively applicable to large-scale enterprises their labor costs are high despite the abundant availability of low-wage laborers in the informal sector. Therefore, strong incentives are at work among entrepreneurs in the formal sector to increase capital intensity by adopting labor-saving technologies. As a result, employment increases much slower than output increases. The income gap tends to widen cumulatively between employees in the formal and the informal sectors.

Typically the informal sector functions as a buffer in the labor market. Many small-scale enterprises engage in production as subcontractors of large-scale enterprises. Since employment in the formal sector is largely permanent, large-scale enterprises prefer to reduce orders to subcontractors during an economic slump rather than to lay off their own employees.

Correspondingly, many laborers in the informal sector who came from farm households lose work opportunities in cities and are forced to return to family in home villages. In addition to the economic burden of feeding these returnees, farmers face sharp drops in farm product prices during recessions because of low price-elasticity of food demand. In this way, during economic recessions, farmers suffer from dire poverty, intensifying their grudge against urban people.

Supported by the sympathy of the intelligentsia, farmers' dissatisfaction may elevate to serious anti-governmental movements. So, the government is forced to adopt agricultural protection measures. However, this protection cannot be strong enough to negate the income gap between farmers and urban workers, unlike in the high-income stage. Since the shares of agriculture in both national income and labor force still remain large, it is impossible for the government in the middle-income stage to secure sufficient finance for closing the growing gap. In addition, increases in food prices result in a major loss to a large number of small-scale enterprises in urban area, which rely heavily on cheap labor. Developing countries can advance from the low-income to the middle-income stage by technology borrowing from developed countries. However, the successful industrialization by means of technology borrowing tends to result in the formation of a dual structure in the economy and the widening of income disparity between farmers and newly-risen urban families. Under the dictate of this disparity problem, policymakers in middle-income countries are forced to muddle around in search of ways and means to protect farmers within the constraint of the food problem that is still binding because a large number of workers in urban informal sectors are still absolutely poor. As their Engel coefficients are high, high food prices could well raise the cost of living above their meager incomes.

The tendency of relative poverty to rise in the middle-income stage can be seen in Table 1. Note that my analysis here ends at 1995, for the sake of avoiding influences of the Asian Financial Crisis that began in 1997. In Table 1, farmers' relative income is measured by dividing agriculture's share in GDP by agriculture's share in employment. In low-income countries, farmers' relative income was 40-60 percent which is not so low compared with middle-income countries. In particular, in Tanzania and Ethiopia, which recorded zero-percent growth for 1965-95, there was no decrease in farmers' relative income. In Bangladesh and India, which recorded moderate economic growth, farmers' relative income dropped slightly. In Indonesia and Thailand, which recorded high growth and escaped from the low-income stage during this period, farmers' relative income declined sharply. In the Philippines, which lagged behind East Asian



Miracle growth, farmers' relative income did not drop. Interestingly, there was no decrease in farmers' relative income in high-income countries where the government could afford to spend sufficient budgets for supporting farmers' incomes.

Underlying this widening income gap between farm and non-farm sectors is the rapid shift in comparative advantage away from agriculture to industry, as illustrated in Table 2. In this table, changes in comparative advantages are compared among selected countries in terms of labor productivity growth in agriculture relative to that of manufacturing. Among developing countries, India, the Philippines and Korea are selected as representatives of low-, lower-middle-, and upper-middle- income stages, respectively.

In developed countries, there was no significant difference in growth rate of labor productivity between the agricultural and the manufacturing sectors. On the other hand, in developing countries, labor productivity in manufacturing increased much faster than in agriculture, indicating comparative advantage in agriculture declined in developing countries and increased in developed countries. The inter-sectoral differences in labor productivity growth were especially large in the Philippines and Korea. This is consistent with the observation that food imports increased especially fast in middle-income countries (Hayami and Godo 2004, p. 6).

Likely underlying this increase in comparative advantage in manufacturing among developing countries is the greater difficulty of technology transfer from developed to developing countries in agriculture than in manufacturing. Because agricultural production is a biological process, it is critically influenced by natural environments which are difficult to control artificially. Therefore, superior farming methods and plant varieties developed in advanced countries located in the temperate zone can not readily be applied in developing countries under tropical environments. In contrast, manufacturing production is largely a mechanical process operated in the controlled environments of factories, so that its technology is much easier to transfer from developed countries to developing countries. In this way, agriculture's comparative advantage tends to decline in developing countries, especially in middle-income countries achieving rapid industrialization by technology- borrowing from developed countries.

