Capital Outflow from the Agriculture Sector in Thailand

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1. Introduction

The objective of this paper is to study capital flow between the agriculture and non-agriculture sectors in Thailand. This paper focuses particularly on government policy for the agriculture sector, which is the main factor determining government-base flows. The paper measures the size of the flows both *sectors* and *regions*. Market-base flow is also examined.

Thailand was an agricultural country until the 1960s. Its GDP depended heavily on the agriculture sector (37% of GDP was produced in the agriculture sector in 1961) and the majority of the labor force worked in the sector (more than 80% of the labor force worked in the sector in that year). Thailand has, however, been promoting industrialization, especially since the 1960s. The share of the agriculture sector in 1991 GDP had fallen to 13%. Nevertheless, the importance of the sector still continues to be important in terms of the structure of the labor force (60% of the labor force worked in the sector in 1991). In studying the Thai development experience, it is important to examine Thailand's agriculture policy, especially emphasizing capital flows from the agriculture sector.

This paper comprises seven sections. The next section, S**ection Two** overviews the economic development of Thailand and describes trade policy and agriculture policy. The section aims at describing the role of both policies in the country's development and industrialization.

Section Three looks at capital outflow from the agriculture sector since 1960, referring to previously published research (Siamwalla and Setboonsarng 1991, and, Siamwalla, Setboonsarng and Patamasiriwat 1994). The outflow described in this section is government-base flow, direct and indirect. This section explains government tax policy and price policy for the sector.

Section Four focuses on market-based flow through commercial banks. The sizes of both flows (government-base and market-base) are compared in this section.

Section Five studies capital flows from/to agriculture *areas* adopting a

regional approach. This section divides Thailand into three areas: agriculture area, non-agricultural area and mixed area. Government-base outflows from the agriculture *area* in 1961, 1971, 1981 and 1991 are compared in size with the outflows from the agriculture *sector* described in the previous section.

Section Six seeks to divide the agriculture area into small-farm area and large-farm area. It compares the size of inter-sectoral flows from/to both areas to examine the effect of land ownership.

Section Seven is the conclusion. The present paper is original in adopting a regional approach, which researchers to date have not adopted. Section 4, 5 and 6 are the key parts of this paper.

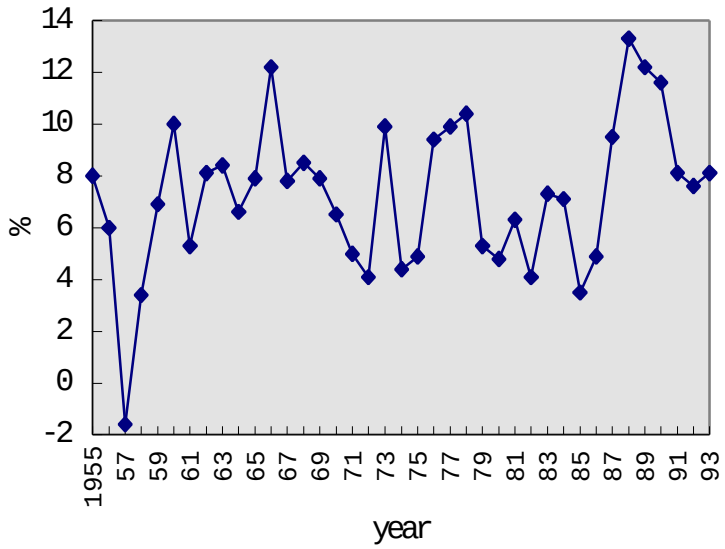
. Overview of the Economy

Before going on to quantitative analysis of capital transfer from the Thai agriculture sector, an overview of recent economic development and policies in Thailand is given.

2.1 Economic growth

The Thai economy has grown at the fairly high rate in almost all years since 1960. GDP growth rate, as shown in Figure 1, was negative in 1957, due to the low level of rice production. However, in every year of the 1960s, economic performance was good because of circumstances favorable to agriculture, expansion of farm land and development of irrigation facilities. Military expenditure related to the Vietnam War was another factor benefiting the Thai economy.

Figure 1 GDP growth rate



The 1970s may be divided into two parts. In the early 1970s, Thailand suffered from inflation caused by the oil crisis in 1973. The inflation rate soared to the highest rate ever, as a result of the four-fold increase in the price of oil. The Thai economy experienced slightly slower growth, with growth rates of less than 5% in 1974 and 1975. The late 1970s, however, saw better economic performance, thanks to high prices for agriculture products in the international market. The Thai government enjoyed huge revenues from rice exports. Thailand enjoyed nearly double-digit growth in its GDP in these years.

The 1980s also fall into two periods: poor economic performance in the early years and better performance in the latter part of the decade. The worldwide recession and resulting protectionism of the early 1980s slowed the growth of Thai exports and held economic growth down. By contrast, the Thai economy in the late of 1980s grew rapidly, at double-digit rates, the highest for 30 years. This rapid growth was led by FDI (Foreign Direct Investment), mainly by Japanese investors, who were prompted to relocate their factories because of the appreciation of the yen.

In the 1990s, up to 1995, the Thai economy continued to grow at a rapid pace, thanks to FDI, not only from Japan but also from East Asian NIES (Newly Industrialized Economies). Manufacturing continued to lead GDP growth,

accounting for the major portion of GDP (28% in 1992) .

2.2 Trade policy

Trade policy in Thailand since 1960 falls into three periods. In the 1960s, Thailand relied on natural resources and agricultural exports for its export earning. The overall level of effective protection for industry was modest by developing country standards. In the 1970s, Thailand, pursuing the import-substitution strategies favored by many other developing countries, raised tariffs on consumer goods. Capital and intermediate goods continued to be imported at low duty rates, contributing to an increase in effective protection to value added in import-substituting industries and to declines in effective protection for agricultural and other traditional exports. In 1981, Thailand's trade policy shifted explicitly in the direction of export promotion (World Bank 1993). Remaining export taxes were reduced, and the baht was devalued. The government also began to reduce protection of local industries and to lower tariffs. The maximum duty rate was reduced from 100 to 60 percent.

