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Economic Growth and Transition in Vietnam and China and its Consequences for their Agricultural Sectors: Policy and Agricultural Adjustment Issues

by

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ABSTRACT

Secondary data are used to discuss and compare the consequences for agriculture of economic growth and transition in Vietnam and China. It is found that China and Vietnam have experienced similar adjustments in their agricultural sectors and face at this time, similar agricultural policy problems. China began its economic reforms in 1979 and Vietnam followed in 1986. Since then both countries have experienced rapid economic growth, falling poverty rates and significant rises in per capita income. At the same time, substantial restructuring of their economies has occurred, a feature of which has been a decline in the relative contribution of agriculture to total employment and output. These changes are outlined. Significant changes have also occurred within the agricultural sectors of China and Vietnam and these are reviewed. In both countries, the livestock sector has grown in relative importance. Households are the main contributors to agricultural production but their individual holdings of land are small by Western standards and households keeping livestock mostly only hold a few head. Given the exit of farmers from agriculture, pressures are mounting for increasing the size of agricultural units. This exit can add to economic efficiency and growth. Policies to facilitate movements from farm to non-farm employment are discussed and analysed. Property rights and the marketability of agricultural land can facilitate such movements and contribute to economic efficiency. In recent times, China and Vietnam have extended property rights in agricultural land and have increased its marketability. These measures are outlined. With further economic development and transition, it is predicted that these rights and the marketability of agricultural land will be further extended. However, if previous practice is followed, those policy changes are likely to be gradual.

Keywords: Agricultural development, Asia, China, economic transition, farm employment, land reforms, land rights, livestock, non-farm employment, structural change.

JEL Classification: O25, O5, P32, Q1

Economic Growth and Transition in Vietnam and China and its Consequences for their Agricultural Sectors: Policy and Agricultural Adjustment Issues

1. Introduction

Since the commencement of market-related reforms in Vietnam and China and their subsequent high rates of economic growth which have been sustained for a long period, significant changes have occurred in their agricultural sectors both in their size relative to the other economic sectors and within these sectors themselves, for example, in the composition of agricultural production. Most of these changes have been as a result of the growth of these economies. Economic growth has altered the sectoral demand for labour (the demand for labour in secondary and tertiary industries has expanded relative to that in agriculture) and rising incomes have changed the composition of commodities demanded by consumers. Secondary data are used in this article to examine and compare these changes in Vietnam and China. Both China and Vietnam began their economic reforms in agriculture and then later, extended the reform processes to the other sectors of their economies. Therefore, although agricultural reform was the prime mover of their reform process, subsequently, agriculture's economic future was largely determined by the economic development of the secondary and tertiary sectors of these economies, as this article illustrates.

The successful and continuing growth of secondary and tertiary industries in Vietnam and China has resulted in higher incomes and lower poverty rates in urban areas than in rural areas and provided a strong economic incentive for rural-to-urban migration. However, there are still some impediments to this migration and policies to address these constraints are suggested. Furthermore, pressures have developed for greater economic adjustment in agriculture itself. This could be facilitated by greater use of market mechanism such as could be achieved by fostering greater rights in private property in agricultural land and by making it easier to market agricultural land. These aspects are discussed.

It is useful to examine and compare the development of the agricultural sectors of Vietnam and China because both initially had central planning systems and

collectivized agriculture. Furthermore, both have adopted a similar pattern of economic reforms, even though market reforms started later in Vietnam than in China. Therefore, it is reasonable to believe that their patterns of agricultural development would be similar and that they would also experience similar agricultural policy problems. Nevertheless, there are some differences in their reform processes. For example, rural manufacturing development, until recently, received less emphasis in Vietnam than in China where the establishment of town-and-village enterprises was an integral part of China's economic reform and development process.

While the main focus in this article is on Vietnam, its relevant economic experiences and policies are compared with those of China. After providing some background on market reforms in Vietnam and China, this article outlines important comparative features of Vietnam and China paying particular attention to the attributes of their agricultural sector. Information is provided on their economic growth rates and on poverty rates and the average level of per capita income in urban areas compared to rural areas. Lower poverty rates and higher income levels in urban areas than rural areas have been drivers for rural-to-urban migration and for the exit of farmers from agriculture to fill jobs in manufacturing and the service industries, located mainly in urban areas. Consequently, as shown, agriculture's share in national output and employment has fallen. Nevertheless, as discussed, poverty and income inequalities persist between urban and rural areas because of impediments to the movement of labour from agriculture to urban areas.

Also important changes have occurred within agriculture itself. There is evidence that some increase in specialization in agricultural production has been brought about by freer international trade but there are constraints on this specialization as indicated by pig production in Vietnam. Secondly, livestock production has increased in relative size as a component of agricultural production. This has happened because rising per capita incomes in both China and Vietnam have increased the demand for livestock products relative to that for other agricultural commodities. This is because of the higher income elasticity of demand for livestock products than for most other agricultural products. Both Vietnam and China have been unable to meet their increased demand for livestock products from their own resource – they have had to increase their imports of food for livestock and some livestock products.

Most farms in China and Vietnam are small compared to those in the West and are less specialized in production. Some policy-makers in Vietnam and China believe that if their farms were larger in size and more specialized in production that they would have greater ability to expand agricultural supplies. However, as discussed, continuing impediments to rural-to-urban migration and to the exit of labour from agriculture, plus restricted private property rights in agricultural land and difficulties in marketing agricultural land, limit the development of large-sized more specialized farms. Policy-makers in China and Vietnam are aware of these issues and as is considered in this article, are implementing reforms to address them.

