

# **‘Urban Bias’, Intersectoral Resource Flows and the Macroeconomic Implications of Agrarian Relations: The Historical Experience of Japan and Taiwan**

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*It is argued that agrarian relations play a critical role in the pattern of intersectoral resource flows and the way in which the agricultural sector shapes the macroeconomy in developing countries. The notion of ‘urban bias’ used by GKI is defective in its abstracting from the pre-existing agrarian system and from the prevailing institutions and in focussing on one simple set of influences outside the agricultural sector itself, i.e. government policy bias. This is illustrated with reference to the historical experience of two countries regarded as exemplary by GKI: Japan and Taiwan. Their experience shows that high rates of taxation and surplus extraction from agriculture are not incompatible with maintaining profitability and production incentives in agriculture, as long as agrarian relations and other enabling conditions can ensure a fast enough rate of technological progress and productivity growth in the sector. The macroeconomic implications of different agrarian relations are much more complex than the urban bias story told by GKI would suggest.*

*Keywords:* urban bias, macroeconomy, Japan, Taiwan, intersectoral resource flows

## INTRODUCTION

Agrarian relations play a critical role in the pattern of intersectoral resource flows and the way in which the agricultural sector shapes the macroeconomy in developing countries. This is often obscured in the neo-populist literature, where the intricate relationship between agriculture and the rest of the economy is reduced to what is perceived as ‘urban bias’ in government policy. The notion of urban bias appears in varying forms and guises in the literature, invoked by different authors to explain different phenomena in the developing world.

Thus, Michael Lipton’s (1977) book was mainly preoccupied with explaining why in some developing countries after a long period of rapid economic growth

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during the 1960s poverty was not being reduced. Urban bias in that context was meant to explain the supposed lack of participation of the rural 'poor' in the economic process in terms of the biased policies of the government.

In later years, with the collapse of economic growth in many developing countries during the 1980s and the 1990s, urban bias was increasingly invoked to explain the lack of economic growth itself. As such, it became a part of the more general vocabulary of economic 'distortions' highlighted in policy debates by the so-called 'Washington consensus'. In this new context, urban bias was increasingly characterized by the sectoral distinction between agriculture and industry in what might most appropriately be termed as the 'industrial bias' or 'agricultural squeeze' hypothesis.<sup>1</sup>

The recent paper by Griffin, Khan and Ickowitz (2002) – hereafter GKI – presents yet another use of the urban bias thesis. This time it appears in the context of the discussion of redistributive land reform.

The notion of urban bias, then, has played its role in the great ideological debates on government policy and development strategy. I have argued in a previous paper (1996/97) that it has, in fact, obscured more than illuminated the problems in developing country agriculture by reducing the problem addressed to one simple cause outside the sector itself or even outside the economy, namely government policy bias. In the context of the very specific issue of land reform discussed in GKI, such shortcomings of the urban bias thesis stand out even more clearly than in other contexts, and at the same time highlight some of the shortcomings of the treatment of land reform and its macroeconomic implications in the paper. It is those macroeconomic implications that I wish to consider, with an emphasis on intersectoral resource flows. In so doing, I will draw upon the analytical framework used in the aforementioned paper (Karshenas 1996/97) and in other of my previously published works (1995, 2000, 2002).

GKI point out that 'many countries have adopted a development strategy that neglects agriculture and the rural areas' (2002, 284), and specify the correction of this policy bias as a condition for the effectiveness of the redistributive land reform proposed in their paper. They underline three specific aspects of urban bias which are of particular relevance to their discussion of land reform.

The first is an 'extractive' approach towards agriculture, pursued, in particular via adverse terms of trade for agricultural products so that 'resources are . . . artificially channelled away from agriculture' (p. 316), which effectively kills incentives; the second, the starving of rural areas of investment in infrastructure; and the third, the bias against rural areas in expenditure on human capital and other social and economic services. One notes that the first aspect should include, as it does with Lipton, 'excessive' taxation of agriculture, or a taxing of agriculture that is disproportionate by comparison with other sectors. Curiously, GKI do not mention agricultural taxation, but logically it should be included

<sup>1</sup> The most notable and influential of this new form of the urban bias thesis was the five-volume study directed by Anne Krueger for the World Bank, covering case studies of eighteen countries. The results of the World Bank studies are summarized in Schiff and Valdes (1992) and Krueger (1992). For a critique of this work see Karshenas (1996/97).

along with deliberate manipulation of the terms of trade against agriculture. In addition, GKI maintain that within the agricultural sector, policy has discriminated against small farmers and in favour of large landowners: what they refer to as 'landlord bias'. They maintain that 'a successful redistributive land reform requires the simultaneous elimination of both landlord bias and urban bias' (p. 285). It is the postulated 'urban bias' and its supposed effects that I wish to discuss briefly in this paper.

They stress, then, that 'the removal of urban bias is a necessary condition for a successful redistributive land reform' (p. 316). The following specific policy implications are highlighted, which form a significant part of what the paper perceives as the macroeconomic context of successful land reform:

One implication is that 'distortions' in the structure of incentives should be corrected so that resources are not artificially channelled away from agriculture. Relative product and input prices should reflect their opportunity costs – the terms of trade should not be deliberately turned against agriculture – and equally important, agriculture should have equal access to scarce resources such as foreign exchange and finance capital. The structure of incentives encompasses more than relative prices. Another implication is that the allocation of public investment should not be biased against the agricultural sector. Public investment (taking into account complementarities and externalities) should be allocated to projects with the highest rates of return. Often this has not occurred: governments have favoured large-scale industry and the major metropolitan areas . . . and have neglected investment in rural areas in transport, power, communications, irrigation. The same is true of human capital formation. The countryside has been relatively neglected when it comes to public expenditure on education, health, family planning services, agricultural extension, research and so on (p. 316).

