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Poverty Reduction Through Long-term Growth: The Thai Experience

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Abstract

Thailand's impressive long-term rate of economic growth has resulted mainly from accumulation of physical capital. Significant total factor productivity growth can be identified at an aggregate level, explaining as much as one third of the aggregate growth of output. But this TFP growth was due entirely to resource reallocation from low productivity sectors to higher productivity sectors. TFP at the sectoral level has been important only in agriculture. Poverty has declined remarkably over time despite a long-term increase in income inequality. The short-term rate of decline in poverty incidence has been directly related to the rate of economic growth.

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1. Introduction

All happy families are alike; each unhappy family is unhappy in its own way.
Leo Tolstoy, *Anna Karenina* (1877).

Tolstoy opens his great novel with a conjecture: the set of possible ways in which families can be happy is narrow, but the set of ways of being unhappy is vast. Whether Tolstoy was right about happiness in families, something similar may well be true of economic success among nations. There are many more possible ways of failing economically than of succeeding. It seems to follow that to find the secrets of economic success among nations, studying the experience of successful countries should be more fruitful than studying failures. In studying success, we have the chance to learn universal lessons that others might use to replicate that success. In studying failure, we merely describe the particular way in which this or that country managed to waste its opportunities to attain prosperity. That, at least, is my version of Tolstoy's conjecture.

Thailand is a relatively successful developing country, based on its record of economic growth over the past half century. If we are interested in economic growth, studying Thailand seems a good idea. Economists need little persuasion that we really should be interested in economic growth, but non-economists tend to be dubious. There are reasons for thinking that economic growth is indeed important that even non-economists might recognize. Table 1 shows data on rates of economic growth over the 35 years from 1970 to 2005, among developing countries in major regions of the world. The table also shows data on life expectancy over roughly the corresponding period. Life expectancy seems a reasonable proxy for many dimensions of human welfare.

[Table 1 about here]

Regions where economic performance was weak, like Central Asia and Sub-Saharan Africa, experienced only small improvements in life expectancy. In East Asia, where economic performance was strong, life expectancy improved dramatically. Thailand is a good example of this relationship. The correlation is far from perfect, however. Latin America did not perform particularly well in growth terms but achieved impressive improvements in life expectancy. Within East Asia, a similar statement applies to the Philippines. Economic growth facilitates improvements in life expectancy, on average, because it generates the resources that households and governments need to finance the improvements in living conditions that are the basis for improvements in the average quality and duration of human life. But all this is about *averages*. What about the poorest people? Does growth do anything for them?

The focus of this paper is on the sources of Thailand's economic growth and its relationship to poverty reduction. Section 2 describes long-term growth in Thailand and its economic determinants. Section 3 turns to the sectoral composition of output and productivity growth. Section 4 turns to the record of poverty incidence and inequality in Thailand and their relationship to economic growth. Section 5 concludes.

2. Long-term economic growth

Following World War II, Thailand was one of the world's poorest countries. Its economy had been stagnant for at least a century (Sompop 1989) and it had suffered significant war damage. Most economic observers of the time rated its prospects poorly (Ingram 1971). By 1996, half a century later, these negative assessments had been replaced by euphoric descriptions of Thailand as a 'Fifth Tiger', following in the footsteps of Korea, Taiwan, Hong Kong and Singapore. Thailand was widely considered a champion of sustained development,

having achieved a combination of rapid growth, macroeconomic stability and steadily declining poverty incidence, extending over several decades. The twin currency and banking crises of 1997-99 interrupted this process, eroding some of the gains that had earlier been made, but subsequent recovery has restored Thailand's long-term growth path.

[Figure 1 about here]

This growth performance is described in Figure 1, showing the level of real GDP per capita in each year (vertical bars) and its growth rate (solid line) for the period 1951 to 2007. The figure identifies four periods of Thailand's recent economic history: I - Pre-boom (until 1986); II - boom (1987 to 1996); III - crisis (1997 to 1999); and IV - recovery (2000 to 2007). These four periods are summarized in Table 2. Over the period 1968 to 1986, the average annual growth rate of Thailand's real GNP was 6.7 per cent (almost 5 per cent per person), compared with an average of 2.4 per cent for low and middle-income countries (World Bank 1998). Then, over the decade 1987 to 1996 the Thai economy boomed, growing at 9.5 per cent in real terms. Over this decade, the Thai economy was the fastest growing in the world.

[Table 2 about here]

Even more remarkable than the rate of growth over this long period was the stability of the growth. Not a single year of negative growth of real output per head of population was experienced over the four decades from 1958 to 1996, a unique achievement among oil importing developing countries. Thailand's performance was often described as an example others might emulate. Its principal economic institutions, including its central bank, the Bank of Thailand, were often cited as examples of competent and stable management.

The crisis of 1997-98 reversed these assessments. Domestically, the economy was in disarray: output and investment were contracting; poverty incidence was rising; the exchange rate had collapsed, following the decision to float the currency in July 1997; the government had been compelled to accept a humiliating IMF bailout package; the financial system was largely bankrupt; and confidence in the country's economic institutions, including the Bank of Thailand, was shattered. Internationally, Thailand was now characterized as the initiator of a 'contagion effect' in Asian financial markets, undermining economic and political stability and bringing economic hardship to millions of people.

The economic damage done by the crisis of 1997-99, and the hardship that resulted were both substantial. The crisis eroded some of the gains from the economic growth that had been achieved during the long period of economic expansion, but it did not erase them. At the low point of the crisis in 1998 the level of GDP per capita was almost 14 per cent lower than it had been only two years earlier, in 1996. Nevertheless, because of the sustained growth that had preceded the crisis, this reduced level of 1998 was still higher than it had been only five years earlier, in 1993, and was seven times its level in 1951.

Since the crisis, Thailand's economic recovery has been moderate. The rate of growth of real GDP has been somewhat below its long-term trend rate and it was not until 2003 that the level of real GDP per capita had recovered to its pre-crisis level of 1996. Foreign direct investment has declined dramatically since 1998 and private domestic investment has remained sluggish. Despite the slower than expected recovery, in 2006 the level of real economic output per person was 19 per cent above its 1996 pre-crisis level and almost 10 times its level 55 years earlier. The average annual rate of growth of real GDP per person over this entire period of five and a half decades was 4.2 per cent.

Figures 2 and 3 place the last four and a half decades in a comparative East Asian perspective. Data on real GDP are presented for 8 East Asian economies, including Thailand. All data are indexed such that GDP per capita in 1970 = 100, except Vietnam, where data are

available only for 1984 onwards and the data are indexed to 1984 = 100. Figure 2 shows that booms occurred in Thailand, Malaysia and Indonesia from the mid-1980s to the mid-1990s, interrupted by the Asian financial crisis of 1997 to 1998. Thailand's boom was the largest of the countries shown, but only marginally so. Most other East Asian countries (except the Philippines) were not far behind.

As Figures 2 and 3 show, in 1997-98 serious contractions occurred in Thailand, Korea, Malaysia, and Indonesia. Relative to 1996, Thailand's initial contraction was the most severe. Along with Indonesia, its contraction was also the most long lasting. Thailand's contraction was initially larger than Indonesia's, but Indonesia did not experience a recovery as large as Thailand's in 1999. It is commonly said that Indonesia's economic crisis was more severe than Thailand's, but using the pre-crisis year of 1996 as a base, their time paths of real GDP, relative to that 1996 base, were remarkably similar. The main difference is that since 2002 Indonesia's recovery has been marginally slower.

[Figure 2 about here]

[Figure 3 about here]

3. Sources of aggregate growth

Where did Thailand's economic growth come from? Explaining long-term growth involves distinguishing between the growth of the factors of production employed and the growth in their productivity. We now discuss a growth accounting exercise for Thailand, covering the years 1980 to 2006. The present section presents this analysis at an aggregate, economy-wide level and the following section disaggregates the analysis by major sector.

The assumption being made in this kind of analysis is that output was primarily supply-constrained; aggregate demand was not the binding constraint on output. This

assumption seems reasonable for the period prior to the Asian crisis of 1997-99, but the crisis and recovery periods from 1997 onwards were characterized by a deficiency of aggregate demand. A growth accounting framework, which focuses on the determinants of aggregate supply, is therefore of limited relevance for such periods. The data relating to that period are included here mainly for completeness.

Data on labor inputs are adjusted for changes in the quality of the workforce by disaggregating the workforce by the educational characteristics of workers and weighting these components of the workforce using time series wage data for the educational categories concerned. Data on land inputs are similarly adjusted for the changing quality of land inputs by disaggregating by irrigated and non-irrigated land and then re-aggregating these components using data on land prices. In Table 3, the resulting estimates of factor growth rates are contained in the first column. The second column provides average factor cost shares over time, compiled from factor price data. These factor cost shares impose the assumption of constant returns to scale. The factor cost shares used in the calculations vary over time. The summary data shown in the table are the averages of these shares.

The third column on factor contributions to growth weights the growth rates of factors by their cost shares, producing an estimate of the degree to which the growth of output (6.01 per cent) is attributable to growth of each component. These data are then used to calculate total factor productivity growth as a residual. The final column shows the estimated percentage contribution of each component to the overall growth rate.

[Table 3 about here]

The outstanding point is the rapid growth of the physical capital stock. The capital stock grew more rapidly than output and accounted for 51 per cent of the growth of output. Growth of the size of the labor force contributed about 12 per cent of the growth of output,

but improvements in the quality of the labor force made only a modest contribution, explaining less than 4 per cent of overall growth. Indeed, the performance of its educational sector has been among the weakest in East Asia. Secondary school participation rates were low and did not improve greatly during the pre-boom and boom periods (Sirilaksana 1993). Similarly, since the 1960s the expansion of the cultivated land area has been small. Growth of the stock of land was not the source either. TFP growth was seemingly quite important, accounting for one third of output growth. We will see below, however, that this apparent contribution of TFP growth is not what it appears.