The speed of decline in agriculture's comparative advantage is likely to exceed the speed of labor transfer from agriculture to manufacturing under the regime of emerging dual structure characterized by the low rate of labor absorption in the formal sector. To that extent the income

disparity between farmers and the employees of formal manufacturing and service enterprises could well rise to becoming a source of major social instability or even disruption.

## **Historical perspectives**

A more concrete grasp of the process by which the disparity problem dominates agricultural policy formulation as economies advance from the low-income to the middle-income stage may be obtained by examining histories of the nations that underwent such a transformation. For this purpose the histories of Thailand during the period after the Second World War and of Japan between the First and Second World Wars shall be reviewed in this section.

### ***The experience of Thailand***

First, the experience of Thailand is examined as a typical example of high-performing economies in Asia currently experiencing the disparity problem. Indeed, the growth performance of Thai economy in the past half century was dramatic. Before the 1960s, Thailand was a low-income economy dependent on the production and export of primary commodities, rice above all. Before 1960, average GDP per capita remained largely stagnant at the level of about 500 US dollars (in 1990 prices) with the share of industrial products in total export being only about 10 percent (Douangngeune et al. 2005). However, within only two decades from 1960, Thailand suddenly jumped up to a middle-income status based on the success of labor-intensive industrialization; by the end of the 1970s the export share of industrial products rose to about 40 percent and GDP per capita more than doubled to the level of about 1200 dollars. Thereafter, the industrial sector in Thailand was further strengthened, beginning to develop high-tech industries such as automobile and electronics. Correspondingly, within only a decade and half before the 1997 Asian Financial Crisis, per-capita GDP again more than doubled and the export share of industrial products exceeded 70 percent. Even though the Thai economy suffered severely from the 1997 Crisis, it was able to return to the track of high growth in about three years.

It was inevitable that the rise of Thailand from a low-income to a middle-income country based on dramatic industrial development was associated with the widening of income disparity

between agriculture and the rest of economy, as already observed in Table 1. Increasing income disparity between rural and urban sectors should have been parallel with the widening income gap between workers in urban formal and informal sectors. The disparity increased as the development of capital- and knowledge-intensive industries created a dual structure. Altogether, inequality in income distribution in Thailand, as measured by the Gini coefficient in Figure 2, increased significantly as the economy advanced to the middle-income stage.

In this process both farmers and workers in the urban informal sector were not absolutely worse off. Instead, they should have improved their absolute income levels, as reflected in continued reduction in the share of population below the poverty line (the head-count index) despite increases in the Gini coefficient. Nevertheless, they must have developed frustration on their being poor or becoming poorer in comparison with the rising standard of living of formal-sector employees. Thus, upon successful reduction of absolute poverty, Thailand began to be confronted with the problem of relative poverty.

Since the majority of the poor were staking out a subsistence in agriculture, policies to support farmers' incomes became an important agenda for politicians to prevent income inequality from rising to a socially disastrous level. Also, the spread of primary education and the improvements of communication and transportation infrastructure in rural areas increased both farmers' awareness of their being 'unfairly' treated relative to urban dwellers as well as their ability to organize political lobbies to demand a 'fair deal'. Thus, in the process of advancing from a low-income to a middle-income stage, Thai politicians were pressed to change their policy objective from taxing agriculture for solving the food problem to supporting farmers for solving the disparity problem.

This change in policy orientation in Thailand is most clearly observable in changes in taxation on rice exports. As a major exporter of rice, taxation on rice exports represented a convenient and effective instrument for taxing agriculture for the purpose of income transfer from farm producers to consumers and taxpayers. Several instruments were used for taxing rice exports in Thailand, including quantitative restriction (export quota) and imposition of obligations on exporters to submit a certain share of rice export to the government at lower-than-market prices (so-called 'rice reserve requirement'), all of which had the effect of lowering domestic prices below international prices. However, by far the most important instrument used by the Thai government was the 'rice premium', a kind of specific duty levied proportional to export

quantities. At the low-income stage, the rice premium was a critically important source of government revenue and, at the same time, acted as a mechanism of supplying rice to domestic consumers at lower-than-world market prices. Further, it had the power to protect consumers from the vagaries of world markets by increasing (reducing) the premium when world market prices rose (dropped) so as to stabilize domestic prices. Thus, the rice premium was a highly effective policy instrument to serve for the dual purpose of raising government revenue and securing supply of cheap food to urban consumers by means of taxing agriculture at the stage when the food problem was dominant in the formulation of agricultural policies (Siwamwalla 1987; Siwamwalla and Sethboonsarny 1989).