2. Market Reforms

Agricultural reform and development have played a pivotal role in the economic growth and evolution of transitional economies in Asia. China's economic reforms began, for example, in 1979 with agriculture and its rural sector. The household responsibility system was introduced to replace the collective system of agricultural production and gradually farmers were given greater freedom to respond to market signals in making their decisions about agricultural production (Tisdell, 1993, Ch. 9; 1995, Ch. 9). At the same time, the development of town-and-village enterprises was encouraged. These reforms in China's rural sector were a precursor to economic reforms in the remainder of its economy (Tisdell, 2009b).

Vietnam adopted a similar market reform policy to China's earlier policy. In 1986, Vietnam adopted its economic reform policy, *Doi Moi,* a renovation policy. It moved quickly to implement this economic reform policy. This policy involved the decollectivization of agriculture, the allocation of land to rural households, and emphasis on market systems as means for resource allocation. It is claimed that the commencement of *Doi Moi* "was followed by a series of reforms that effectively ended the system of resource allocation through central planning by 1989" (Son et al., 2006, p.2).

Vietnam did not begin its market reforms until almost two decades after China did. The delay by Vietnam in undertaking its reforms was probably influenced by its long period of involvement in war (the country was not reunified until 1975). Vietnam had

a close political connection with the former USSR for several decades prior to its *Doi Moi*. By 1986, it would have become clear in Vietnam that the communist system of the former USSR was no longer stable, and by that time, China's economic reform had yielded visible economic results. Therefore, China's policy of gradual economic reforms must have seemed a worthwhile policy for Vietnam to emulate.

Both China and Vietnam rejected the 'big-bang' approach to economic reforms and opted instead for a more gradual approach to institutional change. According to Lin (2009, p.19), "China and Vietnam did not follow the transitional approach advocated by the prevailing social thought of the 1980s and 1990s". The Washington consensus summed up this thought and favoured a rapid transition to a comprehensive free market system. Russia attempted to follow this 'big-bang' approach but in doing so, suffered severe economic disruption for a considerable time.

Although China and Vietnam have made extensive market reforms and have achieved high rates of economic growth in recent decades, free markets have not yet been **fully** established in agriculture. This is mainly due to the limited property rights of landholders in their land. This land issue is growing in importance as these economies continue to restructure and the number and percentage of persons engaged in agriculture declines. In this altering situation, small-sized agricultural holdings tend to become less economic, and the need to restructure agriculture and increase the sizes of land holdings become more pressing. Land reforms have been undertaken both in China and Vietnam to adjust to this changing situation but further reform will be required as the economic growth of these countries continues.

3. Comparative Economic Features of Vietnam and of China, especially in Relation to their Agriculture and their Rural Sectors. Intersectoral Change and Rural-to-Urban Migration Highlighted

There are both similarities and differences between the economies of China and Vietnam. China's economy is much larger than that of Vietnam. In 2008, for example, China's population was 1,326 million compared to 86 million for Vietnam. In 2007, GDP per capita based on purchasing power parity was USD5370 for China and USD 2550 for Vietnam (General Statistical Office of Vietnam, 2009, pp. 689-690). From

these figures, it can be seen that the size of China's market is more than 30 times that of Vietnam's market.

Both countries have recorded substantial and sustained economic growth in recent decades. However, since 1979, China's growth rate of GDP has consistently exceeded that of Vietnam (Maddison, 2006, and more recent sources). In the period 2000-2007, China's annual growth rate of GDP varied between 10 and 11.9 per cent and that of Vietnam ranged from 7.34 to 8.46 per cent. These high growth rates have been accompanied by falling rates of rural poverty in China and in Vietnam (General Statistical Office of Vietnam, 2009, pp. 618-619; Huang et al., 2006, Fig. 1; Son et al., 2006, Figure 2).

Both in China and in Vietnam, rural poverty rates are higher than urban poverty rates and on average, urban incomes per capita exceed those in rural areas to a considerable extent. This has provided a strong economic incentive for rural-to-urban migration and for labour to exit the agricultural sectors of these economies. Regional disparities in poverty rates and in levels of per capita incomes are also marked in both countries. In China, average income levels per capita are lower and poverty rates are higher in provinces in the west compared to those in the east. Significant regional differences in income levels and in poverty rates also occur in Vietnam (General Statistical Office of Vietnam, 2009).

Table 1 shows the ratio of the average level of urban income per capita to the average level of rural income per capita in Vietnam. This ratio is in excess of two but is slowly falling. Considerable income inequality exists between regions and provinces in Vietnam. The highest level of income per capita occurs in the South East region (where Ho Chi Minh City is located), followed by the Red River Delta (where Hanoi is located) and then in the Mekong Delta, which is also relatively close to Ho Chi Minh City. The lowest levels of per capita income on average occur in the Northern Midlands and Mountain regions. The average level of income in the region of Vietnam with the highest level of per capita income compared to that with the lowest level of per capita income also exceeds two but is declining (see Table 1). Therefore, on average, both rural and urban income inequality and regional income inequality are falling.