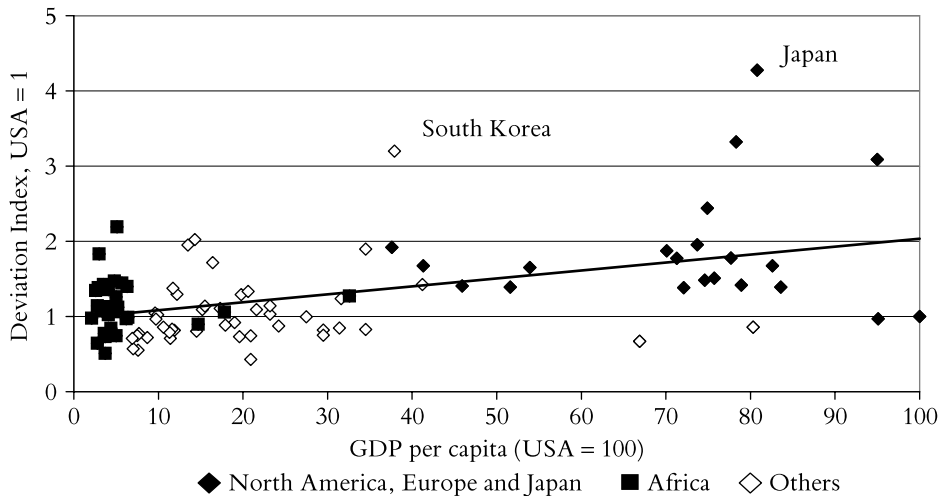
The authors point out that such policy reform is also important for better agricultural performance under *any* ownership structure. Thus, 'The general bias of policy against the rural areas makes it difficult to reduce rural poverty regardless of the distribution of property rights in land' (p. 284). It is not therefore clear in what sense the elimination of urban bias is a 'necessary condition for successful redistributive land reform' in contrast to other types of land ownership. Is urban bias more deleterious for an independent peasant owner–cultivator system than for say capitalist farming or semi-feudal absentee landownership? Is it possible that some aspects of the urban bias phenomenon discussed in the paper are more critical under particular agrarian relations? In raising these questions we are not being unnecessarily pedantic. They embody important issues regarding agrarian relations and their implications for the macroeconomy, which are not adequately discussed by GKI. As we argue below, such implications cannot be derived in general, in abstraction from the pre-existing agrarian system and the prevailing institutions and economic structures in the particular economy in question. I will concentrate on the historical experience of two economies, Japan and Taiwan, both seen as exemplary by GKI in relation to their case for redistributive land reform.

SOME BRIEF PRELIMINARY OBSERVATIONS

Before proceeding to my treatment of the historical experience of Japan and Taiwan, I would make two preliminary observations.

The first is that in supporting their argument for redistributive land reform GKI provide evidence on agricultural growth performance of countries such as Japan, South Korea and Taiwan following their redistributive land reforms in the post Second World War period. What GKI fail to point out is that the growth and perhaps even the sustainability of agriculture in these countries in the past few decades has been by and large based on the enormous subsidies provided to the agricultural sector by the rest of the economy. Figure 1, which provides an indication of agricultural price protection in Japan and South Korea, highlights this point (comparable data for Taiwan are not available). It shows the deviation of agricultural prices in each country (in US dollars at official exchange rates) from average world prices (also measured in US dollars) for 123 countries in 1990, with the US deviation index set to equal 1. Countries are ranked according to their per capita GDP and broad regional country groupings are also identified in the graph. Japan, with an index of 4.3, tops all the countries in the world, and Korea, with an index of 3.2, exhibits agricultural price deviation well above the middle-income countries and indeed above many high-income European countries. These figures indicate the high levels of protection of agriculture in the two countries, and the huge subsidies that agriculture is receiving from the non-agricultural economy, only made possible by the very buoyant and highly

Figure 1. Agricultural price deviation index in different countries, 1990



Note: price deviation index is defined as domestic farmgate price index divided by world price index.

Source: Karshenas (2002).

productive non-agricultural economies in the two countries. Thus, a convincing case for redistributive land reform for poor developing countries cannot be made without considering its implications for the non-agricultural economy by, for example, providing measures of the possible need for agricultural subsidies in the post-reform era, and the possibilities of financing them. Indeed, it may have been the deployment, previously, of precisely the ‘urban bias’ mechanisms seen as anathema by GKI that made possible the creation of the buoyant non-agricultural economy, and especially the manufacturing industries that can afford the massive subsidies in question.

My second point with respect to the alleged general case for redistributive land reform in the neo-populist literature is the impact of such reforms on income distribution, and hence on poverty alleviation. GKI are careful not to fall into the trap of ignoring growth, and stress that both growth and distribution are important for poverty reduction. I would stress that in poor countries suffering from generalized or mass absolute poverty, indeed, there is little leeway in pursuing poverty alleviation solely through redistribution of incomes, if such redistribution is not at the same time growth generating (see Karshenas 2002). Land reforms of any type, including redistributive land reform, which are not well designed and do damage to economic growth, can condemn such countries to perpetual poverty. GKI argue that redistributive land reform would be followed by an *acceleration of agricultural growth*. But there can be no guarantee that this would be so. In his paper on China (and with reference to other east Asian economies – Japan, South Korea and Taiwan) in this special issue, Bramall casts considerable doubt upon the growth-enhancing effects of redistribution. If, indeed, the postulated inverse relationship between land productivity and size of holding turns out not to exist (as argued in the papers by Bramall, Byres, Dyer, Sender and Johnston, and Khan) then, in the extreme, redistribution might even be followed by a fall in total agricultural output.

#### THE NEED FOR A DYNAMIC FRAMEWORK

The debate on urban bias, in the positions taken by both the proponents and the opponents of the thesis, has often been posed in the form of a zero sum game where agriculture competes with other sectors for given resources and where the issue of ‘surplus extraction’ from agriculture has been the focus of analysis. This I wish to contest.

