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The Relevance of the Dual Economy Model: A Case Study of Thailand
A dual labor market, in which the wage rate in one sector of the economy exceeds the marginal productivity of labor in another, has been a prominent feature in many models of economic development. Two main variants may be termed "traditional sector dualism" and "modern sector dualism". In the former, dualism results because the supply price of labor from the traditional sector exceeds its marginal product. In the latter, the source of dualism is a non-market clearing wage in the modern sector.

We will outline the main results and policy implications of this work (Section I) and document its importance for economic policy in Thailand (Section II). Despite widespread reliance on these models, empirical evidence for the underlying propositions has not been well established. Such support can only be accumulated through analysis of rural labor utilization and supply conditions, the mechanisms determining urban wage rates, and the interactions between urban and rural labor markets. On the basis of such an analysis (Section II–III), we argue that the factual basis for labor market dualism in Thailand is weak and that labor markets are reasonably efficient and well integrated. We believe this work also raises doubts about the widespread acceptance of labor market dualism as a general characteristic of less developed economies.

1. Labor market dualism and the shadow wage rate

In early models of the dual economy, the supply price of labor from the traditional sector exceeded the marginal product of labor due to labor market rigidities or because traditional sector incomes were dependent on the average productivity of labor in income sharing peasant households or

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1 See Lewis [23], Ranis and Fei [42], and Jorgenson [20, 21].

2 See Todaro [53], Harris and Todaro [14], and Stiglitz [49].

3 These doubts are supported by research in other economies. For work on the relevance of surplus labor models, see Hansen [12] for Egypt, Bardhan [7] and Paglin [41] for India, Barber [4] for Kenya, and Godfrey [10] for West Africa. Similarly, the significance of minimum wage legislation in urban labor markets has been questioned in a recent international appraisal by Watanabe [59].
on subsistence requirements.\textsuperscript{4} The marginal product of labor was viewed as very low or zero due to a large labor force relative to complementary factors of production. The resulting “traditional sector dualism” provided an apparent rationale for heavily discounting costs of unskilled labor.\textsuperscript{5} The theory has subsequently been extended in three major directions.

First, closer attention has been given to the determination of labor utilization rates in models of work and income sharing rural households.\textsuperscript{6} Given disutility to work at the margin, the equilibrium conditions require a positive marginal product of labor, but surplus labor can still exist hidden in low work hours. Transfer of labor to the modern sector with no loss of output is still possible depending on changes in the work-leisure equilibrium of remaining workers.\textsuperscript{7} Such models also have implications both for the hypothesis of labor market dualism and for shadow pricing in the modern sector. If potential migrants from the income sharing households lose all claim without compensation to their share of traditional sector output, their supply price will be determined by the average product of labor resulting in a dualistic labor market. On the other hand, if migrants can maintain a share of traditional sector output through sale and rental of land holdings or continued income sharing in economic units with members in both sectors, the supply price will be determined by the marginal product and dualism does not occur. The presence of this extended income sharing and/or rental or sale markets for land has apparently been viewed as sufficiently rare in less developed economies to maintain labor market dualism as a prominent hypothesis in development economics. The impact of these models on the choice of shadow wage rates has also been limited. While a zero shadow wage rate cannot in general be justified when the work-leisure decision is accounted for and costs to a withdrawal of labor result from changes in outputs and/or leisure, it has been common to heavily discount any costs from reduced leisure on the basis of alleged low rates of labor utilization and low shadow wage rates remain common in applied work.

\textsuperscript{4} Average productivity in the rural sector is the critical factor in defining the supply price of labor in the Jorgenson [20, 21] model. A supply price of labor linked to a subsistence wage rate is a feature of the Lewis [23] and Ranis and Fei [42] models. Letting \( F(M) \) denote traditional sector output, a function of the traditional sector labor \( M \), the wage determination equations for two versions of traditional sector dualism may be written as:

\[ w = h(F/M) \quad w > F', \quad h' > 0 \] \hfill (1)

or

\[ w = h(F') \quad w > F', \quad h' > 0 \] \hfill (2)

where \( F' \) is the marginal product of labor in the traditional sector. The subsistence wage version can be treated as a special case of (1) or (2) with \( h' \) or \( h'' \) equal zero.