Figure 3 draws changes in rice premium in comparison with changes in the nominal rate of protection (NRP). NRP aims to measure the divergence of the domestic price from the border price. Here it is calculated as the rate of difference of the domestic wholesale price from the export price, fob, Bangkok, for the grade of rice 5-percent broken. To the extent that rice exports are taxed, domestic prices diverge below border export prices, resulting in negative values of NRP. NRP includes the effects of not only the rice premium but also other taxation instruments, but the dominant role of the premium is evident from the high negative correlation between movements in the premium rate and NRP. Data in Figure 3 show that, before the mid-1970s when Thailand was in a low-income stage, the rice premium rate remained high at the level of about 30 percent of the border price, and NRP was as high as about 50 percent; this implies that nearly half the values of farmers' rice sales were transferred to non-farm sectors including the government through the export taxation. For a decade since then, however, as Thailand advanced to the middle-income stage, the rice premium had been reduced till its abolishment in 1986. This change should have reflected the rise of the disparity problem.

Beside the reduction of export taxation, the emerging need to prevent rural-urban disparity from further widening pressed politicians to install more visible measures for the support of farmers. During the political instability of the mid-1970s involving student riots and military coups, this pressure culminated in the establishment of the Farmers' Aid Fund in 1974. Based on large rice premium revenue corresponding to sharp increases in world rice prices in the so-called 'World Food Crisis' of 1973-75, the Fund tried to undertake several programs to support farmers, such as farmer credit, fertilizer subsidy, and public work using rural labor for the construction of rural infrastructure. Among them a program organized in a significant scale attempted to support

rice prices through the purchase of rice by government agencies. However, the program totally failed to achieve its intended goal, partly because of poor design and inefficient implementation due to lack of experience and skill in government procurement agencies but more critically because the budget that the Fund could allocate was too small to significantly influence market prices (Siwamwalla 1987). This program was soon terminated as the rice premium revenue decreased corresponding to declines in world rice prices after the Food Crisis period.

This failure of the price support program organized by the Farmers' Aid Fund epitomizes the difficulty in formulating appropriate policies to cope with the disparity problem. First of all, the program was contradictory as it tries to support farmers based on the revenue from taxation on them; this contradiction arose from the fact that the government tax base outside agriculture was still insufficient to support farmers adequately in the middle-income stage. Second, if the program were really successful in raising domestic rice prices, it should have met strong opposition and protest from the urban poor outside the formal sector. Here is the dilemma of the disparity problem under which supplying cheap food to the urban poor and preventing farmers from becoming poorer relative to non-farm workers are more or less important for politicians.

It must be very difficult for middle-income countries to escape from this dilemma. Thailand, for example, tried to introduce an export subsidy on rice for further increasing support on farmers after the abolishment of the rice premium. As yet, however, the export subsidy has been negligibly small. The large application of an export subsidy would not have been possible as it is against the WTO rule. However, even before the GATT Uruguay Round Agreement in 1993, Thai government indicated no sign to greatly expand the export subsidy scheme. This was presumably because of both the budgetary constraint and the danger to raise food prices for the urban poor.

Since the mid-1980s, the Thai government has introduced a commodity credit program akin to a program operated by the Commodity Credit Corporation in the United States in the past. By this program farmers can receive low-interest loans from the government for the pledge of their rice until the rice price increases. In the event that the price will not rise sufficiently, they can relinquish their debt by submitting the pledged rice to the government. This is a high-cost program unsustainable even in the United States. It is doubtful if this program can be expanded to such a scale as to render sufficient income support for farmers in a middle-income country.

As industrialization in Thailand progresses, comparative advantage in agriculture will decline further. For closing the rural-urban income gap, the government will continue to increase

supports on farmers in various fronts, including subsidies on inputs and credits as well as price supports. Yet, it is unlikely that Thailand will be able to expand the support programs to such a scale as to fully close the income gap before its economy will advance to a high-income stage.