It is perhaps unsurprising that the explanation for Thailand's impressive growth lies primarily with growth of the physical capital stock. Both domestic and foreign investment grew rapidly, but the growth *rate* of foreign investment was larger, from about 1987 (Warr 1993). Foreign investment plays an important role in introducing new technology and in development of export markets. Nevertheless, the quantitative importance of foreign investment in Thailand's capital stock accumulation is easily exaggerated. Figure 4 makes this point by decomposing Thailand's total annual level of investment into three components: domestic private, public and foreign direct investment (FDI). It does this for each of four years, 1975, 1985, 1995 and 2005. Of these three components, domestic private investment is by far the largest and FDI by far the smallest. In 2005 their percentage contributions to the overall level of investment were: private domestic – 69.5, public – 26.8 and FDI – 3.7. Private investment by Thais themselves was the dominant contributor to overall capital accumulation.

[Figure 4 about here]

How was the investment financed? Did the funds come from domestic savings or from borrowing from abroad? Table 4 presents an accounting of this issue based on the

identities that: (i) total investment = household savings + government savings + foreign savings; and (ii) foreign savings = long term capital inflow + short term capital inflow – change in international reserves of the central bank. By far the most important source of finance was the private savings of Thais themselves.

[Table 4 about here]

Contrary to the common perception that Thailand's boom (1987 to 1996) was financed largely by foreign capital, this source, consisting of private foreign direct investment (FDI) plus foreign government investment (ODA), accounted for an average of only 5 per cent of total investment. During the pre-boom period, FDI accounted for about 61 per cent of this inflow of long-term foreign capital and ODA accounted for the other 39 per cent. During the boom period, these proportions were 73 and 27 per cent, respectively. Short term capital inflows, consisting of borrowing from abroad plus portfolio inflows plus domestic bank accounts held by foreigners were a more important source, accounting for 23 per cent of total investment. During the boom, government dis-saving (budget deficits) reduced the funds available for investment by 11 per cent and increases in the international reserves of the Bank of Thailand reduced it by a further 9 per cent.

It is instructive to compare the boom period (1987 to 1996) with the pre-boom period (1973 to 1986). The major difference was in the proportion of total investment that was financed by short-term capital inflows. This proportion increased from 2 per cent before the boom to 23 per cent during the boom. It financed investment, but it also sowed the seeds of the crisis of 1997-99. The accumulated stock of mobile foreign-owned capital grew to levels far exceeding the stock of the Bank of Thailand's foreign exchange reserves. If the owners of these funds chose to withdraw them from Thailand, the Bank of Thailand would be unable to defend its fixed exchange rate. This is precisely what happened in July

1997 (Warr 1999 and 2005a).

In summary, growth of the physical capital stock was the most important contributor to Thailand's aggregate growth, accounting for 70 per cent of all growth over the period 1981 to 2002. Most of this investment was financed from Thai domestic private savings. The notion that Thailand's accumulation of physical capital was financed by foreign direct investment (FDI) and / or foreign aid is a myth. Total foreign capital inflows, FDI plus Overseas Development Assistance (ODA) accounted for only about 5 per cent of total investment. ODA was less than one third of this foreign capital inflow. That is, the quantity of ODA explains only 1.5 per cent of total investment over this period, and thus under 1 per cent of total growth.

Before leaving the subject of Thailand's aggregate economic performance, one further topic requires attention. Why has Thailand's recovery been so slow? As noted above, the crisis was a contraction in aggregate demand, rather than a contraction in productive capacity. Labor and capital were underutilized because there was insufficient demand for Thai output. Where did this contraction in demand come from? Table 5 addresses this point. The upper section of the table shows contributions the composition of expenditure on GDP in Thailand during the pre-crisis boom (1987 to 1996), the crisis (1997 to 1999) and the post-crisis recovery period (2000 to 2005). During the crisis the share of investment in GDP collapsed by 13 percentage points. Investor confidence was severely damaged by the events surrounding the crisis and during the post-crisis recovery period, this share did not recover sufficiently to restore Thailand's long-term rate of growth.

[Table 5 about here]

Why has this occurred? High interest rates are not the answer. Figure 5 shows that although Thailand's interest rates increased during the crisis, they have been at historically low levels since the year 2000. A clue is provided by Figure 6, which shows the relationship between the stock exchange index for Thailand (SET) and the level of private investment. Investment follows the SET, but with a lag. The stock exchange index may be viewed as an indicator of investor confidence. Investors have lost confidence in the capacity of the Thai economy to generate a satisfactory return on their investments.

[Figure 5 about here]

[Figure 6 about here]

This problem is not unique to Thailand. Table 5 shows similar calculations for two other crisis-affected economies, Indonesia and Malaysia. The pattern is very similar. Finally, Figure 7 shows annual data on the share of investment in GDP in five crisis-affected East Asian economies: Thailand, Indonesia, Malaysia, the Philippines and Korea. Although the contraction of private investment in Thailand is at least as large as any other (Malaysia is similar), the figure shows that the problem of sluggish recovery of investment is shared by several East Asian economies. It would not seem appropriate to look for country-specific causes. The decline of investor confidence is region-wide, at least among the countries seriously affected by the crisis. The crisis showed the possibility that investors could be bankrupted by macroeconomic events over which they have no control and where they have little or no forewarning.

[Figure 7 about here]

4. Sectoral economic performance and productivity growth

How do the major sectors of the Thai economy compare in terms of productivity growth?

Table 1, above, summarizes the sectoral composition of Thailand's growth performance since 1968. The growth of industry, especially export-oriented manufacturing has far outstripped agriculture, implying that agriculture's share of GDP has declined significantly. This point is confirmed by Figure 8, which shows the rapidly changing composition of output in Thailand.

[Figure 8 about here]

Observations of this kind are typical for rapidly growing economies. As aggregate output per person expands, agriculture tends to contract as a share of total output, while the share of industry expands. But a common misinterpretation of this phenomenon is that the agricultural sector is 'stagnant' while industry is 'dynamic'. The misinterpretation lies in confusing the fact that the *level* of factor productivity in agriculture tends to be lower than in industry (and in services) with differences in the *rate of growth* of productivity. The data for Thailand indicate that although the level of factor productivity is indeed lower in agriculture, the growth of productivity has much more rapid there than in other sectors. The key point is that Thai agriculture has been expanding its output, albeit more slowly than the rest of the economy, with *declining* shares of the nation's resources.

The evidence for this conclusion is summarized in Table 6. This table summarizes a set of calculations for agriculture, industry and services, which mirror the aggregate analysis reported in Table 3, above. The data used in this analysis again cover the years 1980 to 2006 and include:

- employment of labor by educational category by sector;
- physical capital used by each sector
- use of land in agriculture, adjusted by the extent of irrigation coverage; and

- cost shares for each of the above factors of production by sector.

[Table 6 about here]

For convenience, the first column of Table 6 repeats some of the findings at the aggregate level, discussed above. The sectoral findings may be summarized as follows. First, although output (value added) grew more slowly in agriculture (3.11 per cent) than in either industry (7.84 per cent) or services (5.49 per cent) it was the only major sector to record positive TFP growth. This TFP growth in agriculture contributed 6.4 per cent of the overall growth of GDP. In agriculture, the growth of output (value-added) of 3.11 per cent per year was achieved by factor input growth of 1.19 per and TFP growth of 1.92 per cent. TFP growth therefore accounted for 62 per cent of the growth of value-added in agriculture.

Second, the analysis decomposes the aggregate productivity growth component just described into one component due to growth in productivity in individual sectors, each weighted by its share of GDP, and a second component due to the reallocation of resources among sectors of differing total factor productivity. This analysis indicates that the *level* of factor productivity in agriculture remained significantly lower than elsewhere in the economy, despite its higher TFP growth over this period. The movement of factors of production out of agriculture thus further contributed to economic growth by raising the productivity of these factors. Indeed, this reallocation effect contributed 35 per cent of the growth of aggregate output that actually occurred. It was almost *eight times* as important for overall growth as the growth in the productivity of the factors that remained within agriculture.

The results of the analysis indicate that agriculture's contribution to economic growth in Thailand included impressive rates of TFP growth. But its main contribution occurred through releasing resources which could be used more productively elsewhere, *while still*

maintaining output, rather than through expansion of agricultural output. It is seriously wrong to characterize Thai agriculture as ‘stagnant’, based merely on the fact that output growth is slower in agriculture than in other sectors. If agriculture had really been ‘stagnant’ economic growth would have been substantially lower because it would not have been possible to raise productivity significantly within agriculture or to release resources massively while still maintaining moderate growth of output.

[Table 7 about here]

Table 7 summarizes the results of this analysis by showing in the first column, the contributions to overall growth of aggregate factor growth (66% of total growth) and aggregate measures TFP (34%). It then decomposes this aggregate TFP growth into its sectoral components and the part due to the reallocation of resources from low productivity sectors (mainly agriculture) to higher productivity sectors (mainly industry). This distinction was apparently first identified empirically by Jorgenson (1988) in the context of US productivity growth. Although agriculture generated positive TFP growth, the aggregate of sector-level TFP growth was negative. *All* of the 34% of GDP growth accounted for by growth of aggregate TFP can be attributed to the reallocation of resources. That is, net TFP growth at the sectoral level, aggregated to the economy-wide level was zero. Finally, the second column shows that these qualitative conclusions are not reversed if the analysis is confined only to the resource-constrained, pre-crisis period.

5. Poverty incidence and inequality

Is economic growth really so important? Do the poor actually benefit from it, or only the rich? Within Thailand, as elsewhere, there is considerable debate about these matters. Before

turning to the relationship between poverty incidence and economic growth in Thailand, some characteristics of poverty in Thailand will be reviewed. Despite much dispute about measurement and conceptual issues, all major studies of poverty incidence and inequality in Thailand agree on some basic points:

- . Poverty is concentrated in rural areas, especially in the Northeastern and Northern regions of the country.
- . Absolute poverty has declined dramatically over the last four decades, but inequality has increased.
- . The long-term decline in poverty incidence was not confined to the capital, Bangkok, or its immediate environs, or to urban areas in general, but occurred in rural areas as well. Since 1988, the largest absolute decline in poverty incidence occurred in the poorest region of the country, the Northeast.
- . Large families are more likely to be poor than smaller families.
- . Farming families operating small areas of land are more likely to be poor than those operating larger areas.
- . Households headed by persons with low levels of education are more likely to be poor than others.

