CHAPTER VI
BANGKOK AS A MAGNET FOR RURAL LABOUR : CHANGING CONDITIONS, 1900-1970

Abstract : This chapter examines the connections between Thailand's population growth and labour supply, wage rates and the rapid growth of Bangkok which occurred between 1900 and 1970.

I
Population and Labour Supply in Thailand, 1900-50

In order to analyse the factors affecting the growth of a cheap urban labour supply based on changes in rural areas, this section highlights some fundamental data on the demographic situation of Thailand from the mid 19th century until 1970.

There was no census of population in Thailand until 1910-11. Although a number of foreign visitors attempted to estimate the population during the 19th century, the figures varied considerably.[1] Dr. Larry Sternstein[2] assembled all the pre-1910 estimates, as shown in Table 6.1.

---

[1]A first Thailand 's population census in 1905/06 was limited in scope,covering only two-thirds of the country. The first national census was undertaken in 1909/10, with revised versions published for 1910/11 and 1911/12. The 1911/12 figures are those frequently used (Wilson, Thailand : A Handbook, p. 25).

[2]Sternstein,"Settlement in Thailand", pp. 270-273.

Table 6.1 Estimation of Number of Popul:ition in Thailand prior to 1911

Approximate Year	Approximate Population	So ırces
1822	2,790,000	Cr:wfurd, John, Journal of an Embassy from the Governor-General of ndia to the Courts of Siam and Co-chin - China, 2nd (ed), 1830, vol 2, p.224
1827	3,252,252	Malloch, D.E., Some General Remarks on Its Productions, 1852, p73
1830	3,000,000	An erican Almanac, 1830, p144
1834	6,000,000	Pallegoix, Major, Description du Royaume de Siam, 1854, Vol 1, p 8
1838	2,400,000	An erican Almanac, 1838, p 370
1849	3,653,150	Malloch, D. E., (1852), op, cit, p 73
1855	4.5 - 5,000,000	Bowring, Sir John, The Kingdom and People of Siam, 1857, Vol. 2 p 87 and p 256
1864	4,000,000	Siam Consular Report, 1864 cited by Skinner as 'Great Britain, Foreign Office, "Annual Diplomatic and Consular Reports on the Trade of Siam", 1864-1913 (composite title), 1865-1914'
1875	4,700,000	Whitaker's Almanac, 1875, p. 288
1883	6,000,000	The Stateman's Year Book, 1883, p. 726
1894	9,000,000	"Directory for Bangkok and Siam", Bangkok Times Press, 1894, p. 3
1896	5-6,000,000	Black, J. S., "Journey Round Siam", The Geographical Journal, Vol. 8 1896, p. 448
1900	7,320,000	Skinner, G. W., Chinese Society in Thailand, 1957, p. 70
1903	4,918,000 -5,418,000	Carter, A. C ed, The Kingdom of Siam, Ministry of Agriculture, Louisiana Purchase Exposition, 1904
1906	6,070,000	Ibid, 1906, p. 1395
1910	8,305,000	Skinner (1957), p 70

Source: Adapted from Lawrence Sternstein, "Settlement in Thailand : Patterns of Development", Ph. D. thesis, Australian National University, 1964, Appendix A, pp. 270-273.

We will not discuss the demographic situation in pre-1911 Thailand in detail since this has already been subject to considerable research, and our principal concern in this thesis is with Bangkok. It is well known that the variations in the estimates arise from rough-and-ready methods, varying coverage, and inadequate sources.[3] However,

---

[3] It is very difficult to know the accurate number of Thailand's population in the second half of the 19th century. As noted by Chaiyan Rajchagool:

> Siam became a nation state only early in the 1900s. Before this was not a unified political entity. There was no single political organization under a unified authority surrounded by a number of other major and minor townships. ..The name Siam thus referred to a loosely defined and broad cultural region,a conglomeration of states covering an areas comparable to that of contemporary Thailand with the addition of several adjacent areas now no longer part of the Thai state[3] (Chaiyan, the Rise and Fall , p. 2).

He further noted that the vaguely delineated frontiers of Siam in the 19th century could be sketched as follows. In the north lay the mountainous area of which the major townships were ChiangMai and Luangprabang(the latter is now in the north of Laos). In the east the frontier ran along Maekong river to include certain townships on the other side of the bank; Battabang and Siemreap (now parts of Cambodia). The major townships in this region were UdonThani, Ubon Ratchathani, Nakhon Ratchasima. The western frontier was clearest of all,following the line of the Tenasserim mountains. In the south, Siam claimed rights over the Malay states as far as Perak, NakhonSithammarat and Pattani were the townships of political importance in this region (ibid., p.3). Thailand 's boundaries during the second half of the 19th century and around 1910 by which time the empire based on Bangkok had been whittled down to buffer-state size by treaties with the English and French, reflected Anglo-French agreements. This resulted in the area of Thailand being frequently changed by the treaties with the British and French. " It is difficult to point to any one historical definition as" best" for while it is true

there are certain general conclusions about the pre-1911 demography which have a bearing on the study of Bangkok.

First, the country was always very sparsely populated, and relatively little urbanized. Even in Bangkok in 1911 the population numbered around 345,000 (Chapter IV). Thailand's population in 1855 was probably around 4.5 - 5.0 million as guessed by Bowring, while the revised census figure for 1911 was 8.3 million (Table 6.2). These figures yielded a growth rate over the period 1855-1911 of around 1 percent per annum. Although neither the 1855 or 1910-11 estimates can be considered reliable, such a gentle rate of growth seems credible in view of the fact that there were no invasions and wars, and some improvements in medical care introduced by western missionaries.

Secondly, immigrants, especially from China, were of increasing significance, especially in the central region. As discussed in Chapter III, the Bowring Treaty in 1855 brought Thailand into the world economy as a major rice exporter. Trade encouraged substantial Chinese immigration to provide the labour force for non-agricultural activities, especially the rice trade. Chinese immigration was one of the most important factors contributing to the growth of population.

Table 6.2 Total Population of Thailand from Census Years ,1911-1970

Year	Total Population	Average Annual Intercensal Growth Rate (%)	Population per Square k.m.
1911	8,266,408	-	16
1919	9,207,399	1.36	18
1929	11,506,207	2.19	22
1937	14,464,105	2.96	28
1947	17,442,689	1.89	34
1960	26,257,916	3.22	51
1970	34,397,374	2.76	67

Sources: **Thailand Statistical Yearbook**, Various Issues ; NSO. **1960 Thailand Population Census, Whole Kingdom , Bangkok**: 1962 ;and NSO, **1970 Population and Housing Census**, Whole Kingdom ,Bangkok :1973.

From 1911 to 1947, the population doubled to 17.4 million, growing at an average rate of 2.1 percent per annum. After World War II, the annual growth rate rose over 3 percent per annum, and the population doubled again between 1947 and 1960 (Table 6.2). Thereafter, the growth rate declined away sharply .

---

that Thailand exercised suzerainty over the areas ceded to the English and French,both the nature and the period of control varied considerably,making it virtually impossible to discredit any of a series of varying estimates for a particular period" (Larry Sternstein, " A Critique of Thai Population Data" as produced in Perspective on Thai Population , Research Report No.11 ,Bangkok, Institute of Population Studies, Chulalongkorn University, 1974, p. 81).

Before the outbreak of World War II the Thai kingdom had a slow growth rate in population and the kingdom was 'underpopulated" in the sense that large areas were almost empty, even in the more heavily populated central districts. In 1904, Prince Dilok estimated the total population was about 7 million living in a total area of 634,000 square kilometres with a population density of 11 person per square kilometre; by comparison, the densities in India, the Philippines, Indonesia, and Burma were 73, 25, 21 and 16 person per square kilometers respectively.[4] Similarly in 1947, Thailand's population density was 34 persons per square, compared to 105, 66 and 36 for India, the Philippines and Indonesia.[5]

Chinese immigrants and the growth of Thailand's population.

Caldwell estimated that Chinese immigrants and their descendants accounted for 40 percent of the total population growth between the 1880s and the 1920s.[6] Since the World War II, Chinese immigration played a marginal role in population growth.

Unfortunately, there is no way of estimating the number of Chinese in Thailand with much accuracy. No careful census was ever taken. Registration was incomplete. Many became assimilated and 'disappeared' into the local population. One source concerning the assimilation of Chinese provided by Ministry of Foreign Affairs in 1929 claimed:

> The most important aspect of the Chinese problem depends upon the power of the Siamese to assimilate the Chinese who are now here or who may come here under the existing immigration policy. In former years the Chinese who migrated to Siam were composed of two classes--- first, coolies who performed largely unskilled labour and after saving a certain amount returned to China; second, the Chinese who came here with the idea of staying and carrying on enterprises. Many Chinese married Siamese and to a considerable extent their descendants have, in fact, become Siamese in their feeling and sentiments. Even where there were no intermarriage undoubtedly many Chinese by long residence came more or less Siamese in their point of view. [7]

Perhaps the best estimates of Chinese immigration are those of Skinner. He found that the number of Chinese who stayed on in Thailand increased steadily from over the period 1882-1931, with the peak inflow in the years 1918-31. Then with the depression, war, immigration restrictions, and the introduction of immigration quotas in

---

[4]Dilok Prinz Von Siam,Landwirsft in Siam,cited in Chatthip , The Thai Village, p. 18.

[5]United Nations, **the Economic Survey of the Far East**, 1948, p. 13.

[6]J.C.Caldwell, "The Demographic Structure" in T.H.Silcock,(ed), p. 28.

[7] (N.A. (3) Office of the Prime Minister 0201.76/1 (1929-1953)).

1947, the inflow of Chinese declined. Skinner estimated that number of the Chinese population in Thailand including China-born Chinese and local-born Chinese reached a peak in the 1940s at 1.9 million, or around 12 percent of the population.[8]

Year	Chinese Population ('000)	% of total Thailand's population
1825	130	4.8
1850	300	5.8
1860	337	6.2
1870	383	6.6
1880	435	7.0
1890	497	7.5
1900	608	8.3
1910	792	9.5
1917	906	9.8
1922	1,079	10.5
1927	1,333	11.7
1932	1,592	12.2
1942	1,876	11.7

According to the 1937 census, the population of Thailand was composed of 13,841,304 Siamese nationals and 622,801 foreign nationals including 524,062 Chinese. If Chinese born in Thailand are included,[9] it is reasonable to assume that at least 10 per cent of the kingdom's population consisted of ethnic Chinese.[10]

The economic consequence of the under population

Falkus, pointed out that major factors affecting the Bangkok's growth were closely related to changing rural conditions.[11] His findings are:

---

[8]Skinner, Chinese Society, p. 79. Skinner noted that among the conclusions which might be drawn concerning the growth of the Chinese population in Siam beginning with the second quarter of the nineteenth century up to the end of the " natural " migration period towards the end of the First World War are the following. (1) The number of all Chinese in Siam steadily increased throughout the period. (2) The rate of increase in the Chinese population was consistent higher than the rate of increase in the total population of Siam throughout the period,so that the proportion of Chinese steadily increased. (3) The rate of increase in the China-born population increased,decade by decade but only about 1910,when the rate began to decline. (4) The proportion of China-born Chinese in the total population increased steadily, decade by decade, until about 1910, when the proportion began to fall off. (5) The rate of increase in the local-born Chinese population began to increase only after the effect of the mass migration beginning in 1882 was felt, but then continued to the end of the period (ibid., p. 80).

[9]Anonymous, **Siam Basic Handbook**, n.d. p.8.

[10]Skinner, Chinese Society, p. 183.

[11] Falkus, "Bangkok : From Primate City ", "pp.143-163; and Falkus,"the Economic History", pp. 53-71.

(1) The growth of Bangkok possibly was relatively sluggish in the years 1920-1950 compared to the pre-1920 and post-1950 periods. Bangkok's proportion of the total population did not increase after the First World War, and may even have fallen a little by 1947, when it stood at 4.4 percent. Before around 1950, Thailand's sparse population and abundant land meant that indigenous labour was "expensive". The term "expensive labour" refers to relative wages between Bangkok and the countryside. Little differential existed prior to the World War II. Average per capita incomes do not appear to have differed greatly between the provinces. The broadcast rice farmer, with 8 hectares of land, almost certainly had an annual income well in excess of that of the Bangkok coolie labourer between 1905 and 1929. A major factor affecting the high level of wage rates was the relatively high productivity of Thai agriculture in relation to labour input.

(2) The high level of income and wage rates earned by the rural workers meant that the opportunity cost of changing occupations from that of a rural farmer to an urban worker was also high. Under the circumstances, there was a limited flow of labour from rural to urban areas. Hence, large-scale Chinese immigration played an important role in developing the non-farming occupations in Thailand.

(3) After the World War II, a rapid growth of population in Thailand took place.[12] Population growth put pressure on rural incomes as well as the fragmentation of farms and growing tenancy and a decline in rice output per person in some regions of the country. With the rapid overall population growth, a pool of "cheap" rural labour developed which could supply the industrial and service sectors in Bangkok, on which further growth depended. Wages in Bangkok rose compared to the provincial areas. Bangkok's population has increased at a rate at least double the national average since 1950. In the 1960s, the city expanded at 6.5 percent annually, in the 1970s at about 4.5 percent, and in the 1980s at 3.9 percent.

This section of the thesis looks more closely at relative wages in rural and urban areas and examines Falkus's hypothesis.

A high demand for hired farm labourers

Following the Bowring Treaty of 1855, Thailand emerged as a major exporter of rice. The frontier of rice cultivation advanced, especially in the central plain areas, to cater for rising foreign demand and the needs of a growing population.[13] The production of rice

---

[12] In the post war period, the population growth rate rose to 3.4 % per annum between 1947-1950 and 3.0% per annum in the 1960s.

[13] The main question to be asked; why rice was overwhelmingly produced in the central Thailand ? The answer is that much of the land suitable for agriculture at that time was in the central plain ,espcially in the central low lands. Much of the upland areas was highly malarial.

exports increased by about 25-fold between 1855 and the early 1930s. In addition, during this time, the population more than doubled. In the last half of the 19th century rice cultivation was the chief occupation for over 80 percent of the people, and in 1906 rice accounted for 78 percent of total exports.[14] Furthermore, the price of rice rose sharply after 1855. As noted by Ingram, 'For two centuries prior to 1850, the price was about 0.30-0.50 Baht per picul. After 1855 the average price quickly rose to 2.00-2.50 Baht, and by 1900 it was 5.00 Baht."[15] Rice farming became the major occupation of the Thai people before 1950. As Ammar Siamwalla noted, this fact also shaped the social structure : "One benefit from not being under the political domination of external powers is that our land policy was biased in favour of small holders and against plantations. In any case the choice of rice as the staple commodity precludes the establishment of a plantation economy. Our export economy was thus based on the production of small indigenous farmers."[16]

From around the late 19th century onwards, there was a considerable demand for labourers for rice cultivation. The system of Thai rice cultivation was very labour intensive. A lack of hired farm labour was widespread in the central plain where about 95 per cent of total rice exports originated.[17] As the production of rice for sale increased, wage labourers became increasingly significant in rice cultivation.[18] The old system of communal planting and harvesting (Long Kaek) tended to decline in the central region but continued to be used in the north and the northeast regions. Ammar Siamwalla noted that:

---

[14]Ingram,Economic Change, p. 81.

[15]Ibid , p. 209.

[16]Ammar, "Stability," p. 32.

[17]Also,the existing corvee labour system prior to 1905 obstructed the growth of free hired farm labourers. The period of labour conscription made hired farm labour impossible to find for farm work. Hired farm labour had to constantly work hard day and night. Eventhough it could be argued that the Chinese immigrants could replace the shortage of hired farm labourers. Unfortunately about 95-99 per cent of the Chinese migrants entered Thai and from the late 19th century with the intention to work in the non-agriculture work.

[18] Two or three decades after the mid 19th century, there appears a decline in the use of corvee labour. A number of construction projects were undertaken by the hired labourers,chiefly Chinese. In the 1890s, the corvee labour became unpopular to use as labourers in rice production. Many corvee laboures paid the state for escape from corvee system and then occupied land for rice cultivation. Ingram indicated the direction relationship between the elimination of corvee labour and the expansion of rice cultivation (Ingram,Economic Change, p. 63). In his words, "finally in 1899 a law was enacted replacing corvee with a head tax. The amount of the tax varied from 1.5 to 6.0 Baht per year,depending on the prosperity and fertility of the region ' (ibid., p.59). The year 1899 therefore saw the formally end to corvee labour,an important step in dismantling the Phrai status.

> Basically the Thai economy's response to the imposed free trade was the pattern dictated by static comparative advantage theory. Thailand at the time had abundant land, very scarce capital and somewhat scarce labour. Clearly agricultural production is more advantageous than manufacturing. Within agriculture we concentrated on rice production, even though, *a priori*, rice seems a rather inappropriate crop for a labour-scarce economy as Thailand was a century ago.[19]

As international trade expanded, rice cultivation was suitable since Thailand had its advantage of the abundant land, compared to capital and labour. The price of land as a factor of production was relatively cheap.

From the late 19th century onwards, there was a rapid expansion of land for rice cultivation. By the 1880s, much of the area formerly under sugar, tobacco, and cotton was converted to rice cultivation. Canal excavation resulted in facilitating rice transportation to Bangkok as well as opening land for cultivation. According to one calculation, between 1870 and 1904, an area of 1,314,005 rai became available for cultivation as a result of the construction of canals.[20] A number of households turned to the production of rice. " New towns of rice cultivators sprang up. For example in 1902, one such town at Rangsit was officially renamed Thunyaburi or roughly translatable as "Town of Staple Food".[21] A growing rice cultivation in the central plain provided a considerable demand for hired farm labourers.

As the rice economy began to expand, the labour shortage became a crucial problem. Between 1890 and 1930, several tens of thousands of peasants moved into the central plain from various regions. This period also saw an influx of seasonal agricultural labourers from the northeast. In the harvest season, northeastern labourers gathered at Korat, an important gateway for travel to the central plain. The network of railways assisted this labour migration to the central plain from the beginning of the 20th century onwards. The first line to Korat was opened in 1900, and by 1930 a network of railway track was extended into the northeast connecting Buriram (1925), Surin (1926) and UbonRatchathani (1930). Railways were quicker and safer, compared to boats and bullock carts. Travelling from Bangkok to Korat by rail took only 1 day while previously, it had taken 20-30 days by boat and ox-cart. One source said the number of northeast labourers arriving in Muang Thunyaburi, an important rice-producing area around Rangsit, was 5,068 and 1,932 in 1905 and 1906 respectively.[22]

---

[19]Ammar,"Stability ",p.32.
[20]Kitti, "Canals", p. 119.
[21]Chaiyan ,The Rise and Fall , p. 45.
[22]N.A.R.5. M. of the Capital 3.2 Ko/63 (1907).

It was estimated that about 7,000-8,000 northeastern labourers came to the central plain annually. These migrants were engaged in land, jungle clearance and canal digging.[23] Especially, in the Rangsit area, the northeast migrants were employed in harvesting and transplanting and subsequently settled in the area as tenants or rural labourers.