2.3 Agricultural Policy

Agricultural GDP grew by about 12.3 times in the 30 years, 1961-1991, but non-agriculture sectors registered an even more substantial increase, one of almost 55.9 times, during the same period. The contribution of agricultural production to overall national GDP fell from 39.2% in 1961 to 12.4% in 1991.

However, the agriculture sector continues to be of essential importance in that the majority of the labor force still works in the agriculture sector. Agriculture has been the third-largest recipient of national government budget allocations, after education and national defense, since 1961. The share of the agricultural budget in the total national budget varied between 7.4% and more than 10%, as shown in Table 1, depending on the agricultural policies in force. During the last three decades, budget allocation to subsector has not varied greatly. About 40 to 60% of the agricultural budget was allocated to infrastructure development, 12 to more than 16% to extension and technological transfer, 6% to 8% to research and development, more than 8% to 14% for resources procurement, and the remainder to general administration. Since the

share of the agricultural budget in the national budget has undergone no substantial change, the average annual growth rates of the two budgets are rather similar for the past three decades, the former being about 15.2% per annum and the latter an average of 14.5%.

Table 1 Budget Allocations to the Agriculture Sector
(budget: million Baht)

Year	National Budget	Budget for Agriculture	Percentage of Budget accounted for by Agriculture (%)
1961	6,660	535	8.0
1967	18,480	1,925	10.4
1972	29,000	2,778	9.6
1977	68,570	6,869	10.0
1982	161,000	13,894	8.6
1987	227,500	16,773	7.4
1992	460,400	46,350	10.1
Annual growth rate	(14.5%)	(15.2%)	

Source: Office of Agriculture Economics, MOAC

Government policy for exports of agricultural products may be better understood through a historical study of export policy for rice, the key commodity for Thai agriculture, as both a cash crop and a food crop. The government had four direct and indirect taxes for exports: rice premium[2], export duty, quota and reserve requirement, before 1986. Until 1965, revenue from the premium contributed significantly to the budget, around 10%. Because of its importance in the budget, the premium rate could not be varied to stabilize domestic prices. But as the importance of the premium as a source of revenue declined after 1965, its use as a domestic price stabilizer increased. As export duty changes always required the approval of Parliament, the rice premium was the main means of government intervention as far as rice was concerned.

In 1975, government policy shifted away from the pro-consumer slant of

[2] The rice premium was charged on rice exports in the years 1950-1986. It was a fixed fee not depending on the grade or quality of the rice.

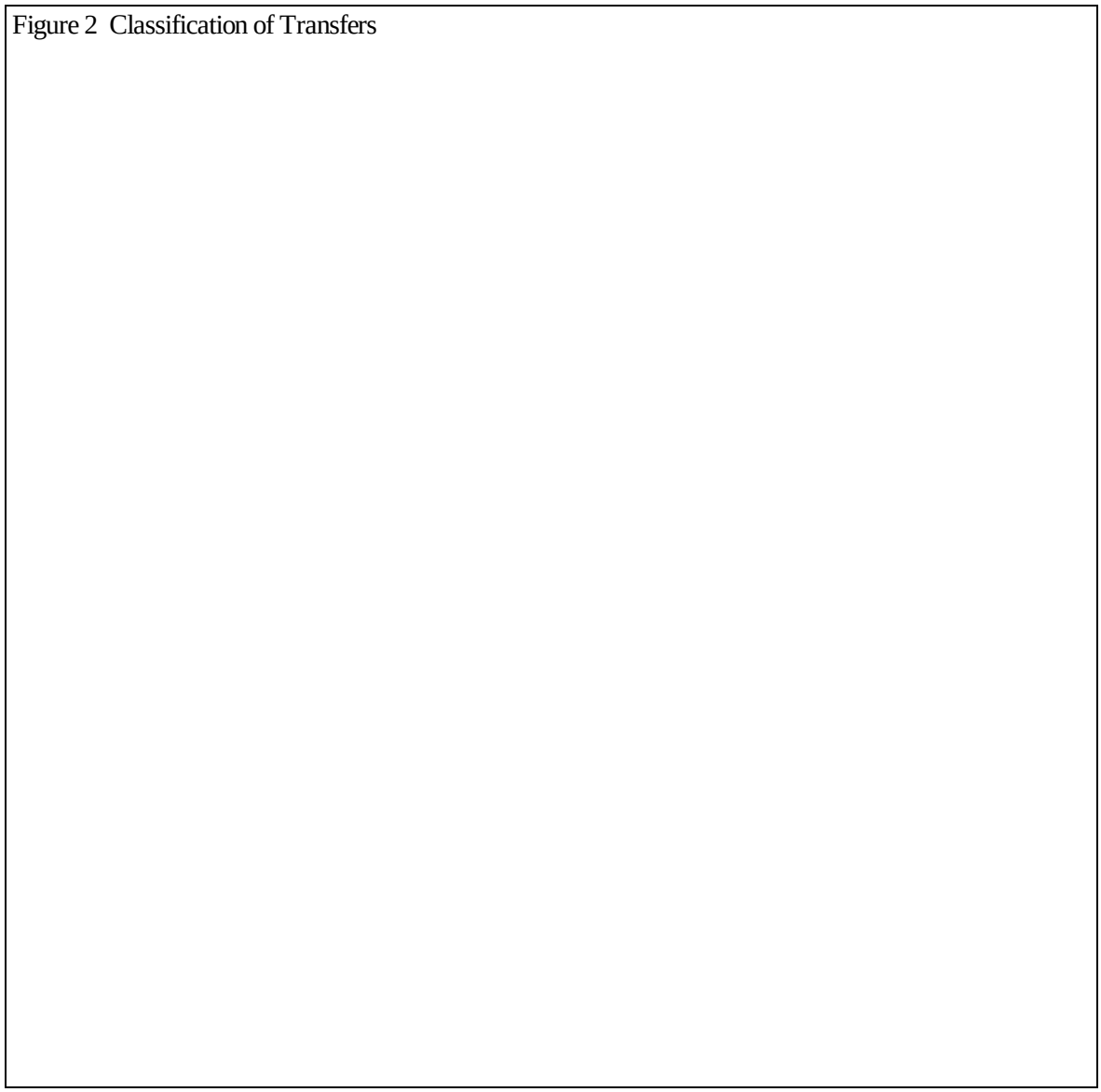
previous years. The Government began to establish higher support prices to help farmers (Siamwalla 1991). The motivation for these programs was the desire to divert resources originating from rice export taxes to the millers, who wielded a considerable influence over individual members of Parliament, as financiers of political campaigns and as controllers of important blocs of votes.