\textsuperscript{5} See Lewis [23], Ranis and Fei [42], Nurkse [40], and Rosenstein-Rodan [44].

\textsuperscript{6} The classic paper was by Sen [46]. Related work includes Berry and Soligo [5], Mazumdar [26], Wellisz [60], Robinson [43], and Stiglitz [48].

\textsuperscript{7} The constant output result, with a neoclassical production function for the farm, requires that leisure is an inferior good for remaining farm workers. For a comprehensive exposition of these conditions, see Zarembka [65].
A further development has focused on mechanisms which maintain wages in the modern sector above the supply price of labor from the traditional sector. Such a wage differential will attract migrants until offset by the uncertainty of modern sector employment. Equilibrium is therefore characterized by equality between the supply of labor from the traditional sector and an expected wage rate in the modern sector dependent on returns and probabilities of modern sector employment, residual employment in a low productivity "informal sector", and unemployment. The exact mechanism of wage determination is often not fully specified, although reference is usually made to public legislation, trade unions, or the hiring practices of modern sector firms. One implication of this "modern sector dualism" is that the estimate of the social cost of employing labor must take into account its impact on the flow of labor into modern sector unemployment (or low productivity employment in the informal sector); thereby further qualifying the low shadow wage rate results characteristic of the early models of the dual economy.

The implications of both versions of the dual economy model for the shadow price of labor are further modified if the level of saving in the economy is suboptimal and if there is a higher propensity to save out of profits in the modern sector relative to either wage incomes or rural incomes. Increased modern sector employment then imposes a further cost in terms of a reduction of resources available for investment due to increased consumption by workers who shift to the modern sector or due to higher wages and therefore increased consumption for all modern sector workers.

The implications of the dual labor market models and the subsequent modifications can be clarified with reference to a general expression for the shadow wage rates (SWR) for modern sector employment applicable to all

\[ pw = F' \]  

where \( p \) is the probability of modern sector employment, \( w \) is the modern sector wage rate, and \( F' \) is the marginal product in traditional sector employment (assumed equal to the supply price of labor from the traditional sector). A simple theory determining the probability of employment is that it is a function of the ratio between modern sector employment \( N \) and the modern sector labor force inclusive of unemployment \( u \):

\[ p = g \left( \frac{N}{N+u} \right) \]

In one version of modern sector dualism, \( w \) is fixed and \( p \) is a variable. Alternatively, firms could choose to keep the wage a fixed percentage above the supply price of labor and \( p \) is a constant.

\(^8\) See the papers cited in footnote 2.

\(^9\) The equilibrium condition may be written as:

\[ \text{where } p, w, F', N, u \text{ as above.} \]

\(^10\) For a very influential treatment of the implications for shadow pricing, see Little and Mirrlees [24].
versions of "traditional" and "modern" sector dualism outlined above;\(^1\)

\[
\text{SWR} = w + \left(1 - \frac{1}{s}\right) N \frac{dM}{dN} - \frac{1}{s} \left( w + F' \frac{dM}{dN} - w' \frac{dL}{dN} \right)
\]

where \(s\) is the shadow price of saving in terms of consumption, \(w'\) is the shadow price of leisure time in terms of consumption, \(w\) is the market wage rate in the modern sector, \(F'\) is the marginal product of labor in the traditional sector, \(L\) is total labor inputs, and \(M\) and \(N\) are labor inputs in the traditional and modern sector respectively. If the level of saving is optimal, \(s = 1\); if suboptimal, \(s > 1\). The shadow price of leisure time will equal the marginal product of labor in the traditional sector if there are no distortions to work-leisure decisions in rural labor markets.

The interpretation of the SWR formula is straightforward. The direct cost of labor in terms of investment resources under our assumption of savings behavior is the wage paid, given in the first term. In the variable wage "traditional sector dualism" and "modern sector dualism" models, increased modern sector employment implies an increased wage rate. If savings are sub-optimal \((s > 1)\), this implies a secondary cost of increased modern sector employment due to the transfer of resources from investment to consumption; a cost defined in the second term. If the wage rate paid exceeds the value of output or leisure foregone after adjustment to higher modern sector employment, the above costs are offset by the gain in consumption, measured in terms of investment resources by the third term.