Within a more dynamic framework the net surplus transfer in each period becomes much less important than the growth enhancing *interactions* between the sectors as epitomized by the gross flow of resources (including material, financial and human resources, knowledge, and technology). Within such a dynamic framework, which is markedly at variance with the ‘urban bias’ approach, various mechanisms of resource flow working through private and official current and capital transfers, in addition to the terms of trade or relative price effect, interact in a complex manner, reinforcing or neutralizing one another. Thus, taxation must certainly be considered. For example, indirect taxes imposed on agriculture

can be totally reinvested in the sector, generous credit subsidies may lead to even larger inflow of private capital into agriculture, the effect of adverse terms of trade movement may be reinforced by the effect of other forms of direct taxation, etc.

Of course each of these various channels of resource flow would have a different effect on agricultural productivity and growth, depending on the prevailing agrarian institutions and production conditions. By contrast, intersectoral resource flows can change endogenously as the technological conditions of production in agriculture and in the other sectors change. For example, rapid rates of productivity growth in agriculture, as a result of new technologies becoming available, can move the terms of trade against agriculture without reducing the relative profitability of agricultural production. In this case, a price decline will be accompanied by *improved* incentives because of technological change. The highly generalized 'urban bias' notion simply does not capture this. An adequate analysis of the patterns of agricultural surplus flow in the process of development needs to take into account the impact of the different mechanisms of resource transfer under specific agrarian institutions and production conditions. The simple references to the removal of urban bias, that appear in GKI, create a semblance of generality which obscures rather than illuminates these processes.

Because of the variety of initial conditions in different countries, as well as the multiplicity and complexity of intersectoral relations, questions related to the macroeconomic implications of different agrarian relations can only be adequately addressed within historically specific country settings. A general theory applicable to all developing countries, or even to countries within particular agro-climatic regions, can prove highly misleading. I will illustrate my argument with respect to Japan and Taiwan.

#### INTERSECTORAL RESOURCE FLOWS AND ECONOMIC DEVELOPMENT IN JAPAN AND TAIWAN

Japan and Taiwan are amongst the few Asian economies for which relatively detailed historical estimates of intersectoral resource flows are available for long periods during the early history of their modern economic development. It is useful to examine the experience of these two countries, as they are amongst the countries singled out by GKI to support their land redistribution thesis. We must ask how that experience bears upon the GKI argument concerning 'urban bias'.

The study period we have chosen for Japan constitutes an important phase of economic development stretching from the Meiji restoration up to the eve of the Second World War (1888–1937). During this period agriculture is believed to have made an important financial contribution to the rest of the economy. If this is so, is it to be dismissed as an example of 'urban bias'? For that is what it might appear to be. Or is it to be seen, more positively, as a crucial contribution to Japanese industrialization and the overall development of the Japanese economy? With more than 70 per cent of the labour force engaged in agriculture at the beginning of this period, the lessons from this early phase of development in

Japan are of more relevance to present day developing countries than the later phases of Japanese agrarian development.

The study period for Taiwan (1911–60) corresponds with rapid agricultural transformation during two distinct phases of colonial and post-colonial development, which laid the foundation for the post-1960s phase of export-led industrialization.

The focus on the historical experience of the two countries helps to put in context the post-land redistribution experience alluded to by GKI, by examining the patterns and processes of intersectoral resource flows in both countries during a much more dynamic period of their agrarian development than that highlighted by GKI. That previous history, and the pre-existing agrarian system and its production relations, tell us more about the usefulness of the GKI urban bias hypothesis than is found in the subsequent history, and also help to explain that subsequent history.

#### *The Experience of Japan, 1888–1937*

The development experience of Japan during the post-Meiji restoration period is often cited as a case where the main burden of financing industrialization was carried by agriculture. The available data confirm this view. But it is a more complex story than the notion of ‘urban bias’ might suggest. And we need to divide the overall period into two quite distinct sub-periods.

Table 1 shows the net finance contribution of agriculture and its various constituent elements from the real side, both as a share of agricultural income at current prices and in real values for the whole period 1888–1937. As can be seen, agricultural *sales*, or marketed surplus, increased from about 54 per cent of farm income at the beginning of the period to about 85 per cent by 1937. Such high rates of marketed surplus are indicative of relatively high rates of commercialization of Japanese agriculture even at the beginning of our study period. The *purchases* of the agricultural sector, however, start from a lower base of about 48 per cent of value added, and growing at a relatively slower pace – particularly during the 1888–1917 period – remain more or less consistently below the marketed surplus. As a consequence, there seems to have occurred an outflow of resources from the agricultural sector throughout the period, with the exception of the depression years of 1928–32.<sup>2</sup> That might be construed as suggesting likely mechanisms of ‘urban bias’. We need, however, to divide the overall period into two, and consider carefully the mechanisms in question during each period. A notable feature of the pattern of intersectoral resource flows at current prices is the *acceleration* in the rate of surplus outflow from agriculture in the *first* half of

<sup>2</sup> During the period of the Great Depression both agricultural sales and purchases at current prices registered a substantial decline, with sales declining proportionately much faster due largely to a sharp decline in the agricultural terms of trade. As this was due to the special circumstances of the depression years, intersectoral resource flows at current prices returned to their positive magnitude with the end of the depression, which was the normal pattern for the period as a whole.