In 1983, after a particularly costly support program, the Government substantially reduced the policy bias favoring the agriculture sector, and made a serious attempt to liberalize the rice trade. Various export taxes were gradually dismantled, and in January 1986, for the first time since the end of World War II, Thailand's rice exports were freed of all restrictions.

3. Government-base Outflow from the Agriculture Sector

Capital transfer from agriculture takes several forms. In this study, these forms are divided into two flows, "government-base flow" and "market-base flow". The former is also subdivided, into direct and indirect transfer. Direct transfer takes such forms as government taxes, government investment and agricultural credit provided by government banks. Indirect transfer, on the other hand, is the result of price policy, trade policy (overvaluation of currency is one form observed in import-substitution trade policy) and product-specific intervention vis-à-vis producers, as shown in Figure 2. This section focuses on government-base transfer. Market-base transfer is dealt with in the next section.

Figure 2 Classification of Transfers



Both direct and indirect measures adopted in Thailand are explained in the following.

Direct transfer

Government Tax: As explained in the preceding section, several taxes were imposed on rice exports, such as the premium or export duty. Two taxes were also imposed on rubber exports: a duty entirely for general revenue and a small levy to finance a rubber-replanting program. A duty on rubber is still levied at a progressive rate, so that when the world rubber price increases, the tax rate rises according to a preset schedule. For exports of other agricultural products, the Thai Government has not imposed explicit taxes, although quantitative

restrictions were imposed on the export of certain products, such as maize. In addition to taxes on exports, the government imposes taxes on imports of agricultural products, which means transfer within the non-agriculture sector, as the importer, the consumer in turn, pay taxes to the Government. This study does not address such transfer.

Agricultural credit: The Thai Government has provided concessional loans or financing quotas for the agriculture sector by means of the following three modes, which are, in effect, subsidization of credit:

-The BAAC (The Bank for Agriculture and Agriculture Cooperatives)[3] has opted for average-cost pricing rather than marginal-cost pricing in its setting of its interest rates to be charged to farmers;

-Commercial banks are required to lend a percentage, set at 14%, of their deposits to the agricultural sector; and

-Since 1987, the government has introduced a paddy mortgage scheme involving highly subsidized loans to enable farmers to store their paddy till later in the marketing season.

These policies have together meant a subsidy to the agricultural sector of the order of 1 billion Baht (US$ 40 million) in 1987, that is, almost 1% of the value-added in the agricultural sector (Siamwalla 1993). Of the total subsidy, the greatest share (about three-quarters) is provided through BAAC.

Government Investment in Agriculture: The largest impact of government action affecting agricultural production was felt through its decisions on irrigation investment. With Thailand a net exporter of rice, the government certainly had little incentive to attain self-sufficiency, unlike Indonesia and the Philippines. Since changes in the world rice price have some impact on the pace of investment, investment in irrigation fell in 1969-1971 and in 1982-1985, when rice prices were very low. The Rural Development Program is another form of government investment in the agriculture sector. Of the program's 1993 total of 52 billion Baht, 16 billion was allocated to the agriculture sector. Rural roads

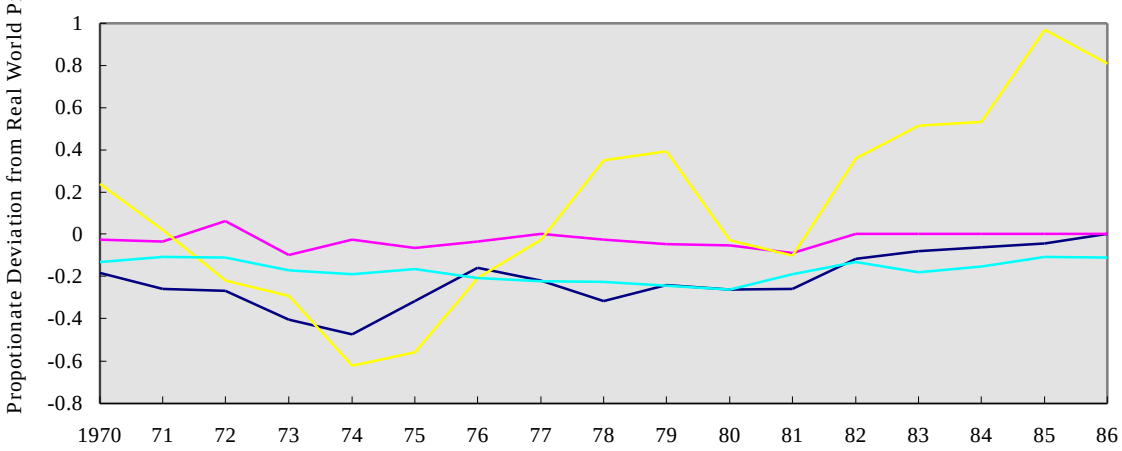
[3] BAAC was established in 1966, with equity of the Thai Government. By the end of 1995, a total of 4.65 million farming families, 82.3% of all farm families throughout the country, had received credit from BAAC. It has 494 branches throughout Thailand.

are to be considered in some cases as investment in the sector. This study, in principle, includes investment in roads as inflow to the sector.

Indirect Transfer

Price policy: The most powerful means applied to agricultural in the past have been the various border measures, applied mostly to agricultural exports, but also to agricultural imports. Figure 3 shows the effects of price policy intervention for selected agricultural products. The peak years for heavy anti-agricultural bias were the late 1970s and the early 1980s. Starting from about 1982 onwards, intervention with regard to export items steadily declined, with maize exports being completely liberalized at the end of 1981, all taxation of rice exports was removed in 1986, and taxes on rubber were gradually reduced, and temporarily removed altogether in 1989. However, there was increased protection of import items (cotton, soybean, palm oil) in the mid-1980s.