Many of the results established in the literature on shadow factor pricing can be seen to be special cases of our SWR equation.\(^2\) If the investment consumption allocation is assumed optimal and the labor supply and open unemployment are constant, the shadow wage rate reduces to the marginal product of labor in the traditional sector; often assumed in early work to be well below the market wage rate and possibly zero. If the work leisure

\(^1\) The shadow wage rate for modern sector employment is defined as the marginal product of labor in the modern sector corresponding to the optimal allocation of labor between sectors subject to the constraint of dualistic labor markets. For simplification, it is assumed that all traditional sector output and all wage income is consumed and all profits are saved and that leisure does not include unemployment which is treated as labor input into search for jobs. Under these assumptions, the SWR is derived from the following problem: Maximize \(W = W(F(M) + WN, Q(N) - WN, L - L)\) subject to \(L(W) = M + N + U\) and to the dual labor market constraints (1) and (2) in footnote (4) or (3) and (4) in footnote (9). \(W\) is the objective function, the arguments of which are consumption, investment, and leisure. Investment appears in the objective function because it determines future consumption. The return on investment in terms of future consumption and the weight given to future consumption are both reflected in the shadow price of saving in terms of consumption. The alternative versions of labor market dualism result in different effects of increased modern sector employment on wages, traditional sector employment, and total labor inputs.

\(^2\) The equation in the text reduces to the standard Little-Mirrlees [24] formulation with:

\[
\text{SWR} = w - \frac{1}{s} (w - F') \quad \text{when} \quad \frac{dw}{dN} = 0, \quad \frac{dM}{dN} = -1, \quad \text{and} \quad \frac{dL}{dN} = 0.
\]
decision is accounted for, the result is modified both because the resulting equilibrium conditions imply a positive marginal product and because the social cost of reduced leisure must be accounted for. If “modern sector dualism” is incorporated in the model, the main effect is to magnify the reduction in traditional sector output (or leisure) as workers are attracted into open urban unemployment by expanding modern sector employment opportunities. Thus, for instance, with fixed labor supply and wages held above the marginal product of labor by the fixed proportion $p$, the creation of one modern sector job attracts $1/p$ migrants and the shadow wage equals the market wage. Taking suboptimal savings into account also operates to increase the cost attached to increased modern sector employment. As $s$ increases, the costs involved in the higher modern sector wage rates as defined in the second term increase and the value of the offsetting gains in consumption as defined in the third term are reduced. Thus, while the shadow wage is generally lower with than without labor-market dualism, the theoretical work on the dual economy model has served to moderate the tendency towards heavy discounting of labor costs introduced by the early models; although a case can be made that this has not been adequately reflected in applied work. However, much of this work has been carried out with little concern for the empirical foundations of the original models or the subsequent refinements. The study of labor markets in the following sections attempts to evaluate these foundations in a particular less developed economy where at least some variants of the labor market dualism theme have been of considerable importance.

II. The relevance of traditional sector dualism

A prominent feature of most models of traditional sector dualism is high unemployment and/or underemployment in the rural economy. It is this alleged labor surplus and corresponding low or zero opportunity cost of rural labor which has been interpreted as implying a large gap between the marginal productivity of labor in the rural sector and its supply price to the modern sector. We will therefore base our evaluation of the relevance of traditional sector dualism on the question of whether the surplus labor description of rural labor markets is appropriate to Thailand. Other aspects of labor market dualism will be considered in Section III. Before using available data on rural unemployment, labor utilization, and wage formation in rural areas to analyze labor markets, it is useful to first document the importance of surplus labor concept in writings on the Thai economy and to indicate some of the policy implications.

The labor surplus hypothesis has been widely accepted in Thailand. For example, it was strongly endorsed in what has become one of the most
influential analyses of rural labor market conditions in Thailand;

"... the conclusion is drawn that in general there is already a surplus of labor on
the farms. Low labor and land productivity and agricultural incomes are the
consequence of agricultural unemployment. The cost of seasonal unemployment is
high and in contrast to unused physical resources the unused labor potential is lost
for national development. It is clear that these unused human resources, which are
wasted under the prevailing circumstances, form an untapped potential to increase
the income of the rural population." [9; p. 16]