### *The experience of Japan*

The current problem in Thailand at the middle-income stage, as reviewed in the previous section, may be better understood by comparing it with the economic transformation of Japan from the low-income to the high-income stage. Table 3 presents a synopsis of modern economic development in Japan from 1885 to 1995. Japan and Thailand opened to international trade at about the same time under the pressure of the West; both were forced to sign unequal treaties – Thailand with the United Kingdom in 1855 and Japan with the United States in 1858. Despite this similarity, industrialization progressed much faster in Japan than in Thailand, probably owing to much scarcer endowments of natural resources, especially land for cultivation, making it more urgent in Japan to industrialize than in Thailand for surviving under open international trade (Bounlouane et al. 2005). At any rate, in terms of per-capita GDP data in Table 3 (Column 1), it appears that Japan was able to approach the middle-income stage by the first decade of the 20th century. Until the First World War, Japan's industrialization had been predominantly based on the expansion of labor-intensive manufacturing. Later, heavy industries were promoted during the First World War and continued to be strengthened thereafter in the inter-war period. At that time a dual structure emerged and the rural-urban disparity became serious.

Correspondingly, the focus of agricultural policies changed. Before the First World War, agricultural policies were mainly geared for increasing food production so as to counteract the food problem in the low-income stage. The adequate supply of cheap food, especially rice, was considered a critical support for the development of labor-intensive industries. For this end Japanese government invested heavily in agricultural research and extension as well as irrigation infrastructure for the development and diffusion of high-yielding varieties, initially within Japan and later to overseas territories, Korea and Taiwan. Such efforts were successful to overcome the food problem before the Second World War (Hayami 1975; Hayami and Ruttan 1985, Hayami and Yamada 1991).

Ironically, this success greatly aggravated the disparity problem during the inter-war period. As Column 5 of Table 3 shows, declines in labor productivity in agriculture' relative to industry were very fast in Japan from the beginning of modern economic growth, reflecting very rapid progress in industrialization. Nevertheless, the terms of trade did not improve for agriculture (Column 6), so that income per capita in farmers' households declined sharply relative to that in non-farm workers' households (Column 7). These trends contrast sharply with those after the Second World War, when despite continued declines in relative productivity for agriculture, the per-capita income of farmers improved relative to non-farmers to the point of exceeding parity after the 1970s: this resulted from very rapid improvements in the terms of trade based on farm price support programs at a large scale unthinkable in the prewar days. Such a scale of farm supports became possible as Japan advanced to the high-income stage in the late 1960s.

As the disparity problem loomed large, the farm bloc demanded increased government supports. Already in 1913, politically powerful landlords were successful in lobbying for the institution of a specific duty on rice imports, but it was not applied to rice produced in overseas territories within the Japanese Empire. When the price of rice began to fall after the First World War, the farm bloc pressed the government to support rice prices by means of procurement and storage of rice. In addition, the government developed various programs to assist farmers, including government spending on construction of physical infrastructure in rural areas in order to provide wage-earning opportunities and the release of low-interest loans from government to farmers heavily in debt from private money lenders.

Tax burdens on farmers were also reduced. In the early stage of modernization in Japan, land tax levied from farmers was the major source of government revenue. During the 1880s the ratio of direct tax shouldered by farmers to their income was about 15 percent compared with only about 2 percent for non-farmers; this disparity largely remained even in the 1910s with the tax rates of about 11 percent for farmers and 5 percent for non-farmers, but by the late 1930s farmers' tax rate was reduced to about 6 percent not so different from non-farmers (Hayami 1988, p. 40).

These policies designed in Japan during the inter-war period in response to the emerging disparity problem were also very similar to those adopted in Thailand since the 1970s. Their consequences were similar. In spite of all these efforts, the level of income and the living standard of farmers did not appreciably improve. Unlike after the Second World War, the Japanese economy during the inter-war period did not reach the stage at which the government could afford

to undertake farm support programs at such a scale as to close the rural-urban income gap. Although heavy industries developed rapidly, light industries based on small- and medium-scale enterprises were still the backbone of the Japanese economy, especially with respect to foreign exchange earnings. Their international competitive power was still dependent on cheap labor, so that a major increase in the wage rate resulting from large increases food prices could not be tolerated. In such circumstances, with whatever powerful lobbying the landlords were able to organize, it was not politically possible to raise the level of agricultural protection sufficiently to solve the rising disparity problem.