The following discussion draws upon the official poverty estimates produced by the Thai government's National Economic and Social Development Board (NESDB), which, like all other available poverty estimates, are based upon the household incomes collected in the National Statistical Office's Socio-economic Survey (SES) household survey data. Despite their imperfections, these are the only data available covering a long time period. These survey data have been collected since 1962. The early data were based on small samples, but their reliability has improved steadily, and since 1988 the raw data have been available in

electronic form. A difficulty in comparing these data over time is that the poverty line has been revised several times, changing upwards the real purchasing power that it represents. Table 8 summarizes the author's attempts to compile a long-term series on poverty incidence, based on a consistent poverty line – one held constant in real purchasing power – from 1962 to 2006.

[Table 8 about here]

Declining poverty incidence, rising inequality

Table 8 focuses on the familiar headcount measure of poverty incidence: the percentage of a particular population whose household incomes per person fall below the poverty line. The table confirms that most of Thailand's poor people reside in rural areas. Until recently, the SES data were classified according to residential location in the categories municipal areas, sanitary districts and villages. These correspond to inner urban (historical urban boundaries), outer urban (newly established urban areas) and rural areas, respectively. Poverty incidence is highest in the rural areas, followed by outer urban, and lowest in the inner urban areas. When these data are recalculated in terms of the share of each of these residential areas in the total number of poor people and then the share of the total population, as in the last two rows of the table, respectively, a striking point emerges. In 2004, rural areas accounted for 93 per cent of the total number of poor people but only 64 per cent of the total population.

The final column of Table 8 shows the Gini coefficient of inequality. This index potentially takes values between 0 and 1, with higher values indicating greater inequality. The index for Thailand rose significantly over the 20 years shown. Combined with the reduction in absolute poverty which occurred at the same time, this means that the real

incomes of the poor increased with economic growth, but the incomes of the rich increased even faster.

These data are depicted graphically in Figure 9. The data reveal a very considerable decline in poverty incidence up to 1996, a moderate increase to 1998 and a further increase over the following two years. Over the eight years from 1988 to 1996, measured poverty incidence declined by an enormous 21.4 per cent of the population, an average rate of decline in poverty incidence of 2.7 percentage points per year. That is, each year, on average 2.7 per cent of the population moved from incomes below the poverty line to incomes above it. Over the ensuing two years ending in 1998 poverty incidence increased by 1.5 per cent of the population. Alternatively, over the eight years ending in 1996 the absolute number of persons in poverty declined by 11.1 million (from 17.9 million to 6.8 million); over the following two years the number increased by 1 million (from 6.8 to 7.9 million). Thus, according to the official data, measured in terms of absolute numbers of people in poverty, the crisis reversed 9 per cent of the poverty reduction that had occurred during the eight-year period of economic boom immediately preceding the crisis.

[Figure 9 about here]

From Figure 10, it is apparent that the Northeast region dominates poverty incidence in Thailand. This one region accounted for 51 per cent of Thailand's poor people in 2004, but only 34 per cent of the total population. Every other region's share of the total number of poor is smaller than its share of the total population. Poverty is an especially important problem among rural people, particularly in the Northeast.

[Figure 10 about here]

More dramatic than any of these data, however, are recently released data on the relationship between poverty incidence and education. According to the National Economic and Social Development Board's data, of the total number of poor people in 2002, 94.7 per cent had received primary or less education. A further 2.8 per cent had lower secondary education, 1.7 per cent upper secondary, 0.48 per cent had vocational qualifications and 0.31 per cent had graduated from universities. Thailand's poor are overwhelmingly uneducated, rural and living in large families. But they are not necessarily landless.

Poverty reduction and economic growth

What caused the long-term decline in poverty incidence? It is obvious that over the long term, sustained economic growth is a necessary condition for large-scale poverty alleviation. No amount of redistribution could turn a poor country into a rich one. Long-term improvements in education have undoubtedly been important, but despite the limitations of the underlying SES data, a reasonably clear statistical picture also emerges on the short-term relationship between poverty reductions and the rate of economic growth. The data are summarized in Figure 11, which plots the relationship between changes in poverty incidence, calculated from the data use in Table 8 above, and the real rate of growth of GDP over the corresponding period.

[Figure 11 about here]

Although the number of data points is small, the implications seem clear. Periods of more rapid economic growth were associated with more rapid reductions in the level of absolute poverty incidence. Moderately rapid growth from 1962 to 1981 coincided with steadily declining poverty incidence. Reduced growth in Thailand caused by the world recession in the early to mid 1980s coincided with worsening poverty incidence in the years 1981 to 1986. Then, Thailand's economic boom of the late 1980s and early 1990s coincided with dramatically

reduced poverty incidence. Finally, the contraction following the crisis of 1997-98 led to increased poverty incidence. The recovery since the crisis has been associated with significant poverty reduction.

From inspection of Figure 11, the correlation between these two variables is unmistakable, but one pair of observations stands out as an outlier. That is the data point corresponding to 1996-98, the years of the Asian financial crisis. Based on the correlation between poverty reduction and growth that is evident from earlier and later years, a large decline in GDP such as occurred at that time would be expected to result in a much larger increase in poverty incidence than actually occurred. This point is examined more systematically in Table 9 and Figure 12. Table 9 reports two regressions on the relationship between the rate of change of poverty incidence (negative values mean a decline in poverty incidence), the dependent variable, and the rate of GDP growth over the corresponding period, the independent variable. The first regression includes all data points. The estimated coefficient is negative as expected (the faster the growth the greater the poverty reduction) and significant at the 5% level.

The second equation is the same except that the data point for the Asian financial crisis period, 1996-98, is omitted. The estimated coefficient is somewhat larger and again significant at the 5% level. This second equation is then used to predict the change in poverty incidence that would be expected to result from the reduction in real GDP observed in the crisis. The results are summarized in Figure 12. An annual rate of GDP growth of - 6.5 per cent would be expected to result in an annual increase in poverty incidence of 4.52 per cent. The 95% confidence interval around this prediction is [6.12, 2.92]. But the observed annual increase in poverty incidence (“Crisis: actual” in the figure) was only 0.80 per cent. Poverty did not increase nearly as much as would be predicted on the basis of the contraction in real GDP.

[Figure 12 about here]

The hypothesis most consistent with other evidence from this period is that Thai people assisted one another to an unusual extent during the crisis. Urban workers, laid off from construction and manufacturing employment returned to their extended family base in the provinces. There they were absorbed into the business activities of the extended family and the loss of income (on which the poverty calculations are based) was much less than would have otherwise occurred.

Inequality and economic growth

As noted above, Thailand's Gini coefficient has increased significantly at the same time as poverty incidence has declined. Another way of demonstrating the increase in inequality is through income shares. Figure 13 does this using quintile shares. Since 1975-76, the income share of the poorest quintile group (quintile I, the poorest 20% of the population) has declined steadily. The same is true of all quintile groups except the richest (quintile V). Why has this happened?

[Figure 13 about here]

It was shown above that a clear short-term relationship exists between reductions in poverty and economic growth. Can a relationship of this kind be found between the increase in inequality over time and the rate of growth? This issue is explored in Figure 14. No correlation is apparent. The rate of growth does not seem to be a significant determinant of short-term changes in the level of inequality. Other social factors are undoubtedly playing a role, but research on this issue remains inconclusive.

[Figure 14 about here]

One possible explanation is explored in Figure 15. Consider the share of GDP that is attributable to unskilled labor alone. That is estimated in Figure 15 by taking the real wage of unskilled labor and comparing it with the value of real GDP per worker employed. The difference between the two is the part of GDP that is paid to factors other than raw unskilled labor: human capital (the difference between actual wages and unskilled wages), physical capital and land. The results are striking. Over the period from the early 1980s to the first half of this decade, the unskilled labor share of GDP, as estimated here, declined from roughly one third to about 22 per cent. The increase in inequality seemingly relates to labor market behavior. Real wages of unskilled labor have not kept pace with GDP growth. Explanations for this outcome may involve Lewis-type elasticity of labor supply, supplemented by the role of unskilled labor migration from neighboring countries Laos, Cambodia and especially Burma.

[Figure 15 about here]

6. Conclusions: Thailand's success

The experience of Thailand over the past half century confirms the importance of sustained economic growth, at least in poor countries, for the achievement of improved living conditions. Thailand's recovery from the crisis of 1997-99 is now complete, despite several unexpected setbacks, including rural drought, Asian influenza, SARS, political violence in the South, the tsunami of 26 December 2004 and political turmoil in 2006.

Thailand's economic experience confirms the value of an open economic system in promoting long-term growth. The contrasting experience of neighboring Burma / Myanmar illustrates this point. As recently as 1960 the two countries were similarly impoverished. Since then, Burma's economic policies have been closed and deeply suspicious of the outside world. Internally, markets have been suppressed and control-oriented solutions have been

avored for most economic problems. The difference in living standards today is stark. The majority of the Burmese people remain poor to an extent that is only a distant memory for the Thai population.

Not all aspects of the Thai development strategy have been similarly successful. Inequality has increased at the same time as absolute poverty has declined. The underlying causes of this increase in inequality are still only partially understood. Education policy remains a serious problem. The system of primary and secondary education remains archaic. Standards of rural education in particular remain low and the poor quality of education received by most rural Thais dooms them to lives of economic disadvantage even when they migrate to the urban centers. The long-term neglect of environmental degradation is a further failure of Thai policy. This applies to pollution control, deforestation, including the denudation of coastal mangrove forests, and the wasteful management of the country's water resources.