Table 1. Composition of intersectoral commodity flows, Japan, 1888–1937

Year	% Share of agricultural income							In real terms (average 1888–1902 prices)				
	Value of agricultural sales (X)	Total	Consumer good	Producer goods	Investment goods	Net balance (X-M)	Value of agricultural sales (x)	Value of agricultural purchases (m)	Real net balance (x-m)	Visible outflow (X-M)/Px	Invisible outflow -m(1-Pm/Px)	
1888–92	54.3	47.8	15.3	25.5	7.0	6.5	319.4	238.3	81.2	38.3	42.9	
1893–7	56.1	48.3	14.6	26.2	7.4	7.8	352.9	288.7	64.1	48.9	15.2	
1898–1902	59.3	49.7	13.2	29.7	6.8	9.6	436.1	385.4	50.8	70.9	-20.1	
1903–7	67.3	47.7	13.6	27.6	6.5	19.6	536.2	414.8	121.4	155.9	-34.5	
1908–12	66.2	51.8	14.4	31.0	6.4	14.4	603.3	542.6	60.7	131.2	-70.4	
1913–17	75.5	56.9	15.9	34.6	6.4	18.6	762.2	603.8	158.5	187.7	-29.2	
1918–22	77.3	68.7	15.9	46.5	6.3	8.6	843.2	943.4	-100.2	94.1	-194.2	
1923–7	81.6	78.4	16.5	54.5	7.4	3.2	913.7	1101.5	-187.8	35.4	-223.3	
1928–32	83.8	86.5	18.9	58.7	8.9	-2.7	995.0	1028.8	-33.8	-32.1	-1.7	
1933–7	84.9	79.5	18.2	53.9	7.4	5.5	1048.5	1111.5	-63.1	67.4	-130.5	

Source: Based on Ohkawa et al. (1982).



the period (1888–1917), and its noticeable *decline* in the *second* half (1918–37). Measured in real terms, the 1918–37 period in fact shows a negative surplus outflow from agriculture.<sup>3</sup> So, we might interpret these movements as possibly representing a shift from a period of ‘urban bias’ to one of ‘non-urban bias’.

The cyclical behaviour of intersectoral resource flows, then, demarcates two distinct phases of development of Japanese agriculture. The first phase, which really runs from the Meiji restoration to the First World War, was one of relatively high productivity and output growth in agriculture, in conjunction with a heavy rate of surplus outflow. Agricultural output grew faster than population in this period and in addition to providing food and raw materials for the fast expanding non-agricultural sector, agriculture also produced an export surplus which made an important contribution to industrial development (Ohkawa and Rosovsky 1960). Productivity growth in agriculture during this period was based on a constant and incremental improvement in technological practices within the traditional agrarian institutions inherited from the Tokugawa period. Those agrarian institutions and the production relations they embodied were crucial. Small family farms with about 1 hectare of land per household on average remained the main operational units of production, both on the owner-occupied and rented land. Technological improvements took the form of land improvement and extension of irrigation, as well as the introduction of new seeds, fertilizer and better methods of cultivation. The Japanese rural-based landlord class played an important role in these technological improvements by both providing the finance for bulkier land improvement investment projects and in the diffusion of the technological innovations (see Ohkawa and Rosovsky 1960). According to the estimates by Yamada and Hayami (1979), about 75 per cent of the output growth in this period was explained by productivity growth and only 25 per cent by the increase in inputs. This indicates the fast rates of technological innovation and the high and improving degree of efficiency of resource use in Japanese agriculture. This was particularly evident in the high degree of output response to the application of new inputs purchased from outside agriculture, as witnessed by the low and even slightly declining ratio of purchased inputs to value added reported in Table 1. Agriculture grew, yet in circumstances of substantial surplus outflow, which, in GKI terms might be construed as evidence of clear ‘urban bias’. It grew because of factors that appear nowhere in the GKI analytical framework.

The second sub-period, i.e. the interwar period, was one of relative stagnation in output and productivity. Yet here was an era in which ‘urban bias’, if we measure that in terms of surplus outflow, markedly diminished. During this period the *non-agricultural* sectors of the Japanese economy continued their fast

<sup>3</sup> The cyclical behaviour of agricultural terms of trade makes the real side measurements very sensitive to the base year adopted. The estimates in Table 1 are based on average 1888–1902 base prices. Given the high degree of protection of agricultural prices in the interwar period, this may be considered the most appropriate ‘normal’ period for a base year price system. For more details see Karshenas (1995, chapter 8).

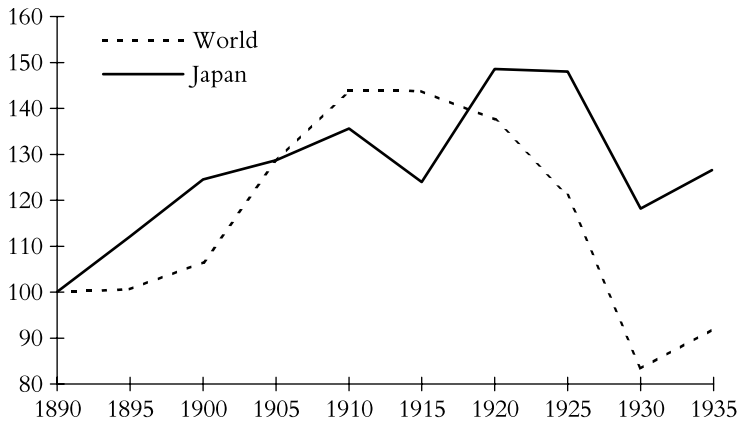
rates of growth and a widening gap developed between the demand and supply of agricultural products which was covered by increasing imports from the colonies. The sluggish agricultural productivity growth also implied an increasing degree of protection of the agricultural sector by the government in an attempt to maintain the incomes of the farm households and landlords who formed a strong political lobby during this period (Anderson 1983). The slow-down in the rate of growth of output over this period was partly due to the relatively lower increase in inputs such as land and other fixed and working capital inputs.<sup>4</sup> To a larger extent, however, it was due to the slow-down in the rate of growth of agricultural productivity. The contribution of total factor productivity which stood at 75 per cent of the output growth during the 1880–1920 period, declined to 44 per cent during the 1920–35 period, while the contribution of the rise in inputs increased from 25 to 56 per cent. This was also reflected in the rapid increase in the rate of purchased intermediate and capital goods/value added ratios reported in Table 1. In fact, it would be plausible to assume that the slow-down in the rate of increase of agricultural inputs was itself caused by the slow-down in the rate of productivity growth which *ceteris paribus* implied a lower rate of return on investment in the agricultural sector relative to the earlier sub-period.