Very unfortunately, by the time the disparity problem became serious, Japan was plunged into the storm of the Great Depression of 1929. In Japan as well as throughout the world, farm product prices declined faster than the prices of manufacturers' and farmers' incomes dropped more than non-farm workers'. Growing dissatisfaction and frustration of farmers, who became poorer both absolutely and relatively, culminated in social disruptions including terrorism; this rendered a major support for militarism to gain power, ending in the tragedy of the Pacific War.

## **Conclusion**

The growing imbalance in world agriculture today as epitomized in increasing food deficits in low-income economies in contrast with increasing surpluses in high-income economies have not simply been the results of different demand and supply structures corresponding to different income levels but it has been aggravated by policies under the dictate of the three agricultural problems in different stages of economic development -- the food problem in the low-income stage, the disparity problem in the middle-income stage and the protection problem in the high-income stage.

Under the regime of the food problem, policymakers in low-income countries have inclined to adopt policies geared for securing low-priced food to urban consumers at the expense of farm producers. In contrast, under the regime of the protection problem, politicians in high-income countries have not been able to resist pressures from the farm lobby for instituting policies to raise farmers' incomes to the level of non-farm workers. Great inefficiency and inequity



resulting from these contrasting policy distortions have already been amply documented (Johnson 1973; Schultz 1978, Anderson and Hayami 1986), and the need to reduce these distortions has been widely recognized. In fact, major international collaborative efforts have progressed in that direction for the past two decades, through GATT/WTO multilateral trade negotiations.

In contrast, the disparity problem has received relatively little attention. Yet, the growing income disparity between farm and non-farm population could be a major source of social and political instability for economies attempting to achieve catching up with high-income economies through industrialization by means of rapid technology borrowing. This problem is now spreading over Asia from ASEAN nations to China and Vietnam and will eventually reach South Asia, especially India.

While right approaches to the food and the protection problems have already been established among economists, though actual implementation is often politically difficult, the right design to cope with the disparity problem has not yet been identified. The difficulty is how to compromise the conflicting goals to support farmers' incomes on one hand and to secure the supply of low-cost food to a large number of workers in urban informal sectors in another, under the still weak capacity of the government to raise sufficient revenue from non-agricultural sectors. Almost inevitably, agricultural policies tend to become tinkering exercises combining various, often mutually conflicting policy instruments in ad hoc manners, as the experiences of Thailand and Japan illustrate. Greater research inputs in this area are called for in order to prevent the growth momentum of high-performing Asian economies from being disrupted, as experienced by Japan between the two World Wars.

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**Table 1.** Comparison of per-capita GDP and agriculture's shares of economic active population and GDP

	(1)		(2)		(3)		(3)/(2)	
	Per-capita GDP		Agriculture's share in economic active population (percent)		Agriculture's share in GDP (percent)		Agriculture's per-capita income/whole economy's per-capita income <sup>a</sup> (percent)	
	1995 (\$)	1965-95 average annual growth rate (%)	1965	1995	1965	1995	1965	1995
Developing countries								
Low-income countries								
Ethiopia <sup>b</sup>	101	0.0	92	84	58	52	63	62
Tanzania	168	0.0 <sup>c</sup>	91	83	46	46	50	56
Bangladesh	324	1.3	86	61	41	25	47	41
India	387	2.2	74	62	44	28	59	46
Middle-income countries								
Indonesia	992	4.7	71	52	56	17	79	33
Philippines	1,084	1.1	61	43	26	22	43	51
Thailand	2,771	5.4	82	60	32	11	39	18
Mexico	3,801	1.5	49	25	13	5	27	20
Korea	10,844	6.9	55	14	24	6	44	46
Developed countries								
UK	18,848	1.9	3	2	3	2	92	96
France	26,298	2.3	10 <sup>d</sup>	4	5 <sup>d</sup>	2	50 <sup>d</sup>	55
USA	26,908	1.6	5	2	4	2	65	65
Japan	41,294	4.2	26	5	10	2	37 <sup>e</sup>	36 <sup>e</sup>

- Notes
- a. Let, Na= employment in the agricultural sector; N=total employment, Ya=GDP in the agricultural sector; N=total employment, Ya=GDP in the agricultural sector; and Y=GDP. Then, the last two columns give (Ya/Na)/(Y/N), which means the ratio of average income per farmer to per-capita GDP.
  - b. Ethiopia in 1965 includes Eritria
  - c. 1988-95 growth rate
  - d. 1977 value
  - e. A majority of Japanese farmers earn their living mainly by off-farm income. If off-farm income is included, Japanese farmers' income level is on a par with urban counterparts' (Hayami, 1988).