Figure 3
Effect of Direct Intervention on Domestic Relative Prices of Selected Product



Trade Policy; The Thailand of the early 1980 was a country adopting a policy of industrial protection. The government had a sizable macro-economic imbalance and decided to deal with that imbalance, not by devaluation, but by unsustainable borrowing from abroad. In other words, the currency was over-valued, which was, in effect, an additional implicit tax on exports. In the early 1980s, it was of the order of about 10 -15% (Siamwalla 1993). These implicit taxes combined added up to a sizable amount and exceeded, in that period,

direct central government taxes on agricultural exports. Since 1986, however, export of rice has been free of any type of restriction.

Table 2 shows capital outflow from the agriculture sector to the non-agriculture sector from 1960 to 1989. Figures in this table are deflated by the GDP of the year in question to compare the sizes for the different years. Taxes affecting the agriculture sector (T/GDP) were around 1% of GDP in size in the 1960s and 1970s, declining to 0.4% in 1982 and thereafter. Government investment in the sector (G/GDP), which has been larger than tax revenue from the sector in all years except 1960 and 1961, was around 3%-4% of GDP, reflecting policy, which emphasized rural stability for political reasons, against the background of the Vietnam War in the 1960s and unstable conditions in Cambodia in the 1970s. Therefore, direct transfer (T-G/GDP) has been negative except for the initial two years, which means net inflow to the agriculture sector. Indirect transfer through both price policy and exchange rate policy was 4%-10% of GDP. Total government-base transfer is as shown in "Outflow/GDP" in Table 2. Total government-base outflows in 1960-62 are not clear because of data availability constraints. Total outflow as a percentage of GDP was relatively high between 1963 (7.1%) and 1969 (3.2%). In 1970, the ratio decreased to 0.8% and remained low until 1972 due to relatively small price intervention for rice and larger subsidies for sugar. However, rice price intervention was most serious during 1973-75, and total outflow accounted for 6.6% in 1973 and 12.0% in 1974, the highest in the three decades (1960-1990).

There was another reason for this strong intervention. The international price of rice soared, doubling between 1972 and 1974. Nevertheless, the Thai Government put off adjustment of the domestic price under a cheap rice program. Consequently, there was a large difference between the two prices, i.e. price distortion. From 1976, the ratio decreased to 2% in 1980, because of a shift in government policy from one favoring the consumer to a deregulation policy. Due to small price intervention after 1982, outflow relative to GDP become negative, resulting in net inflow, until 1986. Deregulation of trade policy still continues, and the budget for agriculture accounted for only 10% of the national budget in 1991 and 1992. Thus, it is estimated that the agriculture sector received net

inflow from the non-agriculture sector after 1987.

The right-hand column (Outflow/GCF-G) of Table 2 shows ratio of outflow to non-agriculture capital formation, which is calculated as gross capital formation (GCF) minus government investment in agriculture (G). Theoretically speaking, "private investment in agriculture" should also be deducted to calculate non-agriculture capital formation. However, private investment in agriculture accounts for only a small share of gross capital formation, because the amount of commercial banks' annual net credit to agriculture is around 1% of Gross Capital Formation, and only a limited portion of bank credit is used for agriculture capital formation. Therefore, "GCF-G" is considered as non-agriculture capital formation. The percentages were between 22% and 57% until 1975, apart from 1970-72, but around 10% during 1976-81. After 1982, the ratio was negative, which meant that capital outflow to the agriculture sector did not contribute to capital formation.

Table 2 Capital Outflow from Agriculture Sector
(A Percentage of GDP and Gross Capital Formation)

Year	T/ GDP	G/ GDP	T- G/ GDP	Outflow/ GDP	Outflow/ GCF- G
1960	1.6	1.4	0.2	n.a.	n.a.
61	1.8	1.8	0.0	n.a.	n.a.
62	1.2	2.0	- 0.9	n.a.	n.a.
63	1.2	2.1	- 0.9	7.1	45.6
64	1.6	2.4	- 0.7	6.5	38.2
65	1.3	3.0	- 1.7	5.5	34.2
66	1.0	3.4	- 2.4	3.7	22.4
67	0.8	4.1	- 3.3	5.2	27.9
68	0.8	4.7	- 3.9	4.4	23.0
69	0.8	4.6	- 3.8	3.2	16.3
70	0.4	4.2	- 3.8	0.8	4.2
71	0.3	4.2	- 3.9	1.5	7.7
72	0.3	3.8	- 3.6	1.9	9.9
73	0.4	2.8	- 2.4	6.6	33.5
74	1.2	2.4	- 1.1	12.0	57.2
75	1.0	3.2	- 2.3	7.4	37.5
76	0.7	3.5	- 2.8	2.2	11.3
77	0.9	3.8	- 2.9	2.7	12.0
78	0.7	3.4	- 2.7	2.5	11.5
79	0.8	3.6	- 2.8	2.4	10.8
80	0.7	3.8	- 3.1	2.4	11.2
81	0.5	3.4	- 2.9	3.3	15.3
82	0.4	3.7	- 3.3	- 1.3	- 6.5
83	0.4	3.2	- 2.7	0.0	- 0.1
84	0.5	3.1	- 2.6	- 0.4	- 1.9
85	0.5	3.0	- 2.5	- 0.7	- 3.6
86	0.5	2.9	- 2.4	- 2.0	- 11.0
87	0.5	2.7	- 2.2	n.a.	n.a.
88	0.4	2.8	- 2.4	n.a.	n.a.
89	0.4	2.9	- 2.5	n.a.	n.a.
90	0.4	2.9	- 2.5	n.a.	n.a.
91	0.4	3.0	- 2.6	n.a.	n.a.

Note: T : Tax revenue
G : Government investment in agriculture
GCF : Gross capital formation
Source: Siamwalla, Setbonsarng, Patamasiriwat (1994)
National Account Statistic and Bureau of Local Affairs,
Ministry of Interior

The following facts should be noticed in the above. Firstly, transfer between the agriculture sector and the non-agriculture sector was outflow from agriculture until 1982, but, the size of that outflow was less than 10% apart from 1974. In only seven (7) years was the outflow more than 5% of GDP, out of the 24 years covered. Secondly, the contribution of that outflow to capital formation in the non-

agriculture sector was in the moderate range 10-30%. The outflow from agriculture contributed less than 20% to gross capital formation in the non-agriculture sector in almost all the years. This percentage declined to around 10% in the 1980s. Thirdly, the percentage of outflow was decreasing, and has been negative since 1982, which means inflow to the agriculture sector. This tendency is not consistent with the typical notion of dualism, in which agriculture-sector surplus has the role of capital formation for industry in the initial stage of industrialisation. The Thai case suggests a small contribution by agriculture surplus (outflow) in the history of Thai industrialisation.