To investigate seriously the causes of the slow-down in the rate of productivity growth in the interwar period would take us too far afield. But it would appear to have had nothing to do with the operation of 'urban bias'. According to Ohkawa and Rosovsky (1960), by the end of the First World War the main sources of technological innovation within the traditional institutional set-up of Japanese agriculture seemed to have been exhausted. Further technological progress required radical institutional reform which was hindered due to social and political obstacles.<sup>5</sup> Furthermore, the institutional changes that did take place were not conducive to technological innovation. An important example of this was the increase in parasitic or absentee landownership and the gradual fading away of the Japanese landlord-entrepreneur who had played a dynamic role in the introduction of new innovations in the earlier period. According to Ohkawa and Rosovsky, during the interwar period, 'landlord interest was shifting from production to marketing, and their collective efforts came to be concentrated on maintaining the price of rice' (1960, 59). That is to say, the roots of the deceleration in agricultural growth are to be sought in prevailing institutions and production relations.

<sup>4</sup> For example, the rate of increase in cultivated land declined from 0.7 per cent per annum in 1900–20 to 0.1 per cent per annum in 1920–35. During these respective periods the annual rates of growth of fixed capital declined from 1.3 to 0.9 per cent, and that of current inputs from 4.7 to 3.2 per cent (Yamada and Hayami 1979).

<sup>5</sup> To quote Ohkawa and Rosovsky, 'the Japanese farmer, given the prevailing system of cultivation, had reached his most efficient method of production in the teens of the twentieth century, and now he was not able to make further impressive gains. . . . The entire traditional agricultural complex which had served Japan quite well since the early changes of the Tokugawa Era, and which had been spectacularly successful during the Meiji and part of Taisho, now entered a far less brilliant period. Perhaps the greatest problem lay in the fact that major changes were politically, socially, and culturally quite impossible' (1960, 59).

Figure 2. Agricultural terms of trade, Japan and the World



Source: Karshenas (1995, 134).

The effort by landlords to maintain the price of rice directs our attention to an important element in intersectoral resource flows, namely the relative price or the terms of trade effect. The terms of trade effect are due to variations in the relative price movements of sales and purchases by agriculture, which are not obviously reflected in current price estimates of net agricultural surplus flow. Such terms of trade effects can be relatively large and can overshadow the current price estimates of net resource flow. The movement of agricultural terms of trade for Japan during the study period is depicted in Figure 2, along with the world terms of trade of internationally traded agricultural products *vis-à-vis* manufactures.

As can be seen, the terms of trade moved consistently in favour of agriculture up to the 1920s (with a fall between 1910 and 1915). But we also need to consider agricultural taxation. As we shall see, this was heavy – even draconian – during the first sub-period, such as to suggest, in GKI terms, clear *overall* ‘urban bias’.

During the 1920s and the 1930s, Japan developed a growing food shortage and increasing resort was made to food imports from its colonies in order to stabilize domestic food prices. Despite the growing food imports and particularly the sharp dip in the terms of trade during the Great Depression years, agricultural terms of trade at the end stood at more than 33 per cent higher than the figures at the very beginning of the reference period (in 1890). It should be noted that despite the growth in food imports (notably rice) and the reversal of agricultural terms of trade improvements in the 1920s and the 1930s, the degree of protection afforded to Japanese agriculture was accelerating rapidly during these two decades. Clearly, there was no ‘urban bias’, in the GKI sense. According to estimates by Anderson (1983), the nominal protection of rice which stood at about 16 per cent in 1903–07 and 20 per cent in 1918–22, increased to about 60 per cent by the late 1930s. This is also clearly demonstrated in Figure 2, which

shows that relative to international levels, the agricultural terms of trade in Japan improved considerably from 1915 onwards. As noted above, this was the outcome of the government's attempt to safeguard the income of agricultural producers at a time of sluggish growth of output and productivity in the sector. The terms of trade improvements in favour of the agricultural sector meant relatively large real income gains for the farm households during the interwar period, as reflected in the enormous invisible income flows measured in 1888–1902 average prices shown in Table 1. The incidence of taxation also declined. Yet, there was a deceleration of agricultural growth.

Clearly, the change in the pace of output growth and particularly the slow-down in productivity growth between these two phases had a direct bearing on the potential of agriculture to generate a surplus for transfer to other sectors. The various financial mechanisms through which the surplus transfer took place, along with estimates for the magnitude of surplus flow for the 1918–22 period, are shown in Table 2. One feature of the financial flows which immediately stands out is the substantial inflow of factor income to the agricultural sector. This was a consequence of the combination of low factor outflow through rents and the large inflow in the form of labour income from non-agricultural activities of the farm household members. The former was due to the peculiarity of agrarian relations in Japan where, unlike colonial Taiwan, landlords mainly consisted of rural-based cultivating landlords and their rent income did not constitute a financial outflow from agriculture. The second item, namely the wage income of agricultural households from the non-agricultural sector, was also considerable

*Table 2.* Financing of net agricultural resource outflow, Japan, 1918–22 (million Yen, current prices, annual averages)

Net resource outflow ( $R$ )	308	(9)
(a) Agricultural sales ( $X$ )	2761	(77)
(b) Agricultural purchases ( $M$ )	2453	(69)
Financing items		
1. Net outflow of factor income ( $Fa-Yf$ )	-1139	(-31)
(a) Land rents	133	(4)
(b) Labour income	-1272	(-35)
2. Net outflow of current transfers ( $Tfg-Tgf$ )	134	(4)
(a) Taxes	288	(8)
(b) Subsidies	-75	(-2)
3. Net outflow of capital transfers	225	(6)
(a) Net private ( $Kfo-Kof$ )	247	(7)
(b) Government investment ( $Kfg-Kgf$ )	-22	(-1)
4. Notional consumption transfer <sup>a</sup>	1089	(30)

*Note:* Figures in brackets are percentage share of agricultural income.