Sources

Reproduced from Hayami and Godo(2004,p.14):  
 FAO, *FAOSTAT Database*, 2000.  
 World Bank, *World Development Report*, 1992.  
 World Bank, *World Development Indicators CD-ROM*, 2000.

**Table 2. The average annual growth rates of real labor productivities in agriculture and manufacturing in selected countries, 1965-95**

	<u>Average growth rate per year of labor productivity</u>		Rate of change in comparative productivity (1)-(2)
	Agriculture (1)	Manufacturing (2)	
<b>Developed countries</b>			
USA	2.7	3.4	-0.7
UK	2.7	3.2	-0.5
France	5.2	3.6	1.6
Germany <sup>a</sup>	5.1	4.0	1.1
Japan	5.1	5.5	-0.3
Average <sup>b</sup>	4.2	3.9	0.2
<b>Developing countries</b>			
Korea	5.3	11.0	-5.7
Philippines	1.4	10.2	-8.8
India	1.7	2.3	-0.7
Average <sup>b</sup>	2.8	7.8	-5.0

Notes. a. 1965 values are estimated by aggregating data for the Federal Republic of Germany and those for the German Democratic Republic.

b. Simple average of sampled countries.

Sources. Reproduced from Hayami and Godo(2004,p.9):

FAO, *FAOSTAT Database*, 2000. United Nations Industrial Development Organization, *Industrial Development Global Report*, 1998 Edition. United Nations, *The Growth of World Industry*, 1971, 1977, and 1984 Edition. International Labour Organization, *Yearbook of Labour Statistics*, 1973 and 1979 Editions.

**Table 3. Farm-nonfarm income disparity agriculture in Japan's economic development, 1885-1995**

		Share of agriculture			Agriculture/ Industry labour productivity ratio	Agriculture/ Manufacturing Terms of Trade	Farm / Non- farm house- hold income ratio
	GDP per capita	Labor force	GDP	Engel coefficient			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	1990US\$	percent	percent	percent	percent	1885=100	percent
1885	804	73	45	64	75	100	76
1890	956	71	48	66	67	115	87
1900	1,110	68	39	62	49	102	52
1910	1,226	65	32	61	37	98	47
1920	1,590	54	30	62	50	99	48
1930	1,732	50	18	53	31	104	32
1935	1,992	47	18	50	24	136	38
1955	2,648	39	21	52	55	163	77
1960	3,815	32	13	43	39	169	70
1970	9,285	20	6	34	25	304	94
1980	12,730	11	4	31	25	347	116
1990	17,841	7	3	19	26	428	121
1995	18,866	5	2	17	27	427	108

Source: Hayami and Godo (2002, p. 132)

Table 4. Direct tax burden and subsidy benefit in agriculture and non-agriculture

	Ratio of direct tax to net value added <sup>a</sup> (percent)		Ratio of subsidy to net value added <sup>b</sup> (percent)	
	Agriculture	Non- agriculture	Agriculture	Non- agriculture
1890	14.9	2	0	0.49
1900	11.7	2.7	0.05	1.41
1910	11.2	5.5	0.02	1.09
1920	7.5	4.8	0.02	0.55
1930	8.1	3.8	1.17	1.11
1935	6.5	4	1.14 <sup>c</sup>	0.58 <sup>c</sup>

<sup>a</sup> Three-year averages centering the years shown

<sup>b</sup> Data of one year before the years shown

<sup>c</sup> 1934 data

Source : Hayami (1985, p. 40)