Table 1: The ratio of the level of average per capita income to average rural per capita income for Vietnam in the period 1996-2006 and also the ratio of per capita income in the region with the highest per capita income compared to the region with the lowest level of per capita income

Year	Ratio of urban income levels compared to rural income levels	Ratio of incomes in the region with highest income levels compared to that with the region with the lowest income levels
1996	2.30	2.87
2002	2.26	2.81
2004	2.16	2.73
2006	2.09	2.59

Source: Based on General Statistics Office (2009, Table 294)

Table 2 provides data on poverty rates in Vietnam based on the poverty lines adopted by the Government of Vietnam. Although Vietnam's poverty rates are higher than those in China, they have declined considerably since 1998 and are now well below the poverty rates prevailing in most of South Asia. As is usual in developing countries, the poverty rate in Vietnam in urban areas is below that in rural areas. The general trend has been for poverty rates to decline both in urban and in rural areas in Vietnam. Nevertheless, in some regions and provinces, poverty rates are very high. They are highest in the Northern midlands and mountain areas of Vietnam followed by the Central Highlands, and then the North Central area and Central Coast area. They are lowest in the South East and in the Red River Delta. Regions having higher average levels of per capita income tend to have lower poverty rates in Vietnam. In the Northern Midlands and mountain areas, the poverty rate in 2007 in Dien Bien province was 56.8 per cent and it exceeded 40 per cent in the provinces of Phu Tho and in Cao Bang.

Table 2: Poverty rates for the whole of Vietnam, urban and rural areas and by region in the period 1998-2008 based on the poverty lines used by the Government Statistical Office of Vietnam

Place	1998	2002	2004[(a)]	2006	2007	2008[(b)]
Whole Country	37.4	28.9	18.1	15.5	14.8	13.5
Urban	9.0	6.6	8.6	7.7	7.4	6.7
Rural	44.9	35.6	21.2	18.0	17.7	16.2
By Region						
Red River Delta	30.7	21.5	12.7	10.0	9.5	8.4
Northern Midlands and Mountain areas	64.5	47.9	29.4	27.5	26.5	25.9
North Central and Central Coast area	42.5	35.7	25.3	22.2	21.4	19.8
Central Highlands	52.4	51.8	29.2	24.0	23.0	21.0
South East	7.6	8.2	4.6	3.1	3.0	2.3
Mekong River Delta	36.9	23.4	15.3	13.0	12.4	11.1

(a) From 2004 onwards a higher poverty line is used for urban residents than for rural residents. Compared to previous procedures this tended to decrease recorded levels of rural poverty and increase levels of recorded urban poverty.
(b) Preliminary estimates.
Source: Extracted from General Statistics Office (2009, Tables 305 and 306)

The market transition of Vietnam and of China has been accompanied by considerable change in the structure of their economies. This is a consequence of their economic growth and the greater role given to the price mechanism as a means for allocating their resources. As pointed out by Colin Clark (1957), the relative size of the agricultural (primary) sector declines with economic growth and the comparative size of the secondary (manufacturing) and tertiary (service) sectors increases. This largely reflects changing demand patterns as per capita incomes rise. However, a significant part of the growth in the service sector is driven by the demand for services (such as transport services, exchange services, insurance financing) to facilitate the operation of markets. The operations of markets are not costless and these services help to reduce market transaction costs.

A normal consequence of economic growth and development is the shift in population from rural to urban areas. Both China and Vietnam have experienced such a shift in recent times. In 2008, 43.1 per cent of China's population was located in urban areas and 28 per cent of Vietnam's population was urbanised. The difference in the degree of urbanisation reflects the fact that Vietnam commenced its economic reforms at a later stage than China. Furthermore, Vietnamese incomes are lower than those in

China, and China has a larger market (giving it greater scope for economies of scale in tertiary and secondary industry) compared to Vietnam, all of which helps explain why China is more urbanised than Vietnam. Nevertheless, urbanisation is proceeding at a rapid pace in Vietnam. In 1995, 79.3 per cent of Vietnam's population lived in rural areas but by 2008 this had fallen to 72 per cent. More significantly, the comparative growth rate of Vietnam's urban population is increasingly outstripping the growth rate of Vietnam's rural population (see General Statistical Office of Vietnam, 2009, p.39). In 2008, the estimated growth rate of Vietnam's urban population was 3.57 per cent and only 0.33 per cent for its rural population. These figures reflect the high rates of rural to urban migration in Vietnam. Given current trends in these growth rates, it seems likely that the size of Vietnam's rural population will soon begin to decline as Vietnam continues its economic development. Employment in agriculture has already started to decline in Vietnam as has the share of agriculture in its GDP.

In 2000, agriculture and forestry employed 23.492 million persons in Vietnam but by 2008 this had fallen to 21.950 million persons (General Statistical Office of Vietnam, 2009, p.51). Consequently, agricultural employment decreased from 62.5 per cent of Vietnam's employed population in 2000 to 48.9 per cent in 2008. In the same period, employment in manufacturing rose from 3.55 million to 6.306 million to account for about 13.5 per cent of Vietnam's employment in 2008.