Johnston noted that :

> During the 1890s and 1900s, farmers in the commercialized districts of central Thailand came to depend heavily on these northeastern laborers. Although no precise statistics are available, the migrant workers numbered in the thousands, and their importance to the rice economy was clear by the frantic nature of farmers' complaints when, for one reason or another, the northeasterners failed to migrate to central Thailand in adequate numbers in a given year.[24]

When comparing with the earlier periods, say around the 1880s, before the Rangsit canal was dug and the great boom of rice production occurred, the areas of Muang Thunyabri and its adjacent land remained uncultivated and very sparsely populated with just 200-300 people living in the region.[25] A notable change of settlement caused by the digging of canals in the central plain in the late 19th century was noted by Johnston, "Projects such as these depended initially on the capital of wealthy entrepreneurs, almost all of whom were Thai. But they succeeded only because of the large popular demand for new rice land. Settlement of the new areas proceeded rapidly during the 1890s, with over 100,000 people coming to carve out holdings in the Rangsit system alone. In 1895, a British observer noted the changes which had occurred in the area since his last visit seven years earlier: "I was astonished at the change that had taken place. In every direction the land was cleared of the heavy jungle grass which afforded shelter to wild elephants.... The wild elephants were driven back and man entered into possession."[26]

The precise number of migrants was never recorded. However, some impression can be gained from the record of the population of Muang Thunyaburi which Suntharee Asavai dug out of the Bangkok National Archives (Table 6.3). Four major points can be drawn. First, the population fluctuated from year to year as a substantial part of the labour movement was seasonal. Migration in response to the growing rice economy in the central plain, reached high numbers in 1909, 1910 and 1911 (there are no figures for 1912-14). Possibly the completion of railway transport

---

[23]Thaveesilp, "Rice Production "pp. 139-140.

[24] David B. Johnston" Rice Cultivation in Thailand: The Development of an Export Economy by Indigenous Capital and Labor" **Modern Asian Studies**,15, 1 (1981), pp.113-14.

[25] Thaveesilp "Rice Production",p146 based on N.A. R.6 M. of Agriculture 1/6 (1901).

[26]Johnston, "Rice Cultivation," p. 111.

from Bangkok to Korat in 1900 facilitated the migration from the northeast. Second, there was a strong trend of population increase after 1900. As Johnston noted:

> As the pace of expansion quickened between the 1880s and 1905, it spilled over into the frontier areas, especially those to the east of Bangkok. By 1905, these east bank areas of the Chaophraya river had a significant share - perhaps as much as twenty-five percent of rice land of central Thailand. It was widely assumed at the time that rapid growth would continue along the lines suggested by the development of the east bank; new areas would be thrown open to cultivation, and speculators, landowners, cultivators, and seasonal labourers would rapidly clear them and turn them into productive rice fields.[27]

As rice production expanded, land became a valuable, saleable commodity and land acquisition for speculation was attractive. Absentee landlords, mostly from the nobility, rented out large amounts of land to peasants.[28] Third, an increase in the population of Muang Thunyaburi reflected the change in economic condition in the northeast, such as increasing drought and a growing demand for cash income for exchange goods. Generally speaking, while rice production was concentrated in the central plain, the northeast region remained largely outside the growing money economy. Van der Heide noted in 1905 that rice from the northeast constituted only 1 per cent of the total rice export from Siam.[29] The northeast produced and consumed glutinous rice. Transport to the Bangkok port was prohibitively expensive. The northeastern peasants had a little incentive to produce more than what their needed for their own consumption, and a very high proportion of the northeast households were engaged in the subsistence production. In order to earn cash income, large numbers of the northeastern migrated annually to the central plain and worked as hired labourers. Fourth, Paitoon Sayswang has demonstrated that before 1905 (when slavery was finally abolished) a growing number of the population of Thunyaburi were debt slaves. It is argued that this reflected the high cost of ordinary labour.[30] After the abolition of slavery in 1905, some of them then became tenants, some landless rural labourers, and some simply fled to avoid repaying heavy debts.[31]

---

[27]Ibid., 119-120.

[28]Fuller discussion, see Suntharee Asavai, **The History of the Rangsit Canal: the Development of Land and the Social Impact**, Bangkok:Thammasat University Press, 1987.

[29]Heide,"The Economic Development",p. 90.

[30]Paitoon , "An Economic History",p. 53.

[31]Shigeharu Tanabe, **Ecology and Practical Technology: Peasant Farming Systems in Thailand**, Bangkok: White Lotus, 1994, p. 72.

Table 6.3 Population in Muang Thunyaburi, 1900-1919

Year	Number
1900	27,545
1902	40,000
1905	37,552
1906	32,052
1908	35,165
1909	73,200
1910	67,870
1911	64,775
1915	40,869
1918	39,627
1919	43,218

Source: Suntharee Asavai, **The History of the Rangsit Canal: the Development of Land and the Social Impact**, Bangkok : Thammasat University Press, 1987, p. 93.
Note: The population in Thunyaburi was subjected to a wide range of estimation. As cited by Suntharee Asavai, the population in Thunyaburi, based on the Bangkok Times was recorded as follows:

Year	Population.
1900	70,000
1902	100,000
1906	97,000

After careful investigation, she concludes that population data obtained from the Bangkok Times was a very high estimation (ibid., p.94).

Large farms in the Rangsit area, such as those of Prince Narathip Praphanphong and M.R. Suwaphansantiwong, a founder of the Khudkhlong company, relied on hired farm labourers from the northeast.[32] One governor in the Rangsit area in 1902 wrote:

> The expansion of rice output could not be possible without the hired labourers from the north east. Most of the people residing in the Rangsit area are largely aided by northeastern hired farm labour thus expanding rice cultivation. [33]

Labour brokers (Nai-Roi) played an important role in leading the thousands of northeastern peasants coming to the central plain. One source noted:

---

[32]Suntharee Asavai,"TheDevelopment of Irrigation System in Thailand,1888- 1950", M.A.thesis, Chulaongkorn University, 1978, p.155.
[33]N.A. R.5. M of Agriculture 9.4/13 30 (1902).

> The owners of small estates usually work upon them with their relatives or with the assistance of their neighbours under a local system of reciprocal co-operation. The owners of great estates put them to use either indirectly by letting parts of them to 'metayers' and farmers, or directly by cultivating them with the assistance of hired Laotian workers, coming from the eastern provinces of Siam.
>
> In the latter case, the landowner applies to some influential man enjoying the confidence of the villagers for the number of workers he wants, usually varying from 10 to 200. The conditions of engagement are first settled between the land owner and the villagers' agent; they are generally the following; the men are engaged for the agricultural season (about five calendar months); they are able to be lodged fed and attended to in case of illness contracted when they are at the estate, at the land owner's expense; they must be paid a fixed sum in advance for the purpose of securing means of living for their families during their absence, of paying their capitation taxes and of covering their traveling expenses; lastly the men must be paid monthly wages in cash - out of which a fraction of the money advanced is to be deducted, but it is not infrequent that this deduction is not made, especially for the last months, when the men have worked and the crop is good. The villagers' agent is always fully informed of the offers made by the various landowners in the central provinces and he generally succeeds in securing for the men of his village the highest conditions possible. When the conditions are settled upon, the money to be paid in advance is made over the villagers' agent who divides it between the men who agree to go to the land owner's estate. These men leave the village under the leadership of a foreman, often selected by them, whose duty it will be to look after them, to negotiate any difficulty that may arise with landowner, to receive and distribute their wages and direct their work. On the estate the men usually work from 6 a.m. to 11 a.m. and from 1 to 4 p.m. and receive three meals at 6 a.m., 11 a m. and 5 p.m. They are usually given rest on the last day of each lunar week and on Buddhist festivals. In most cases they receive instruction from the foreman to do a certain piece of work in a certain number of days and are left free to do it when they please as they like, provided it is done in time. When the harvest is made and the grain stored, they go back to their village under the care of the foreman and wait there until next year before coming back to work again.[34]

As rice gained growing importance in trade, the use of hired farm labourers for rice cultivation gradually expanded from the central plain to various parts of Thailand. By the 1930s, hired farm labourers were found even in the northeast.[35] Wage rates for unskilled labourers were very high, perhaps the highest in any neighbouring Asian country prior to 1950.[36] Furthermore, Zimmerman's 1930 survey revealed that the Thai peasant had a high average income compared to the rest of Asia.[37]

Little is known about the influx of rural migrants from the northeast to the central plain between 1930 and 1950. Possibly, there was a continuity of rural migrants in the 1930s. Although, the economic depression in the 1930s caused a decline in the export price of rice[38], the volume of production increased rather than declined over the

---

[34]N.A. M. of Foreign Affairs 96.1.8.4/3(54) (1919).

[35]N.A. M. of Agriculture 15.2/25 (1931).

[36]Falkus,"The Economic History", p. 61.

[37]Zimmerman, Siam ,p. 318.

[38] The economic depression caused the decline in rice price. One document concerning the economic condition in the Ang thong Province in the early 1930s claimed :

> Compared with rice prices at normal time, they now dropped by more than 60-70 percent. It should be noted also that from the investigation,farmers had already sold some of their rice stocks,about 25 percent of the harvest,to pay for the duties of the harvest,to pay for

decade of the 1930s (Table 6.4). We can assume that rising production indicated rising use of labour. In the 1940s, the flow of migrants may have lessened with the disruptions of war time.

Table 6.4 Thailand's Rice Exports, 1921/22 -1940

Year	Quantity ('000 metric tons)	Value ('000 Bath)
1921/22	1,305.2	140.9
1925/26	1,375.7	167.4
1929/30	1,131.6	139.0
1930/31	1,026.7	103.0
1931/32	1,332.0	77.5
1932/33	1,672.0	94.2
1933/34	1,663.4	82.9
1934/35	2,002.0	98.4
1935/36	1,501.7	90.8
1936/37	1,558.7	95.4
1937/38	1,102.2	75.3
1938/39	1,554.8	97.4
1939/40	1,892.2	113.3
1940	1,209.5	93.5

Source: Constance M. Wilson, **Thailand: A Handbook of Historical Statistics**, Boston: G.K. Hall & Co, 1983, pp. 213-214.

High wages earned by rural labourers

Rural wage data were not systematically collected. The figures which do exist need to be interpreted with caution because the forms of wage payment on rice farms varied from region to region and often included both cash and kind elements. Five common forms of payment on rice farms were as follows. (1) Payment per growing season of about 6 - 9 months. The employee was given food and lodging and a lump sum in cash or in paddy at harvest time. (2) Payment per volume of grain harvested such as by "Tang".[39] (3) Daily wage payment. The work day was from sunrise to sunset with time off for lunch. Sometimes lunch was provided by the employer and sometime not. (4) Payment per acre planted or harvested. This form of piece work was common especially in the central plain where farms were relatively large and labour was scarce at harvest time. (5) Exchange of labour. There was no cash payment but farmers helped each other at planting or harvesting time.[40]

---

duties,labour wages and other consumer goods. The remaining 75 percent were stored for sale in the "water" season during which rice normally fetched better prices than in the dry season,as the transport cost was also much lower" (cited in Chatthip, The Political Economy of Siam,1910-1932, p. 201).

[39] An ancient capacity -measure of 20 litres

[40] N.A. M. of Agriculture 15.2/25 (1931).

Table 6.5 distills existing wage data over the period 1904-31. Full details of the sources are contained in the appendix to this chapter. During the first decade of the 20th century, wage rates for hired farm labourers tended to increase. For example, in 1904, wage rates for unskilled hired farm labourers were 0.66 Baht a day and this increased to 0.89 - 2 Baht a day by 1904-1907, and then to 0.93 - 1.10 Baht a day by 1910-12. In the period 1925-1931, the trend for daily wage rates showed some inconsistency, but generally moved upwards from about 0.78 to 0.80 Baht a day in 1925-28 to 0.94 to 1.10 Baht per day in 1929-31. We can assume this upward trend was driven by rising demand for labourers in rice cultivation.

Table 6.5 Wage Rates for Farm Workers and other Labourers in Rural Thailand, 1904-1931

Year	Wage Rates in Rural Thailand(Baht/day)	Notes
1904	.66	Farm Wages in the central plain
1905	.89	do
1905	.89	do
1906	3	do
1907	2.0	do
1910	.93	do
1911	.94	do
1912	1.10	do
1916	1.10	Wages in the southern mining
1917-23	1.10	do
1924	1.10	do
1925	.80	Farm Wages in the central plain
1926	.76	do
1927	.80	do
1928	.80	do
1929	1.10	do
1930	.94	do
1931	1.10	do
1931	1.10	do

Source: From Appendix Table 6.1 A.
Note: The conversion of farm wage rates is done by this formula; *The nominal wage rate per person* is divided by *4.7 (months) x 30* and then added to, this is 33% of for food and shelter.

In some years, wages for hired farm labourers were very high. In 1906, wage rates for hired labourers were about 2 to 3 Baht a day and in 1908 jumped to 6 Baht plus a share of the crop from the cultivation on some farms in Rangsit. The high level of rural wage rates compared to those of unskilled coolies in Bangkok suggests that demand for labour in the central plain exceeded supplies. According to Johnston:

> Agricultural wages increased rapidly during this period (the 1890s), from a pre-boom rate of one to two Baht per day, up to as high as three Baht a day in 1907 and a seemingly incredible rate of six Baht per day, plus a share of the crop on some Rangsit farms in 1908. Even at these rates, the demand for agricultural labour exceeded the available local supply. [41]

Wage rates in the Rangsit and its adjacent areas varied according to the level of skills. The three categories of wage levels were as follows:

Year 1904	highest wage rates :	100 Baht per season
	medium wage rates :	75 Baht per season
	lowest wage rates :	40 Baht per season[42]
Year 1905	highest wage rates :	120 Baht per season
	medium wage rates :	100 Baht per season
	lowest wage rates :	85-70 Baht per season[43]

High demand for rural labourers impacted on other sectors. Between 1911 and 1924, unskilled labourers working in the mining industry, in southern Thailand rose to 1.10 to 1.60 Baht a day. Public projects such as railway construction and road construction faced labour shortages because of the high opportunity cost for rural labourers. Prince Damrong wrote in 1913 :[44]

> The Department of Railways needed many labourers for railway line construction, for which the pay was .75 Baht a day. The shortage of labourers remained widespread, this was caused by ordinary people having other options for earning their livelihood which were more satisfactorily than railway construction, such as cutting wood etc.

The distribution of wages in rice mills is shown in Table 6.6. Except where otherwise indicated, all figures shown are of wages paid in addition to room and board. Most of the millers and a large proportion of the employees were Chinese. Wages in mills differed very much between regions. For example, the monthly wages for unskilled laborers in rice mills at Phrae were the lowest at 10 Baht, while unskilled labourers in Chiang Mai and Khon Kaen earned from 20 Baht to 35 Baht a month.

---

[41]Johnston,"Rice Cultivation" p. 113.

[42]N.A. R.5. M. of Agriculture 14.3.2. no 35 (1904).

[43]N.A. R.5. M. of Agriculture 41.1/214 (1910).

[44]DamrongRajanuparb, **Thesapiban**, Vol 13, August, 1913, p.121.

Table 6.6 Daily Wages in Rice Mills in 1930

Location	Unskilled Coolies (Baht per month)	Managers (Baht per month)	Engineers (Baht per month)
KhonKaen			
Amphur			
Pralab	20-40	50	55
Phon	25	100	50[45]
Chiangmai			
Amphur			
Muang	30-35	100	100[46]
Phrae			
Amphur			
Muang	10	150	90[47]

Source: N.A. M. of Agriculture 15.2/25(1931).

In 1930, wages for unskilled labourers on rice farms seemed to be very much lower than wages in non-agricultural employment such as in government construction projects, rice mills in rural areas. In some areas, wages for hired rice farm labourers were lower than those of coolies labourers in Bangkok (by the early 1930s, wage rates for coolies labourers in rice mills were around 0.80 Baht a day) (Table 6.7).

[45]Furthermore, monthly wages were reported at 60 Baht for carpenter , 30 Baht for clerk (N.A. M. of Agriculture 15.2/25 (1931)).

[46]The monthly wage in 1930 for clerk was 40 Baht, watchmen; 25 Baht (N.A. M. of Agriculture 15.2/25 (1931)).

[47]Clerks received 30 Baht a month, electricians received 20 Baht per month (N.A. M. of Agriculture 15.2/25 (1931)).

Table 6.7 Wages for Hired Labourers for Rice Cultivation in 1930

Location	Wage (Baht)	Note
Northeast Region		
Pala	40	per season
Chiangkarn	20 plus 1000 litres of rice	do
Nakae	8-12 plus 600-1,000 litres of rice	do
Central region		
Chachoengsao Province		
Muang Chachoengsao	80-120 also exchange labour	do
Bangkhla	60-100	do
Banpho	60-100 plus rice	do
Panomsarakham	exchange labour	
Bangpakong	100-120 exchange labour	do
NakhonNayok Province		
Ongkarak	60 and also payment by rice	do
Banna	80 and also payment by rice	do
Pakpli	80-100 and also payment by rice	do
PrachinBuri Province		
Muang	80	do
Srimahapho	60 plus by in kind	do
Prachantakham	80	do
	and also payment by in kind	do
Arunyapradesh	40-60	do
	and also payment by in kind	
Bansang	80-100	do
Kabin	40-60	do
	and also payment by in kind	do
Chonburi Province		
Bangplasoi	80-100 plus board	do
Panasnikhom	80-100 plus board	do
Panthong	80-100 plus board	do
Sriracha	80-100 plus board	do
Banglamung	80-100 plus board	do
Nan Province		
Muang	30 plus board	do
Ngao	1,200-1,800 litres of rice	do
Hawd	.20	per day
Chiangmai Province		
Muang	.50	per day
Sansai	.80	per rai
	32 plus board	per season
Boonyuan	.25	per day
Phrae Province		
Muang	.50	per day
Banklang	50-60 plus board	per season
Soongmen	25 plus board	do
Sameang	30 plus board	do
	.25	per day
Doysaket	.80	per day

Table 6.7 Daily Wages in Rice Mills in 1930 (contd)

Location	Unskilled Coolies (Baht per month)	Managers (Baht per month)	Engineers (Baht per month)
Rajaburi Province			
Damnoensaduek		15	per month
		80 plus board	per season[48]
Nakhonchaisri Monthon			
Sampran		80-100 plus board	per season
Muang Nakornphathom		80-100 plus board	do
Nakhonchaisri		80-100 plus board	do
Bangpla		80-100 plus board	do
Krathumban		80-100 plus board	do
Ban paew		80-100 plus board	do
Muang SamutSakhon		80-100 plus board	do
Nangbuad		80-100 plus board	do
Kampangsaen		80-100 plus board	do
Songpinong		80-100 plus board	do
Piliang		80-100 plus board	do
Sriprachan		80-100 plus board	do

Source: N.A. M. of Agriculture 15.2/25(1931).

Data on wages paid in public construction projects in the 1930s show wage rates which were higher than farm wages, and also higher than contemporary rates for coolie labourers in Bangkok.(Table 6.8). Unskilled labourers in road construction earned the highest rates ranging between 1.5 to 2 Baht a day between 1934 and 1941.

[48]The following Amphurs; Banpong, Potharam,Muang,Paktoa,Chombueng,Thamaka, Koalak, Pranburi, Nongchok, Khayoi, Klongkrasang, Amphawa reported that hired labourers on rice farm were paid the same as in Damnoensaduek (N.A. M. of Agriculture,15.2/25 (1931)).

Table 6.8 Wage Rates for Farm Workers and other Labourers in Rural Thailand, 1930-53(Baht per day)

Year	Wage Rates in Rural Thailand	Notes
1930	.94	Farm Wages in the Central Plain
1931	1.10	do
1931	1.10	do
1932	.75	Wages for public construction in rural provincial areas
1932	1.18	do
1933	1.18	do
1933	1	do
1933	2	do
1934	1.20-1.50	do
1934	1.75	do
1935	1.50	do
1936	1.50	do
1937	1.-1.25	do
1939	1.20-2	do
1940	2	do
1941	2	do
1942	.70	do
1943	1.50-2	do
1943	1-1.5	do
1944	7.8	do
1949	7.54	Farm wages in Bangchan
1950	7.90	do
1951	6.91	do
1952	7.92	do
1953	8.08	do

Source: (1) From Appendix Table 6.1 A

Note: The conversion of Farm Wage Rates is done by this formula; *The nominal wage rate per person* is divided by *4.7 (months) x 30* and then added to, this is 33% of for food and shelter.