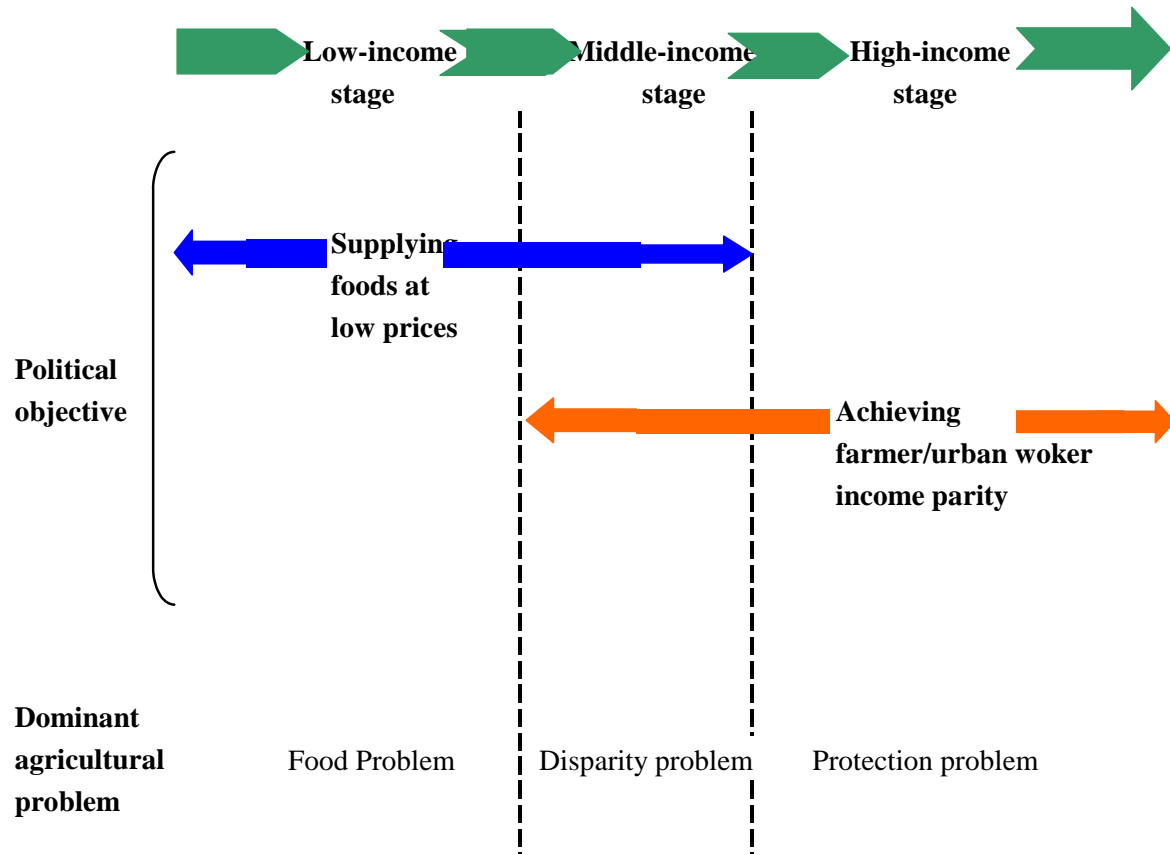
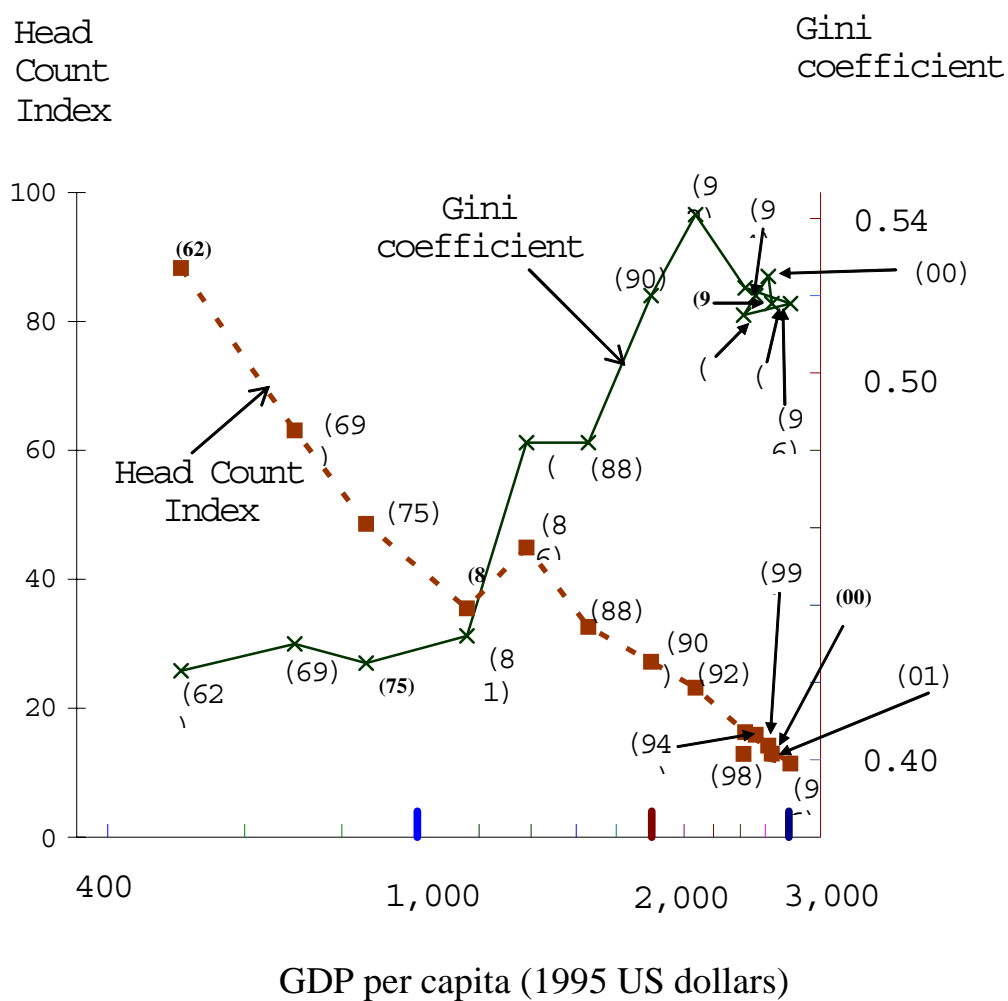