As a percentage of Vietnam's GDP, the contribution of industry and construction rose from 36.73 per cent in 2000 to 39.73 per cent in 2008, the contribution of the service sector remained relatively steady: it was 38.74 per cent in 2000 and 38.17 per cent in 2008. There was a decline in the contribution of agriculture, forestry and fisheries to GDP in the same period from 24.53 per cent to 22.10 per cent (General Statistical Office of Vietnam, 2009, p.72). Despite the fall in the number of those employed in agriculture, the gross output of agriculture (at constant 1994 prices) increased throughout the period 2000-2008. It rose over the whole period by approximately 40 per cent. Nevertheless, it exhibited a slower rate of growth than Vietnam's GDP at constant 1994 prices. Vietnam's GDP increased by almost 80 per cent in the same period.

An unusual feature of Vietnam's structural change has been a decline (since 1995) in the contribution of its service sector to its GDP. In 1995, it accounted for 44.08 per cent of its GDP but by 2008 this had declined to 38.7 per cent. This is contrary to the usual development pattern. On the other hand, the trend in the contributions to GDP agriculture, forestry and fishing, and in manufacturing and construction to GDP is as is normally expected: the former declined from 27.18 per cent to 22.10 per cent and the latter rose from 28.76 per cent to 39.73 per cent in the period 1995-2008.

The proportion of China's employed population engaged in agriculture has continued to decline with its economic development and so too has the relative contribution of agriculture to China's GDP. Whereas in 1978, agriculture accounted for 28.1 per cent of China's GDP by 2006, this had fallen to 11.8 per cent and in the same period, the percentage of the employed population engaged in farming in China declined from 70.5 per cent to 42.6 per cent (Ministry of Agriculture of China, 2009a, p.1). The percentage of the workforce engaged in farming in China is lower than in Vietnam. Nevertheless, both China and Vietnam now have less than half of their workforce engaged in farming. However, the relative contribution of Vietnam's agriculture, fishing and forestry sector to its GDP is almost twice that in China. Consequently, Vietnam is more heavily dependent on agriculture than China for its economic output.

An interesting feature of China's rural development is the high proportion of employed persons engaged in non-farming activities in rural areas. This proportion rose substantially after China began its economic reforms, presumably because of China's promotion of town-and-village enterprises. Rural non-farm employment as a percentage of rural employment increased quite rapidly from 1980 onwards and by 2005, had reached 42.6 per cent (Ministry of Agriculture of China, 2009a, p.2). Vietnam appears to have had less development of rural non-farm employment and slower establishment of rural non-farm enterprises compared to China.

Most employment in Vietnam occurs in non-state businesses. These accounted for 87.20 per cent of employment in 2008. Households are the largest source of employment. They accounted for 78.37 per cent of employment in 2008. Their share however, is declining, as is employment by collectives. On the other hand, the share of employment by private (non-household) Vietnamese businesses is rising strongly,

as is that of the sector dependent on foreign investment. Similar trends can be observed in the ownership of agricultural enterprises to those observed for enterprises in Vietnam's economy as a whole (General Statistical Office of Vietnam, 2009). In China, as in Vietnam, households are the main source of agricultural output.

4. The Restructuring of Agriculture – The Growing Contribution of Livestock Production and Impacts of Freer International Trade

Not only has the structure of the economies of Vietnam and China altered considerably with their economic reforms and growth but so also has the composition of their agricultural production. A prominent feature has been the increase in the relative importance of livestock production as a component of total agricultural production. This change has been in response to rising domestic demand for livestock products, mainly as a result of rising levels of per capita income. The demand for livestock products is positively related to income levels and as incomes rise, some substitution of livestock products for non-livestock products occurs. Other factors that have contributed to the growing demand for livestock products are rising populations and most likely, greater urbanisation. Increased urbanisation has probably been conducive to a change in tastes in favour of greater consumption of livestock products, particularly in China.

The altering structure of China's agricultural sector is evident from Table 3. The general pattern has been for the relative contribution of crops to its agricultural production to decline and for the contribution of livestock products to rise strongly. Table 3 also indicates that the share of forestry in total agricultural production has remained fairly stationary in China's reform period and the share of fisheries (which includes aquaculture) after rising is now either stationary or declining slightly. The Ministry of Agriculture of China (2009b) has announced that China's aim is to increase the relative contribution of its livestock industry to its total agricultural production (livestock plus crop production) so that it accounts for 50% of this total.

Table 3: Percentage composition of China's agricultural production by type of produce, 1970-2004

Type of Production	1970	1980	1990	2000	2004
Crops	82	76	65	56	51
Livestock	14	18	26	30	35
Fishery	2	2	5	11	10
Forestry	2	4	4	4	4
Livestock ÷ Crops and Livestock	14.6	19.4	28.6	34.9	40.7

Source: Based on Huang et al. (2006, Table 4)

A similar trend is evident in the composition of Vietnam's agricultural production, as can be seen by comparing the last line of Table 3 with Table 4. The relative contribution of China's livestock production to its total agricultural production is much larger than that of Vietnam. This is partly a reflection of the fact that per capita income in China is much higher than in Vietnam and that China began its market reforms well before Vietnam did. Furthermore, it is conceivable that Vietnam has land and climatic endowments that give it a comparative economic advantage in crop production rather than in livestock production.