There were many reasons for the profligate macro-economic policies of the late-1970s and early-1980s. First, the second oil price increase and the ready availability of petrodollars helped to finance postponement of needed adjustment. Second, sharp political conflicts in Southeast Asia in the mid-1970s led to a heavy increase in Thailand's military expenditures, again financed by foreign loans. Third, in the early 1980s, the decision was made to keep the Baht linked to the dollar, even though the latter was appreciating rapidly (Siamwalla 1994). This was another case in which the ready availability of foreign funds made an unwise decision possible.

4. Market-Base Outflow

Market-base transfer is of two types. One is through commercial banks, the other is direct investment by the agriculture sector in the non-agriculture sector. The former could be calculated by finding the difference between banks' deposits from the agriculture sector and banks' lending to the sector. Unfortunately, agriculture sector statistics lack data on the commercial banks' deposits and lending from/to the sector. On the other hand, data concerning banking activity in each region can be obtained. Therefore, a regional approach was deemed most suitable for this study. The difference between deposits and lending of commercial banks in the agriculture *area* may be considered to give a general idea of transfer from the agriculture *sector* on a market basis.

For such a regional approach, it is, firstly, necessary to classify

"agricultural areas" and "non-agricultural areas". Thailand had 73 provinces in 1991, which were normally divided into seven regions. The GRDP (Gross Regional Domestic Product) of all provinces for the years 1961, 1971, 1981 and 1991 was examined. GDP of agriculture can be affected by the weather. Production of rice dropped in 1977 and 1979, but other years have essentially the same production. This study chooses 1961, 1971, 1981 and 1991 to represent each decade. GDP of agriculture in those years was basically the same as in the years immediately preceding and following. In terms of either economic growth or agriculture policy, this study assumes the years 1961, 1971, 1981 and 1991 were not exceptional. Therefore, studying the figures in these years gives a general picture of the transition in outflow pattern.

The shares of agriculture and manufacturing in the GRDP of a province tend to be the same for all the provinces of a particular region. The shares of agricultural GDP in the North-eastern region's provinces, more than half in 1961, had decreased to 20%- 40% in 1991, while manufacturing had increased to around 5% to 10% in the same period. The same tendency can be observed in the Northern and Southern regions. Though the share of manufacturing in the Western region's provinces is bigger than in the above region provinces, agriculture's share is bigger than that of manufacturing in each province during all of the years. Therefore, the above four regions can be classified as "agriculture area".

The figures for the Eastern and Central regions show the same change as in the above four regions in 1961 and 1971. However, the share of manufacturing in GRP became bigger than that of agriculture in 1981 in the Central region, and in 1991 in Eastern region. Those two regions may be classified as "mixed area".

The "non-agriculture area" is defined as Bangkok and its five Vicinities, as manufacturing's share has been bigger than agriculture's since 1971.

Table 3 summarises the figures by region. It gives a clearer idea of the above transition, and helps to confirm the appropriateness of classification into three areas, i.e. agriculture area, mixed area and non-agriculture area.

Table 3 Share of Agriculture and Manufacture in GRDP by Regions (unit: %)

Region	1961		1971		1981		1991	
	Primary	Secondary	Primary	Secondary	Primary	Secondary	Primary	Secondary
Agriculture Area								
Northern	43.3	8.8	45.3	7.7	40.3	7.5	23.5	8.9
North-east	53.9	6.5	44.5	6.8	35.8	7.5	27.1	8.6
Western	36.7	7.5	41.8	8.3	32.2	13.1	22.0	19.9
Southern	47.3	6.2	36.3	7.3	37.0	7.5	35.8	5.5
Mixed Area								
Central	41.4	6.5	33.1	13.1	33.0	16.7	13.0	32.4
Eastern	35.6	16.1	37.5	20.6	27.8	28.2	12.8	30.7
Non-agriculture Area								
Bangkok and Vicinities	49.3	26.2	7.5	31.7	11.1	35.4	2.4	40.3
Whole Kingdom	36.7	14.1	28.7	18.2	21.4	22.6	12.6	28.2

Source: National Account Division, NESDB

Table 4 supports the validity of the classification by giving figures for labour force by industry. The Western and Eastern regions are classified with the Central region in these statistics. However, the agricultural labour force accounted for 60%-80% in the agriculture area, but for less than 50% and 2% in the mixed area and the non-agriculture area respectively. Thailand is still an agricultural country, in terms of its labour structure, i.e. 60% of the labour force works in the agriculture sector, compared to 26% in Indonesia, 45% in the Philippines and 55% in Malaysia. Bangkok, in which almost all the country's manufacturing is concentrated, is only exception, and accounts for most of the nation's GDP.

Table 4 Labor Force by Industry Type (unit: %)

Region	1961		1971		1981		1991	
	Primary	Secondary	Primary	Secondary	Primary	Secondary	Primary	Secondary
Agriculture Area		15.5						
Northern			87.4	3.0	80.3	5.5	69.3	10.1
North-east			90.4	2.0	89.2	2.8	81.5	6.8
Southern			83.6	2.9	69.8	9.9	60.6	11.7
Mixed Area								
Central			70.0	8.6	63.1	14.6	45.5	25.2
Non-agriculture Area								
Bangkok and Vicinities	3.5	24.0	15.8	23.1	12.1	31.1	1.7	35.3
Whole Country			79.3	5.2	71.7	9.4	60.5	15.3

Source: Labour Force Survey, National Statistic Office
Note: Western and Eastern region are grouped with the Central region in these statistics.

Table 5 shows the development of the commercial banking system, in terms

Table 5 shows the development of the commercial banking system, in terms of numbers of branches of commercial banks. The number of branches was 330 in the agriculture area in 1971, had doubled by 1981 and tripled by 1991. The figures for numbers of branches per capita in the agriculture area were one-sixth of those for the non-agriculture area.