<sup>a</sup> This is a residual item, mainly composed of the notional consumption transfers from the agricultural sector to the farm households calculated by Ohkawa et al. (1982).

*Source:* Ishikawa (1988), and Ohkawa et al. (1982).

relative to other financial flows or the size of agricultural income. The importance of this source of financial inflow in the case of Japanese agriculture stemmed from the rapid growth of the non-agricultural sector and the fast pace of structural change in the Japanese economy over this period.

The current official transfers have received much attention in the literature on the financial contribution of agriculture to early economic development of Japan, particularly during the Meiji period. As can be seen from Table 2, net current official transfers remain a significant source of resource outflow from agriculture, constituting about 70 per cent of total net resource outflow. However, the contribution of this source to total net resource outflow, both relative to agricultural income and as a share of non-agricultural investment, was continuously declining throughout the period under study. But let us return to our sub-periods.

The contribution of land taxes to total government tax revenue was indeed substantial during the period preceding the First World War. Land taxes formed about 80–90 per cent of total central government revenue during the last two decades of the nineteenth century, and, though gradually declining from the turn of the century, on the eve of the First World War they still constituted about 40 per cent of total government revenue (Table 3). There was heavy agricultural taxation and the tax burden on agriculture was far heavier than on non-agriculture.

In the interwar period the significance of land taxes declined rapidly, and by the end of the 1930s they formed no more than 10 per cent of total government revenue. In this latter period, income taxes and business taxes, largely financed

*Table 3.* Composition of central government tax revenues and burden of taxation, Japan, 1883–1937

Year <sup>a</sup>	% Share in government tax revenue			Tax burden on <sup>b</sup>		
	Land tax	Income tax	Business tax	Customs duties	Agriculture	Non-agriculture
1890	85.6	2.4	1.6	10.4	15.5	2.3
1895	80.4	3.3	2.8	13.5	12.4	2.0
1900	63.2	7.8	8.6	20.4	12.1	3.2
1905	55.8	15.5	12.3	26.4	11.2	5.4
1910	42.9	18.3	13.5	25.3	12.5	6.4
1915	37.6	26.0	12.9	23.5	12.9	4.5
1920	18.3	47.4	14.2	21.1	9.2	5.4
1925	15.5	45.0	12.8	26.7	10.5	5.2
1930	15.8	42.9	11.7	29.6	9.7	4.3
1935	10.7	49.4	11.5	28.4	7.8	4.2

<sup>a</sup> Figures refer to 5-year averages centred on the year shown.

<sup>b</sup> Direct taxes collected as percentage of income produced in agriculture and non-agriculture.

*Source:* Based on Ohkawa and Rosovsky (1960).

from the non-agricultural sector, replaced land taxes as the main source of government revenue. A notable aspect of Japanese taxation policy throughout the period under study, however, was the much higher burden of direct taxation on agriculture compared with non-agriculture. Despite the narrowing of the gap between the relative tax burdens over the 1888–1937 period, by the end of the 1930s the burden on agriculture was still twice as high as on the non-agricultural sector (Table 3).

Yet, the notion of ‘urban bias’ is not analytically helpful here. In the first period, what might be construed as heavy ‘urban bias’, as suggested by draconian agricultural taxation, was accompanied by buoyancy in the agricultural sector. That was the outcome of technological improvements that operated independently of the existence or non-existence of ‘urban bias’, and were the result of a particular kind of institutional structure: a particular kind of landlord class that spearheaded these improvements. In the second sub-period, as that burden diminished, agricultural growth slowed down.

To consider the net contribution of agricultural surplus on the official account, in addition to taxes, one should also take into account the current and capital transfers from the government to the farm sector. It appears that the inflow of government finance through current subsidies and capital investment accelerated during the interwar period as tax revenues from the sector had just peaked and begun to decline. Government investment in agriculture at current prices, which had increased from about 1 million yen to about 7 million yen between 1888 and 1917, leaped to about 60 million in the mid-1920s and more than 75 million by the end of the 1930s (Ohkawa et al. 1982, 38). A similar pattern could be observed in relation to government subsidies to agriculture and other current transfers.<sup>6</sup> As a consequence, net surplus outflow on official account, which formed an important source of net surplus outflow in the early period, declined continuously over time and indeed turned negative during the late 1920s and the whole of the 1930s.<sup>7</sup> It appears, therefore, that, in line with the popular view during the Meiji era, the government’s budgetary policies played an important role in surplus outflow from the agricultural sector, though in the interwar period this process seems to have been reversed with the budgetary mechanism turning into positive source surplus flow into agriculture. In other words, the very era in which ‘urban bias’ was apparently substantially diminished in Japan was that in which agricultural growth had slowed down to worrying levels.

<sup>6</sup> For example, subsidies to the agricultural sector which remained zero up to the First World War increased rapidly during the 1920s and the 1930s and by the end of the period absorbed 20 per cent of total subsidies granted by the government (see, Ohkawa and Rosovsky 1960). Other current transfers mainly aimed at maintaining farm household incomes during the agricultural crisis of the 1920s and 1930s also increased rapidly in the latter period (see Ohkawa et al. 1982, 38).