Table 4: Percentage composition of Vietnam's Gross Agricultural Output 1995-2008

Type of Production	1995	2000	2005	2007	**2008** (Prelim)
Crops	78.1	78.2	73.5	73.9	71.5
Livestock	18.9	19.3	24.7	24.4	27.0
Service	3.0	2.5	1.8	1.7	1.5
	100.0	100.0	100.0	100.0	100.0

Source: Based on General Statistics Office (2009, Table 90)

Both China and Vietnam have been unable to meet their increased demand for livestock products solely by using their own resources. The expansion of their livestock industries has depended to a large extent on the import of coarse grains and soybeans to add to their supply of livestock food. In addition, there has been increased import of some livestock products.

Huang et al. (2006) argue that in recent times, China has increasingly specialized in agricultural production in which it has a comparative international economic advantage. Huang et al. (2006, Figure 4) claim this on the basis that China's positive

balance of international trade in labour-intensive agricultural goods has increased since 1984 whereas it has become more negative in relation to land-intensive agricultural goods. They expect this pattern of trade to continue until at least 2020 (Huang et al., 2006, Figure 7). China's imports of course grains, oilseed, sugar, milk, beef and mutton, fibre and wheat are expected to increase. China is predicted to be self-sufficient in rice, horticulture, pork and poultry, fresh and processed foods and to have some scope for increasing its exports of these items.

A similar study does not appear to be available for Vietnam but it appears that as Vietnam's economy has become more open, its international trade in agricultural products also increasingly reflects its relative abundance of labour and its relative shortage of land. Major agricultural imports of Vietnam include food for livestock (such as course grains), wheat and wheaten flour, dairy products, edible oils and cotton. Vietnam has a very high level of imports of fertilizer. Its main agricultural exports are coffee, rice, rubber, cashew nuts, tea and fresh or processed vegetables and fruit, all of which appear to be relatively labour-intensive products. It is a large exporter of fish products, most of which is produced by means of aquaculture.

Vietnam has very limited imports of red meat mainly because of the strong preference of the Vietnamese consumer for fresh meat purchased from traditional market outlets (Lapar et al., 2009). Such imported meat must of necessity be chilled, frozen or processed. This gives considerable natural protection to Vietnamese meat producers (Tisdell et al., 2010). This is particularly important for the survival of Vietnam's pig industry because its cost of production is high by international standards. Because pork is a favoured meat in diets of Vietnam, the price of pork is of widespread concern to Vietnamese consumers.

Son et al. (2006, Table 13) report that Vietnam has a comparative international economic advantage in the production of cashew nuts, coffee, rice and tea but a substantial cost disadvantage in pork production. The authors consider the long-term export potential of Vietnam to be high for rice, coffee, cashew nuts and pepper, to be medium for tea and for fruit and vegetables, and to be low for pork (Son et al., 2006, Table 14). Given the apparent economic disadvantage of Vietnam in pork production, one might have expected substantial imports of pork to Vietnam. This has not

occurred so far due to the preferences of Vietnamese for fresh pork, the slow growth of supermarkets in Vietnam (Maruyama and Trung, 2007) and the resistance of Vietnamese to purchasing fresh food from supermarkets. It is however, not clear that this situation will be maintained in the long-term because the habits and tastes of the Vietnamese could alter with economic growth, urbanisation and modernisation. Furthermore, constraints on the domestic supply of pork could increase the price of pork so much that Vietnamese are increasingly forced to search for substitutes, such as imported pork.

In the period 1996-2006, Vietnam's domestic supply of pork rose from 14.76 kgs per capita to 29.77 kgs per capita but its annual rate of increase tapered off in 2006 (Tisdell, 2009b). In 2005, pig numbers in Vietnam peaked at 27.4 million head and since then have declined. The number of pigs in 2006 was 26.9 million, in 2007 it was 26.6 million and for 2008 the preliminary estimate was 26.7 million (General Statistical Office of Vietnam, 2009, p.289). Therefore, Vietnam's stock of pigs now appears to be approximately stationary. In this situation, yields will need to rise if the volume of local pork supplies is to continue to increase.

Both increased yields and rising pig numbers expanded Vietnam's production of pork in the period 1996-2006. Growing pig numbers were the major contribution to this growth in the early part of the period and increased yield was the prime contributor to increasing levels of pork production in the latter part of this period (Tisdell, 2009b). The expansion in the volume of Vietnam's pork production was facilitated by an increase in its import of pig food which in turn reflected the greater openness of Vietnam's economy to international trade. Both the rising number of pigs and their changing genetic composition in Vietnam have increased Vietnam's demand for imports of pig food. In the 1990's policies were adopted in Vietnam to import exotic breeds of pigs to Vietnam to raise pig yields. Exotic large white pigs (often crossed in Vietnam with the local Mong Cai breed) have proven to be popular and now most of Vietnam's pig stock has a substantial infusion of exotic genetic material. To produce high yields, these genetically improved pigs need better quality food than that for local breeds of pigs and much of this pig food has to be imported. Because substantial diffusion of exotic pig genes has already occurred within Vietnam's pig population, the scope for further genetic improvement to increase pig yields in Vietnam may be

limited. It seems that growing demand for pork is starting to outpace supply in Vietnam. This is reflected in the substantial rise in the price index for livestock products (particularly prices received for domesticated animals, such as pigs) as can be seen from Table 5. Also cattle and buffalo numbers have declined recently in Vietnam (General Statistical Office of Vietnam, 2009, p.289).