Table 5 Number of Commercial Banks Branches

Region	1971		1981		1991	
	Number branches	Number per a million persons	Number of branches	Number per a million person	Number of branche	Number per a million persons
Agriculture Area	330	11.8	751	21.3	1,209	29.5
Northern	(100)	(12.4)	(244)	(25.5)	(388)	(35.7)
North-east	(77)	(5.9)	(210)	(12.5)	(356)	(18.3)
Western	(46)	(21.2)	(115)	(40.2)	(164)	(51.0)
Southern	(107)	(23.1)	(182)	(30.2)	(301)	(40.6)
Mixed Area	71	16.6	205	38.1	355	55.7
Central	(28)	(13.3)	(86)	(34.4)	(129)	(45.9)
Eastern	(43)	(19.8)	(119)	(41.4)	(226)	(63.4)
Non-agriculture Area	314	61.8	205	83.8	895	96.4
Bangkok and Vicinities	(314)	(61.8)	(86)	(83.8)	(895)	(96.4)

Note: Number per capita is expressed by number per a million persons
Source: Annual Report of Bank of Thailand, various years

Table 6 shows actual market-base flow through commercial banks. In all the years covered, the net flow (deposits minus lending) is positive in the agriculture area. This fact means outflow of market-base funds from the agriculture area. However, the size of transfers as a percentage of GDP decreased after 1971, 3.0% in 1971, 2.5% in 1981 and 1.9% in 1991, reflecting the growth of credit-worthy industry in the agriculture area after the 1980s.

Table 6 Market-base Outflow from the Agriculture Area (million Bahts)

Year	Deposit	Lending	Outflow	GDP ratio (%)	(GDP ratio of government-base flow %)
1961	1,679	1,620	59	0.1	(n.a.)
1971	8,460	3,908	4,552	3.0	(1.5)
1981	69,044	50,410	18,634	2.5	(3.3)
1991	378,004	330,077	47,927	1.9	(-2.6)

Source: Annual Report of Bank of Thailand, various years
Note: Figures in parentheses are quoted from Table 2.

The other market-base flow is capital investment by the agriculture sector in the non-agriculture sector other than through commercial banks. The income survey of farm households carried out by the Ministry of Agriculture does not provide a breakdown for expenditure or investment , so that direct investment by the agriculture sector in the non-agriculture sector is not clear. However, farmers' income has always been far less than those in the non-agriculture sector, as shown in Table 7. This type of investment is estimated to be on a fairly small scale.

Table 7 Per Capita Income in the Agriculture and the Non-agriculture Sectors
(Baht per capita)

	Per Capita Income in		
Year	Agriculture Sector (a)	Non-agriculture Sector (b)	Ratio (b/a)
1961	1,002	6,212	6.2
1967	1,373	9,148	6.7
1972	1,797	10,905	6.1
1977	3,674	20,629	5.6
1982	5,743	38,357	6.7
1987	5,938	52,869	8.9
1990	7,137	85,343	12.0

Source: NESDB and Office of Agricultural Economics, MOAC

On the assumption that the size of direct investment is so small that it may be ignored, both flows (government-base and market-base) are fairly close in scale to GDP given by Tables 2 and 6. The size of government-base outflow in 1971 was 1.5% of GDP, while that of market-base flow was 3.0%, double in size. This fact supports the Teranishi hypothesis that market-base flow is large enough in East Asian Countries for governments not to be obliged to

depend on government-base transfer for industrialisation. In 1981, the size of government-based flow was bigger that of market-base, with Government-base flow 3.3%, while market-base flow was 2.5%. Both sizes, however, were not so different as not to be comparable. In 1991, government-base flow was inflow, accounting for -2.6% of GDP, while market-base flow was outflow, 1.9%.

In the three years covered, which may be considered representative of each decade, market-base flow was large enough in size to compare with government-base flow, reflecting the fact that banking system had developed to a considerable level in agriculture area. The Teranishi hypothesis is not invalid, at least in the case of Thailand.

5. Capital Outflow from the Agriculture *Areas*

In this section, the same approach is adopted as in Section 4, the regional approach. It made it possible to determine the size of outflow from the sector in Section 3 by studying the size of outflow of the agriculture *area* instead of the agriculture *sector*. With the regional approach, there is no problem of having to decide whether government investment in schools or roads, for example, comes under investment in the agriculture sector or not. Government investment and subsidies go to regions or local governments. The regional approach avoids such problems.

The same classification as in the previous section is applied, with the agriculture area considered to be the Northern, North-eastern, Western and Southern regions. Table 8 shows direct government-base outflow from the agriculture *area*.

Table 8 Capital Outflow from the Agriculture *Area* (%)

	T/ GDP	G/ GDP	T-G/ GDP
1961	1.1 (1.8)	0.6 (1.8)	0.7 (0.0)
1971	0.7 (0.3)	0.9 (4.2)	-0.2 (-3.9)
1981	0.9 (0.5)	1.4 (3.4)	-0.5 (-2.9)
1991	1.1 (0.4)	1.3 (3.0)	-0.2 (-2.6)

Note: Figures in parentheses show the size of the agriculture sector as calculated by Siamwalla (1993).

T is tax from the agriculture *area*.
G is government investment in the agriculture *area*, including subsidies.
Source: Taxes: The Revenue Department, Ministry of Finance
Subsidies: Bureau of Local Affairs, Department of Local Administration, Ministry of Interior
Public Investment: National Account Statistics, NESDB

Figures in parentheses show the size of flow from the agriculture *sector* as calculated in preceding research (Siamwalla 1993). The GDP percentage figures for taxes from the area were 1.1%, 0.7%, 0.9% and 1.1% in 1961, 1971, 1981 and 1991, respectively. These are two to three times larger than the figures given by Siamwalla (see Table 2). This might be the effect of industrialisation or increased services sector activity in the area. For example, Table 8 gives the figures for taxes from the manufacturing sector or services sector in the agriculture *area*. Table 3 shows GDP of the agriculture sector was less than one-third of total GRDP in 1991, even in the agriculture area. The fact that the difference between two figures has been becoming bigger in recent years suggests the appropriateness of this assumption.