It is also prominent in the Fourth Five Year Plan Document (1977–82)
which gives special emphasis to policies aimed at moderating unemployment
and underemployment in both rural and urban Thailand;

"... underemployment in the agricultural sector persists all year round, but there
is some variation in the pattern due to seasonal factors and regional differences.
This type of production structure gives rise to a large and expanding pool of labor
in the agricultural sector which will lead eventually to a higher level of rural and
urban underemployment." [32; p. 183]

The position set out in the above report and Plan document has also been
fully reflected in analyses of social profitability for projects in the rural
sector. A UN study [55] of returns in irrigated agriculture covering projects
in all regions of the country heavily discounted labor costs. In the Northeast
of Thailand, a zero shadow wage rate was used in projects in Phi Mai, Ubon
and Nongkhai while a positive shadow wage was used only during the peak
transplanting and harvest times in areas served by tank reservoirs at
Chorakhe, Muk Haaj Talaat, and Lam Phok. In areas served by the Nan
River Basin development in Utteradit and Phitsanulok Chiangwads in North-
ern Thailand, a zero shadow wage rate was used for agricultural labor except
for the wet season harvest period. In the Mae Klong irrigation project in
West Central Thailand, shadow wage rates were positive but labor outside
peak seasons was priced at one third the rate used for labor in peak seasons.
In the Pattani project area in South Thailand, a zero shadow price of labor
was used for all periods. In a recent Government feasibility study of the
Northern Chao Phya irrigation project in the Central region [61; p. 309]; a
zero shadow wage was assumed for unskilled labor (although sensitivity
analysis was used to investigate the impact of positive labor costs). In a
World Bank feasibility study of the Northern Chao Phya irrigation system
[61; Annex 15, p. 2], a shadow wage at least one fifth the market wage was
applied to off peak season labor requirements "to reflect the severe unem-
ployment of farm labor." Costing labor at 10 baht a day (U.S. 50 cents, a
low wage for the Central Plain) would have reduced the internal rate of
return from 15% to 6% in this instance. The assumption that the shadow
price of labor is one fifth of market wages outside the peak season has also
been used in World Bank appraisals for projects to improve irrigation in the Northeast [62].

In addition to discounting labor costs in public sector projects, the alleged rural labor surplus has been an important factor in the design of rural sector programs on the part of the Thai Government. An example is a massive but short lived public works program which allocated 2.5 and 3.5 billion baht (U.S. $125 million and $175 million) into rural projects in fiscal year 1975 and 1976 respectively. While there were political factors involved in the program, the surplus labor concept played an important role with most projects designed for implementation in the dry season using labor intensive techniques so as to reduce alleged underemployment.

Notwithstanding the widespread adherence to a "labor surplus" description of the rural Thai economy, the empirical evidence for the main tenets of the hypothesis appears very weak.

**Rural unemployment and labor utilization rates**

Despite frequent misinterpretation of some survey results,[13] there is no evidence of significant open unemployment in rural Thailand. Unemployment for all regions of the country and for both the wet and dry seasons has typically been well below one percent of the labor force.[14] This is so even after 1973 when the definition of unemployed workers was broadened so as to include both unpaid family members working less than 20 hours a week who wanted to work more and persons not looking for work because of their belief that jobs were not available along with those actively seeking employment. This absence of open unemployment is especially noteworthy as labor force participation rates for both males and especially females in Thailand are among the highest in Asia.

[13] A series of rural employment surveys [31] has been interpreted as supporting the surplus labor hypothesis for rural Thailand. Despite participation rates equal to or above 74% for these regions, unemployment rates were 0% in the North, 0.28% in the Northeast, and 1.03% in the South. The implication of large unemployment or underemployment has been drawn from the number of ‘agriculturalists’ reporting “no work” and “part-time work,” and full-time work “in purely agricultural activities” by months. The annual average of those reporting “no work” and “part-time work” was 21.5% and 14.4% in the Northeast, 24.7% and 22.6% in the North, and 10.5% and 28.3% in the South. In the slack dry season months of March and April in the North and Northeast, half the respondents were reporting “no work.” These responses, however, reflect both the high proportion of females (almost one-half) and youngsters between 11 and 19 (almost one quarter) in the sample who are engaged in “purely agricultural activities” only in the peak planting and harvesting season and voluntarily withdraw from labor force activities in other periods and the sizeable proportion of rural labor time in Thailand that is engaged in nonagricultural activities; evidence for which is presented in the text. For a more detailed discussion of these surveys, see Bertrand [6, Chapter II].