Table 5: Producer's price index of livestock products and for domesticated animals (excluding poultry) for Vietnam 1995-2008

Year	Livestock products	Domesticated animals
1995	100.0	100.0
2000	113.0	110.5
2004	132.6	141.2
2005	133.2	145.6
2006	130.6	140.6
2007	152.0	161.1
2008	243.0	274.5

Source: Based on General Statistics Office (2009, Table 218)

The Vietnamese Government is aware that domestic supplies of livestock products (given present institutional arrangements) are unlikely to expand as fast as the domestic demand for these products. This has led it to adopt a policy favouring greater production of these products by private (registered) enterprises rather than households in the expectation that these private enterprises will be able to achieve economies of scale and be more responsive than households in expanding supplies to meet the growing demand for livestock products (for further discussion see Tisdell, 2009c). Nevertheless, households still account for the supply of the bulk of Vietnam's agricultural output and most of its livestock-related production.

The individual holdings of households of agricultural land are small and most agricultural households have few livestock. As argued below, with the growth of the economies of China and of Vietnam, pressures are likely to mount for larger-sized agricultural holdings, for the extension of property rights in agricultural land, and for the marketing and transfer of agricultural land to become less restricted and easier to accomplish.

5. The Size of Agricultural Units, Non-Farm Employment and Land Rights

The most recent agricultural census for Vietnam was conducted in 2006 and the results have been reported by the General Statistics Office (2007). At the time of the 2006 census, 99.2 per cent of agricultural units were household units. The number of co-operative and registered business enterprises operating in agriculture were quite small. While the former are declining in number, the latter are increasing.

Agricultural landholdings in Vietnam are very small by Western standards. The last agricultural census revealed that 68.76 per cent of agricultural households had less than a half hectare of land and that 94.22 per cent had less than two hectares of land.

In China, the average land holding of agricultural households is just under half a hectare and is also small. In 2008, it was 0.483 hectare and in 2003, 0.463 hectare (Wu, 2009, p.503). Thus, the average size of holdings of agricultural land by households seems to be increasing slowly following China's land reforms in 2003 which gave holders of agricultural land assured tenure of their land for 30 years. However, a period of 5 years is too short to detect accurately the trend in the size of land holdings.

Furthermore, households in Vietnam holding livestock operated on a very small scale according to its 2006 agricultural census. The majority (80.11 per cent) of agricultural households had chickens, most (65 per cent) kept pigs, and 27.8 per cent possessed cattle. About two-thirds of households with chickens had fewer than 20 head. Over half of households keeping pigs (56.78 per cent) only had one or two pigs and a further 27.8 per cent had 3-5 pigs. The fact that only 2 per cent of Vietnam's agricultural households keeping pigs had more than 20 pigs further underlines the point that small-scale pig production is the current norm in Vietnam. Vietnam has a comparatively small stock of cattle. Seventy per cent of agricultural households having cattle in Vietnam only possess one or two head. Furthermore, large herds of cattle are rare: only about one per cent of rural households having cattle have more than ten head.

5.1 Non-farm employment of those currently engaged in agriculture

With economic growth, the normal pattern of development is for both the proportion and the absolute numbers of persons engaged in agriculture to decline. This is usually accompanied by increasing farm sizes and the adoption of more capital-intensive methods in agriculture as well as greater specialization in production by farms (Skolrud et al., 2009). With the economic growth of China and Vietnam, agricultural development in China and Vietnam can be expected to exhibit this pattern if Western development experience is a useful guide.

For example, in relation to Vietnam's pig production, it is estimated that between the agricultural census of 2001 and 2006 that just under one million householders discontinued pig production. At the same time, the average number of pigs kept by those households continuing with the husbandry of pigs rose, even though the scale of production of most pig producers remained small.

Secondary statistics on trends in the average size of land holdings are difficult to obtain. However, with the general restructuring of economies in transition (such as those of China and Vietnam) increasing pressures can be expected for farm amalgamation and for increasing the size of farming units. For this and other reasons, one would expect a tendency for the number of agricultural farms to decline nationally. Government policies can help facilitate the movement of farmers to non-farm employment thereby adding to the efficiency of resource allocation. For example, consideration can be given to policies that help reduce the transaction costs of individuals and families when shifting from farming to non-farm employment.

Other things being held constant, the gap between the incomes of farmers and non-farmers is likely to remain high if the transaction costs incurred by farmers in switching from farm to non-farm employment are high. These costs include the cost of shifting house (in some cases), extra transport costs, uncertainty and the extent of sunk costs, such as the irrecoverable value of investment in farms possessed by households should they be relinquished. These costs are likely to be lower for younger family members than for older ones. These transaction costs are usually lower if non-farm employment is available in the vicinity of the farmer's current location. A factor that appears to have contributed significantly to the high level of non-farm rural

employment in China has been the development of town-and-village enterprises. This development in China made it easier for farmers to switch from farm to non-farm employment because they did not have to leave their locality to do so. Vietnam is now undertaking the regional decentralisation of its industrial development, presumably for similar reasons (see Kirk and Tuan, 2009). In fact, Table 84 of the *Statistical Yearbook of Vietnam* (General Statistical Office of Vietnam, 2009) indicates that since 2000, there has been, a rapid increase in the number of non-farm individual businesses in provinces where farming is the predominate economic activity with a significant rise in non-farm employment in rural areas.