Government investment including subsidies, on the other hand, was 0.6%, 0.9%, 1.4% and 1.3% of total Thai GDP in these years. These figures are smaller than Siamwalla's figures in parentheses. The difference may have occurred because: 1) government investment in or subsidies to the *area* used in this study do not include subsidies for agricultural credit, such as BAAC and the paddy mortgage scheme, and 2) Siamwalla's figures include government investment in roads.

Despite the above differences, total outflow shows the same trend as Siamwalla's research, negative (inflow) in all the years covered, apart from 1961. The regional approach also demonstrates the small size of capital outflow from the agriculture *area* in the case of Thailand, resulting in inflow to the agriculture *sector* or *area* in 1971, 1981 and 1991.

6. Capital Outflow from Small-Farm Areas and Large-Farm Areas[4]

Adopting the regional approach, this study attempts to measure the size of flows from/to small-farm holding areas and large-farm holding areas, in order to examine the effect of land ownership, another important hypothesis of the Teranishi Framework. In this section, Thailand's regions are divided into two categories on the basis of 1992 farming land ownership and farm size.

In 1992, the average farm holding size in the country was about 25.6 rai[5] per household. Farms of between 10 to 20 rai accounted for the highest percentage, 28%, with 2 to 10 rai holdings coming next, followed by 20 to 30 rai holdings. Regionally, average farm holding size is largest in the Central region, 31.8 rai. The largest category in the North is 2 to 10 rai, which accounted for 32.6% of all farms in the region. Details of farm holding size in each region are summarised in Table 9.

Table 9 Size of Farm Holding in 1992 (unit: %)

Size of Farm	North-eastern	Northern	Central	Southern
less than 2 rai	1.3	2.5	2.6	1.6
2- 10 rai	15.7	32.6	17.4	23.0
10- 20 rai	29.5	26.9	22.5	32.0
20-30 rai	22.0	14.6	18.6	18.6
30- 40 rai	13.4	8.5	12.9	10.6
40- 50 rai	7.6	5.6	8.2	5.3
50-60 rai	4.2	3.7	6.3	3.3
60-70 rai	2.5	1.9	3.6	1.4
more than 70 rai	3.9	3.8	7.9	4.4
Total	100.0	100.0	100.0	100.0
Average size of farm (rai)	26.1	21.5	31.8	23.7

Source: Office of Agriculture Economics, MOAC

Note: 1 rai = 0.16 hectares.

[4] The classification of "small-farm area" and "large-farm area" is not typical in Thailand as Ammar Siamwalla pointed out in the World Bank Workshop. Table 9 shows that the average size of farm is not very different among regions compared to ones of other countries. However, this study tries to examine influence of farm size to the capital flows for the comparative purpose.

Table 10 shows ownership of farm land in 1992. In the whole country, 45% of farm land belonged to those cultivating it, with 18% belonging to "common owners" (only a part of land belongs to cultivators). About 37% of farm land was farmed by tenant farmers. Land ownership by region shows the characteristics shown in Table 10. The percentage of "no ownership" (cultivators has no ownership) in the Central region is slightly higher than in the other regions. In view of the above land ownership distribution and farm size, the Central region can be classified as an area with relatively large-sized farms with a high ratio of land tenure, which means relatively large-scale landowners predominate in this region.

Table 10 Distribution of Land Ownership by Region in 1992 (%)

Cultivator's Ownership	North-eastern	Northern	Central	Southern
Owns all land farmed	50.2	38.5	42.5	41.8
Owns part of land farmed	19.7	17.1	9.0	24.6
No ownership	30.1	44.4	48.5	33.6
Total	100.0	100.0	100.0	100.0

Source: Office of Agricultural Economics, MOAC

Table 11 shows direct government-base transfer by area. The large-farm area, the Central region, received inflow in 1961, while the small-farm area registered outflow in the same year. Taxes or public investment included non-agriculture taxes and investment in all years. Nevertheless, the year 1961 shows the non-agriculture sector having little importance, with agricultural GDP accounting for the major share. The large-farm area received more investment, 87 Baht per capita, in 1961 than the small-farm area did, 22 Baht per capita. The ratio between the two areas was 1:3.95. The ratio was similar in 1971 and 1981. The large-farm area also received more investment, 297 Baht per capita, while the small-farm area received only 69 Baht per capita, with the ratio, 1:4.3 in 1971. In 1981, the ratio was 1:3.48. Although the effect of industrialisation is to be taken into account, public investment in the large-farm area was 3 to 4 times larger than in the small-farm area until 1981. In other words, the large-farm area enjoyed higher priority than the small-farm area for government investment. However, by 1991 the government investment gap had narrowed with the small-farm area receiving more investment, resulting in a ratio of 1:1.32.

The reason for these differences need to be examined in detail, whether they were due to the political influence of large-farm owners or to the degree of industrialisation. Taking into account the fact that Table 3 shows higher GDP for secondary industry in the Central region in all the years than in the Northern, North-eastern, Western and Southern regions, the reason

[5] The Rai is the traditional unit for measuring farm land. 1 rai =0.16 hectares.

would appear to be the pace of growth of industrialisation in the large-farm area rather than the political power of large-farm owners. The following findings also support the above assumption: 1) the large-farm area paid more tax than the small-farm area in all the years covered, and, 2) as a consequence of tax and investment, the small-farm area enjoyed capital inflow after 1971, while the large-farm area had outflow after 1971.

Table 11 Government Tax and investment by Regions (Baht/ person)

	1961	1971	1981	1991
Large-farm area				
Tax	79	354	1,801	6,718
Investment (a)	87	297	1,553	1,213
Outflow	-8	57	248	5,505
Small-farm area				
Tax	43	56	291	777
Investment (b)	22	69	446	914
Outflow	21	-13	-155	-137
Ratio (a)/(b)	3.95	4.30	3.48	1.32

Source: Tax The Revenue Department, Ministry of Finance
The Excise Department and The Custom Department
Subsidies Bureau of Local Affairs, Department of Local Administration, Ministry of Interior
Public Investment National Account Statistics, NESDB
Note: Investment includes Public Investment and subsidies

If we look at agricultural credit provided by government banks, the large-farm area received more credit per farmer in the last three years selected. The ratio has, however, been declining, from 1: 2.5 in 1970-72 to 1: 2.0 in 1990-92, due to the Thai policy emphasising rural development. In the case of governmental agricultural credit, the large-farm area has received a larger amount per capita than the small-farm area. Further research is needed to explain the differences. Considering the fact that BAAC credits also includes credit for the food-processing industry and millers, the author believes that the larger amount for the Central region will be attributable to the effect of industrialisation rather than because of the political power of large farm owners.