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Table 1: Economic growth and life expectancy, East Asia and elsewhere, 1970 to 2005

	Average annual real GDP growth	Life expectancy at birth (years)	
	1970 - 2005**	1972	2005
Africa - Sub-Saharan	3.03	45.9	49.0
Latin America and Caribbean	3.28	61.2	72.7
South Asia	4.89	49.7	63.9
Europe and Central Asia	1.00	67.5	69.0
East Asia and Pacific	8.19	60.6	70.7
China	9.11	63.2	71.8
Korea	7.03	62.8	78.4
Singapore	7.64	68.5	79.7
Vietnam	6.76	52.3	70.7
Indonesia	6.06	49.2	67.8
Malaysia	6.67	63.0	73.8
Philippines	3.69	58.1	71.1
Thailand	6.33	60.5	69.9

Notes:

* Singapore data for 2001

** Vietnam data 1985 - 2005 and Europe and Central Asia 1990 – 2005.

Source: World Bank, World Development Indicators, various issues.

Table 2 Thailand: Growth of real GDP and its sectoral components, 1951-2006 (per cent per annum)

	Pre-boom 1968-1986	Boom 1987-1996	Crisis 1997-1999	Recovery 2000-2006	Whole period 1968-2006
Total GDP	6.7	9.5	-2.5	5.0	6.4
Agriculture	4.5	2.6	0.1	2.7	3.3
Industry	8.5	12.8	-1.7	6.2	8.4
Services	6.8	9	-3.6	4.3	6.1

Sources: Bank of Thailand, data for 1951 to 1986; National Economic and Social Development Board, data from 1987.

Table 3 Thailand: Aggregate growth accounting, 1980 to 2006

	Annual growth rate (per cent per year)	Average cost share (per cent)	Contribution to total growth (per cent per year)	Per cent contribution to total growth (per cent)
Output	6.00	n.a.	n.a.	100
All factors	3.97	100	3.97	66.17
Raw labor	1.75	40.2	0.70	11.67
Human capital	2.00	11.2	0.22	3.67
Physical capital	6.48	46.9	3.04	50.67
Agricultural land	0.35	1.8	0.01	0.17
Aggregate TFP growth	n.a.	n.a.	2.03	33.83

Note: n.a. means not applicable.

Source: Author's calculations, using data from National Economic and Social Development Board.

Table 4 Thailand: Financing of aggregate investment, 1973 to 2006

Average share of each component (per cent)							
	Private savings	Government savings	Foreign savings			Decline in reserves	Total savings
			Total	L-term capital inflow	S-term capital inflow		= Total investment
1973 to 1986 – Pre-boom	112.9	-16.7	3.8	5.1	2.1	-3.4	100
1987 to 1996 – Boom	93.1	-11.4	18.2	4.1	22.8	-8.7	100
1997 to 1998 – Crisis	160.9	-23.2	-37.7	17.3	-70.4	15.4	100
1999 to 2006 – Post-crisis	141.1	-7.2	-34.3	10.6	-33.5	-11.4	100
1973 to 2006 – Whole period	115.2	-19.1	3.9	5.5	1.4	-3.0	100

Source: Author's calculation, using data from Bank of Thailand and National Economic and Social Development Board.

Table 5 Thailand, Indonesia and Malaysia: Contributions to expenditure on GDP, 1987 to 2006

Country/Period	Consumption	Investment	Government	Net exports	Total
Thailand					
Pre-crisis (1987-1996)	54.8	38.9	9.9	-5.0	100
Crisis (1997-1999)	54.0	27.0	10.5	8.5	100
Post-crisis (2000-2006)	57.6	26.0	11.3	5.3	100
Indonesia					
Pre-crisis (1987-1996)	55.0	27.8	9.1	0.4	100
Crisis (1997-1999)	65.0	24.5	6.5	5.0	100
Post-crisis (2000-2006)	62.1	23.7	7.7	6.6	100
Malaysia					
Pre-crisis (1987-1996)	48.8	37.2	12.8	1.2	100
Crisis (1997-1999)	43.5	35.0	10.5	11.5	100
Post-crisis (2000-2006)	46.1	23.0	12.6	18.3	100

Source: Author's calculations, using data from World Bank, *World Development Indicators*.

Table 6 Thailand: Total factor productivity growth by sectors, 1980 to 2006

	Aggregate	Agriculture	Industry	Services
Average growth rates (per cent per annum)				
Output	6.00	3.11	7.84	5.49
Raw Labour	1.75	1.48	3.64	3.28
Human Capital	2.00	1.13	3.50	2.30
Physical Capital	6.48	1.46	11.10	8.22
Agricultural Land	0.35	0.35	0	0
Average cost shares (per cent)				
Raw Labour	40.2	59.0	30.4	31.0
Human Capital	11.2	3.9	12.0	9.2
Physical Capital	46.9	13.0	57.6	59.8
Agricultural Land	1.8	24.1	0	0
Decomposition of output growth (per cent per annum)				
Output growth	6.00	3.11	7.84	5.49
Factor growth	3.97	1.19	7.92	6.14
TFP growth	2.03	1.92	-0.08	-0.65
Decomposition of aggregate TFP growth (per cent per annum)				
Aggregate Sectoral TFP growth	-0.07			
Reallocation effect	2.10			

Source: Author's calculations, using data from National Economic and Social Development Board.

Table 7 Thailand: Percentage contributions to aggregate growth, 1980 to 2006

	Whole period 1980-2006	Pre-crisis period 1980-1996
Aggregate factor growth	66.17	80.3
Aggregate TFP growth	33.83	19.7
Agriculture TFP growth	4.48	2.9
Industry TFP growth	-0.52	-1.1
Services TFP growth	-5.13	0.7
Reallocation effect	35.00	17.3
Total	100	100

Source: Author's calculations, using data from National Economic and Social Development Board.

Table 8 Thailand: Poverty Incidence and Gini coefficient, 1988 to 2006

	Poverty incidence (headcount measure, per cent of population)			Inequality (Gini coefficient)
	Total	Rural	Urban	
1962	88.3	96.4	78.5	0.423
1969	63.1	69.6	53.7	0.43
1975	48.6	57.2	25.8	0.425
1981	35.5	43.1	15.5	0.432
1986	44.9	56.3	12.1	0.482
1988	32.6	40.3	12.6	0.482
1990	27.2	33.8	1.6	0.52
1992	23.2	29.7	6.6	0.541
1994	16.3	21.2	4.8	0.522
1996	11.4	14.9	3.0	0.518
1998	12.9	17.2	3.4	0.515
1999	15.9	21.5	3.1	0.52
2000	14.2	19.1	3.6	0.525
2001	13.0	16.6	5.1	0.518
2002	9.8	12.6	3.8	0.521
2004	9.2	11.4	3.5	0.525
2006	8.8	11.0	3.1	0.527

Notes: Poverty incidence means the number of poor within a reference population group expressed as a proportion of the total population of that group. The headcount measure of aggregate poverty incidence is the percentage of the total population whose incomes fall below a poverty line held constant over time in real terms; rural poverty is the percentage of the rural population whose incomes fall below a poverty line held constant over time in real terms, and so forth. Poverty share means the number of poor within a reference population group expressed as a proportion of the total number of poor within the whole population. Population share means the population of a reference group expressed as a proportion of the total population of that group. The data shown are identical to data published by the National Economic and Social Development Board (NESDB) for the years 1988 to 2006, except that the published data for Municipal Areas and Sanitary Districts have been aggregated to an 'urban' category using their respective population shares in the total for urban areas (the sum of the two) as weights. The data for the earlier years have been spliced together with this series from published sources so that the resulting series matches the NESDB series for the year 1988. In accordance with the practice of the Thai government statisticians, both poverty incidence and inequality are based on incomes rather than expenditures in these data. Higher values of the Gini coefficient indicate greater inequality.

Source: Author's calculations, using data provided by the National Economic and Social Development Board, Bangkok.

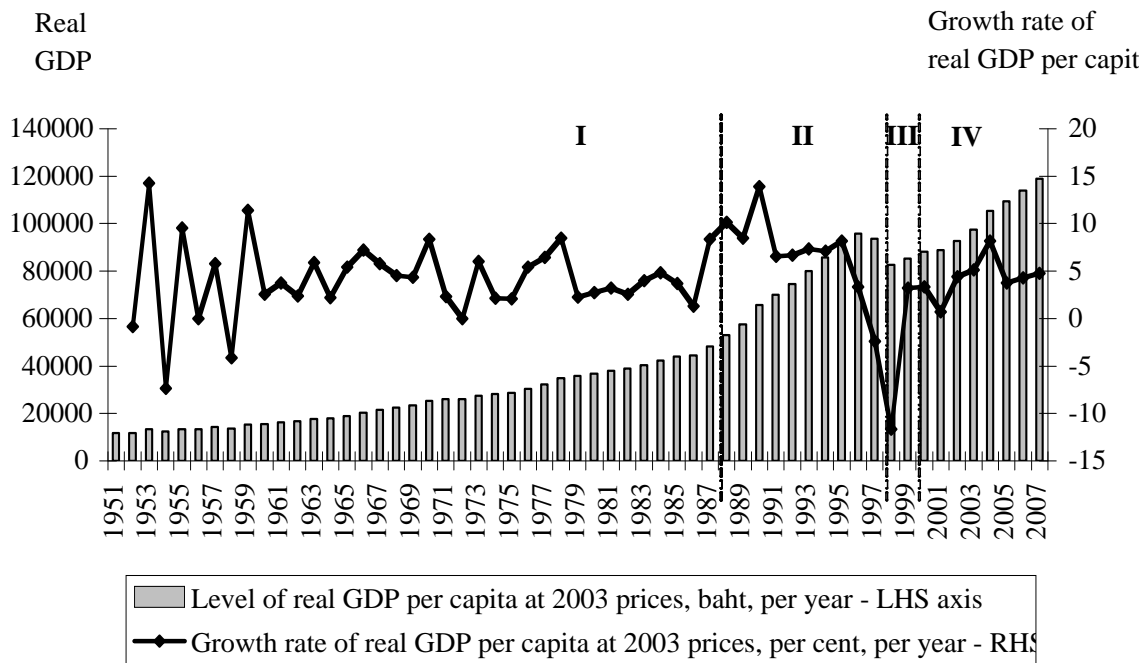
Table 9 Thailand: Poverty – growth regressions

Independent variable	Coefficient	t-statistic	p-value
1. Dependent variable dP ; all observations			
Intercept	-.247	-0.35	0.729
Real GDP growth	- 0.346	- 3.01	0.011
$R^2 = 0.430$; $adj R^2 = 0.383$; $F = 9.07$; $p = 0.0108$			
2. Dependent variable dP ; all observations except 1996-98.			
Intercept	0.960	0.85	0.416
Real GDP growth	- 0.548	-2.90	0.014
$R^2 = 0.433$; $adj R^2 = 0.381$; $F = 8.40$; $p = 0.0145$			

Note:

Regression equation: $dP = a + by$, where dP is the annual rate of change of poverty incidence between data points, y is the average annual rate of growth of real GDP between data points and a and b are the estimated coefficients.