Let us look briefly at data for provincial wages (Table 6.8). In 1932, general labourers in Songkhla earned 0.75 Baht per day. [49] In 1933, unskilled workers in construction on public projects in Chiang rai earned 1 Baht a day, and daily wages for unskilled labourers in construction projects was 1.20-2.00 Baht.[50] In 1934, the daily wage stood at 1.2 Baht for unskilled labourers in public construction in Songkhla, and 1.20-1.50 Baht in SamutPrakarn.[51] Between 1935 and 1936, unskilled labourers in Ranong earned 3 Baht a day.[52] In 1937, daily wages on public projects in Sukhothai were 2 Baht a day.[53] In 1939, unskilled labourers in road construction at Betong Songkhla earned 1.20 Baht per day,[54] while unskilled labourers in public construction

---

[49]Damrong Rajanuparb,**Sarnsomdej**, Bangkok : 1990, p. 17.

[50]N.A. M. of Interior 2.3.9/2 (1933-34); and N.A M. of Interior 2.3.9 /1 (1933-34).

[51]N.A. M. of Interior 2.3.9 (1933-34).

[52]N.A. M.of Interior 2.3.9/9 (1934-35).

[53]N.A. M. of Interior 5.12/298 (1941).

[54]N.A. (3) Office of the Prime Minister 02.01.22/14 (1943).

projects at Sukhothai earned 2 Baht per day.[55] In 1940-1, daily wages for general workers in public construction in Saraburi were recorded at 0.60 Baht,[56] while daily wages for unskilled labourers in public construction project in Trang in the same period were 2 Baht.[57] In 1942, wages for unskilled labourers were 0.70 Baht in Saraburi, 1.5-2.0 Baht in Kanchanaburi and 1.00-1.50 Baht in Nakhon Pathom.[58] In 1944, the daily wage for unskilled labourers in railway construction in Ratchaburi was 1.5 Baht per day.[59] Virginia Thompson's work showed that wages in mining were much higher compared to Bangkok in the mid-1930s:

> In the mines where Chinese labor was almost exclusive employed... it was believed that both Chinese employers and coolies generally preferred the tribute system. And the Chinese usually preferred piecework to daily hire. Thais, on the other hand, resisted all efforts to place their labor on the piecework basis, despite the higher incomes it would have brought to the laborer. In 1933, it was claimed that an energetic coolie, on a piecework basis, could earn as much as Tcs. 167 a month simply for dumping paddy into baskets, whereas a day laborer would receive only Tcs. 22-46 for the same time span. Such workers were lodged but not fed, and the fluctuation in the weather and in the market made almost all of this type of employment irregular.[60]

The high level of wages in non-agricultural work in the provinces may have resulted from the seasonal demand for labour on public projects. For example, in 1919, "The daily average total of staff and employees in the department [the department of ways] numbered 3,366 as compared with 2,735 of the previous year, representing an increase of 631. This increase in staff is accounted for by the extra work of registration, the rush of work during the dry season, and the extra work incurred by his Majesty's tour." [61] Virginia Thompson noted:

> Most Thai farmers were peasant proprietors, who were part-time craftsmen and who usually worked for pay only temporarily and for some particular objective. In 1933-34 crops and handicrafts formed the chief source of farmers' incomes throughout Siam. In the south, crops and handicrafts were almost equal in importance, with work on the railroads and roads accounting for about half of an average of almost Tcs. 6 annually earned by those gainfully employed. In the north and center labor's largest source of income was derived from agricultural work. In general, Thai farmers did odd jobs when they needed cash, the excess of earnings over expenditures differing according to the geographical region. In the northeast, annual profits in terms of Ticals came to 0.58; in the south, 15.30; in the north, 13.27, and in the centre and southeast, 7.10.[62]

---

[55] N.A. M. of Interior 5.12/298 (1939).
[56] N.A. M. of Education 0701.26.1/15 (1940-41).
[57] N.A. M. of Interior 5.12/2.86 (1941).
[58] N.A. (3) Office of the Prime Minister 0201.75/13 (1943-51).
[59] N.A. (2) Office of the Prime Minister 2.4.1.7/30 (1944).
[60] Virginia Thompson, **Labor Problems in Southeast Asia,** New Haven: Yale University Press, 1947, p. 233.
[61] N.A. Department of Railways 2/18 (1919).
[62] Thompson, Labor Problems, p.231.

An indication of high labour costs is the application of labour-saving techniques. As noted earlier, the central plain in particular was faced with a shortage of labourers in rice cultivation, resulting in a rising cost of labour. Farmers had to find some solution in order to be able to alleviate the labour shortage by adopting new techniques of rice production. Generally speaking, an increase in the cost of labour can be expected to have repercussions on techniques such as the choice of broadcasting versus transplanting in rice production. Transplanting requires more labour than broadcasting for nursery bed preparation and transplantation of rice seedings. After the rice exporting boom of the 1890s, farmers to some extent switched from the more labour-intensive transplanting method to the less labour-intensive broadcasting method. It was estimated that before the late 1900s, about half of the paddy fields in the central plain were broadcast. Around 1930, more than 70 percent of the paddy farms in the central plain were broadcast.[63]

High wages in the central plain areas were also caused by the relatively high productivity of Thai agriculture in relation to labour input. According to Falkus:

> The relatively favoured situation of the Thai peasant should be seen in international perspective. In 1883 wages in Thailand were apparently three times higher than wages in Japan. The underlying factor was the relatively high productivity of Thai agriculture in relation to labour input... Around 1900 a farmer in Japan had to work twice as long to gain a similar amount of rice as his counterpart in central Thailand. Thai yields were also well ahead of those in Java before the Second World War.[64]

The high labour productivity in Thai agriculture was made possible through the abundance of land. Although rice yields per rai were very low, output per worker per hour worked was very high. Lower labour productivity in rice farming in Japan and Indonesia was attributed to the excessive supply of farm labourers in relation to land, which outweighed the effect of using more advanced biotechnology than Thailand.[65]

Irrigation, modern seed varieties, and fertilizers are yield-increasing technologies which also significantly raise labour demand and raise farm wage rates. Irrigation and modern seed varieties tend to use more labour in crop care through activities like fertilizer application and weeding. In Thailand prior to 1950, these factors had no significant effect upon yield or demand for labour. Chemical fertilizers were

---

[63]Sompop, Economic Development,p.68. Fuller discussion of the switch from broadcast to transplant technique is also given in Feeny, the Political Economy, pp. 44-45.

[64] Falkus," The Economic History ", p. 61

[65]Sompop, Economic Development, p. 170.

scarcely used at all. Rice farmers re ied on the enriching silt deposited in their paddy fields by the annual flood waters, and on animal manure.[66] Fertilizers were not readily available, and the water supply was not reliable enough to ensure that fertilizer application would deliver a significant increase in yield. Where irrigation was absent, or unsatisfactory, the use of fertilizers was ineffective.[67] Prior to 1950 there had been a little improvement in the irrigation system in the central plain. The Thai Government was not interested in investing in the irrigation system. In 1902, Van der Heide had compiled a plan to construct a dam on the Chaophraya river in Chainat province, and a system of distribution canals.[68] The government turned the proposal down. Van der Heide then turned to some smaller projects, and resubmitted a scaled-down plan in 1906. This was also turned down. Finally in 1909 the government decided to postpone indefinitely major investments in irrigation. The government gave higher priority to railway construction, and there were only small irrigation projects undertaken in the 1920s. The Pasak project, which was completed in 1922 did nothing to encourage greater intensity in techniques for increasing rice yields, and because of the limited labour supply, resulted in only limited increases in total output.[69]

Prior to 1950, the use of tractors was virtually non existent. Farmers used a buffalo or two, a wooden plough, two or three hoes, and much hard labour. According to Ingram, "Although tractors suitable for plowing and preparing the land have been developed, the farmer then does not have enough labor to harvest the area he can efficiently plant in paddy. There must be a sort of balance between the labor required for planting and that required for harvesting. Until harvesting machines are technically possible, agriculture in Thailand cannot be mechanized."[70] Also the large supply of draft animals, including buffaloes and bullocks, meant their cost was low. Feeny estimated that the supply of buffaloes and bullocks increased between 2.5 to 3 fold from 1917 to 1940, leading to a decline in their nominal and real prices.[71] The use of tractors for tilling might not have been more economical than traditional methods using draft animals.

---

[66]Ingram, Economic Change, p. 271.

[67]Pasuk, Economic and Social ,p. 212.

[68]Much has been written on the Van der Heide proposal,such as Ingram,Economic Change; Feeny,The Political Economy; Chatthip,The Political Economy of Siam1851-1910 ;and Brown, The Elite and the Economy.

[69]Feeny,The Political Economy, p.63.

[70]Ingram,Economic Change, p.69.

[71] Feeny,The Political Economy, pp.153-155.

In sum, prior to 1950, the development of rice farming was based on labour-intensive production. The production system was based on smallholding farmers using very little modern technology. High wage rates for hired farm labourers were caused by the increasing demand of labourers while supplies of labourers were scarce. The role of modern technology such as irrigation, fertilizers, modern varieties, and tractors played a marginal role in raising demand for labour and rising wage rates. The Bangkok Chronicle in 1941 noted that existing traditional techniques in rice farming inhibited intensive farming:

> Thailand rice, the best in the world, is in great demand, but we are not producing as large quantities of rice as we should be able to produce. The quality is steadily improving but quantitative production leaves much to be desired. Intensive farming, based on scientific methods, has not yet been developed on any large scale. Methods of cultivation have not seen much difference since the old days and paddy yield per rai has not been increased to any considerable extent. Efforts are underway in these directions and progress, though slow, has been steady, but the possibilities for improvement are boundless... the opportunities are unlimited for increasing output of rice, by intensive farming of areas at present under cultivation and by increasing acreage.[72]

Factors inhibiting Bangkok's growth

Let us first consider some theoretical aspects of rural-urban migration. A dual labour market, in which the wage rates in one sector of the economy exceed the marginal productivity of labour in another, has been a predominant feature in many models of economic development. The most important of these models is the "labour surplus" model of Lewis-Fei and Ranis (L-F-R). In this model, the economy consists of two sectors: (a) a traditional, rural subsistence sector characterized by zero or very low productivity, and surplus labour resulting from high population growth, resulting in a low or zero marginal productivity of labour; and (b) a high productivity modern urban industrial sector into which labour from the subsistence sector is gradually transferred.[73]Under this model, rural-urban migration is a mechanism adjusting the disequilibrium between the urban and rural labour markets. A high wage differential induces rural migrants into the modern sector with no loss of output, since there is a surplus of unemployed or under employed labour in the rural sector.[74] Wage differentials will continue to attract rural migrants until counterbalanced by uncertainties over finding high-wage employment in the modern sector.[75] As Todaro notes, this

---

[72]**Bangkok Chronicle**, 22 March, 1941.

[73] Lewis, "Economic Development ", pp. 139-192; and G.Ranis, and J.C.H. Fei, "A Theory of Economic Development ", **American Economic Review** 51(4), 1961, pp. 533-565.

[74] P. Zarembka, **A Theory of Economic Development**, San Francisco:Holden-Day Inc, 1972.

[75]Todaro," A Model for Labour", p. 139.

process of labour migration is usually modelled as a transfer from a low productivity sector (rural areas) to a high productivity sector (the urban sector):

> It is a well-known fact of economic history that material progress usually has been associated with the gradual but continuous transfer of the economic agent from rural based traditional agriculture to urban oriented modern industry. It is not surprising therefore, to find the literature on economic development stressing the importance of similar structural changes in contemporary less developed nations. In particular, with respect to the occupational distribution of the indigenous labour force, economic development is often defined in terms of the transfer of a large proportion of workers from agricultural to industrial activities. However, this process of labour transfer is typically viewed analytically as a one-stage phenomenon, that is, a worker migrates from a low productivity rural job directly to a higher productivity urban industrial job.[76]

I will argue that underpopulation had a number of consequences for Thailand's economic development and specifically for Bangkok's growth before 1950. The main point is that until around the late 1940s, the growth of Bangkok's population was not rapid because the opportunity cost to the Thai peasants in changing occupations was high. This implies that the dual labour market model which focuses on "unlimited" supplies of rural labour was not applicable to Thailand in this period.

Labour market dualism is associated with major sectoral differentials in productivity and income. While we cannot compare definitely the average labour productivity level in agriculture and non-agriculture in Thailand between 1900 and 1950, we can compare the difference between rural-agricultural and urban-industrial income per man as a measure of productivity.[77] Income differentials among unskilled labour were not very substantial (Table 6.9). Unskilled labour in rural areas earned higher wages than unskilled coolies in Bangkok between 1904 and 1950. Particularly during the depression, rural wages were less affected than urban. In the 1930s wage rates for unskilled labourers in Bangkok were 0.8 Baht a day, while rural labourers earned more than 1 Baht a day. In some years, rural wage rates jumped to 2 Baht, for example in 1933, 1939, 1949 and 1941, or more than a 100 per cent differential. After 1950, these trends were reversed. Unskilled labourers earned between 16.8 and 19.80 Baht a day in Bangkok while their rural counterparts earned just 6.91, 7.92 and 8.08 Baht a day in 1950, 1951 and 1953 respectively (Table 6.9). As time passed, this trend in wage differentials between unskilled workers in Bangkok and provincial areas became increasingly marked.

---

[76] Ibid, p. 139.

[77] Usher,"Income," p. 431.

Table 6.9 Wage Rates for Unskilled Labo ırers per Region, 1904-1953

Year	Bangkok (Baht per day)	Rural Areas (Baht per day)
1904	-	.66
1905	.50 - 1.2:	.89
1906	-	-
1907	-	1.10
1908	-	-
1909	-	.93
1910	-	.93
1911	-	.94 - 1.10
1912	.87	1.10
1913	-	-
1914	.75	-
1915	.75	-
1916	1.00	1.10
1917	1.00	1.10
1918	1.00	1.10
1919	1.00	1.10 - 1.60
1920	1.00	1.10
1921	1.00	1.10
1922	1.00	1.10
1923	1.00	1.10
1924	1.12	1.10
1925	1.00	.80
Year	**Bangkok**	**Rural Areas**
1926	1.00	.76
1927	1.00	.80
1928	1.00	.80
1929	1.00	1.10
1930	1.00	.94
1931	.80	.75 - 1.10
1932	.80	1.8
1933	.80	1.00 - 2.00
1934	.80	1.20 - 1.7
1935	.80	1.5
1936	.80	1.5
1937	.80	1.00 - 1.25
1938	.80	-
1939	-	1.20 - 2
Year	**Bangkok**	**Rural Areas**
1940	-	2
1941	-	2
1942	1.26	.70
1943	1.27	1.50 - 2
1944	1.96	-
1945	2.46	2.50
1946	5.22	-
1947	8.80	-
1948	-	-
1949	12-15	7.54
1950	-	7.90
1951	16.80	6.91
1952	16.80	7.92
1953	19.80	8.08
1953	15.00	-

Sources: Calculated form Appendix Table 6.1A.; **Thailand Statistical Yearbook** (Various Years). ; Bank of Thailand , **An Economic Survey of Thailand, 1946-47**.; and Railway Authority of Thailand, **Wage and Salaries Act, Various** Issues (1951 until 1953).

Throughout the period 1905 to 1925, a broadcast rice farmer with 8 hectares of land (roughly the average size of a paddy farm in the central plain in the interwar years) usually had an annual income well in excess of coolie labourers in Bangkok.[78]

Underpopulation meant that there was no significant unemployment in rural Thailand prior to 1950. Life was relatively easy, land was abundant, and opportunities for earning one's living were ample. The Siamese unemployed could find work in rice cultivation or some other agricultural pursuit. Therefore, viewed on a macro perspective, Thailand had a high capacity to absorb immigrants.

One document from International Labour Office (ILO) in 1919 reported on the situation of Thai labourers, it claimed:

> The cost of living being very cheap in Siam and the country not being overcrowd, the inhabitants, both nationals and foreigners, are always able to secure a comfortable living in some way or other (especially by cultivation or retail trade); in a consequence they are not anxious to find employment in an industry and even feel so independent of their employers that they do not mind giving up the employment they have got for the mere sake of change, or living for some time without doing anything, on the money they have saved out of their earnings.[79]

This was a major reason why the law of the eight hours day suggested by the ILO was deemed unnecessary was that the workmen were in a most favourable position to impose upon their employers satisfactory terms regarding both wages and working times, and they had never complained of being compelled to overwork. The Royal government therefore thought it unnecessary to interfere in the matter.[80]

The preferences for rice farming and village living can be explained by the fact that Thailand was under populated with an abundant supply of land. Labour in rural Thailand before 1950 was relatively fortunate in terms of income earning and high opportunity cost of moving.[81] At the same time labour pressure was not severe, and the average peasant family could sustain a reasonable livelihood, while still enjoying significant leisure time. In addition, the peasant still had access to food sources such as fish, crabs, frogs, fruit and vegetables found in the rivers, rice fields and forests. The general picture must be one of relatively high rural incomes.[82] High opportunity cost

---

[78]Sompop, Economic Development, p. 168

[79] N.A. M. of Foreign Affairs 96.1.8.4/3 (919).

[80] N.A. M. of Foreign Affairs 96.1.8.4/3 (1919).

[81] Falkus, "The Economic History", p. 59.

[82]Bangkok Chronicle reported: "We are reminded of this situation by an article in a recent issue of the *Osaka mainichi* (English edition). The writer of that article says that casual observations in Japan are generally under the impression that the paddy fields of Thailand and French Indochina yield two or three

was a crucial factor in keeping Thai labour engaged in rural agriculture. Rice remained the single most important product, the largest source of employment, and the largest source of foreign exchange earning.

Under these circumstances, there was little industrial development in Bangkok prior to the late 1940s. Industry in Bangkok, even in the early 1940s, was practically limited to the preparation of agricultural produce, the building trade, utilities, and a few factories making consumer goods for local use. Compounding the situation was the isolation of much of rural Thailand from Bangkok. There were no roads linking Bangkok and the provincial areas until the late 1940s.

All this suggests that the dual labour market model which focuses on the movement of labour from rural areas to urban areas is not appropriate for Thailand in this period. No vast influx of rural migrants to Bangkok took placed before 1950. Rural to rural migration dominated Thailand's migration, such as the movement from the rural northeast areas to rural areas in the central plain. According to the dualism model (L-F-R), the low or approaching-zero productivity in agricultural areas as compared with the productivity of other sector of the urban economy can cause significant misallocation of resources. The productivity of labourers, their income, and the nation's income could be increased by transferring people from the low-productivity rural sector to the high-productivity urban sector. This idea has led to urban-biased policies such as tariffs, protection and subsidies to boost urban growth and draw labour out of agriculture and into the manufacturing sector.