This issue is illustrated in Figure 1. There AB represents the level of income that each member of a household can obtain by taking up non-farm employment. However, in order to do this, transaction costs per family member of CA are incurred. The curve FGJ represents the income per head that family numbers can obtain by remaining in farming. If the family size of this household is initially x_3, $x_3 - x_2$ members of the household will have an economic incentive to take up non-farm employment. However, because of transaction costs, the remaining household members will have no economic incentive to accept non-farm employment and their income per head will remain below that in the non-farm sector. On the other hand, if the transaction costs involved in taking up non-farm employment can be sufficiently reduced, then all members of this farming household would find it worthwhile to accept non-farm employment. This would happen, for example, if the relevant transaction costs were reduced from AC to AC′.

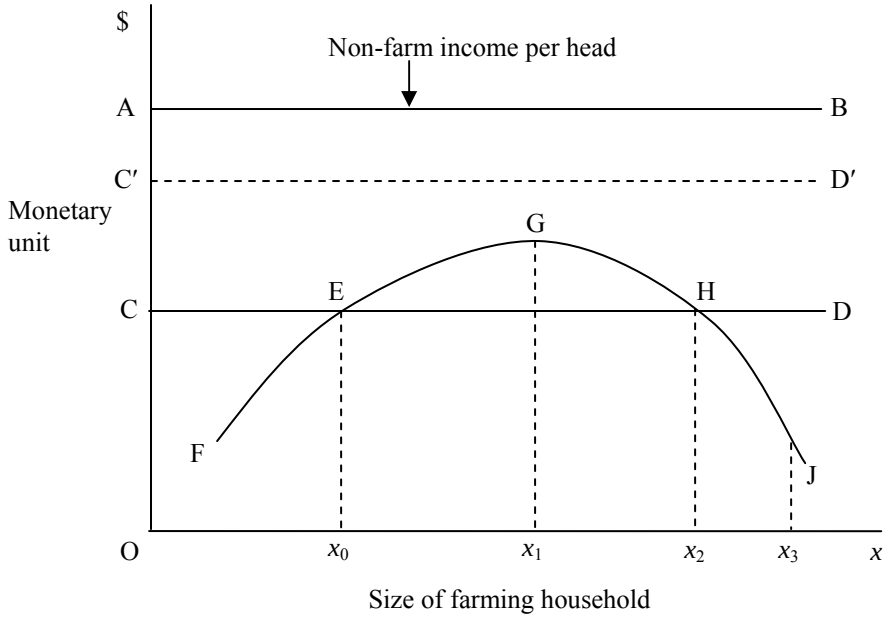

Figure 1: An illustration of transaction costs as a barrier to members of farming households switching to non-farm employment.

Several policy measures can reduce the transaction costs incurred by members of farming households in taking up non-farm employment. These include measures to locate industry close to villages where farming families live, government subsidies for relocation of farm workers, and increased compensation for investment in agricultural land or for relinquishing it. The latter can be facilitated by measures to increase the marketability of agricultural land and by strengthening property rights in such land. Furthermore, institutional impediments to migration can be relaxed in cases where this is an issue.

It should, however, be remembered that locating industry close to farming areas may not always be economic. In addition, rural locations of industries may only be efficient for a limited period of time in some localities. In short, rural industrialization can sometimes be costly and economically short-lived. Nevertheless, their rural location may still be economically worthwhile as part of the economic adjustment process. For example, the location of many of China's town-and-village enterprises may prove to be uneconomic in the long run but will have served their economic purpose before this. In a dynamic context, bear in mind that it can be economically optimal for enterprises and industries to rise and fall in a locality. As previously

mentioned, Vietnam is placing greater emphasis on the placement of industries in rural areas as part of its economic adjustment strategy.

5.2 Property rights in agricultural land and increased marketability of land.

The nature of property rights has a significant impact on productivity and economic growth (Posner, 1981; Tisdell, 2009d, Ch.4). Since beginning their economic reforms, both China and Vietnam have extended the property rights of agricultural households in their land. The length of tenure of the possession of agricultural land has been defined and greater possibilities now exist for transferring the possession of land than in the past. In China, local government bodies are interfering less and less in land transfers, and this is also happening in parts of Vietnam. Some regional variation occurs in the extent to which local government bodies interfere in land transfers. Nevertheless, legal transfers of agricultural land are restricted mostly to members of the local community and tenure is still only guaranteed for a limited duration. These factors can reduce returns on long-term investment in agriculture by households. Furthermore, restrictions on transfers of land reduce its suitability as collateral for agricultural loans thereby dampening agricultural investment.

Table 6 provides a brief chronology of agricultural land reforms in China and Vietnam from 1993 onwards. It can be seen that the process of these reforms has been gradual and always have favoured extended property rights in land and its enhanced marketability. China's approach has been initially to issue 'advisories' to local government bodies (communes) to extend land rights and later to follow these up by legal requirements. While restrictions on the specific purposes for which agricultural land can be used have been significantly relaxed in China and in Vietnam, the general purpose is still restricted (for example, whether land is to be used for annual crops, perennial crops, or aquaculture) as are the persons to whom it can be legally transferred.