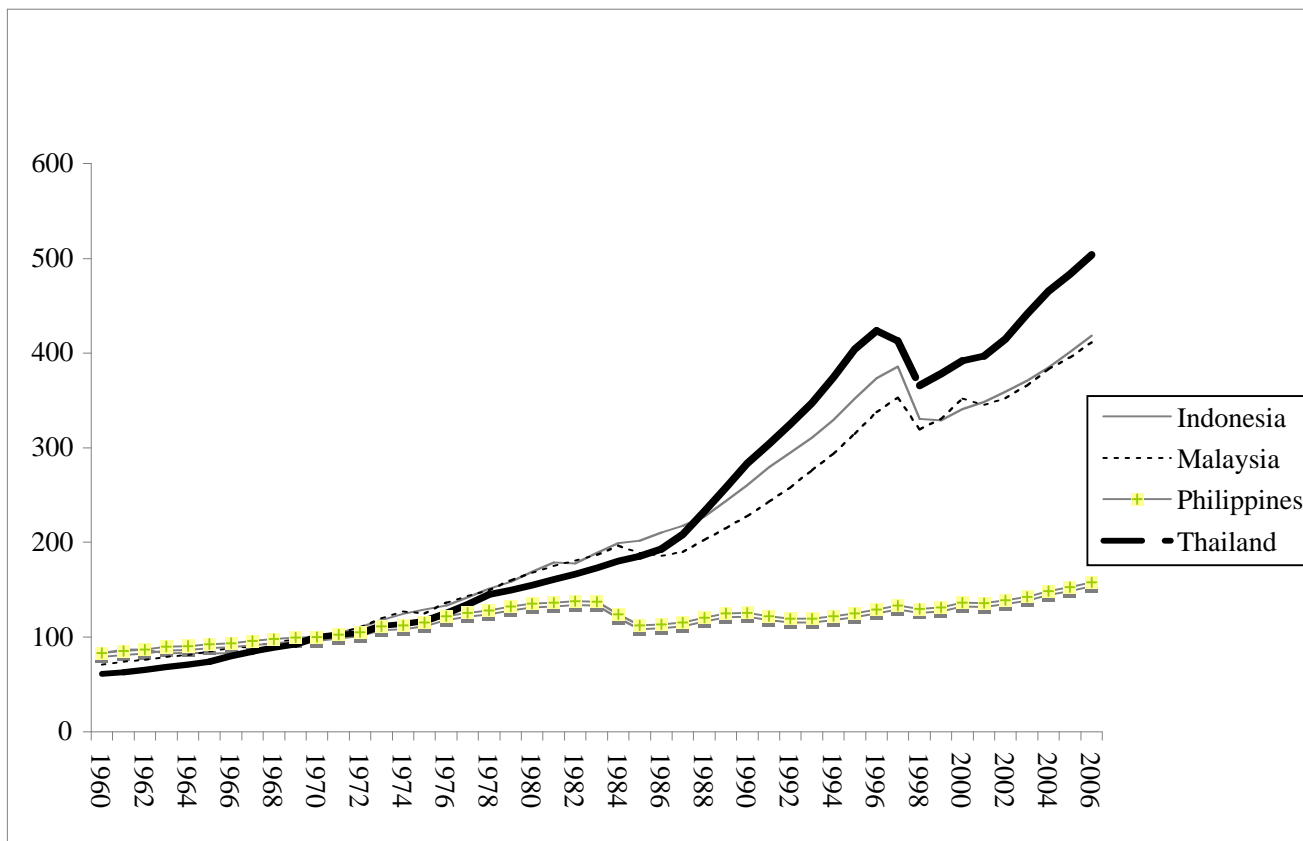
Figure 1 Thailand: Real GDP per capita and growth of real GDP per capita, 1951 to 2007



Source: Author's calculations, using data from National Economic and Social Development Board.

Figure 2 Real GDP per capita: Indonesia, Malaysia, the Philippines and Thailand, 1960 to 2006

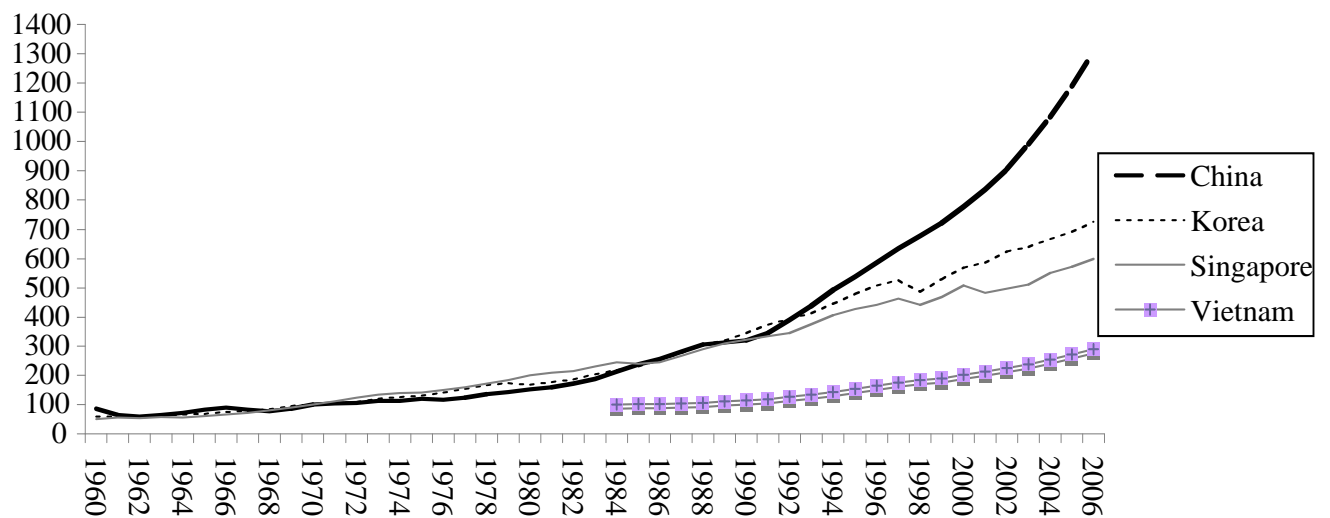
(Indexed to 1970 = 100)



Source; Calculated from World Bank, *World Development Indicators*, various issues.
 Note: Real GDP per capita is calculated using US\$ at constant 2000 prices.

Figure 3 Real GDP per capita: China, Korea, Singapore and Vietnam, 1960 to 2006

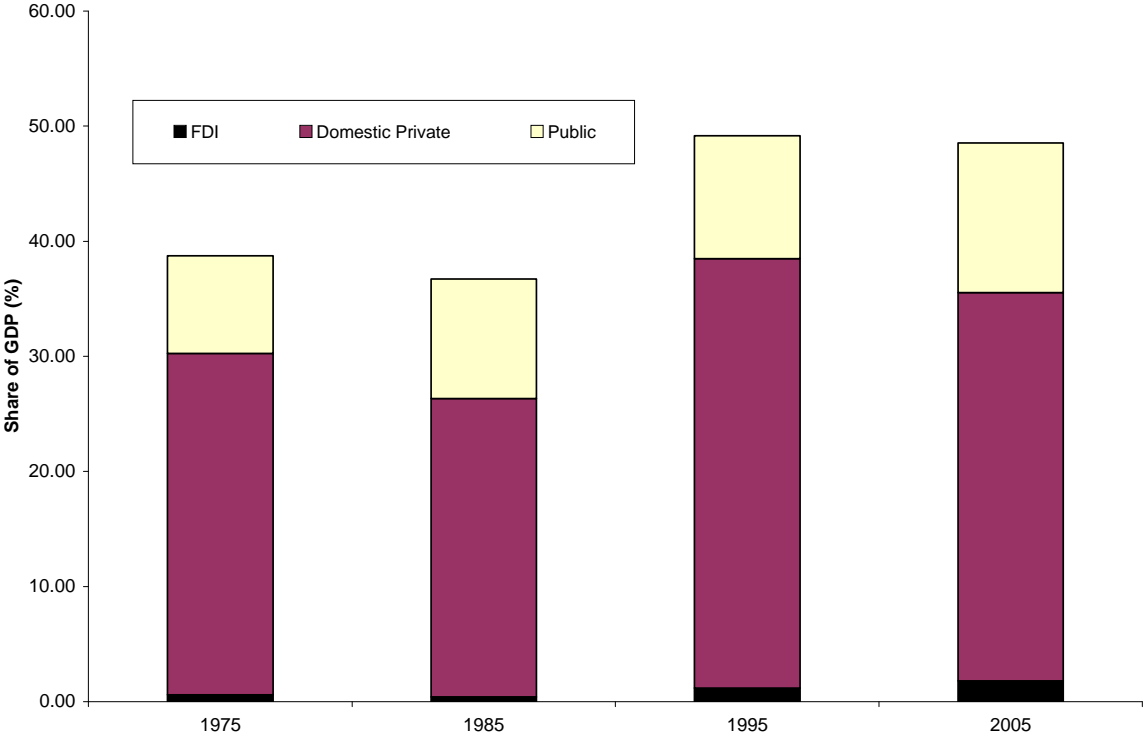
(Indexed to 1970 = 100 except Vietnam, 1984 = 100).