The other side to the coin of an "inflexible" supply of Thai labour for Bangkok was the great and continued significance of the Chinese. The most important industries in Bangkok were rice mills, shipping, and saw mills, mostly in the hands of Chinese. The Chinese provided most of the heavy industrial labour force, particularly in rice mills, on the quays and in construction, and also provided most of the craftsmen (carpenters, masons, fitters and other skilled occupations). They were also the chief trading class and were responsible for much of the secondary industry such as small foundries, ice factories and so on. They were also, as everywhere, the market

---

rice harvests a year. Theoretically, there is no reason why they should not be able to yield two or more crop per year, he says, but in practice, they do not, the reason for it being that Thai and Indochina farmers do not work half as hard as Japanese farmers and are not half as progressive" (**Bangkok Chronicle**, 22 March , 1941).

gardeners.[83] Bangkok before the Second World War was very much a Chinese city in appearance and character. As one official lamented in 1913:

> (1) The labour market is in the hands of foreigners
> (2) The trade is in the hands of foreigners
> (3) Practically the whole of the capital of the country is foreign.[84]

As Chaophraya Yommaraj, memorialised to Rama VI in 1913, the Chinese migrants were necessary to relieve this labour shortage:

> The benefits which Chao Phraya Yomaraj recognises from the presence of the Chinese are:- that they supply a much-needed augmentation of the rather sparse population of the country;that,without them,the advancement of Siam would have been much retarded; that they are indispensable in certain trades such as brick laying, and almost so as carpenters.[85]

---

[83]One source concerning the labour condition in Siam claimed:

> The consequence is that industry is still in a state of 'imperfect development'. Siam is far from being overcrowded and there is competition among employers for workmen. Hence, workmen can invariably secure good conditions of work adapted to their habits and customs. There is very little specialization among workmen in Siam, such as exists in industrial countries. Workmen can change easily from one type of employment to another. They can change from such small industrial employment as there is to agriculture or to retail trade, whenever they desire and without inconvenience... Tropical conditions, also, determine a different division of the work day from that in use in Europe and America. Many businesses close from 12 to 1 or 2 P.M. on account of the heat. Commercial life in the markets or in the streets is commonly active by the beginning of night, after having been practically stopped during the hot hours of the day. A tourist might think that the hours of work were very long unless he investigated and ascertained the fact that those whom he see actively doing business at night have rested during the warmest part of the day and find that it is much pleasanter to take up their affairs in the cool of the evening after sunset. Then again much of the business in Siam, including such little manufacture as there is, is carried on generally by families and not by business organizations (N.A. M. of Foreign Affairs 96.1.8.4/10(1919-22)).

[84] N.A. M. of Finance 0301.1.30/13 (1913).

[85]N.A.M.of Finance 0301.1.30/15 (1913). An economic role of the Chinese had already been discussed. Whereas Siamese played an active role in rice cultivation for the exports, there was no doubt that part of the gains from trade was captured by the Chinese middlemen. A letter in the early 1910s from Chao Phraya Yomaraj to the King indicated:

> I have no information that the Siamese are being ousted by the Chinese from any trade or business in which the two are able to compete which other,but I fear it is only too true that the Siamese cultivation classes are being bled by the Chinese middlemen who lend their money, sell them goods (on credit), and finally take over the greater part of their crops at rates which leave the unfortunate cultivators no choice but to take further loans for the purpose of carrying on until the next harvest. This is a really serious state of affairs, for the peasants are the backbone of Siam, and on their contentment and prosperity depends, to a large extents, the future well-being of this country. Any action, therefore, which the government could take to protect the peasantry from the ruinous consequences of relations with Chinese money lenders would be very great gain to the cultivators and the state, and the question deserves the most careful consideration. One of the means of meeting the requirements of the case is to provide an agency whereby the cultivators could obtain advances,on easy terms, without having recourse to the Chinese money lenders. This it is proposed to do by means of cooperative credit societies working in conjunction with the national bank when started. The Ministry of Finance has this matter now under active consideration, and it ought not to be long before a

We rarely read of unemployment in Bangkok, except for a few years at the beginning of the great depression in the 1930s. Government noted in the 1920s:

> There is no unemployment problem in Siam. The Chinese unemployed, on the other hand, can always turn to 'Jinrikisha', become hawkers or take up some such work. Secondly, industries on a great scale being in course of development, more workers are required than can be found. Thirdly, the Chinese workers are generally affiliated to guilds which provide support for them when unemployed (such unemployment being often of their own choice). Finally in the rare cases in which a person would actually be exposed to suffer from unemployment, the Buddhist traditions prevailing in the country would protect him from such a fate (just in the same way as they prevent pauperism in Siam). Such a state of things is likely to last for yet a long time to come and so for the moment and for the near future, here is no fear of unemployment in Siam.[86]

Phra Bejra Indra also touched on the issue in 1930:

> Since it is admitted that there is no considerable body of unemployed Siamese, it does not appear where the labour to replace the Chinese will come from. So far, the Chinese have come to Siam not to replace Siamese labour, but because there was work for them which there was no Siamese to do, or which the Siamese were unwilling to do, such, for instance, as work in the tin mines. Obviously, Siamese now employed in other activities will not become labourers unless special inducements are given to them, which must mean higher pay, or unless they are compelled by necessity, which means that there is nothing else open to them by which they can earn a living. Obviously, the standards of pay for skilled or unskilled labour must be uniform and can not vary according to the nationality of the employee. An increase in the rates of pay sufficient to attract Siamese away from their present pursuits would upset economic conditions. As long as the country is under populated, the compulsion of necessity will not arise.[87]

Even in 1947, the year in which government imposed a quota on immigration, there were only 5,000-5,500 recorded as unemployed in Bangkok (Table 6.10).

Table 6.10 Unemployment in Some Industries and Services in Bangkok in 1947

Industry/Service	Unemployed	Short-term unemployed
Saw mills	240	
Mechanical Forging	224	
Tailoring	410	
Tobacco	700	
Oil Fuels	300	
Rice Mills	350	1,060
Water Transport	600	2,100
Sailors	120	400
Wharf Labourers	127	1,200
Electricity Supply	240	
Construction and Public Works	74	250
Others	1,365	539
Total	**4,928**	**5,549**

Source: Bank of Thailand , **An Economic Survey of Thailand ,1946-1947**, p. 55.

beginning has been made with a scheme on these lines (N.A. M. of Finance 0301.1.30/13 (1913)).

[86]N.A.M.of Foreign Affairs 96.1.8.4/3(70) (1919-1922).

[87]N.A. R.7. M. of Commerce 13/4 (1930).

II

The Impact of Population Growth on Rural Areas, 1950-1970

After 1950, 40-50 percent of the increase in Bangkok's population resulted from rural in-migration. The rate of growth of Thailand's population, which had averaged 1.9 percent per annum in 1937-47, accelerated to 3.2 percent in 1947-1960, then eased slightly to 2.8 percent in 1960-70 and 2.7 percent in 1970-80 (Table 6.11). These high growth rates put pressure on rural incomes and wage rates, and led to increases in poverty, the fragmentation of farms, tenancy, and out-migration to the city. The rate of growth of Bangkok's population rose to 5 percent.[88]

Table 6.11 Population of Thailand and Bangkok's Growth , 1911-1980

Year	Population of Thailand (millions)	Annual Growth Rates (%)	Population of Bangkok-Thonburi (millions)	Annual Growth Rates (%)
1911	8.3	-	0.34	-
1919	9.4	1.4	0.43	3.3
1929	11.5	2.2	0.68	5.8
1937	14.7	2.9	0.53 (excluding Thonburi)	-
1947	17.5	1.9	0 .78	4.7
1960	26.3	3.2	1.80	9.3
1970	34.4	2.8	2.61	4.4
1980	44.8	2.7	5.15	8.8

Sources: **Statistical Yearbook of Thailand**, various years; N.A. R.6 M. of the Capital 27/3 (1909-1914) ; and Ministry of Interior, **Report of Municipality Operation**, (Bangkok- Thonburi), Various Issues.

Population growth put pressure on rural income in various ways such as the fragmentation of farms, growing tenancy, indebtedness,[89] and a decline in rice output per person. Migration into the towns between the early 1950s and 1970 was not sufficient to relieve the growing pressure on arable land. There was a decline in the average farm size per person from about 6.8 rai in 1930, to 4.2 rai in 1950, 3.0 rai in 1960, and 2.2 rai in 1970.[90]

From 1950 onwards, there was a growing disparity in income levels between rural and industrial occupations, and especially between Bangkok and provincial regions. Wages of unskilled labourers in Bangkok after 1950 were significantly greater

---

88 There is a large literature on post-1950 demography and migration. For example, ESCAP, Population; ESCAP, Migration, Urbanization ; and Ministry of Public Health and Mahidol University, **Thailand Population**, Bangkok : 1993.

89 For a fuller discussion ,see Ammar Siamwalla, **Rice in the Thai Economy**, Bangkok: The Social Science Association of Thailand,1979 ; and Udis Narkswas, **Rural Indebtedness of Farmer and the Rice Trade in Central Thailand, 1957-1958** ,Bangkok : The Ministry of Agriculture, 1958.

90 Paiboon , the Administration of Bangkok p. 240.

than those earned by rural hired farm labourers and employees engaged on private and government projects in the provinces (Table 6.12). Wages for unskilled labourers in the department of railways in Bangkok in the early 1950s were 16.80 Baht a day[91] while farm labourers in Bangchan village in 1951-3 were paid 7-8 Baht a day.[92] In 1951, the wage for unskilled labourers for cleaning the temple in Nakhon Sawan province was 10 Baht a day.[93] In 1954, wages for unskilled labourers in the department of railways in Bangkok slightly declined to 19.10 Baht per day, while wages offered for repairing a temple in Phitsanulok province were 10 Baht a day.[94] In the same year, the wage for unskilled construction workers in the project for repairing National Museum in Bangkok was 30 Baht a day,[95] while construction workers repairing the temple in Nakhon Si Thammarat earned 15 Baht a day.[96] The wage differentials between Bangkok and the countryside remained unchanged between 1955 and 1970. For example, wage rates for highway construction labourers in Bangkok ranged between 20.56 and 23.28 Baht a day during the period of 1964-70, while wages for hired farm labourers in the central plain were reported to be 6.70-12 Baht a day in the same period (Table 6.12).

---

[91]Railway Authority of Thailand, Wage and Salary Act, Various Issues (1951-1957).

[92]Kamoll Janlekha Odd, "A Study of the Economy of Rice Growing Villages in the Central Thailand," Ph.D Thesis, Cornell University,1955, Table 33, p.195.

[93]N.A. M. of Education 0701.26.1/21 (1951).

[94]N.A. M. of Education 0701.26.1/24 (1954).

[95]N.A. M. of Education 0701.23.3/13 (1954).

[96]N.A. M. of Education 0701.26.1/25 (1954).

Table 6.12 Wage Rates for Unskilled Laboi rers in Bangkok and Rural Areas, 1951-1970

Year	Bangkok (Baht per day)	Rural Area (Baht per day)
1951	16.8	10.00
1951	16.80	6.91
1952	16.80	7.92
1953	19.80	8.08
1954	19.10	10.00
1954	25	-
1954	30	15
1955	20.00	8
1956	21.00	8
1957	21.00	11.00
1958	20.00	-
1964	22.56	10-12
1965	20.64	10.00
1965-67	21.00-22.10	8.00-10.00
1970	23.38	6.70-12.00

Sources :N.A. M. of Education 0701.26.1/21 (1951) ;N.A. M.of Education 0701.2.6.3/12 (1953);N.A. M.of Education 0701.26.1/24 (1954);N.A. M. of Education 0701.26/25 (1954).N.A. M.of Education 0701.26.3/16 (1954); N.A. M. of Education 0701.23.3/13 (1954).;N.A. M. of Education 0701.26.1/24 (1954) ;Ministry of Agriculture, **Report on Economic Survey of Rice Farmers in Pathom Province during 1955-56**, Bangkok: 1961 ;Railway Authority of Thailand, **Wage and Salaries Act**,Various Issues (1951 -1957);Bureau o' Labour Statistics, **U.S. Embassy Wage Survey of 12 Companies in Thailand** ,1959, Table 12, p. 14;Dan Usher , "Wages, Land Rents, Land Prices and Interest Rates, "n.d. p. 13;Department of Labour, **Yearbook of Labour Statistics**, 1964, 1966, and 1967; World Bank, **Thailand: Towards a Development Strategy of Full Participation**, Washington: A World Bank Country Report, 1980 ,p 55;Nipon Poapongskorn, "Wage , the Story of the Poor" in **Thammasat University Journal**, March-June, 1981, p 75;Adapted from Kamoll Janlekha Odd, "A Study of the Economy of Rice Growing Villages in the Central Thailand", Ph D Thesis, Cornell University 1955, Table 33, p 195;Dan Usher "Income as a Measure of Productivity : Comparisons of Agricultural and non-Agricultural Productivity in Thailand, "**Economica**, November 1966,p 441 ;and Department of Labour, **Wage Rates in 1964.**

Notes: 1. *Wage Rates in Bangkok.*

(1) Wage rates for the years :1951, 1952,1953,1955 and 1957 are wages of unskilled labourers for railway construction.

(2) Wage rates for the year 1954 are wages for unskilled labourers in construction

(3) Wage rates for the years 1956, 1964 and 1965-67 are wages for unskilled labourers in highway construction.

(4) Wage rates for the year 1958 are wages for unskilled labourers in the construction industry.

Notes: 2 *Wage Rates in Rural Areas*

(1) Wage rates for the years 1951, 1952 and 1953 are wages for hired farm labourers at Bangchan.

(2) Wage rates for the years 1951, 1954 and 1957 are wage rates for unskilled labourers engaged in public construction projects.

(3) Wage rates for 1955, 1956, 1965, 1965-67 and1970 are wage rates for hired farm labourers in the central plain.

A survey conducted by the International Labour Organisation (ILO) in 1954 indicated that in the early 1950s wage rates and earnings for workers in rural Thailand were relatively low and only a small minority of Thai workers was relatively well paid when compared to workers in Bangkok. The ILO survey mentioned remuneration and work condition in the provinces in the early 1950s :

> The teakwood and tobacco industries employ unskilled and semi-skilled workers at the lowest wages found in Thailand. In the teakwood camps, footmen used with elephants receive between 70 and 100 baht per month. Drivers of elephants (mahouts), experienced men doing a perilous job, receive from 90 to 130 baht. at one camp, Sob Prob Amphur in the Changwat of Lampang, a driver was reported to be employed at a rate as high as 180 baht. In Camp Me Pe in the jungle of Chomtong Amphur,some 50 Kilometres south of Chiangmai, the cook and assistant cook each received 50 baht per month, the lowest single wage for adult workers the expert noted anywhere in Thailand. . In the tobacco industry in the north and northeast wages vary somewhat between outside growers and Thai Tobacco Monopoly stations. Some outside growers employ men of the Kamouk tribes from Laos. The expert visited a station in Pharn Amphur in the Changwat of Chiangrai Thai paid Kamouk workers between 650 and 800 baht per year, that is 54-66 baht per month. The same station also employs local women at the rate of 2.50 baht per day with the head girl receiving 4 baht; male workers at 4 baht per day; and strokers at 5 baht for two shifts of six hours each. A neigbouring station paid women 3 baht and male workers 4 baht per day. A station in Tah Utain Amphur in the Changwat NakhonPhanom paid women and coolies 90 to 100 baht per month. A station of Phon Pisai Amphur in the Changwat of Nongkai, paid 4 baht per day to women after two years of service, that is, 120 baht per month for 30 days' attendance; and men at a rate of 5 to 6 baht per day, equal to 150 to 180 baht per month.... The Thai Tobacco Monopoly pays better. A station in That Panom Amphur in the Changwat NakhonPanom paid women at a daily rate of 1.10 Baht, together with a monthly premium of 90 baht for a minimum of 26 days attended, a total of 118.6 baht for 26 days on the job or 123 baht for 30 days. A station in Muang Amphur in Nong Khai paid women at a daily rate of 2 baht, with an attendance premium of 70 baht, making total of 124 baht for 26 days worked or 130 baht for 30 days. After a year or two of service the station pays 3 baht per day, that is including the premium of 70 baht, a total of 148 baht for 26 days worked, and 160 baht for 30 days.... Except for the general case of apprentices, the tobacco industry pays the lowest wage to children noted anywhere in Thailand. Two outside growers in the Changwat of Chiangrai were found to pay children eight years old and above as little as 2 baht per day, equal to 60 baht per month. The records show that many of these children work the full 30 days per month. Another outside grower in the Changwat of Nong Khai paid a boy and a girl aged 14 and a girl aged 15 at the rate of 3 baht per day, or 90 per month for 30 days' attendance. Here again somewhat higher rates are paid by the Thai tobacco Monopoly. Machine fitting also pays relatively well, the best rates for top fitters are in the order of 50 baht per day and 1,200 baht per month in Lampang (and Bangkok) and 30-50 bah per day in the dredge mines in the south. The approximate daily rate for turners, boiler makes and welders is 30 baht.[97]

In the early 1950s, rates of pay differed widely between unskilled workers in Bangkok and the provinces, the ratio being 10:1 in some cases.[98] The pressure of population growth in rural Thailand after the World War II helped keep down wages in the provinces. In Bangkok, on the contrary, demand for jobs became more diversified and wages in Bangkok were higher than in the provinces. In the early 1950s, the ILO survey noted that: "As against a daily wage as low as 2 Baht per day for adult male workers in teakwood camps and tobacco stations, the oil companies [in Bangkok] pay ordinary labourers approximately 20 Baht per day, and this rate can also be reached by unskilled men workers at a glass factory and the building construction sites at Bangkok".[99]

---

[97]N.A. (3) Office of the Prime Minister 0201.75/1 (1951).
[98]N.A. (3) Office of the Prime Minister 0201.75/1 (1951).
[99]N.A. (3) Office of the Prime Minister 0201.75/1 (1951).

Although wages in Bangkok were higher than those of provincial areas, wages in Bangkok remained still low when compared to the cost-of-living index, as we saw in the last chapter. As early as 1956, Kukrit Pramoj was concerned with the long hours of work and low pay of urban labour:

> The labour problem is new at present in Thailand and increasing attention is being paid to it daily. This evidently because Thailand has now stepped into a new era - an era of industry... therefore the number of labourers in industrial activities are increasing daily. Consequently, the present time is a time when all problems concerning labourers ought to be paid special interest.... Many of the women labourers are only about 15 or 16 years old; the hours of work are on the average of about twelve hours a day, and their pay is very low when compared with the price of essential commodities and foodstuffs at present for such young people to be used for hard work, with long hours of work and low pay is something which ought not to have occurred in any country in the world in the present day.[100]

Low urban wages raised the profit rate in the modern sector in Bangkok, and encouraged the expansion of an industrial sector which relied heavily on cheap labour. According to Falkus:

> Yet one only has to consider the structure of Thailand's growing manufacturing sector, concentrating on labour-intensive commodities such as textiles, clothing, or leather goods as well as the highly labour-intensive character of much of Bangkok's fast-developing building and construction and service sectors (including port facilities and tourist-related occupations), to realize the crucial importance of labour supplies. Certainly much of the growth of Thai manufacturing exports from the 196)s was based on abundant supplies of cheap labour.[101]

Labour productivity in the modern sector tended to be higher than the agricultural rural areas. Capital investment in commerce and the industrial sector raised urban labour productivity, while the pressure of population growth in rural areas produced the decline in rural labour productivity. As Lewis noted, the growth of population outstripped the accumulation of capital and other productive resources, with the result that in large sectors of the economy the marginal product of labour approached zero or even negative values. Not only in agriculture but also in the commerce and service sectors, labour was abundant. With this large pool of labour supply, labour is transferred from rural agricultural areas to the modern sector without affecting real wage rates. As capital investment in the urban sector increases, the marginal product of labour already employed increases, and demand for labour increases. As the outflow of labour from rural areas continues, a point will be reached where there is no longer surplus labour, and wage rates will rise.[102]

---

[100] **Siam Rath Weekly Review**, 21 June,1956.
[101] Falkus, "The Economic History",p.65.
[102] Lewis, " Economic Development".

Poverty became increasing evident in various sections of the population, especially in the rural areas. An estimate done by the World Bank indicated that in 1962/63, 52 per cent of the rural population, and 28 per cent of the urban population had an income below the poverty line. The largest segment of these poor (48 percent) lived in the northeast. Only 2 percent were found in the Bangkok region. Between 1962/63 and 1968/69, the proportion of families under the poverty line declined from 52 per cent to 34 per cent, but the pattern of regional poverty remained unchanged. In 1968/69 the northeast still had the largest share of the incidence of poverty. About 58 per cent of the households in that region had income levels below the poverty line. The northern region came second with 30 per cent of the population living in poverty.[103] Although, there has been a reduction in the numbers of poor households since 1962/63, the disparity in income distribution had increased, particularly in Bangkok.[104] From 1962-3 to 1981, the degree of income inequality as measured by Gini coefficients increased from 0.414 to 0.473 for the Kingdom as a whole[105] (Table 6.13).