<sup>7</sup> Net official transfers, inclusive of capital investment by government in agriculture, amounted to 47 million yen on average during the 1888–92 period, which was 80 per cent higher than the total net surplus outflow from agriculture. It increased to 117 million yen in 1913–17, which was now only 40 per cent of total financial outflow, and became negative from the late 1920s onwards (Ohkawa et al. 1982).

Table 4. Real intersectoral commodity flows, Taiwan, 1911–60 (T\$ million, 1935–7 prices)

Year	Real value of agricultural sales (X)	Real value of purchases by agriculture			Net balance (X-M)
		Consumer goods	Producer goods	Total (M)	
1911–15	91.7	32.9	9.6	42.5	49.2
1916–20	124.1	37.0	15.9	52.9	71.2
1921–5	152.0	59.6	32.5	92.1	59.9
1926–30	198.0	84.5	54.3	138.8	59.2
1931–5	260.0	105.8	64.0	169.8	90.2
1936–40	301.7	137.4	74.8	212.2	89.5
1950–5	297.8	119.4	65.6	185.0	112.8
1956–60	389.1	165.6	127.4	293.0	96.1

Source: Lee (1971).

#### *The Experience of Taiwan, 1911–60*

The flows of real commodity exchanges between agriculture and non-agriculture for the 1911–60 period in Taiwan, estimated by Lee (1971), are shown in Table 4. A striking feature of Taiwan's experience is the extremely large resource outflows from the agricultural sector throughout the 1911–60 period. Net resource outflow from the agricultural sector constituted about 40–50 per cent of gross sales of the agricultural sector during the 1910s and the 1920s, declined to about 30 per cent in the 1930s, and remained more or less at this ratio for the rest of the period. The potential for extracting such relatively large magnitudes of resources from the agricultural sector was provided by the fast growth of agricultural productivity, while the actual magnitude of resource transfer was determined by government policy and institutional factors, which were reflected in the changing financial mechanisms of resource transfer over time.

What GKI would, presumably, represent as 'urban bias', i.e. heavy extraction from agriculture, coincided with fast agricultural growth. Productivity of labour in agriculture grew by an annual average rate of 1.8 per cent during the 1911–60 period. What is significant is that such relatively high productivity growth rates were achieved, in the face of extraction, despite a high rate of population growth and the lack of possibility of major additions to land under cultivation. The annual rate of growth of population before the Second World War was about 2.5 per cent, which increased to more than 3 per cent in the post-war period. The agricultural labour force, nevertheless, had a much slower rate of growth,<sup>8</sup> as a result of the absorption of surplus labour in the non-agricultural sectors.

<sup>8</sup> Agricultural labour force increased from about 1.1 million in 1911 to 1.4 million in 1940. During the 1940s, as a result of the large immigration into the country, it had a step jump of about 300,000, and remained at 1.7 million for the rest of the period.

Employment in the non-agricultural sector grew by more than 3.0 per cent per annum over the 1911–70 period as a whole, while the agricultural labour force grew by 0.73 per cent each year. Nevertheless, given the limited possibilities of increasing land under cultivation, there was still growing population pressure on land. In the period before 1930, cultivated land per unit of labour was growing somewhat, as population growth was still low and there were possibilities of extending the agricultural land frontier. During the 1930s cultivated land per labour started to decline, but in the 1950s it was stabilized at about 0.5 hectares. The rapid growth of agricultural labour productivity was sustained, as in the first sub-period in Japan, through the constant introduction of technological innovations of the land saving type, and efficient use of capital investment in the sector.

Technological progress in agriculture during the first three decades of the twentieth century was mainly the result, indeed, of Japan's colonial policy of fostering Taiwan as its granary. The late 1910s witnessed a major land infrastructure and irrigation programme financed by the colonial government, which paved the way for the introduction of seed-fertilizer technology that made sustained increases in land and labour productivity possible. The introduction of new varieties of rice and sugar cane, destined for the Japanese market, had a major impact on improving agricultural productivity up to the late 1920s. From that date increasing use of modern chemical inputs and a constant diversification of agricultural production helped maintain the momentum of agricultural productivity growth. In addition, investments in irrigation, flood control and drainage made more intensive multiple cropping possible, thereby effectively increasing the land-labour ratio despite the shortage of cultivable land (Kikuchi and Hayami 1985).

The significance of fixed investment in irrigation, land reclamation and flood control in increasing agricultural productivity has been emphasized in various studies (see, for example, Rada and Lee 1963; Lee 1971, 1974; Hayami and Ruttan 1971, 205–10). An interesting aspect of Taiwan's experience, however, is that the share of fixed investment goods in the flow of producer goods into agriculture was very small up to the late 1950s – it was less than 10 per cent of producer goods and less than 3 per cent of total goods purchased by agriculture. This reflected the significant use of internal resources of the farm sector for investment, especially surplus labour, and the extremely efficient use of capital investment in the agricultural sector. More than 90 per cent of the inflow of producer goods into agriculture was of the land augmenting seed-fertilizer technology type, which, being perfectly divisible, was particularly suitable for the small operational farm units in Taiwan.

Despite the fast growth of labour productivity in agriculture, per capita consumption of the agricultural population grew at a relatively slow pace, by 0.9 per cent per annum. This was partly due to the relatively faster growth of agricultural population than labour, and partly resulted from the siphoning off of a large part of agricultural value added through rents by non-farming landlords, government taxation and adverse terms of trade movements: the last two the



Table 5. Financing of net agricultural resource outflow, Taiwan, 1911–60 (T\$ million, current prices, annual averages)

	1931–5	1956–60
Net resource outflow ( $R$ )	63	948
(a) Agricultural sales ( $X$ )	208	9665
(b) Agricultural purchases ( $M$ )	146	8716
Financing items		
1. Net outflow of factor income ( $Fa-Yf$ )	47	-813
(a) Land rents	56	739
(b) Labour incomes	-9	-1552
2. Net outflow of current transfers ( $Tfg-Tgf$ )	17	1446
3. Net outflow of capital transfers	-1	316
(a) Private ( $Kfo-Kof$ )	0	381
(b) Public ( $Kfg-Kgf$ )	-1	-65
4. Errors and omissions ( $b$ )		-1

Note: Row 3 refers to government's net transfers only.