Source: Calculated from World Bank, *World Development Indicators*, various issues.

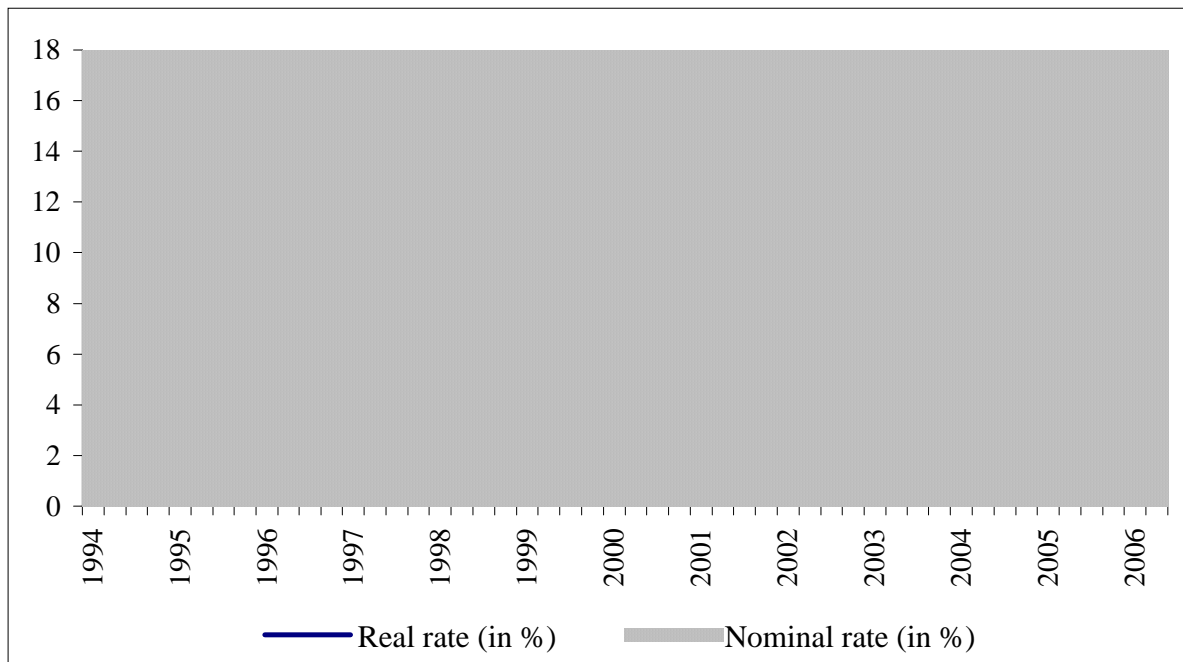
Note: Real GDP per capita is calculated using US\$ at constant 2000 prices.

Figure 4 Thailand: Composition of net annual investment, 1975 to 2005



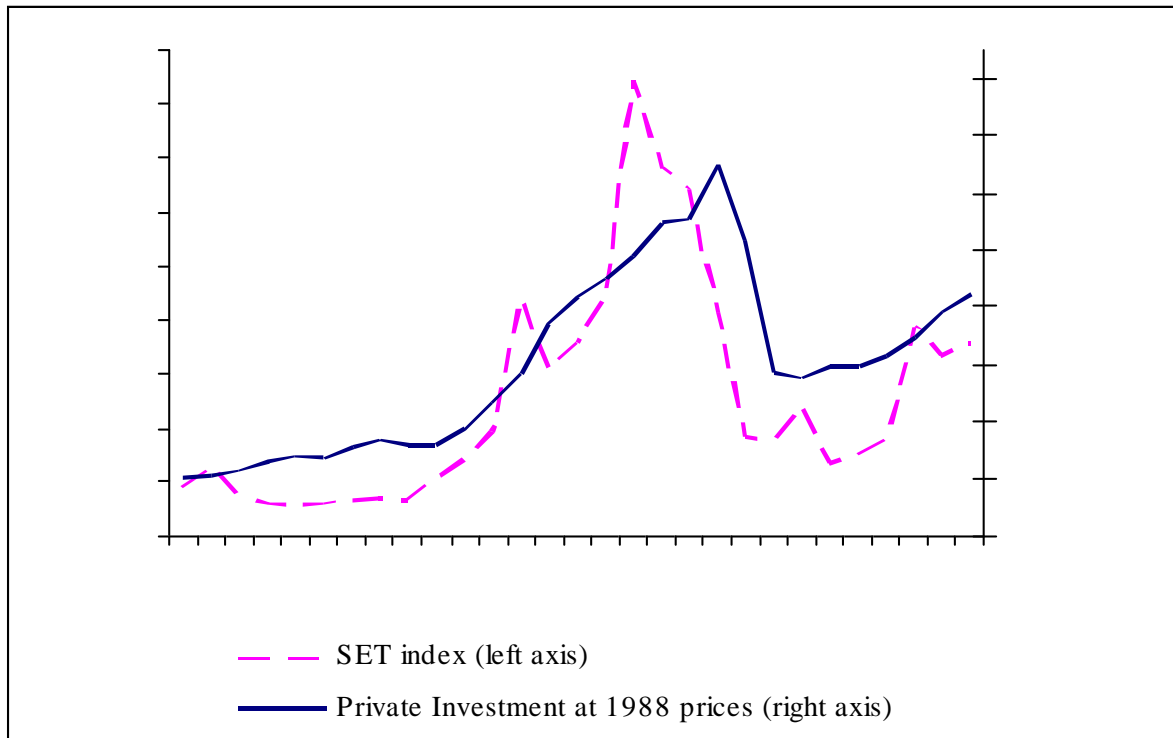
Source: Author's calculations using data from National Economic and Social Development Board.

Figure 5 Thailand: Real and nominal interest rates, 1994 to 2006



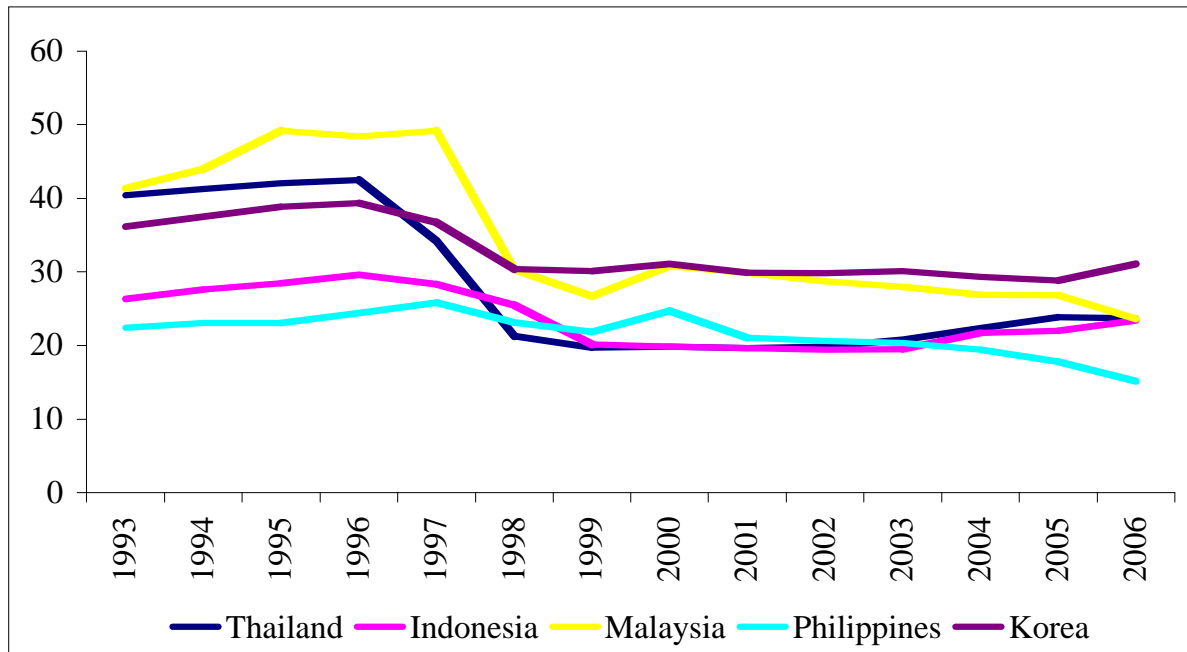
Source: Bank of Thailand.