Table 6.13 Gini-Coefficients of Thailand's Households 1962/63,1968/12 and 1981

Region	1962/63	1968/69	1975/76	1981
North	0.359	0.370	0.422	0.452
Urban	0.460	0.440	0.453	0.462
Rural	0.308	0.345	0.368	0.422
Northeast	0.344	0.379	0.405	0.438
Urban	0.422	0.450	0.457	0.456
Rural	0.264	0.347	0.343	0.395
Central	0.391	0.401	0.399	0.430
Urban	0.384	0.399	0.425	0.455
Rural	0.375	0.392	0.376	0.418
South	0.402	0.401	0.449	0.456
Urban	0.360	0.450	0.456	0.443
Rural	0.370	0.325	0.402	0.426
Bangkok	n.a.	0.412	0.398	0.405
Whole Kingdom	0.414	0.429	0.451	0.473
Urban	0.405	0.429	0.435	0.447
Rural	0.361	0.381	0.395	0.437

Source : Medhi Krongkaew and Pawadee Thongudai, "Unbalanced Growth Between Agricultural and Industrial Sector and its Impacts on Social Welfare" in Rungsun Thanapornphan and Nipon Poapongskorn (eds), **The Thai Economy : On the Road to Peace and Justice**, (Vol II), Faculty of Economics, Thammasat University, 1988, p. 967.

[103] World Bank, **Thailand: Toward a Development of Full Participation**, Washington : A Country Report,1980, Table 3.16 and 3.17 pp. 62-63.

[104] NSO,**Socioeconomic Survey**, for example 1963, 1968/69.

[105] There are a number studies on income distribution in Thailand. For example, Oey, Income, Consumption ; Somluckrat, " Income Distribution in Thailand "; and World Bank, Income Growth and Poverty Alleviation.

Low productivity in rice production constrained rural incomes. Between 1959 and 1966, the area under rice cultivation expanded. The north had the highest growth rate of 4.1 percent per annum, followed by 3.5 percent in the northeast as compared with less than 2 percent for the central region and 2.8 in the south.[106] The high growth rate of rice land for cultivation in the north and northeast was caused by the increase of population and the expansion of national highways linking the countryside. In the central plain, the area under paddy increased partly because of an extension of irrigated land in the region. Rice yields (based on area planted) were among the lowest of the major rice-producing nations in the world. The average for the northeastern areas was just 140 kilograms per rai in both 1954/58 and 1958/59, meanwhile the average for the entire country was 175.[107] The international comparisons in "Agricultural Statistics of Thailand ,1958 published by the Ministry of Agriculture and based on FAO figures, show average yields for 13 rice producing countries (based on area harvested) in the period 1955-57. Thailand had an average yield of 204 kg per rai, ranking sixth among the eight Asian producers and eleventh among the 13 world producers. The high yields in Asia were achieved in Japan (709 kg.) and Taiwan (467 kg).The Korat yield in 1957 based on area harvested was only 109 kg. per rai.[108] After the late 1950s, there was a moderate increase of rice yields. It was estimated that yield per rai harvested increased 1.41 per cent between 1957 and 1963, and 1.57 percent between 1954 and 1970.[109] When compared to other Asian countries the improvement in rice yields in Thailand was moderate (Table 6.14).

Table 6.14 Comparative Rice Yields of Thailand and Selected Countries in 1970

Country	Paddy Yield (metric tons/ ha harvested)
Japan	5.64
South Korea	4.55
Taiwan	4.16
Malaysia	2.72
Indonesia	2.14
Thailand	1.97
The Philippines	1.72
Burma	1.70

Source: Pasuk Phongpaichit, **Economic and Social Transformation of Thailand, 1957-1976**, Chulalongkorn University Research Institute, 1980, Table 6.10, p. 211.

[106]Pasuk, Economic and Social, p.197.

[107]N.A. M. of Finance (1) 1.3.3.2/4 (1960).

[108]N.A. M. of Finance (1) 1.3.3.2/4 (1960).

[109]Delane E Welsch and Sopin Tongpan, 'Background to the introduction of High Yielding Varieties of Rice in Thailand ", Department of Applied Economics, Kasetsart University, Bangkok,1972, pp.9-10.

Low productivity in agriculture resulted in little growth of rural income and rural wage rates in the 1950s, and 1960s.

Factors influencing rural-urban migration

No large influx of rural migrants to Bangkok occurred prior to 1950. Bangkok's share of the total Thai population was not more than 1-2 per cent in the mid 19th century and this increased to only 4-5 per cent between 1910 and 1947. From the early 1950s, rural migrants replaced the Chinese immigration. Bangkok's share of the total population increased to about 7 per cent by 1960, 9 percent in 1970, 11 percent in 1980, and 14 percent in 1990 (Table 6.15).

Table 6.15 Bangkok's Population and its Share in Thailand's Population

Year	Bangkok's Population	Percentage of Bangkok's Population to Total Population
1850	50,000-100,000	.09-1.9
1882	119,700	1.9-2
1913	345,000	5.3
1919	394,633	4.2
1937	702,544	4.8
1947	781,652	4.4
1960	1,800,678	6.8
1970	2,971,793	8.6
1980	5,132,143	10.84
1990	about 8 million	about 13.7

Sources: Ministry of Interior, Report of **Municipality Operation**,(Bangkok-Thonburi),Various Issues;**ThailandStatisticalYearbook**(VariousIssues);LarrySternstein,**PortraitofBangkok**,Bangkok: Bangkok Metropolitan Administration,1982,Table III. p.80; G.W.Skinner, **Chinese Society in Thailand : An Analytical History**, Ithacha: Cornell University Press, 1957,p 81; and N.A. R.6 M. of the Capital 27/3 (1909-1914).

Changes taken places in rural areas from the late 1940s helped to shape changes in the city. The rising density of agricultural population pushed people off the land, while urban-rural wage differentials pulled them into the city. The rapid growth in urban wage employment from the early 1950s stood in sharp contrast to earlier pattern of employment. The net number of in-migrants to Bangkok doubled from 1955-60 to 1965-70. The level of migration between Bangkok and provincial upcountry areas increased by two-thirds.[110]

In addition to permanent migration to Bangkok, there was also a considerable seasonal migration, dictated in part by the seasonal nature of agricultural activity. There

[110]Larry Sternstein, "Thailand: Internal Migration and the Development of the Capital District," in Robin J Myor (ed), **Migration and Development in Southeast Asia : A Demographic Perspective**, Kuala Lumpur : Oxford University Press, 1979, p. 30.

is no overall survey of seasonal migration for this period, but data are available from individual monographs. Marian R. Meinkoth's 1957 survey of "Migration in Thailand with Particular Reference to the Northeast" showed the importance of seasonal movement between the northeast and Bangkok. Of the total sample of 537 migrants interviewed at Hualumpong Railway Station, 412 reported that they would like to subsist on the farmer occupation,[111] about 334 intended to live in Bangkok for about 1 week or more, 93 planned to stay 1 to 6 months, and 6 (2 per cent) wanted to stay permanently.[112]

Many females and young people entered the non-agricultural labour force in the dry season (January-April). Those in the north and northeast, where cultivation is more seasonally biased than other regions,[113] increasingly moved to Bangkok and other regions to look for seasonal work.

Conclusion

This chapter has examined the connections between Thailand's population growth and labour supply, wage rates and the growth of Bangkok which occurred between 1900-1970.

Before the 1950s, Thailand's sparse population and abundant land meant that indigenous labour was "expensive" The term "expensive labour" refers to relative wages between Bangkok and the countryside. Little differential existed prior to the Second World War. Average per capita incomes do not appear to have differed greatly between the provinces. A major factor affecting the high level of wage rates was the scarcity of labour in the rural areas and the relatively high productivity of Thai agriculture in relation to labour input. The high level of income and wage rates earned by the rural workers meant that the opportunity cost of changing occupations from that of a rural farmer to an urban worker was also high. Under the circumstances, there was a limited flow of labour from rural to urban areas. Hence, large-scale Chinese immigration played an important role in developing the non-farming occupations in Thailand such as Bangkok. The growth of Bangkok was slow before 1950 compared to post 1950.

---

111 Meihkoth, "Migration in Thailand ",p 112.

112 Ibid.,p. 19.

113 Irrigation was concentrated in the central districts, while in the south, rainfall is both greater and more evenly distributed over the year, but with a relatively dry period during February and March.

After 1950, Thailand's contir ued fast population growth put pressure on rural incomes, and led to the fragmentatio ı of farms and growing tenancy and landlessness. Growing disparity between rural anc urban incomes pushed people towards Bangkok where jobs were more diversified. W ith the rapid overall population growth, a pool of "cheap" rural labour developed which could supply the industrial and service sectors in Bangkok, on which further growth d:pended. Wages in Bangkok rose compared to the provincial areas. Bangkok's popula tion has increased at a rate at least double the national average since 1950.

CHAPTER VII
HIGHWAY CONSTRUCTION AND THE INTEGRATION OF BANGKOK AND THE PROVINCIAL AREAS BEFORE 1970

Abstract: The emphasis of this chapter is on how the role of national highways stimulated Bangkok's dominant economic position. An underlying theme is that the establishment of national highways significantly integrated Bangkok with the provincial areas in terms of inter-regional trade and labour mobility.

The spectacular growth of Bangkok after the 1950s could not have been possible without the existence of a national highway network connecting Bangkok and the provinces. The establishment of the national highway network was a crucial factor in the development of the city as a more inward-looking metropolis, dominating the nation's internal commerce. Highways created a stimulus to the growth of the national market for a wide range of goods and services. They provided cheap and quick movement of goods from place to place, even in the monsoon season. Finally, roads encouraged a stream of rural migrants to Bangkok. Roads made the real cost of migration lower in terms of expenditure per trip, and also made it easier for migrants to enter Bangkok's labour market on a seasonal basis.

By the 1960s, major road routes radiated from Bangkok to all parts of the country. The Petchkasem highway and its feeder lines connected the capital city to the south. The Paholyothin Highway and its tributaries linked the major northern provinces with Bangkok. The Friendship Highway branched out from the northern route into the northeast. The Sukhumvit Highway connected the Eastern provinces with Bangkok. Another important route was the Bangkok-AranyaPradhes to the Cambodian border.[1]

---

[1]By the mid 1960s,a network of 8 highways was completed which is as follows.
(1) Bangkok to Chiengrai and Chiengmai to Chiengrai, 2),Bangkok to Nakornrajsima,Nongkai near the Laos border, (3) Bangkok to Ranong down to Malasian border,(4)Bangkok to Chumporn leading to Phukhet on west coast,(5) Bangkok down the southeast to Trad, (6) West to East across North Central plain from Maesod-Lomsak-Khonkhaen to Nakornphanom, (7)Nakornrajsima to Ubonrajthani, (8) Bangkok-Aranya pradhes to the Cambodian border (Chira Chareonloet,**The Evolution of Thailand's Economy: Its Role and Evolution of Economic Transition,1950-1960,** Bangkok: Thai Wattana Panich Press, Co.ltd, 1962, p.87).

I

Highway Construction Before 1950

Even as late as 1940 there was no a single trunk road linking Bangkok to other provinces. The furthest distance a motor vehicle could travel comfortably from the centre of Bangkok was no more than 20 miles. The Nonthaburi road built in 1913 stretched from King Rama V road through Bangsue to Nonthaburi province with a total length of 6.4 kilometres. The Samut Prakarn road built in 1933 ran from Ploenchit road in Bangkok to Tumbon Bangduan.[2] Around 1940, Virginia Thompson commented in Bangkok's road conditions:

> Unlike most great cities, which are usually the centre of a network of roads, Bangkok has vehicular isolation. Its few hundred taxis circulate within the capital's confines, and even today one can leave Bangkok only by boat or by rail. Such roads as exist are limited to the frontier regions or to areas totally lacking in other transportation facilities.[3]

Before 1940, transportation between Bangkok and the outer regions was possible by way of waterways[4] and railways. The Chaophraya river and canals provided the most important means of transportation from Bangkok to the central plain and outer regions. Outside the city and extending all over the vast alluvial plain were a great number of canals, hundreds of miles in extent, which served as the highways of the country. Canals also connected the great tidal rivers which flowed in somewhat parallel courses to the sea. Travel beyond these regions to some parts of the north and the northeast was dangerous and hampered by mountains. The few rivers were strewn with rapids, and were only negotiable in the high water season.[5] The main mode of transportation in these outer regions was the bullock or ox-carts. Though roads existed in some provincial areas, passage was slow at the best of times and became impossible during the wet season. The role of roads was negligible. A Thai official noted in the 1920s:

---

[2] Anonymous, The Royal Duties, pp. 320-324.

[3] Thompson, Thailand, p.507.

[4] A comprehensive study of canal construction in Bangkok and the Central Plain is contained in Hubbard," Canal Construction "; and Kitti 'Canals".

[5] D.J.M. Tate, **The Making of Modern Southeast Asia**, Volume Two, the Western Impact Economic and Social Change, Kuala Lumpur : Oxford University Press, 1979, p. 501.

> It must be remembered that in S am roads as known in Europe have not existed until very recent times. In the delta and the r:gions of the plains, rivers and navigable klongs have been used for generations past, and dur ng the dry weather sleds or carts could convey people and merchandise to various points quite readily not needing other form of roadbed. In the mountainous regions, paths or mule tracks have existed and been used for a long time past, and in this country, contrary to the practice in Europe, railways have come in before any form of rapid transit by roads. We hav: received no legacy from the past in the form of modern roads. [6]

In 1929, there were only abc ut 2,234 kilometres of roads[7] (about 95% in third class condition) and over half the motor vehicles were in Bangkok.[8] Based on an international comparison in 1934-35 Thailand had few roads compared to other Asian countries[9] (Table 7.1).

Table 7.1 Roads in Selected Asian Cou tries, 1934-5

Country	Number of Square Miles of Area per miles of highways
Malaya	5
Japan	8
Philippine Islands	13
French-Indo China	14
North-East Indies	20
China	134
Siam	225

Source: J. M. Andrews, **Siam, 2nd Ru al Economic Survey, 1934-1935**, Bangkok: Bangkok Times Press, 1935, p.390.

Prior to 1930 roads had only a very low priority in government thinking. The influential Minister of Communicaiions, Kromphra Kamphaengphet Akkarayothin, who held office from 1926 to 1932, gave priority to railway and railway profitability. Only in the 1930s did governmeit attention turn towards roads, following the recommendation of Andrews in the Second Rural Siam Survey in 1934/35. Andrews emphasized Siam's need for more and better road construction in order to open up rural districts, and generally to improve the economic standing:

---

[6] N.A.Personal File 2.4/5(1925).

[7] N.A. Department of Royal State Highways 2/19(1929).

[8] **Thesapiban**, Vol 30.no 2 (1929), pp.390-391.

[9] One document noted that in 1922, Siam in respect of road kilometrage per square km and per head of population was still behind some other countries.In Burma, they spent 0.39 satang per head of population,in Malacca S.S. was 9.02 Satang per head,in Thailand was 0.21 Satang per head respectively (N.A.personal file 2.4/5 (1925)).

> There exists a very great need for well-surfaced highways which can be used by motor vehicles in all seasons of the year. It is time for the established policy of non-interference with the railways to give way to a more far-sighted view which will recognize that the railways are already well developed, that certain types of trade which are absolutely essential to economic well-being cannot be handled by the railways and that, since both railways and highways are government property, it really does not much matter if the government diverted its transport revenue directly from railways or indirectly from highways. Investment in railways is very likely to be a bad investment; investment in highways is absolutely essential if the rural districts of Siam are to be open to the economic development. [10]

In 1935 the government launched an ambitious plan (Table 7.2) which envisaged linking the principal cities by a network of roads. The plan included one highway between Bangkok and the eastern region (Rayong-Sattaheep-Chachoengsao-Samut Prakarn), while the other roads were designed to link provinces directly and indirectly to the existing river and canal system. In fact, the plan was implemented to only a very limited extent. Depression, war and post-war disorder all delayed the project. From the plan we can see the central role envisaged for Bangkok.

Table 7.2 Intended Highway Construction under the Five Years Plan (1936- March 1941)

Name	Total Length (km)
Bangkok-Samut Prakarn	19.9
Samut Prakarn-Chachoengsao	72.1
Chachoengsao-Sattaheeb	134.8
Sattaheeb-Rayong	47.0
Bangkok-Don Muang	25.0
Bangkok-Nonthaburi	7.00
Nongkae-BanPachi	19.0
Chum phon-Karaburi	63.0
Karaburi-Ranong	60.0
PrachinBuri-Nakhon Nayok	20.0
Prachin Buri-Arunyapradesh	147.5
Taparnhin-Phetchabun	102.2
Phetchabun-Lomsuk	40.0
Nakhon Swan-Kamphaeng Phet	69.6
Sawankalok-Tak	118.4
Sukhothai-Phitsanulok	58.1
Denchai-Phrae-Nan	144.3
Chiangmai-Chiangdow-Fang	153.0
Chiangmai-Chomthong-Hod	103.0
Chaiyaphum-Boayai	52.6
Maha Sarakham-Kalasin	42.2
Udon-Sakon Nakhon-Nakhon Phanom	240.2
Khon Kaen-Loei (Khon Kaen-Chumpae)	100.0
Chonabot-Yasothon-Ubon	292.0
Ubon-Tartpanom-Nakhon Phanom	271.0
Tanun-Takuapa	89.9
Yala-Banto	80.00
Betong-Banto	42.2
Huay yuad Krabi	110.0
Nakhon SiThammarat-Pakpanung	28.8
Krabi-Phangnga	84.8
Total	**2,880.3**

Source:N.A.Office of the Prime Minister 0206.5/5(1934-1953).

---

[10] J.M.Andrews, **Siam 2nd Rural Economic Survey 1934-35**,Bangkok: Bangkok Times Press,pp. 390-391.

Why were roads limited before 1940?

Thailand had so few serviceable roads before the second world war because demand for roads was low, the cost of building them was expensive, and budget resources were limited.

Demand for roads was low. The areas producing rice for export were connected to the port by waterways. The outlying areas such as the north and northeast were still largely engaged in subsistence. Virginia Thompson noted that "The peasants cultivate rice, vegetables, tobacco, and cotton almost wholly for their own needs; and practically every house has a weaving loom".[11] The export products sourced from these outlying areas had no need of roads. Teak logs were floated cheaply down the Chaophraya river (even as late as the 1970s), while tin was exported directly from the ports in the southern provinces. In these outlying areas, urbanization was very limited. The inter-urban traffic found in so many pre-industrial countries in Europe and in parts of Asia (for example the Malay States) was lacking in Thailand.

The landscape of swamps and forests made roads expensive to build. Monsoon rains and the wear-and-tear from oxen and bullock carts made them expensive to maintain.[12] In 1925, an official noted:

> It is rather the aspect of the problem for giving the people the cheapest form of transport with a view to increasing the potential for production and also saving wastage in duplication of methods of transportation that has kept back the Road Board and the present Administration from advocating duplication of railway lines and navigable waterways by roads. The cost of a road varies from Tcs. 8,000 to Tcs 20,000 per km, the average capital cost of waterbound macadam road works out at about Tcs. 16,000. To maintain a highway efficiently Tcs. 1,000 per km per annum is required, whereas, although the capital cost of building a railway averages about Tcs. 60,000 per km including plant and rolling stock, yet on the other hand the maintenance of railway line costs only Tcs 436 per km per annum.[13]

The total spending on highway construction gradually increased through the 1920s, but then slumped badly with the onset of the depression.

---

[11] Thompson, Thailand, p.336.

[12] N.A. Department of Railways 2/6 (1914)

[13] N.A.Personal File 2.4/5 (1925).