Table 6: A chronology of agricultural land reforms in China and in Vietnam from 1993 onwards

YEAR	EVENT
CHINA	
1993	The Central Committee of the CCP recommended that local government bodies (communes) give holders of agricultural land 30-year use rights. These 'one generation' rights were **not legally binding.**
1998	The Land Management Law gave **formal legal user-rights** to holders of agricultural land and required written contracts (certificates) to be issued to landholders specifying their rights.
2001 (Dec)	A directive was issued by the Central Committee of the CCP to communes to **allow** voluntary transfer of land by farmers. The aim was to reduce interference by local officials in land transfers. Also forced 'recontracting' by communes were criticized.
2002	The above directive was followed up by the Land Contracting Law. This law specified farmers' land rights and set out remedies for violation of these. It made it clear that farmers can lease or assign their land for up to the full 30-year contract period. In addition it extended land rights to women thereby furthering gender equality.
VIETNAM	
1993	The Land Law was adopted. It gave farmers a 20-year contract for land assigned for the growing of annual crops and 50-year contracts for land assigned for growing perennial crops.
2001	The Land Law was amended to permit foreign investors to acquire agricultural land and to allow farmers to exchange portions of fragmented land holdings to consolidate holdings.
2003	A law was introduced to allow holders of land-use certificates (contracts) to buy and sell contract rights in land. In addition, communes were allowed to change general purpose for which land is assigned.
2004	Further changes of the law gave land rights to both husbands and wives thereby promoting gender equality.

Sources: Based on information contained in Resource Development Institute (2009) and in Kirk and Tuan (2009)

Restrictions on the maximum amount of land that can be held legally by households are in place in Vietnam but have been relaxed in China. Allowable land holdings in Vietnam are larger and of longer duration for land contracted for the growing of perennial crops.

Politically, the distribution of land possessed by households has been a sensitive issue for the communist governments of China and of Vietnam. When they came to power, the distribution of ownership of land was very uneven. Their earlier land policies stressed equality in the distribution of agricultural land to households. Today, however, income inequality in China and Vietnam does not arise so much from inequality in the possession of agricultural land but from other sources. Furthermore, agricultural employment has gone from being the dominant means of employment in China and Vietnam to no longer being so important. Less than half the workforce engages in agriculture and this proportion continues to fall in both countries. Politically, this probably means that the distribution of ownership of agricultural land is no longer so important a political issue as it used to be.

In these circumstances, and given the changing structures of their economies, further extensions of property rights in agricultural land and in its marketability can be anticipated in China and Vietnam. As the numbers employed in agriculture continue to decline with economic development, more agricultural land should become available for exchange. The development of mechanisms facilitating this exchange should encourage shifts from farm to non-farm employment. Such shifts seem desirable as economic development occurs for economic efficiency reasons.

6. Concluding Comments

As a result of their economic reforms and economic growth, the structure of the economies of China and of Vietnam have altered greatly in recent decades and in a similar manner to that predicted by economic theory although the relative size of Vietnam's service sector is growing by less than predicted by this theory. However, agriculture's relative contribution to total employment and to GDP has declined substantially in both countries. Furthermore, the composition of agricultural production has altered greatly. In particular, the relative contribution of livestock production in relation to total agricultural production has increased significantly in both countries but more so in China than in Vietnam. The difference is partly a reflection of higher per capita incomes in China than in Vietnam.

In the case of China, there is specific evidence that since starting its economic reforms, it has increased its degree of specialization in labour-intensive agriculture and reduced that in land-intensive agriculture. Its international trade in agricultural commodities increasingly reflects China's comparative economic advantage in agricultural production. There is less explicit evidence of this in Vietnam's case but this pattern also appears to have emerged there. However, Vietnam's pork production remains an anomaly. Although Vietnam has a comparative economic disadvantage in pork production, little pork is imported by Vietnam because Vietnamese consumers have a strong preference for fresh pork purchased from traditional markets.

Farmers in China and in Vietnam hold little land by comparison to Western farmers, and those who keep livestock usually only have a few head of these. The Vietnamese Government is concerned that growth in Vietnam's domestic supply of some important livestock products, such as pork, will fail to keep pace with the growth in domestic demand for these, thereby pushing prices of these products. It, therefore, is encouraging for registered business enterprises to expand their livestock production and is providing some financial incentives for them to do so. Although household production of livestock is economic in the current stage of Vietnam's development, households have limited ability to expand their current levels of livestock production (Tisdell, 2009c).

Changing economic opportunities have resulted in many Chinese and Vietnamese farmers leaving agriculture and taking up non-farm employment despite costs involved in their changing of occupation. In transitional economies, measures to reduce the transaction costs involved in changing from farm to non-farm employment can add to economic productivity and economic growth. Some possible policies for reducing these transaction costs were outlined.

With reduced employment in agriculture, the importance of extending property rights in land and of increasing its marketability has grown. Greater marketability of agricultural land can be expected to facilitate capital investment in agriculture and reduce the sunk costs of those farmers who possess agricultural land and who want to exit agriculture to take up non-farm employment. These measures should facilitate the continuing restructuring of agriculture. This restructuring becomes increasingly

necessary as the whole economy grows and alters its general economic structure. Politically, policies for increasing the marketability of land are likely to become more acceptable as the numbers of persons employed in agriculture decline and other sources of income inequality increase in relative importance. Both in China and in Vietnam, the long-term tendency is to extend property rights in agricultural land and to increase its marketability. This process appears to have advanced somewhat further in China than in Vietnam, which probably reflects the fact that China commenced earlier than Vietnam on its economic reforms and transition. In both countries, agricultural land reforms are being implemented gradually rather than abruptly.

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