Figure 6 Thailand: Private investment and the stock exchange price index, 1977 to 2005



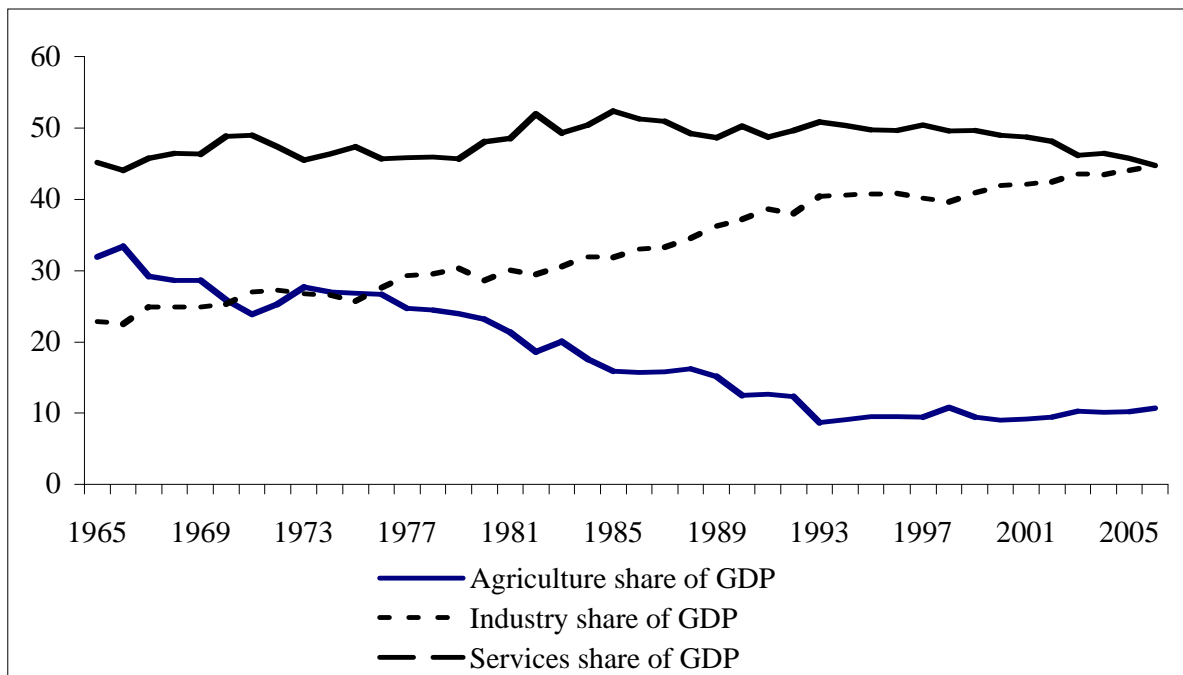
Sources: National Economic and Social Development Board and Stock Exchange of Thailand.

Figure 7 Investment shares of GDP in East Asia, 1993 to 2006



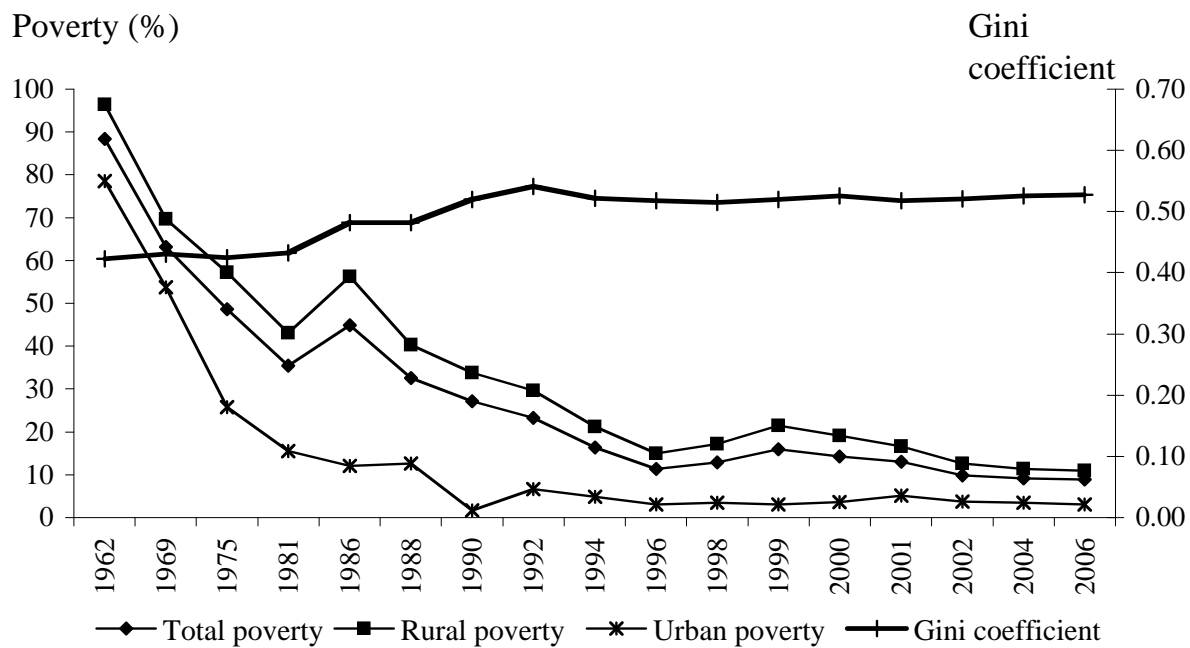
Source: Author's calculations, using data from World Bank, *World Development Indicators*.

Figure 8 Thailand: Sectoral Shares of GDP, 1965 to 2006 (per cent)



Source:
World Bank, *World Development Indicators*, various issues.

Figure 9 Thailand: Poverty incidence and inequality, 1962 to 2006



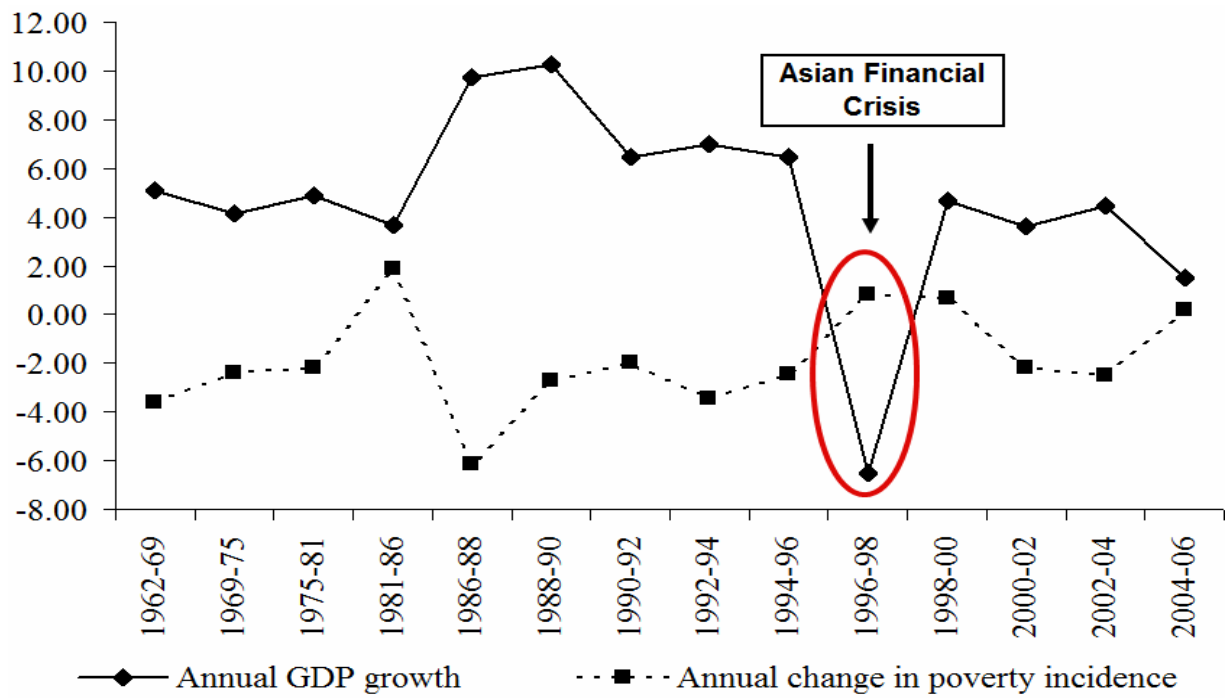
Sources: See Table 8.

Figure 10 Thailand: Poverty incidence by region, 2004



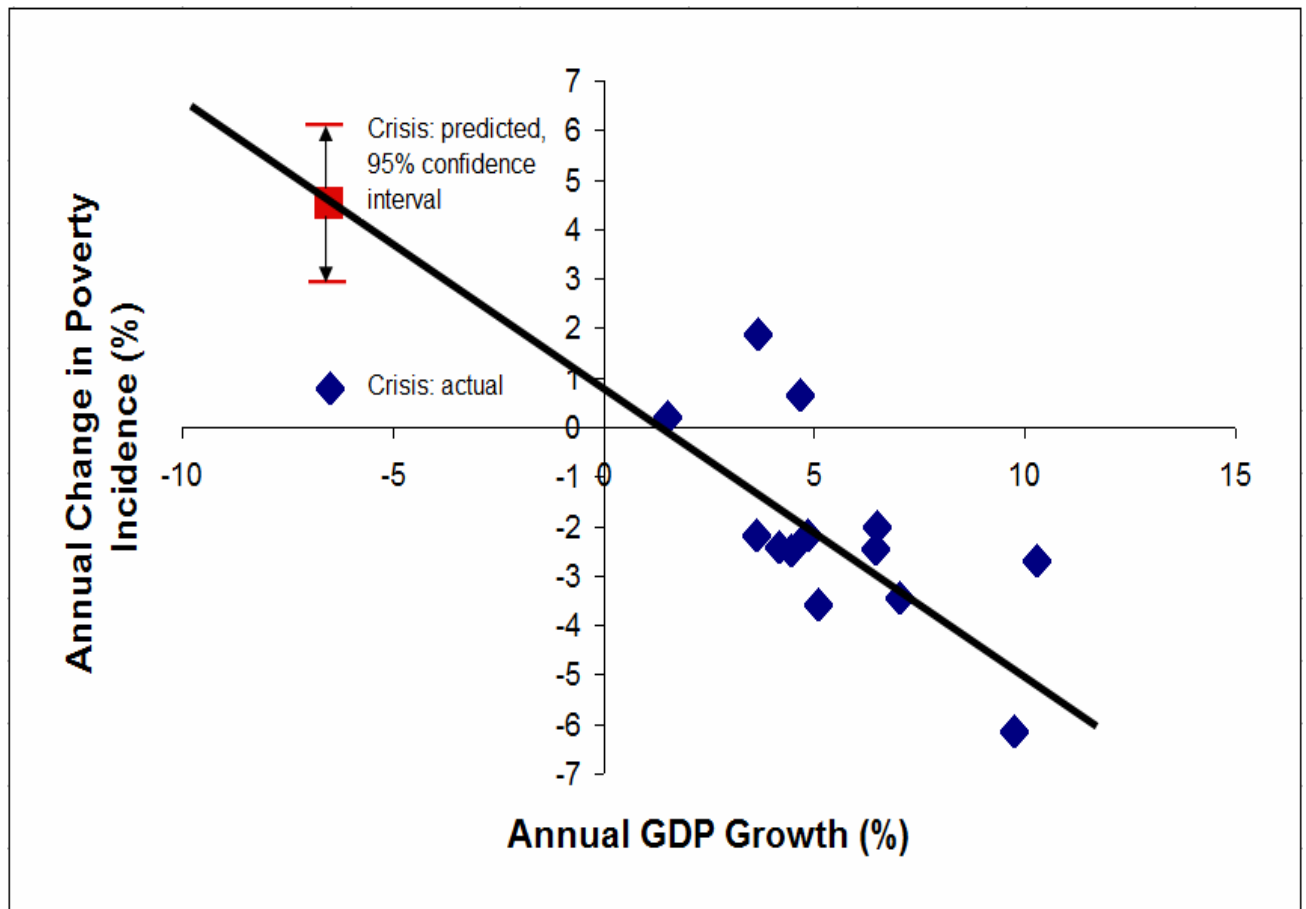
Source: Author's calculations, using data from National Economic and Social Development Board.