Table 7.3 Expenditure on Highway Construction,1919-1932 ('000 Baht)

Year	Construction cost	Improvement cost	Maintenance cost	Total cost
1919	414.4	62.3	166.3	1,213.0
1920	654.3	52.5	233.3	1,470.1
1921	952.6	64.0	260.3	1,867.6
1922	1220.3	48.9	332.2	1,991.4
1923	1079.0	64.6	501.1	2,204.9
1924	928.6	57.8	498.0	2,004.5
1925	602.5	77.8	664.5	2,004.9
1926	717.1	684.7	697.8	2,099.7
1927	880.7	89.9	861.5	2,636.3
1928	1,649.3	1,084.8	885.7	3,619.9
1929	2,179.0	1,308.4	1,013.8	4,501.3
1930	2,603.7	50.1	989.9	4,428.8
1931	1,831.0	401.4	778.1	3,071.3
1932	8.5	4.4	875.2	908.1

Source: N.A. (2) Office of the Prime Minister 0201.66.5/5 (1934-1953).

An expansive programme of road building would have been at odds with Thailand's fiscal conservatism. Thai finance ministers struggled to balance the budget and persuade overseas financiers to cover any short-term deficits. The economic depression made this struggle more difficult. Government revenue fell off sharply, and the little spending on highways was reduced even more drastically.

Year	Government Revenue (million Baht)	Highway Investment (million Baht)
1929	107.1	4.5
1930	96.3	4.4
1931	78.9	3.0
1932	79.6	0.9
1933	83.7	1.9

Sources: N.A. (2) Office of the Prime Minister 0201.66.5/5 (1934-1953); and Constance M. Wilson, **Thailand: A Handbook of Historical Statistics, Boston**: G.K.Hall& Co, 1983, p.243.

Also, it was government policy,[14] that road construction was not to compete with railways and undermine railway revenue. On the contrary, road construction should complement railway transportation,[15] as a 1925 comment make clear:

---

[14] The general policies on highway investment in 1917/18 were that:
(1)No roads should be built in areas already served by railways and waterways,or would so in the future
(2)Existing roads,which at present compete with railways and waterways,should be maintained of left to deteriorate depending on their usefulness and maintenance costs.
(3) Provinces that possessed enough waterways should keep highway building to minimum.
(4)Highway construction is principally based on commercial benefit criterion,
eventhough administrative gains may also be considered (Quoted from Sompop, Economic Development, p.194).

[15] N.A. Personal File 2.4/5(1925). This source concerning the criteria for highway construction in 1925/26 is worth quoting at length. "Before deciding upon the construction of any highway,
even where navigable waterways and railways do not exist,the potential resources of the localities through which the highway is to run must be actively studied ,that is to say,only places where there are

With the small amount of funds available for communications in the annual budget of the Kingdom, it is most important at th s juncture that duplication of forms of transport should be avoided and wherever railways o navigable waterways exist, the other form of transport, viz; highways, should not be put in u lless traffic conditions should require.[16]

Expenditure on roads was low, and over half was devoted to improvement and maintenance of existing routes. Investments in railways were significantly higher (Table 7.4).

Table 7.4 Investment in Railways and Highways ,1919-1933 ('000 Baht)

Year	Railways	Highways
1919	3,805	1,231
1920	4,233	1,470
1921	6,156	1,867
1922	12,108	1,991
1923	2,318	2,204
1924	2,964	2,004
1925	11,409	2,004
1926	6,896	2,099
1927	8,124	2,636
1928	4,203	3,619
1929	4,812	4,501
1930	6,891	4,423
1931	4,587	3,071
1932	5,004	908
1933	3,945	1,917

Sources: Constance M. Wilson, **Thailand: A Handbook of Historical Statistics**, Boston: Co,1983, p.171 ; and N.A. (2) Office of the Prime Minister 0201.66.5/5 (1934-1953).

II

Economic Consequences of Highway Construction Before 1950

The lack of highways linking Bangkok and the provincial areas was one of a major causes of slow rate of Bangkok's growth prior to 1950, when compared with the following decades. The lack of roads inhibited the growth of road motor transport, and traffic by traditional means was slow, costly and relatively limited. In the early 1900s, persons traveling by long boats under the most favorable conditions in the best season could do the journey from Bangkok to Chiang Mai in three weeks. Goods carriers took as long as six.[17] The freight rate from Chiang Mai to Bangkok was about 152 Baht per metric tonne, while the farm-gate paddy price was about 50 Baht.[18] Lack of roads

---

sufficient density of population and rich lands available for cultivation,needing just the reduction in cost of transport to render active the latent economic possibilities of the place,are to be connected up first. As this from of encouragement fosters and develops trade,the country would eventually become richer so that greater amount of money could later on be spared to develop less paying localities. The principal aim before the administration has therefore been to reduce the cost of transport upon the unit rate basis of ton kilometre" (N.A.Personal File 2.4/5(1925)).

[16]Ibid,.

[17] Carter, The Kingdom of Siam,p.232.

[18]Sompop, Economic Development, p.79 based on British Consular Report,Chiengmai (1907).

limited and prevented the new technology transport. By 1925/26 very few trucks and buses in Thailand were used, and were to a large extent, concentrated in Bangkok. The number of vehicles of various kinds licensed during the years of 1925/26 is listed as follows:

Private motor cars	238
Cars for hire	14
Passenger Omnibuses	942
Trucks	432
Motor cycles	50
Bicycles	6,318
Hackney Carriages	292
Other vehicles	333

Source: N.A. Department of Railways 2/18 (1929).

The railways had a significant impact, but their reach was limited. In 1922, the northern railway reached Chiang Mai and soon challenged boats as the principal north-south mode of passenger and goods conveyance. Through the 1920s, railways linked up some of the major centres in the northeast. By 1940, the railway network amounted to 4,000 miles of track. As several scholars have noted, railways stimulated the rice-export trade in these outlying areas.[19] But the rail network connected only a few major points in these outlying areas. In 1940, over 80 percent of rice exported from Bangkok was still carried to the capital by waterway. The main rice-producing areas were concentrated in the central plain with good river and canal connections to the capital. Transport of rice by boat and barge was cheaper than the railways. For the areas beyond the reach of navigable waterways, such as the north and the northeast, railways opened up the potential for growing rice for export. But transport from the farm to the railhead still required traditional methods, and was often prohibitively expensive because of the long distances involved.

In these outlying areas, traditional forms of transport still dominated. Elephants were still widely used in the northern forests and mountains, as well as in parts of the south and northeast. The ox and the buffalo cart were the predominant means of transportation along the edges of the river plains and on the plateaus and hill country. These carts had high wheels which enabled them to pass through the low land marshes. The light ox-cart prevailed in the pasture areas, and in the hills at the foot of the mountains, where the terrain was drier, as in western and peninsular Siam.[20] The number of buffalo and oxen were highest in Monthon Nakhon Ratchasima, followed

[19]For example, Ingram, Economic Change; Sompop,Economic Development; and Suthy Prasartset," A Study of Production and Trade of Thailand, 1855-1940",Ph.D thesis, University of Sydney, 1975.
[20]Thompson, Thailand, p.495.

by Monthon Udon, and Monthon Payab. The pattern of cart distribution showed that Monthon Nakhon Ratchasima ranked first, followed by Nakhon Sawan and Udon. These areas lacked waterways, and carts were used to carry produce from the farms to the few railheads. In the central plains, by contrast, water transport dominated. Ayutthaya ranked first in the number of boats, followed by Bangkok, Nakhonchaisri and Ratchaburi (Table 7.5).

Table 7.5 The Distribution of a Number of Animal Vehicles and Boats by Monthons in 1929

Monthon	Elephants	Horses	Oxen	Buffaloes	Carts	Boats
Bangkok	8	3,424	3,502	90,608	193	90,656
Chanthaburi	1	770	5,959	76,780	7,303	9,101
Nakhonchaisri	1	9,420	140,884	151,128	25,106	70,395
Nakhon Ratchasima	571	59,721	1,340,936	895,529	157,331	27,216
Nakhon Si Thammarat	1,878	2,248	305,751	194,813	801	36,917
NakhonSawan	596	6,785	49,946	240,750	40,691	23,410
PrachinBuri	31	8,350	47,453	179,085	23,981	50,645
Pattani	278	268	183,777	53,831	464	6,042
Payab	3068	9,031	95,554	387,040	33,431	4,489
Phitsanulok	764	11,429	57,097	238,008	22,317	35,663
Phuket	260	293	20,939	101,838	690	8,406
Ratchaburi	195	4,965	367,701	52,111	39,527	68,506
Ayutthaya	7	15,161	130,6712	265,109	32,163	163,817
Udon	218	22,082	585,290	415,634	37,091	10,134
Total	**7,876**	**154,217**	**3,695,429**	**3,342,164**	**421,087**	**613,400**

Source: **Thesapiban,** vol.30, no.2, 1929, pp. 401-402.

Even in the early 1950s, it was claimed:

> There is practically no inter regional trade road transport except along a few routes (e.g. Bangkok-Chanthaburi) penetrating areas outside the railroad network. A large volume of inter-regional trade does exist, e.g. the inflow into Bangkok of rice, lumber and firewood, but it moves largely by rail, river barge, or coastal craft. The bulk of the inter-regional passenger traffic converging on Bangkok is rail-hauled.[21]

The lack of roads had a significant impact on agriculture. Some areas were effectively cut off from the market because of lack of transport. Other areas were connected during the dry season but then totally isolated during the rains. As a result, urban prices of farm products would rise in the rainy season when flooding cut off some sources of supply. Even non-perishable commodities, such as charcoal, increased in price if roads remained closed for more than a day or two. Consumers and producers alike were penalized by a lack of adequate transportation facilities.[22] This was true not only for the capital, but also for upcountry urban centres:

---

[21]N.A. (1) M.of Finance 1.3.3.2/1 (1953).

[22]N.A. M. of Communications 0301.2 1/51 (1961-62).

> The Chiangmai-Lamphun district, possibly the richest and most diversified agricultural region in Thailand, is typical case of the need for inter-regional road links. It supplies Bangkok with large amounts of grain, pulses, garden produce, fruit and tobacco. Some of these are high value goods, perishable produce or both which leaned themselves to long -haul trucking and are capable of supporting its costs. At present, however, the only effective link with Bangkok is a 750-km rail haul by a carrier which is short of rolling stock and has no refrigerator cars. As a result, the Chiangmai-Lampoon district is held back from realizing its full capacity to produce both goods which are suitable for rail haulage only and goods which are also adapted to truck haulage. With a good high way as well as a better-equipped railroad, production for delivery to Bangkok market might be expected to increase about 25% according to local experts consulted by the mission.[23]

Up to the early 1950s, ox-carts and railways provided the most important means of medium and long-distance of transport of agricultural goods from the northeast to Bangkok. The highway system was limited to dry-season feeder roads that linked the interior to the railways. Many rivers were not bridged. As noted by a survey of the economic conditions of Korat-NongKhai-Khon Kane prior to the advent "Friendship Highway" in the early 1950s :

> The poor condition of roads in the Northeast limits the availability of transportation... During and after the rainy season many areas are accessible only by buffalo cart. In the dry season, the dusty corrugated surfaces inflict severe punishment on vehicles and occupants thus discouraging personal travel and raising the cost of truck transportation (in terms of maintenance, tyres, depreciation, labour time and certainty of delivery time) to a level that inhibits the growth of the trucking industry and more seriously, retards the economic development of the whole area. With some minor exceptions, the present and potential products of Northeast Thailand are high bulk, low value commodities, for which transportation charges represent a significant percentage of the delivered price in Bangkok. The cost of transportation for bulk commodities from Nong Khai to Bangkok by truck is roughly 75 percent higher than the cost by rail. At roughly $15 -18 a ton for bulk commodity trucking costs, including handling, it is clear that transportation charges are a key factor in the potential profitability and the development of ore bodies present in the Loei Province and wherever else they may be uncovered in the Northern section of the countries.[24]

The lack of highways also hampered rural migration to Bangkok. No large scale influx of rural migrants to Bangkok took place prior to the 1950s.

III
Highway Construction, 1950-1970

The second national highway building programme began in 1949, when the Department of Ways proposed two five-year road building projects. The first began in 1950 with a total cost for construction of 923,320,000 Baht for 9,068 kilometres of new road.[25] The second began in 1956 with a total cost of 2,150,000,000 Baht and a total length of

---

[23]N.A.(1) M.of Finance 1.3.3.2/1 (1953).

[24]N.A. (1) M. of Finance 1.3.3.2/4 (1960).

[25]N.A. Office of the Prime Minister 0201.6(6).5/5 (1934-1953).

3,629.38 kilometres, or 31 main national highways.[26] A third project was laid between 1962 and 1969 (Map 7.1). This programme included called the improvement of 3,020 kilometres of existing highways at the cost of some 4,440.6 million Baht, and construction of 1,939 kilometres of new highways at a cost of 3,119.9 million Baht (Appendix Tables 7.1A, 7.2A, and 7.3 A).

The 1950s marked a distinct turning-point in the history of Thailand's internal transport. From the late 1950s a number of major roads were constructed to link Bangkok and the rest of Thailand's regions. The primary purposes for this road-building were national security, public administration and economic development.[27] The major routes all radiated out from Bangkok: first, north to Chiang Mai; second, down the eastern coast of the Kra peninsula to the Malayan border; third, down the eastern side of the Gulf of Siam to Trad; and fourth, eastwards to the Cambodian border at Aranyapradesh.

The spate of new roads reflected growing overall demand for transport services.[28] Transport needs arose from many factors, but above all from security and administration. Roads stimulated economic growth and economic growth created demand for roads. Between 1950 and 1958, GDP grew at 4.7 percent annually and between 1959 and 1969 at 8.6 percent. Agriculture as well as manufacturing grew appreciably. Agricultural exports diversified into new crops. Bangkok remained

---

[26] N.A. (2) Office of the Prime Minister 020.1.71/18 (1955-56).

[27] N.A.(3) Office of the Prime Minister 020.1.7/5(1953-1956).

[28] The demand for transport in Thailand especially in the 1960s was studied by P.J. Rimmer. He found that the growth of carload movements in the 1960s tended to declined.This is a reflection of a growing demand for road transport. He noted:

> The relationship between freight movements and economic activity is likely to be relatively stable in developed countries,such as Canada and the United States of America, but in countries experiencing the earlier stages of industrialisation, like Thailand,transport requirements are expected to rise at a considerably higher rate than the increase in economic activity. Contrary to this experience, the expansion in tonne-kilometres,volume,and value of carload movements has fallen behind the rate of development of the economy as a whole. The annual rate of growth of growth in gross national product has accelerated from about 5 percent between 1956 and 1960 to 7.2 percent (four percent in real prices) during the First Plan (1961-66) and strong hopes are held under the second plan (1967-71) for a growth rate of 8.5 percent. In contrast,carload movements have grown more slowly from an annual increase of two percent in tonne-kilometres,volume,and value between 1956 and 1960 to almost three percent during the First Plan(1961-66) and the forecast under the Second Plan (1967-71) is five percent." He underlined some major reasons that why the growth of this divergence in the growth of carload movements and the Gross National Product in Thailand as follows. (1) higher returns for agricultural products, (2) a trend to higher value and lower bulk manufactured goods, (3) depletion of resources and technological change, (4) expansion of activities with little freight content,(5)inter- modal competition (P.J. Rimmer, **Transport in Thailand : The Railway Decision**, Canberra : Australian National University, 1971, pp. 70-77).

virtually the sole outlet for exports. In contrast to most of the prewar period, there was growing emphasis on building an adequate highway network. Roads were no longer seen as competing with railways. An official noted in the early 1960s:

> There is a need for highways as well as railways in many parts of Thailand. Some areas have developed to the point where both forms of transport [highways and railways] are required in order to handle existing traffic. Other areas are being held back by inadequate transportation or by an outright lack of transportation. It would be difficult to contend that highways should not be improved under such conditions, especially if the highways in addition to their regional importance are also essential to the development of a national network. [29]

The Ministry of Finance no longer viewed road building as an expense which would threaten the precarious budget balance, but rather as a source of several economic and social gains:

> Most significantly of all, an improved and expanded road network would stimulate the production of internal and export goods in response to cheaper transport, wider market, and new lands brought into cultivation. The volume of Thai agricultural production had doubled in the past 15 years, and promises to increase further and is presently about 10 million tons per annum (excluding fruit). It thus seems conservative to assume that road and vehicle investment interaction with other factors could stimulate 100,000 tons a year of added output in the form of suitable commodities for truck transport beyond strictly local hauls. Their average value may be crudely assessed at 2,500 Baht by weighting Bangkok wholesale prices for a wide range of commodities in the ration of 3 tons of low value goods (rice, cabbage, corn) to 3 tons of intermediate value goods (groundnuts, seeds, peas, and fruit), to 4 tons of high value goods (vegetable oils, sugar, garlic, and tobacco). It follows that 100,000 tons of additional agricultural production stemming from road and vehicle investment as a major influence is capable of adding 250 million Baht a year to gross national product...[30]

Roads were also built for political and military reasons. The rapid growth of road construction was not only designed to stimulate and spread economic development, but also to serve political cooperation between Thailand and the U.S.A. and SEATO. The construction of modern roads was extended into the central, eastern and northeast regions to serve US. Airport bases. An effective transport system would enable the police and the military to respond quickly to recurrent insurgency in border areas near Burma, Laos, Cambodia and Malaya. Some roads such as the Friendship Highway were built entirely for such political reasons, and the planners did not at all foresee the economic impact on agriculture in the northeast. These roads contributed significantly to the expansion of upland crops. and the economic integration of outlying

---

[29] N.A.M.of Finance 0301.2.4.1/52 (1961-62). According to this source, it is noted that:
> Improvement of highways in areas served by railways presumably will result in an initial intensification of competition between the two forms of transport,especially in areas where rail service is inadequate and roundabout hauls are required. However,it is not believed that the position of the railway will be jeopardized;in fact,economic development resulting from improved highways may well prove advantageous to the railway in the long run (N.A.M.of Finance 0301.2.4.1/52 (1961-62)).

[30] N.A. (1) M. of Finance 1.3.3.2/1 (1953).

rural areas with Bangkok.[31] In the first (1961-66) and second national economic and social development plan (1967-71), planners largely saw the benefit of such roads in terms of facilitating the transport of manufactured goods into the interior, providing lower prices for consumers in the more remote parts of the country, and building a market for the products of new investments in industry.[32]

Road construction was also related to the upsurge of nationalism, which began in the 1920s and reached a peak between 1937 and the early 1960s.[33] One aspect of

---

[31] There were a number of criterias for determining road building in Thailand in the early 1960s, for example:

(1) Population of locations connected and density of population of area served

Roads which connect two or more important centres of provincial administration, or of Amphurs, with a relatively large population (say more than 20,000) should receive high priority ratings. Similarly, roads transversing an area of relatively high population density should receive high priority ratings. This is based on the fact that a significant portion of the road traffic today is bus traffic or mixed freight and passenger traffic.

(2) Present and expected traffic density

Roads carrying a relatively high degree of traffic - say more than 250-300 vehicles a day now, or 500 vehicles a day 5 years after completion (or from now), should receive a high priority rating. In projection data, all available data concerning population growth, vehicles registration etc, should be used, and the reasons for the use of a rate of growth should be stated.

(3) Area of influence

Roads transversing an area where no other convenient means of transportation are available should receive a higher priority. Similarly, roads with several feeder routes connecting sizable population centres, or areas of known existing significant agricultural importance, should receive higher priority. Whenever additional production (agriculture - other) is expected from the improvement or from further feeder roads. These factors should be taken into account and should raise the priority rating.

(4) National Highways as feeder roads

Roads performing the function of feeder roads, that is roads which are the national and often the only outlet of an area with large (relatively) populations and with appreciable agricultural (or other) productions and connect these areas with a junction with a priority road or with a R and R station should receive a high priority.