Table 12 BAAC Agricultural Credit by Region
(Baht per Worker in Primary Industry)

	1971	1981	1991
Large-farm area (a)	74.6	1,185.3	4,436.5
Small-farm area (b)	29.7	518.7	2,234.0
Ratio (a)/(b)	2.5	2.3	2.0

Note: Three-year average, centred on the year indicated
Source : BAAC Annual Report (various issues)
Report of the Labour Force Survey (various issues)

7. Conclusion

Within the limits imposed by data availability, this study measured and assessed the size of outflows between sectors and areas. It analysed the reasons for and background to those flows, and examined the consequences of the flows for economic development, as far as possible. The study has, thus, highlights a number of points.

First, the study relies on previous research for measuring the size of government-base outflow from the sector. Further study should examine and scrutinise the assumptions and calculations of previous research. The second point concerns market-base flow. This flow needs to be analysed and assessed more precisely in quantitative terms in a later study. Because of the data availability constraints, the present study only deals with lending and deposits of commercial banks in the agriculture *area*, an area defined in terms of GDP and labour force composition. Direct investment from the agriculture sector to the non-agriculture sector, which is treated as almost negligible in this paper, should be counted in the future. The third points is the question of the relationship between market-base flow and the business cycle. A prominent study of capital transfer for the Japanese agriculture sector over seven decades showed a close correspondence (Teranishi 1982). However, this paper had data constraints for market-base flow, so that kind of analysis had to be abandoned. The fourth point is the question of the reasons for the large flows to the large-farm area, the Central region. In order to prove or disprove the assumption that the large flow was caused by the political power of large-farm owners in this area, further socio-political research will be required. The fifth point is the influence and role of foreign capital flow, such as foreign aid and FDI. They are not studied in this paper. In views of the fact that foreign capital accounted for 34% of gross capital formation in the early 1970s, the role of foreign capital, including ODA and FDI, should be considered for an accurate assessment of agriculture-sector surplus. The last point is the relationship between agriculture credit and saving rate[6]. *The East Asian Miracle* observed high saving rates in high-performing Asian economies. The contribution of agriculture credit to a high saving rate is to be examined in the later study.

Notwithstanding the above, it is believed that this study measured both government-base and market-base capital flows usefully and with acceptable accuracy. The government-base flow is measured as a percentage of GDP. The ratio was less than 5-6% in the 1960s and the early 1970s, except for 1974 (12%), 1975 (7.4%) and 1963 (7.1%). They may be felt to be low by those who believe Thai development was made possible by capital accumulation based on an agriculture surplus, in accordance with the typical dualism theory. Of course, it is true that outflow contributed to gross capital formation in the non-agriculture sector to a certain extent, 1/5 to 1/3 before 1975. The role of agricultural surplus in Thai industrialisation should not be under-evaluated.

On the other hand, market-base capital flow from the agriculture *sector*, for which agriculture *area* was substituted in this study, was 3.0% of GDP in 1971, 2.5% in 1981 and 1.9% in 1991,

[6] The author is thankful to the comment of Peter Timmer for this point. This paper, however, could not include this point because of time constrains.

measured as deposits minus lending of commercial banks. Although there is room for further improvement in measurement, this study measures and compares the two flows, government-base and market-base, whereas previous studies had looked at government-base flow only. Government-base flow was larger than market-base flow in 1981, while government-base flow was smaller than market-base flow in 1971 and 1991. Market-base transfer, recently became the main source of outflow from agriculture, as government-base transfer became inflow to agriculture after 1982. Teranishi's hypothesis that market-base flow is large enough in East Asian Countries for the government not to be forced to depend on government-base transfer for industrialisation, is valid for the case of Thailand.

This study also attempted to examine the size of flows for the large-farm area and the small-farm area, to establish whether any differences exist between the two kinds of area. At least, government-base inflow (government credit for and investment in agriculture) has been significantly larger for the "large-farm area" than for the "small-farm area" (the ratio is more than 1:2 per capita basis). However, the differences in ownership and size of farm between the "large-farm area" and the "small-farm area", are fairly small compared with those in certain other developing countries. This larger inflow might be attributable less to the political power of large-farm owners than to industrialisation in the Central region.

In Thailand, outflow from the agriculture *sector* and *area*, both market-base and government-base, has not been so large as is typically assumed in the Lewis Model. Due to the moderate outflow from the agriculture sector to date, the environment of the rural areas is not drastically worse than that in the urban areas, unlike in Latin American or African countries, as shown in Table 13. Moreover, migration to the urban areas has not been so much of a problem. At the same time, the government has adopted an export-oriented policy emphasizing light industry of the labour-intensive type since the mid-1970s. There has been some investment to promote labour-intensive industries in the rural areas, which has created jobs for rural people. The rural areas have, thus, received a fairly good level of investment, and migration to urban area has been limited in Thailand.

Table 13 Development Infrastructure (%)

Country	Access to Safe Water		Availability to Electricity	
	Urban Area	Rural Area	Urban Area	Rural Area
Thailand	56	66	78	40
Indonesia	43	36	39	10
Philippines	49	54	N/A.	N/A.
Brazil	85	53	95	19
Mexico	79	51	N/A.	N/A.
Ghana	93	39	N/A.	N/A.

Kenya	61	21	N/A,	N.A.

Source: Social Indicators of Development 1996

Dr Ranis mentions a number of policies as facilitating smooth economic development (Ranis 1991): (i) raising agricultural productivity even during the early period of import-substitution, (ii) relatively equal distribution of land, (iii) decentralised industrial growth, (iv) labour-intensive export orientation of both rural and urban industries, and (v) generally open, merit-based, access to education. Thailand may be one of the countries which attained economic development by means of the above policies.

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