Figure 11 Thailand: Poverty incidence and economic growth



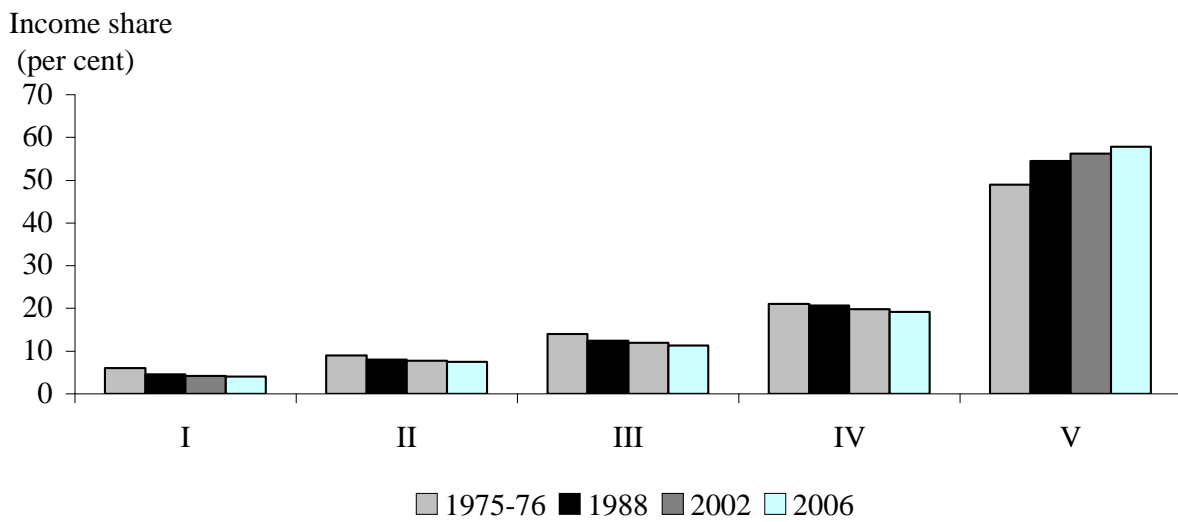
Source: Author's calculations using poverty data as in Table 8 and GDP data from National Economic and Social Development Board.

Figure 12 Thailand: The growth / poverty nexus and the Asian financial crisis



Source: Author's calculations, using data as in Figure 11.

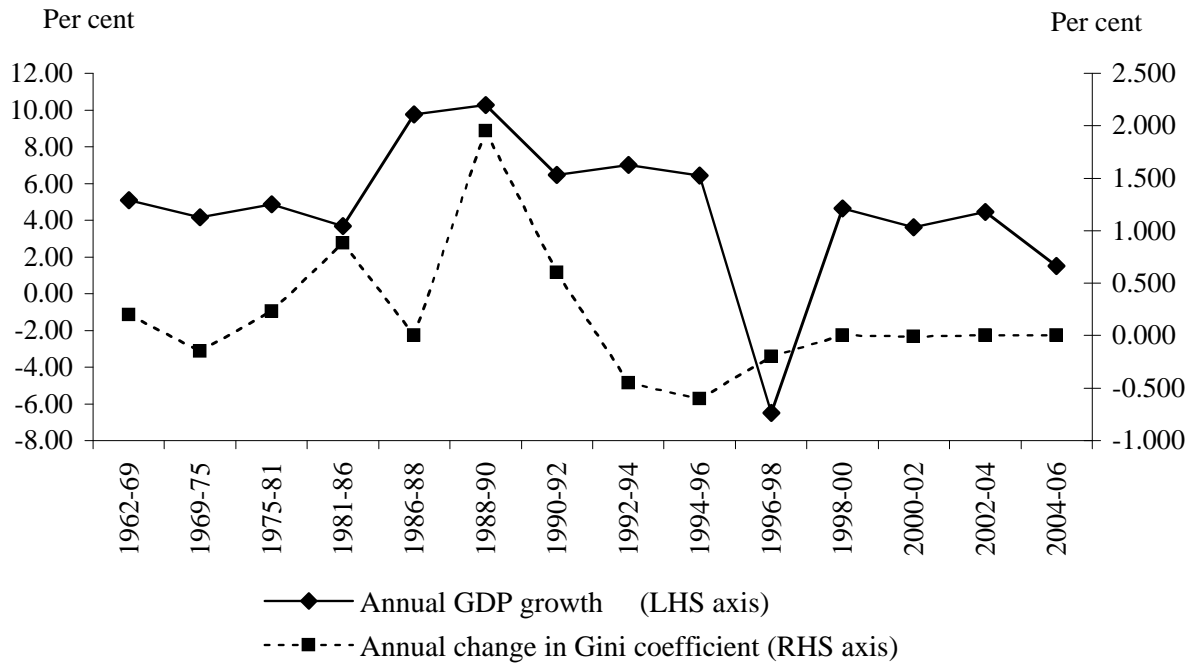
Figure 13 Thailand: Quintile income shares, 1976 to 2006



Note: Quintile I is the poorest 20% of the population; Quintile V is the richest 20%.

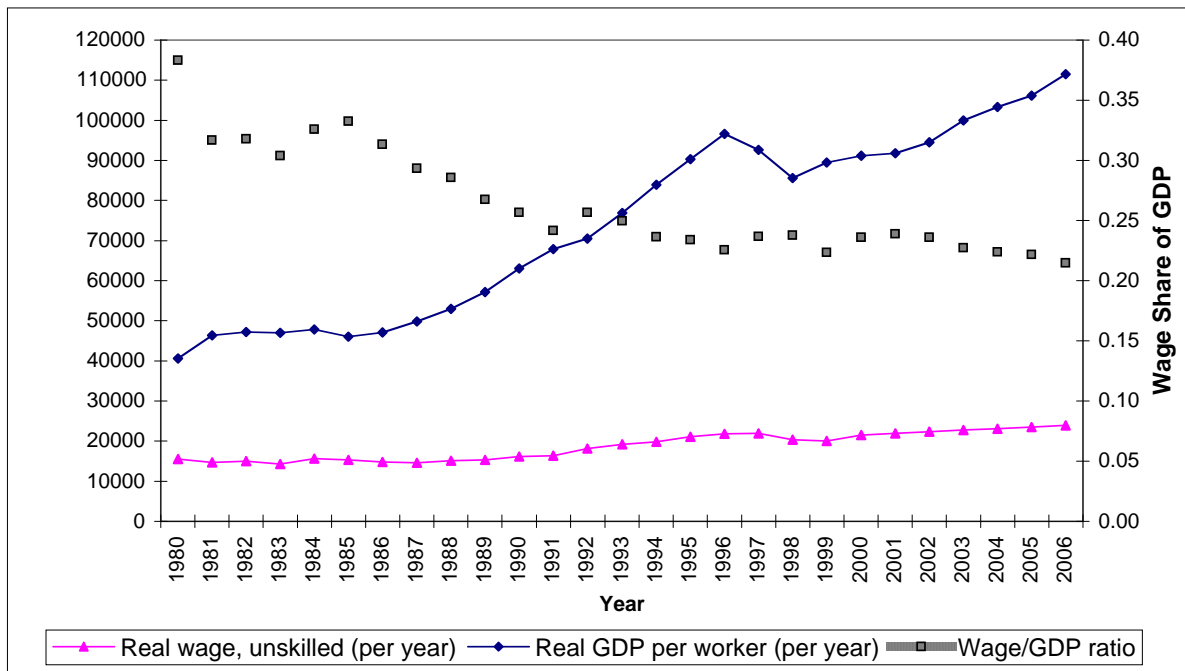
Source: Author's calculations using data from National Economic and Social Development Board, Bangkok.

Figure 14 Thailand: Inequality and economic growth



Source: Author's calculations using inequality data as in Table 8 and GDP data from National Economic and Social Development Board.

Figure 15 Thailand: Unskilled wage share of GDP, 1980 to 2006



Sources and notes:

1. Real wage (unskilled, baht per day) for the years 1980-1999 is from Thailand Development Research Institute, Thailand. Data points for the years 2000-2006 were estimated by extrapolation. These data will be updated with actual data in the revised version of this paper. Real Wage (unskilled, baht per year) in column D is obtained by multiplying these data by 250.
2. Real GDP (million baht) is obtained from National Economic and Social Development Board, Thailand.
3. Total employment (million people) is from International Labour Organisation.
4. All wage and GDP series are expressed in 1988 prices using the GDP deflator from the National Economic and Social Development Board, Thailand.

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