(5) The existence of alternative facilities

Roads running parallel to a R and R or to a waterway or connecting two ports used by coastal vessels or boats should receive a lower priority rating.

(6) Cost benefit Ratios

In some cases, it might be possible even during the preliminary phase of this work to calculate the benefit resulting form the recommended improvements and from the recommended contractors of a new road. In these cases, its cost, benefits ratios would provide an important criterion for the priority rating. In other cases, the benefits would be wanted for the evaluation of the saving in transportation costs. Also this will be a useful criterion for the priority rating. In the review of the proposals to build new roads, as would be the case for development of roads, the cost/benefit analysis would be the basic element for any recommendation (N.A (1) M.of Finance 1.3.3.2/5 (1961)).

[32] P.J. Rimmer, "Government Influence on Transport Decision-Making in Thailand" in G.J.R.Linge&P.J.Rimmer(eds), **Government Influence and the Location of Economic Activity** Canberra : Australian National University, 1971,p. 328.

[33] In a speech before the National Assembly advocating the change,Phibun argued that internally the name "Thailand"would make clear that the country belonged to the Thai (a reference presumably aimed primarily at the large Chinese minority,and to a lesser degree at western economic domination, while others noted that externally it would advertise Thailand as the natural home of all the Thai peoples,giving expression to a nascent Pan-Thai movement that envisioned uniting the Thai of Thailand with various Thai peoples of Laos,the Shan States of northern Burma,and adjacent areas,in a single Thai state. The change in name was followed by a series of regulations restricting the activities of Chinese and other minorities and by the beginning of a campaign to press for a revision of the

this nationalism was the strengthening of Bangkok as the national centre, and the integration of the whole nation focused on the capital. Roads were part of the project to bring about a unified nation state with a central government strong and efficient enough to exert effective control, even in remote areas populated by minorities. Furthermore, roads made it possible for government to despatch the police and military quickly to areas where dissidents, such as communists, appeared, often among minorities in the border regions.

Highway construction was also made possible to a large extent by foreign aid, particularly from the U.S.A and the IBRD. Between 1955 and 1965, aid contributed to system planning for the road network, strengthening of the Highway Department, introduction of modern construction technology and international standards, development of a private Thai construction contracting sector able to build bridges and roads, financing of feasibility studies for a number of individual routes, and the actual construction of a number of highways.[34] Muscat notes:

> After 1957 it soon became apparent that the technical and financial resources needed for rapid expansion of the Thai highway system were much greater than the Thai government and aid could provide. By 1965 aid financing for primary highway construction was phasing out, and the Thai government was turning to the World Bank, with its much greater resources for capital project financing, or major assistance in completing the highway investment program. Between 1963 and 1978 World Bank highway loans amounted to $223 million.[35]

IBRD policy was to help government to provide infrastructure in order to assist private undertakings. The U.S. interest arose from U.S. policy in Vietnam.[36] Between 1961 and 1970, almost half of all IBRD loans to Thailand were allocated to highway construction projects (Table 7.6). Pasuk Phongpaichit wrote in 1980:

> The highway plan was largely geared towards security and defence purposes. The U.S. was concerned about the possibility of invasion from Thailand's eastern borders, and in the latter half of the 1960s, it needed to establish bases in Eastern Thailand as part of its military operation against North Vietnam. A further quarter of the IBRD loans between 1961 and 1970 was used to develop power supplies and the remainder was channeled into irrigation, other transport projects (railway and a seaport), education and industrial development.[37]

---

border between Thailand and French Indochina. The change of new year's day from the old April 13 to the western January, The Thais were being told that only the western dress,including hats for both sexes was civilised and so on (Benjamin Batson, " The Fall of the Phibun Government,1944," **JSS**,Vol 62, part II, 1974,p. 91).

[34]Robert J. Muscat, **Thailand and the United States Development:Security and Foreign Aid**,New york:Columbia University Press 1990, p.96.

[35]Ibid., p.95.

[36]Pasuk, Economic and Social , p.64.

[37]Ibid, p.65.

Table 7.6 Distribution of Foreign Loans by Types of Projects by Sources, 1961 and 1970 (U.S. Million)

	IBRD	U.S.A.	Japan	W. Germany	A.D.B[1]	others[2]
Transport and Communications	54.8	64.0	39.0	38.0	-	7.6
Highways	*42.8*	*49.2*				
others	*12.0*	*15.8*	*39.0*	*38.0*	-	-
Agriculture and Irrigation	19.9	35.0	23.1	20.8	-	-
Power	22.3	27.6	37.9	19.5	55.8	89.4
Education and Health	0.9	-	-	-	-	-
Industry	2.1	-	-	21.7	44.2	3.0
Total	100.0	100.0	100.0	100.0	100.0	100.0
Total Loans (U.S.$ million)	**287.0**	**41.9**	**68.6**	**63.7**	**34.0**	**30.9**

Source: Pasuk Phongpaichit, **Economic and Social Transformation of Thailand, 1957-1976**, Chulalongkorn University Research Institute, 1980, p. 64.
Notes : 1/ Asian Development Bank.
2/including Australia, New Zealand, the U.K., Switzerland, Denmark, Belgium, Italy, Canada, Sweden, Israel and the United Arab Republic.

From the late 1950s, road construction reflected American influence. After the World War II, the U.S.A. used bilateral aid as a means to combat communism and independence movements in southeast Asia. By 1950 the U.S.A. had become actively involved in Indochina. In order to accommodate Western allies and in particular the U.S.A., Thailand abandoned her support for the nationalist movements in Indo-China, and overplayed its fear of communism in order to secure military and economic assistance from the U.S.A..[38]

The era of modern road construction

The era of road construction began in 1958, when a modern all-weather highway called the "Friendship Highway" was built from Saraburi to Korat, and then extended to Nong Khai in 1964[39] (Map 7.2). It was built with financial assistance from the U.S. government at a cost of about $20.5 million.[40]

[38]Ibid., pp. 54-59.
[39]Muscat, Thailand, p.96.
[40]N.A.Personal File 7/ 1958 and N.A. (1) M. of Finance 1.3.3.2/8 (1965).

Construction of the first 63 kilometres from Saraburi was completed in June 1958 and The Saraburi-Korat section inaugurated by the King in July 1958, was the first American-style road construction in Thailand.[41] It ran 12 metres wide for 148.5 kilometres, and cost 3.5 million Baht per kilometre.[42] The project was jointly undertaken by USOM and the Department of Highways. While this section was still under construction, the Department planned the extension to NongKhai, and USOM granted 252.7 million Baht in aid for the project.[43] Against a background of rising communist influence in the northeast, construction began at the end of 1962 and completed in 1964.

In the same period, the Sukumvit Highway was built from Bangkok through to Trad close to the Cambodian border. In this case, strategic considerations were subordinate to economics. The road was justified to serve Chonburi, which was rapidly growing as a market centre for the rice, cassava, fruit and timber of the surrounding region, and Sriracha, which was developing as a port and centre for oil refineries. The highway ran 388 km, cost US$38.1 million, and was built to U.S. standards.[44]

In the March-April 1961, the IBRD sent a survey team which worked with the Department of Highways and the National Economic Development Board to develop a programme for upgrading seven highways covering some 1,662 kilometres in length over the period 1962-1966 (Table 7.7) The cost of the programme was estimated by the Department of Highways at 2297.4 million Baht, of which approximately $46 million was a loan from the IBRD to cover foreign exchange costs.[45] The programme was later enlarged and extended to cover 4,959 kilometres at a cost of 7,560.5 million Baht (Appendix Table 7.4 A).

---

[41]Wisit Kasiraksa, "Economic Effects of the Friendship Highway", Master thesis,SEATO Graduate School of Engineering,1963,p. 6.

[42]Tamsuk Numnon, "The Relationship Between Thailand and America After the World War II,"**Thai Diplomacy in the Rattanakosin Period**, Bangkok:Thai Watana Panich,1985,p.129.

[43]N.A.(1) M. of Communications 1.3.3.2/8(1963); Boonchana Attakorn, "The Important Development Work Under Prime Minister Sarit Tanarat 1959-1963", **Witessahakarn**, p19; and Somsong Kriengkraipetch, **the Record of Siam Story**, Bangkok:Prachak Publishing Company, 1983, p. 625. The Nongkhai extension was 360 km long and 8.75 km wide. PrimeMinister Thanom Kittikajorn presided at the opening in January 1965.

[44]N.A.M.of Finance 0301.2.4/22 (1961).

[45]N.A. M. of Finance 0301.2.4.1/52 (1961-62).

Table 7.7 Proposed IBRD Highway Improvement Programme (1962-1966)

No.	Projects	Length (km)	Cost (million Baht)
1	Saraburi-Nakhon Sawan	235	319.2
2	ChiangMai-Lampang	105	235.0
3	Loei-Chumpae-Khon Kaen	215	261.1
4	Udon-Nakhon Phanom	244	233.0
5	Nakhon Pathom-Chumphon	444	643.2
6	Nakhon Si Thammarat-Kantang	162	234.5
7	Songkhla-Narathiwat	257	371.4
	Total	**1,662**	**2,297.4**

Source: N.A. M of Finance 0301.2.2.1/52 (1961-62).

Most of the highways which were extended into the central, east and northeast regions were designed to serve the U.S. Air Bases. Dr Thak Chalermtiarara described military road construction in the 1960s:

> Its most striking feature was the road plan for the Isan [Northeast] region which contained the "loop" (between Korat to Ubon and swinging north to Roi Et, MahaSarakham before joining the Friendship Highway leading to Khon Kaen, Ubon and Nongkhai). This strategic loop was to link up the network of American bases at Korat, Ubon, Khon Kaen, Udon and Nongkhai. United States financial aid for road construction was initially heavily concentrated on the Friendship Highway, part of which was completed in the mid-fifties. United States funds for this highway linking Bangkok to Nong Khai near Vientiane in Laos was aimed first to improve the Bangkok to Saraburi route (1959-1964) ,and then the Korat to Nong Khai stretch (1957-1965). It is also interesting to note that the major planning of these highways came in 1962 after the Rusk-Khoman agreements of March 6, 1962 which was interpreted as a commitment by the United States to defend Thailand against possible "aggression" from Laos. We should recall Sarit's ordering of the mobilization of troops from Phitsanulok and Korat to the Laotian border in February 1962 during the Pathet Lao offensive, and the subsequent SEATO nations' show of force in April. By this time, the Sarit government was very concerned with the situation in Laos, and we can fairly conclude that the re-planning of the national highway system in July 1962 was a quick response to these developments.[46]

The investment in road transportation accounted for 43 percent of total public expenditure in 1950-1959[47], 26 percent of total public expenditure under the first National Economic and Social Development Plan (1961-66), and 30 percent in the second plan (1967-71). From 1950 to 1975, the total length of highways more than doubled (Table 7.8), while the surface quality also improved markedly.

---

[46]Thak Chaloemtiarana, **Thailand: The Politics of Despotic Paternalism**, Bangkok: the Social Science Association of Thailand,1979, p.357.

[47]United Nations, **Economic Survey of Asia and the Far East, 1961**, Bangkok:1962, p.27.

Table 7.8 The Length of Railways and National Highways and Railways in Thailand,1897/98-1975

Year	Railways (km)	Highways(km)
1897/98	125	-
1900/01	264	-
1905/06	575	-
1910/11	932	-
1915/16	1,668	-
1920	2,253	940
1925	2,581	1,731
1930	2,922	2,670
1935	3,100	3,278
1940	3,130	3,385*
1945	3,403	5,549
1950	3,272	5,759
1960	3,494	8,446
1970	3,765	10,401
1975	3,765	12,658

Sources: Constance M. Wilson, **Thailand: A Handbook of Historical Statistics,** Boston: G.K. Hall, 1983, p. 168; N.A.(2) Office of the Prime Minister 0201.66.5/5 (1934-1953); Department of Highways, Ministry of Communications, **In Memory of Ministry of Communications,** Bangkok : 1954 p.113; and Malcolm Falkus, "Economic History and Environment in Southeast Asia", in **Asian Studies Review,** Volume 14, no.1 ,July 1990 p. 68.

* The increase in the total length of highways in the 1930s may be an illusion created by the extension of statistical coverage. I found very little evidence in the records of new highway construction in this decade.

IV

The Economic Consequences of Highway Construction on Bangkok's Primacy After 1950

The Development of road motor transport as changing technology

Following the expansion of the highway network, the number of licensed motor vehicles increased considerably in the 1950s and the 1960s:[48]

	1950	1960	1970
Trucks	6,345	36,256	126,590
Buses	9,241	12,605	19,562
Passenger Cars	31,605	59,849	113,832
Taxis	561	16,762	24,554
Total	47,752	222,085	284,538

Motor transport came to replace the traditional modes of transportation. By the early 1960s, road motor transport had overtaken other methods. The numbers of elephants, horses, and bullock-carts in use declined steeply. Trucks became a familiar sign in all rural and trunk roads.[49] Personal cars and taxis were concentrated in Bangkok, and so too were trucks and motorcycles in the early 1950s. But by the

[48]Wilson, Thailand:A Handbook, p. 173.

[49]N.A.(1) M.of Finance 1.3.3.2/1 (1953).

1960s, large and growing proportions of the numbers of buses, trucks and motorcycles were found in the provincial areas.

The advent of modern road transport lowered transport costs, especially in Bangkok, and increased the cost differences between Bangkok and rural areas (Table 7.9). Some of this difference resulted from better roads and hence lower vehicle maintenance costs in Bangkok.[50]

Table 7.9 Freight Rates of Truck in Bangkok-Thonburi and Rural Provincial Areas in 1962

Length (km.)	Bangkok-Thonburi Satang per kilometre	Rural provincial areas Satang per kilometre
1 -3	2	4
3 - 5	2.5	4
5 - 8	3.5	4
8 - 11	4	4
More than 11	5	5

Source: N.A. personal file 10/181 (1962).
Note: Rural provincial areas mean the areas outside municipal areas.

The heavy investment in roads encouraged investment in the car industry which was concentrated in Bangkok. Thailand had no automobile industry of its own until the early 1960s. But demand and imports increased rapidly from the late 1950s. Sales of passenger cars increased by 4.7 times between 1959 and 1963 from 1,926 to 9,002 units; sales of trucks and lorries (including chassis fitted with engines) increased by more than 1.6 times from 5,645 to 9,004 units.[51] The value of motor vehicle and spare parts imported into the country almost doubled from 529 million Baht in 1959 to 1,105 million Baht in 1963. Imports of built-up cars averaged 10,206 units per year between 1959 and 1963. Other automobile imports, including chassis with engines, increased from 11,071 units in 1959 to 21,236 units in 1963. Motor cycles were also in great demand. In 1963, a total number of 37,619 units valued at 120 million Baht were imported with a five-year average of 14,000 units per year between 1959 and 1963.[52]

---

[50]Based on the estimation of expert teams in the early 1950s,one source noted that

> Roughly estimated from the existing scant data,the average Thai truck or bus engaged in over-the -road transport runs close to 20,000 miles a year at present,but nears the end of its useful service life as conditioned by mounting costs of operation,repair, and unkeep in 3-4 years as a rule. Many of the trucks and buses have to be laid up for long spells in monsoon season because of impassable roads. All of them have to undergo rough usage in the dry season because of bad roads. With better routes,from what could be learned by consulting local experts,the average over -the -road vehicle might be expected to run close to 25,000 miles a year (25 % more intensive use) but to remain in good operable shape for at least five years (25 % more useful service life)....(N.A. (1) M. of Finance 1.3.3.2/1,(1953)).

[51]Krasair Bhangananda, "Automobiles in Thailand", **Bangkok Bank Monthly Review**, August, 1964, p. 296.

[52]Ibid.,p. 287.

Among the Asian countries, Thailand ranked second (behind Korea) with regard to the imports of Japanese cars and chassis.[53]

As the demand for cars increased steadily, car assembling plants became an operative proposition.[54] In 1961 a European trading company established Thai Motor Industries Ltd to locally assemble Ford cars. One year later, Siam Motors & Nissan Co. Ltd. was set up by a local capitalist (Thawon Phornprapha) to assemble Japanese cars. During the next five years (1963-68), another five Japanese companies came to Thailand and started production of their own brand name cars. They were Toyota Motor (1963), Mitsubishi Motor, Prince Motor (1964), Isuzu Motors (1966), and Hino Motor (1966). In 1970 and 1972, Ford and General Motors established plants in Bangkok to produce so-called "Asian cars" under their region-wide corporate strategy.[55] However, the Japanese companies rapidly rose to a position of dominance. The total paid-up capital invested in the automobile industry rose from 104.9 million Baht in 1966 to 175.8 million in 1969. By 1966, Japanese firms accounted for 78 percent of total investment in the automobile industry, slipping back slightly to 71 percent in 1969.[56] Of the total Japanese investment, 77.9 million Baht was in joint ventures and 46.4 million in wholly-owned firms.[57] The number of jobs created by the Japanese automobile industry was 1 840 and 2,094 in July 1968 and December 1969 respectively. Between 1966 and 1969, total value of sales of Japanese firms more than tripled (see Table).[58] By 1969, Japanese firms had captured 78 percent of the market.

Year	Sales of Japanese cars ('000 Baht)
1966	385,134
1967	737, 523
1968	1,002,795
1969	1,253,714

[53] Ibid.,p. 284. Prior to 1959, passenger and commercial cars were imported mostly from Europe. From 1959 onwards, Japanese cars played an increasing role. In 1962,the total number of cars imported were 13,717; of these 6,015 came from Japan making her the biggest car exporter to Thailand,followed by the United Kingdom,West Germany,United States,Italy,France and Sweden, with 2,271,2,071,979,321 and 109 units respectively. This made Japan a lead of 68.7 % of the total imports for commercial vehicles (ibid., p. 282).

[54] Furthermore, the car assembling plants enjoyed tax exemption and other privileges under the Industrial Promotion Act. The car assembling industry in Thailand had therefore taken great strides forward.

[55] Suehiro,Capital Accumulation in Thailand , p. 209.

[56] **Investor**,August,1970,p. 817.

[57] Ibid.,p. 817.

[58] Ibid.,p. 817.

Through the 1960s, Bangkok acquired the miscellaneous industries connected with automobiles and highways such as repair shops, garages, service centres and dealers.

Suburbs in Bangkok

The growth of motor vehicles and the building of roads led to expansion of the suburbs. In the late 1960s, housing projects extended along Bangkok's new suburban roads: Wang-Tong Lang, Klong chan, Lard Prao, Klong kum, and Samsen Nok in the Hua Mark area; Suan Luang, Bangchak, Nong Born, Prawet and Bangna in Prakanong; Ladyao and TungSonghong in Bangkhen; Bangwa, Bangkaelua, Bangchak and Bangduan in Phasri Charoen; Kwang Luksong Nongkham in Nongkham; Chimpulee and Tawee Wattana in Talingchan. In the 1970s major housing developments extended into new suburbs such as Bangkapi and Bangkhen; in areas of Thonburi such as Bangkhuntien; along sois built out from roads such as Lard prao, Klongtan-Prakanong, On-nutch, Udom Suk, Bangna-Trad, Pattanakarn, Ramindra, Minburi-Ladkrabang, Din Daeng Donmuang, Changwattana, Ngamwongwan, Paholyothin, Sukhumvit, Nongchok-Ladkrabang, Petchkasem, Charalsanitwong, Suksawas, Thonburi-Samutsakorn (Ekkachai), Thonburi-Paktoa, Rajaburana, Bangkok Noi-Talingchan, and Sukhapiban No. 1, 2, 3.[59] Bangkok spread out to incorporate adjacent urban areas in Nonthaburi and Samut Prakarn in the late 1960s.