Source: Lee (1971).

classic mechanisms of 'urban bias'. Table 5 shows the financial channels of surplus transfer from the agricultural sector in two representative periods of the colonial and post-colonial era.

As can be seen, in the colonial period land rents constituted about 90 per cent of net resource outflow from agriculture. Up to the 1930s, these were mainly invested in financial assets in Japan. The financial surplus of the agricultural sector in this period showed up in the large balance of payments surplus in the foreign trade of Taiwan with Japan. In other words, Taiwan's agriculture was financing part of its investment in Japan through its trade surpluses. During the 1930s, and particularly in the post-war period, this surplus was increasingly utilized in financing industrial investment in Taiwan. After rents, government taxes formed the second most important source of resource extraction from agriculture in the colonial period.<sup>9</sup> In the post-war period government taxes replaced rents as the main source of extraction of surplus from the agricultural sector (Table 5). In this period agricultural taxes mainly took the form of compulsory sale of rice and high fertilizer prices in compulsory barter exchange with the government.<sup>10</sup> The share of rents in the post-war period declined after land rents were reduced by legislation from an average of about 50 per cent to a maximum of 37 per cent, and with the land reform which increased the

<sup>9</sup> Land taxes constituting about 30 per cent of government tax revenue was the main item in agricultural taxation up to the 1940s. With the reform of the tax system in the 1940s, putting greater emphasis on income taxes, land taxes declined to about 7 per cent of total tax revenue.

<sup>10</sup> During the 1950s, the government collected more than 50 per cent of the rice sold and more than 30 per cent of rice production. See Lee (1971, 80–5).

Table 6. Terms of trade of agriculture, Taiwan, 1911–60

Year	Price indices		Net barter terms of trade (Pa/Pn)
	Agricultural sales (Pa)	Agricultural purchases (Pn)	
1911–15	60	73	82.19
1916–20	92	119	77.31
1921–5	102	114	89.47
1926–30	103	103	100.00
1931–5	80	86	93.02
1936–40	120	123	97.56
1951–5	141	177	79.66
1956–60	248	298	83.22

Note: 1935 = 100.

Source: Lee (1971).

proportion of land under owner cultivation.<sup>11</sup> Another major change in the financial flows in the post-war period was the significant increase in the farm labour income from non-farming activities. This was more than twice the rent payments and easily offset the entire taxes paid by the farm sector to the government (Table 5).

A further mechanism of resource transfer was through the terms of trade changes. During the colonial period, agricultural terms of trade fluctuated, mainly as a result of the Japanese government policies regarding imports and pricing of rice in the domestic Japanese market. The overall tendency, however, as in Japan during that period, was an upward trend in favour of agriculture (Table 6). Yet, whatever gains might have accrued to agriculture were appropriated by the state via taxation. In the post-war period there was a sharp drop in terms of trade against agriculture, which as we have already observed was due to the government's pricing policies in its compulsory rice collections and fertilizer sales. This amounted to an important source of surplus outflow from agriculture in the 1950s.<sup>12</sup> It was strongly supplemented by heavy taxation. So, in Taiwan, over the period, there was significant 'urban bias' in GKI terms, i.e. extraction of surplus from agriculture. Yet, at the same time, agricultural productivity and agricultural output grew at significant rates.

<sup>11</sup> With the 1953 land reform programme about 60 per cent of private tenanted land was purchased by the government and resold to 200,000 tenant families, who, as a result, became independent owner operators (Lee 1974).

<sup>12</sup> For example, of the 96 billion T\$ annual net resource outflow from agriculture over the 1956–60 period (valued at 1935–7 prices as in Table 4), more than 60 per cent was due to adverse terms of trade movements.

## SOME LESSONS FROM THE EXPERIENCE OF JAPAN AND TAIWAN

One of the most important shared characteristics of economic development in Japan and Taiwan during the period reviewed above has been the fast rate of productivity growth in agriculture in both economies. Productivity growth accounted for more than 50 per cent of agricultural output growth in both countries over their respective study periods as a whole. In the case of Japan, productivity growth during the period prior to the First World War accounted for as much as two-thirds of output growth. This was made possible in both countries through technological innovations in the form of land improvement and extension of irrigation, as well as the introduction of new seeds, fertilizers, and better methods of cultivation. Agricultural development in both countries, therefore, was accompanied by a large and growing *gross* inflow of resources from outside agriculture, in the form of new inputs and fixed investments. However, the high and growing output response made sure that the *net* finance contribution of agriculture for most of the period for both countries was positive.

Government taxation played an important part in agricultural surplus transfer in both countries. In particular, land taxes in the case of Meiji, Japan and indirect taxation in the case of post-war Taiwan siphoned off a sizeable share of agricultural surplus. The experience of both countries is indicative of the important fact that in a technologically dynamic agriculture, productivity growth can help maintain relative profitability, and hence the inducement to invest in agriculture, despite high taxation and adverse terms of trade movement. In fact, as we observed in the case of the experience of inter-war Japan, it was during that period of stagnant output and productivity that the government had to increase the protection of the agricultural sector, when agriculture became a growing net financial burden for the rest of the economy.

The experience of Japan and Taiwan shows that high rates of taxation and surplus extraction from agriculture are not incompatible with maintaining profitability and production incentives in agriculture, as long as the agrarian relations and other enabling conditions can ensure a fast enough rate of technological progress and productivity growth in the sector. The macroeconomic implications of different agrarian relations are much more complex than the urban bias story told by GKI would suggest.

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