Figure 1. The agricultural problems at different stages of economic development



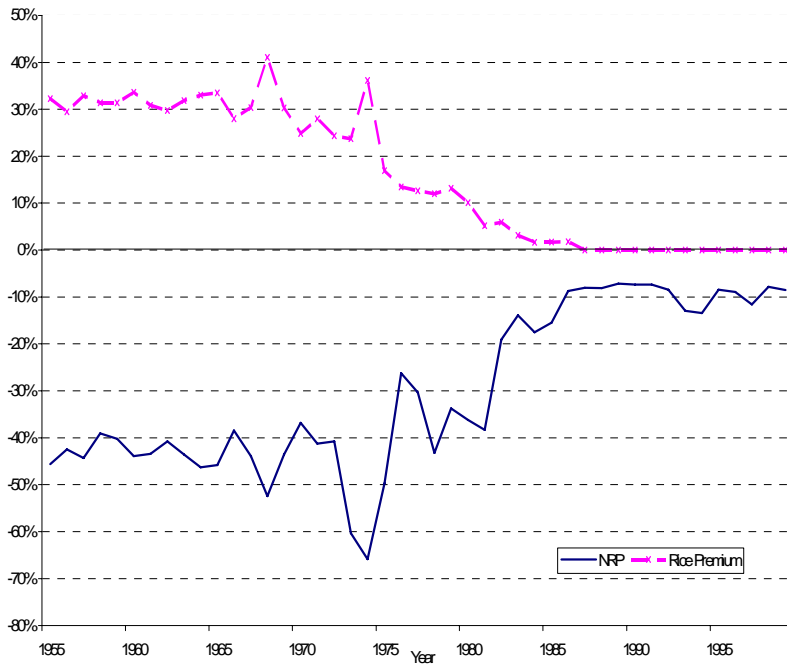


**Figure 2 GDP growth and poverty indexes in Thailand, 1962-2001**

Note: Within parenthesis is the year of observation.

Sources: Reproduced from Hayami and Godo (2005 p. 208).

GDP per capita from World Bank, World Development Indicators CD-ROM (2000)  
Head Count Index and Gini coefficient from Warr (2004).



**Figure 3. Rice premium and nominal rate of protection (NRP) for rice 5 percent broken in Thailand, 1950-2002**

Note:  $NRP = (\text{domestic wholesale price} - \text{export price fob Bangkok}) / \text{export price fob Bangkok}$

Source: Export price: IRRI World Rice Statistics (2003)  
 Domestic price: Churchart (1957) for 1950-54, IRRI World Rice Statistics (2003) for 1955-97, and The Bank of Thailand Monthly Bulletin for 1998-2002  
 Rice premium: Churchart (1957), Pookkachatikul and Welsch (1976), and Siamwalla and Sethboonsarng (1989)