By the 1950s the prosperity of the railways was over. The construction of an all-weather national highway system gave the railway system increasing competition and reduced its overall earnings.[60] The completion of the Friendship Highway resulted in immediate and sharp declines in rail passengers, livestock and freight on the northeast line of the state railway, which line was by far the most important in terms of freight and passenger revenue. In 1957, the northeast line had earned 44 percent of total goods revenues and 47 percent of total passenger revenue. The decline in traffic on this line was significant enough to reduce total revenues of the system by nearly 11 million Baht between 1957 and 1958.[61] The decline was concentrated in the section of the line below Korat, but the effects were clearly extended as far north as Banphai in Khon Kaen, 186 kilometres north of the Korat at the end of the Friendship Highway.[62]

---

[59]Chalitpkorn Veeraplin,"The Growth of Bangkok"**Journal Of Krungthepmahanakorn**, Vol 7,no 27,January-April,1975, p.14.

[60]Wilson,Thailand:A Handbook, p.161.

[61]N.A. (1) M. of Finance 1.3.3.2/4 (1960)

[62]N.A. (1) M. of Finance 1.3.3.2/4 (1960)

In 1958, total loadings dropped sharply at 18 out of the 21 stations between Korat and Banphai. In 1959 rice loadings dropped substantially at most of the stations along the entire line. The state railways summarized the main causes of the reduction as follows.

---

1. Cost of Carriage between Udon Thani -Bangkok
Rice: the average cost per bag by car = 10 Baht
the average cost per bag by train = 12.30 Baht

Hibiscus : the average cost per bag by car = 11 Satang
the average cost per bag by train = 11.61 Satang

2. The Speeds, Time Spent from Udon Thani - Bangkok
By Car: 10 Hours
By Train: 2 Days

3. Passenger Fares
The bus fare Banphai-Bangkok = 30 Baht
The railway fare (third class) Banphai-Bangkok = 35.50 Baht

The bus fare KhonKaen-Bangkok = 40 Bah
The railway fare (third class) Khonkaen-Bangkok = 39.50 Baht

The bus fare Udon-Thani-Bangkok = 45 Baht
The railway fare (third class) Udon Thani-Bangkok = 50 Baht

Source: N.A. Personal File 10/1965, File no.3.

Bus and truck transport rapidly took over from the railway.[63] The USOM Economic Survey of the Korat-Nong Khai Highway Area in 1960 reported:

> .[.T]he cost of shipping a head of cattle by railroad from Korat to Bangkok is only 80 Baht compared with 150 Baht by truck. At least part of this higher cost is compensated by the shorter transit time. Cattle shipped by rail from Khon Kaen may lose as much as 10 percent of their starting weight by the time they arrive in Bangkok, due to the physical impossibility of providing the animals with either food or drink under the existing method of securing them in the cars. Another factor favouring truck transportation since completion of the Friendship

---

63 There are a few works focusing upon the aspects of rail road competition. Wisit Kasiraksa (1963) undertook the investigation of the effect of he Friendship Highway on parallel rail transportation.The competition of the Friendship Highway in 1958 resulted in an immediate and sharp decline in rail freight and passenger traffic. In the year after completion of the Friendship Highway,there was a reduction of total rail loadings valued at 10 million Baht;total rail carloading fell 132,000 Metric Ton and 315,000 fewer passengers used the railroad.Fuller discussion,see Wisit, "Economic Effects". Kovit Kuvanonda (1969) conducted a research by investigating the effect of the Korat-Nongkhai Highway on rail transportation. Freight and passengers carried by the railway were studied to determine the extent to which this traffic was affected by the parallel highway. The freight volume and revenue of the railway decreased rapidly after the highway was opened in 1965. For example, car load (CL) freight despatched from the Korat freight district decreased markedly in 1965. The tonnage despatched in that year was 54 percent lower than in 1962 (the base year). The 1965 tonnage was only about half of the tonnage despatched in 1964. The Revenue from freight despatched from the Korat district in 1964 was nearly the same as in 1962. In 1965,it decreased to 50 percent lower than the 1962 revenue.The revenue from passengers on the Ubon line In 1965 was 29 percent lower than the 1962 revenue,and 34 percent less than earnings in the previous year (Kovit Kuvanonda, "Effects of the Korat-Nongkhai Highway in Northeast Thailand on rail Transportation", Master Thesis, Asian Institute of Technology, 1969).

> Highway is the greater ease of avoiding quarantine inspection when the cattle are driven down the highway at night. Finally, night trucking is considered preferable on humane grounds due to the lower temperatures and the shorter duration of trips.[64]

Bangkok and Provincial Trade

At the beginning of the 1950s, the report of Road Mission Experts had noted:

> Throughout Thailand, road transport is predominantly local in the sense of short-haul buses moving passengers between nearby towns and short-haul truck moving food, materials, and supplies to nearby markets, processing plants, and terminals. Some of the heaviest movements of truck-hauled goods include rice, perishable produce, charcoal and firewood for the supply of large towns; paddy haulage to rice mills and log haulage to sawmills; tin, ore, rubber, and sawn lumber inbound to railheads and ports, and petroleum products outbound form them; and fodder, imports, and general goods for distribution to nearby villages.... Almost everywhere else, traffic densities thins out to a few vehicles an hour or even less. Certain inland communities visited had only a handful of cars, trucks or buses while certain road stretches which the Mission traveler had almost no motor traffic. A large volume of inter-regional trade does exist, eg. the inflow into Bangkok of rice, lumber, and firewood. But it moved largely by rail, river barge or coastal craft. The bulk of the inter-regional passenger traffic covering on Bangkok is rail hauled....[65]

Ten years later, the picture had radically changed. During the 1960s, the volume of trade between Bangkok and the regions increased sharply wherever road transport was now available. Between 1964 and 1972, the average daily traffic on the arterial roads out of Bangkok increased by two to four times (Table 7.10).

Table 7.10 The Average Daily Transport Volume on the Roads of Bangkok, 1964-1972

Road no.	Routes	1964	1968	1972
1	Don Muang - Wang noi	4,683	8,700	13,299
3	Bangkok - Samut Prakarn,	9,840	15,717	22,434
	Samut Prakarn Bang Pakong	5,701	5,993	
4	Bangkok - Pasri Charoen	6,653	14,805	28,555
	Phasri Charoen - Nakorn Pathom	6,600	9,938	12,878
31	Ladphrao - Don Muang	8,900	17,705	28,604
34	Bangkok - Bang Pakong	n.a.	8,746	8,994
304	Pak Kret - Lak si	1,133	2,226	4,343
	Laksi -Nong Chok	786	n.a	3,113
	Nongchok-Chachoengsao	210	1,151	2,201
305	Rangsit Thunyaburi	n.a.	1,308	2,974
	Tha Phra - Phra -Ram 6	12,384	16,318	40,385
	Pra Ram 6-Nonthaburi	4,139	4,981	11,100
	Nonthaburi - Pathum Thani	2,746	2,311	6,584

Source: Wolf Donner, **The Five Faces of Thailand: An Economic Geography**, Queensland: University of Queensland Press, Table 164, p. 312.

---

[64]N.A. (1) M. of Finance 1.3.3.2/4 (1960).

[65]N.A. (1) M. of Finance1.3.3.2/1 (1953).

Highways linking Bangkok to the provinces created a substantial stimulus to the growth of a national market. Cheaper transport along the existing main roads encouraged the cultivation of cash crops, such as, sugar cane, maize, jute, kenaf, and cotton which were sent to Bangkok for exports. Road transportation provided higher returns to producers and lower prices to consumers. Quicker and cheaper transport opened up the potential for inter-regional truck haulage of high-value goods and perishable products.[66] Wisit Kasiraksa used the Friendship Highway as a case study to estimate the reduction in time and costs (Table 7.11).

Table 7.11 Advantages of Transportation via the Friendship Highways Compared to Old Saraburi Route in 1962

Items	Travel via old Route	Travel Via Friendship Highway	Reduction in Amount	Reduction in Percent
Average travel time	11 hours	3 hours	8 hours	73
Distance	340 km.	166 km.	174 km	51
Bus Fare	60 Baht	10 Baht	50 Baht	83

Source :Wisit Kasiraksa, "Economic Effects of the Friendship Highway", M.A. thesis, SEATO Graduate School of Engineering, 1963, p. 25.

The Friendship Highway roughly halved the distance from Saraburi to Korat, saved 8 hours of travel time, and cut 50 Baht from the bus fare. The Highway stimulated road transport between Bangkok and Korat.[67] In the mid 1950s, only some 100 vehicles a day used the old Saraburi-Korat route; compared to 2,500 vehicles a day on the Friendship Highway a decade later.[68] Two-thirds of the traffic on the Friendship Highway consisted of trucks and buses[69] (Table 7.12).

---

[66]N.A. (1) M. of Finance 1.3.3.2/1 (1953).
[67]Wisit, "the Economic Effects", p.25.
[68] Falkus,"the Economic History",p.65.
[69]Department of Highways, **Traffic Volumes and Flow Maps**, Planning Division, Bangkok: 1969.

Table 7.12 Average Daily Traffic(A.D.T) and the Percentage of Buses and Trucks on the Friendship Highway (1959-1969)

	1: 129 km from Bangkok		2: 223 km from Bangkok	
Year	A.D.T.	%of Buses and trucks	A.D.T.	%of Buses and trucks
1959	1,000	73		
1962	1,354	77	1,253	76
1963	1,516	74	1,366	77
1964	1,929	70	1,739	73
1965	2,133	63	1,847	68
1966	3,046	58	2,544	72
1967	3,046	57	3,307	71
1968	4,701	66	3,884	75
1969	4,703	62	3,666	73

Source: Department of Highways (1969), **Traffic Volumes and Flow Maps**, Planning Division Bangkok.

Outside the waterways system of the central plain waterways system, road transport offered dramatic savings in time and cost compared to traditional modes of transport.[70] The Petchkasem Highway was designed to provide a better connection between Bangkok and the southern region of the country which produced rubber and tin, the second and third ranked foreign exchange earners in the late 1950s. The completion of the highway not only stimulated exports of these products through Bangkok, but helped develop towns along the road, such as Nakhon Pathom, Chumphon and Hua Hin, as important fruit-producing centres, noted especially for pineapples and cantaloupes. The improved highway also stimulated growth of the

[70] The growth of truck use affected the declining cost of transportation between farm and markets in particularly in Bangkok as was noted by the report of the Mission's transport economist estimation in the early 1950:

> Truck and bus operation costs on the improved main roads would decline by 25-50% because of lengthened service life, lower fuel consumption ratios and prompter vehicle turn around. Trucking charges in particular shoul l gradually tend to diminish over the entire network to the prevailing level of roughly 4-5 cents a ton-mile on the best stretches. With motorable farm to market roads as well, permitting the replacement of ox-carts by trucks, the costs of local haulage should gradually be cut to a small fraction of the present cost (N.A.(1) M. of Finance 1.3.3.2/1(1953)). Usher estimated rice transport in Thailand in 1965 and found that river transport was cheapest form,costing as little as 0.1 Baht per ton kilometre. But the defects of river transport were that it was too slow and it required additional shipment by truck the origin and destination of the cargo happened to be on banks of accessible rivers. Cost of truck under the a good road condition was lowest amouted,0.16 Baht per ton-Kilometre which was for the longest haul,750 kilometres. The rate increased steadily to a high of 5 Baht per ton kilometre when grain was carried for very short distances. The high rates were partly due to road conditions or to the absence of roads,for it was customary to drive trucks over fields in the dry season to pick up grain from farms that were not located on roads.The ox-cart and the jeep were found to be the most expensive forms of transport.The jeep was used only when a road was so bad that a truck could not pass over it; a jeep normally carried about one ton of cargo. The ox cart carried about half a ton. Transport by rail was cheaper than truck,but competition reduced truck fares to a point where truck and rail could compete equally on price,and truck had the edge on rail in speed of delivery (Usher, " the Thai Rice ," pp. 216-218).

fishing industry on the upper western side of the Gulf of Thailand for supply to the Bangkok market.[71]

In the 1960s, many feeder roads were built to add greater density to the highway network. In the northeast, new roads were built connecting Sakon Nakhon, Roi-Et, Udon, Sakon Nakhon, Nakhon Phanom, Khon Kaen and Loei; in the north connecting Phrae and Nan; in the south connecting Yala, Pattani, and Narativas. These roads were important in opening up new areas for agricultural expansion. For instance the Udon-Nakhon Phanom highway passed through a relatively densely populated area which produced rice, tobacco, maize, kenaf and cattle. Before the highways were constructed, a large portion of households in those areas were engaged in small-scale production for home consumption. Some villages were isolated during the rainy seasons and consequently had to store stocks of food and other supplies. The new highways had to be stored. The Finance Ministry expected roads in such an area to have a dramatic impact on the economy:

> Since an improved road would reduce operating costs for vehicles using it, we could expect an increase in traffic and a reduction in freight rates. This would stimulate business activities between the three provinces and between this area and other areas. The people would be encouraged to produce more for outside markets. More specialization in production and larger farming units would ensue. Stocks of food and other supplies, which must be maintained as a hedge against shortages could be reduced, thereby releasing capital for other purposes.[72]

> The improved highway will yield economic gains of a high order. Recently, there has been an increase in the production of fruit and vegetables, which are too plentiful for consumption. Since these products are perishable, a better highway is required for shipment to markets elsewhere. Generally speaking, the soil of this area is fertile. Besides, there are rich deposits of zinc and tungsten around Loei. All in all, this area has great potential for economic development. What it needs most, at present, is better transportation. Improvement of the existing highway between Loei and Khon Kaen is regarded as a necessary first step, pending development of a more direct route to the South via Chaiyaphum.[73]

Similarly in the south, the new road between Nakhon Si Thammarat and Kantang road acted both as a feeder road to the main Petchkasem road, and a feeder to the southern ports. The road was approximately 161 kilometers in length, cutting across the southern region almost laterally, joining key port towns on the east and west coasts,[74] and passing through a rich hinterland of rubber, rice, tin and fruit. The value of production in this hinterland was estimated at 333 million Baht in 1960. In the same year, export duties collected at Kantang were 60.8 million Baht, while import duties

---

[71]N.A.M.of Finance 0301.2.4.1/52(1961-62).
[72]N.A. M. of Finance 0301.2.4.1/52 (1961-62).
[73]N.A.M. of Finance 0301.2.1/52 (1961-62).
[74]N.A.M. of Finance 0301.2.1/52(1961-62).

amounted to 5.9 million Baht. The number of ships calling at Kantang was 1,743 foreign-going and 1,458 coastal.[75] Completion of this road opened up new land, and facilitated movement of produce from the hinterland through the ports to Bangkok and overseas destinations.

Roads made possible a great diversification of trade. They opened up new markets for a wide range of import goods. They made it economically possible to export many new crops and other products. From the mid-1950s onwards, the composition of Thailand's trade changed dramatically from the pattern which had been established in the late nineteenth century. In addition, Bangkok became more and more a centre for trade between regions. Rice from the central plain was transported through Bangkok to markets in the south. Seafood sourced from the eastern and southern regions was transacted through Bangkok to all the regions of the country.

Water transport was still used extensively along the coasts, and in the central parts of Thailand.[76] In the early 1960s, rivers and canal transport still carried bulk cargo such as paddy rice, certain kinds of petroleum products, timber and construction materials weighing nearly four million tons annually.[77] Nevertheless, roads made a dramatic impact. In the early 1950s, when roads were built in the eastern regions, roads facilitated the growth of trade between Bangkok and the provinces. It was noted in the 1950s:

> The agricultural growth of the coastal region southeast of Bangkok following the construction of a 350 km road into an area without railroads is a striking instance of how inter-regional roads can help to stimulate Thai production and trade. Most citrus fruits for the Bangkok market came from this area. It also produced large amounts of charcoal, timber, salt, building materials, and other essentials for haulage to Bangkok and intermediate towns. Except for timber and salt transported entirely by coastal ships, the great bulk of the traffic is truck-hauled. [78]

New export-processing and import-substitution industries were concentrated in Bangkok. As before, Bangkok gave numerous advantages from proximity to the port. Now it also conveyed the advantages of being at the focal point of the new network of internal transport. Roads helped enlarge the national market on which the import-

---

[75] N.A. M. of Finance 0301.2.1/52(1961-62).

[76] In the 1960s, Thailand had an extensive inland waterway system. The system, located largely in the central part of the country, is more than 1,500 kilometres in length covering an area of approximately 150,000 square kilometres and constitutes the principal means of transportation for more than a third of the population of the country.

[77] N.A. M. of Finance 0301.2.4.1/52 (196 -62).

[78] N.A. (1) M. of Finance 1.3.3.2/1 (1953).

substitution strategy depended. The increases in regional income from rising crop exports created demand for Bangkok-made industrial products such as clothes, soap, radios and bicycles.

The network of national highways also made labour more mobile. The new communications between Bangkok and the provinces soon increased congestion at the old central bus terminals at Sao Chingcha and at the New Road post office. By the early 1960s new terminals had to be developed at the fringes of the city, at Mo Chit for routes to the north and the northeast Ekkamai for the east, and Thonburi (Sai Tai) for the south and west. There are no regular records available for the passenger bus transportation, but a 1961 survey found 2,821 passengers travelling daily on the long-distance routes to and from the northeast (Table 7.13).

Table 7.13 Some selected Statistics Regarding the Transportation of Bangkok- Northeast Provinces in September 1961

	From Bangkok (Average Daily)	To Bangkok (Average Daily)
1. No of Buses	57 buses	57 buses
2. No of Passengers	1,901	1,704
3. No of Buses - (Long distances)	35	35
4. No of Passengers (Long distances)	1,440	1,381
5. % of Long Distance Passengers	85%	83%
6. No of Buses (Short Distance)	22	22
7. No of Short Distance Passengers	461	413

Source: N.A. Personal File 10/181 (1962).

As already noted, the largest number of migrants in Bangkok in the 1960s came from the central plain region. This tended to confirm the "gravity model"[79] which contends that distance is the most significant factor in encouraging mobility, with certain variations determined by employment rates, education and income.[80] For example, Savitri Garnjana Goonchorn (1974) employed the gravity model and neo-classical arguments to analyse rural migration to the greater Bangkok metropolitan area in the period 1965-1970 using step-wise and linear regression techniques. The results showed that distance from Bangkok and the size of the provincial population were the two main factors explaining where the migrants came from.[81]

---

[79] Hoover, An Introduction to Regional Economics, p. 178.

[80] See, Somboon, Migrants From.

[81] Ibid, pp. 75-88.

By integrating the nation for the first time under one transport network focused on the capital, roads helped to consolidate Bangkok's primacy. Ralph Thomlinson commented in 1971: "The pattern of the nation's transportation routes both results from and perpetuates the dominance of Bangkok."[82] To a greater extent than the waterways and railways ever had, the road network connected the whole of Thailand to the international economy through the gateway of Bangkok.

Conclusion

This chapter has looked at the role of the network of national highways before and after 1950. Prior to the 1930s, a national highway system did not exist. Even by 1940, there was not a single road linking Bangkok to the provinces. The lack of a system of national highways inhibited labour mobility and limited the size of internal markets. Also, the lack of a highway system prior to 1950, inhibited the growth of Bangkok as national metropolitan centre. After the mid 1950s, road network grew considerably. New roads reflected growing overall demand for transport services. Transport needs arose from many factors, including national security.

It is stressed that many of the new roads directly served Bangkok and so enhanced Bangkok's primacy. Many provincial roads also indirectly benefited Bangkok by linking remote districts to transport nodes, in turn linking with the metropolis. The road network built from the mid-1950s onwards reduced transport costs, enhanced the competitive position of distant producers, increased commercial production, and stimulated the automobile and related industries. Finally, a new network of roads encouraged labour mobility from the provinces, expanded the size of domestic market, and also facilitated exports and imports and increased the role of Bangkok as a primate city.

---

[82]Ralph Thomlinson, **Thailand's Population : Facts, Trends,Problems and Policies**, Bangkok: Thai Wattana Panich Press,1971,p.60.