[14] Unemployment rates for the labor force in rural areas (non-municipal) areas have never been reported above 1% for the whole country and have never been above 2% in either the dry or rainy seasons (see National Statistical Office [35] or Bertrand [6, Chapter II] for the relevant date). The NSO [35] data are based on sample surveys of households. The July–September 1976 survey, for instance, covered 8,000 households in Bangkok, 8,800 households in other municipal areas, and 8,800 households in non-municipal areas.
Although there is little open unemployment in rural Thailand, there is a significant change in labor utilization patterns between the peak and slack agricultural seasons. The aggregate labor force data for rural areas are presented in Table 1. The most interesting aspect of this table is the variation in the labor force between the two survey periods, corresponding to the dry (January–March) and rainy (July–September) seasons for most of the country. In 1974, there is a substantial difference in the size of the labor force between the two seasons, with the rainy season labor force 30% larger than the dry season labor force for the country as a whole. This variation is most pronounced in the Northeast with a 49% difference and in the North with a 31% difference and has been cited as evidence that a labor surplus exists, at least as a seasonal phenomenon. A similar pattern is observed in the data for 1975 and 1976. A significant contraction in the rural labor force during the dry season, allowing for normal inter period

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</thead>
<tbody>
<tr>
<td>Whole</td>
<td>14,851</td>
<td>14,112</td>
<td>14,489</td>
<td>11,715</td>
<td>12,170</td>
<td>11,821</td>
</tr>
<tr>
<td>Country</td>
<td>14,859</td>
<td>14,245</td>
<td>15,060</td>
<td>15,200</td>
<td>16,168</td>
<td>16,337</td>
</tr>
<tr>
<td>Bangkok</td>
<td>310</td>
<td>316</td>
<td>290</td>
<td>315</td>
<td>312</td>
<td>352</td>
</tr>
<tr>
<td>Central</td>
<td>3,064</td>
<td>3,107</td>
<td>3,093</td>
<td>2,917</td>
<td>2,989</td>
<td>2,993</td>
</tr>
<tr>
<td>North</td>
<td>3,691</td>
<td>3,392</td>
<td>3,567</td>
<td>2,725</td>
<td>3,050</td>
<td>3,260</td>
</tr>
<tr>
<td>Northeast</td>
<td>5,904</td>
<td>5,524</td>
<td>5,659</td>
<td>4,197</td>
<td>4,182</td>
<td>3,943</td>
</tr>
<tr>
<td>South</td>
<td>1,882</td>
<td>1,772</td>
<td>1,881</td>
<td>1,561</td>
<td>1,636</td>
<td>1,773</td>
</tr>
</tbody>
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* Labor force is defined as the employed or unemployed civilian population over 11 years of age. This definition excludes housewives, students, the retired, the disabled, unpaid family workers working less than 20 hours a week who do not want to work more, and those working without compensation for non relatives or members of other households.

* Adjustment for underenumeration in 1970 census; see footnote 15.

* Reclassification of unpaid family workers working less than 20 hours per week and persons without work not looking for work because of the belief no work is available: see text.

15 The data for non-municipal areas excludes all provincial capitals, all cities with a population of at least 10,000 and a population density of at least 3,000 per square kilometer. In 1975, the non-municipal areas accounted for 85% of Thailand's population and less than 5% of the municipal labor force were classified as employed in agriculture, forestry, hunting, and fishing. Data for non-municipal areas therefore correspond closely to rural areas. The data reflect an adjustment for 1973 in response to a post numeration survey [18] which found that 1970 census underenumerated the total population by 2.01% (3.27% for municipal areas and 1.44% for non-municipal areas).

16 A sharp distinction between the dry and rainy seasons exists for all but the South; a region that accounts for 12% of the Thai population.
of a temporary reversal in 1975–76 of the tendency for separation rates to be above average in the low wage textile industry which has traditionally employed a young labor force. Both these changes are very small, but it should be recalled that these data refer to the total labor force and a more pronounced effect might be expected from data limited to unskilled labor. Data on quit rates are available only from the mid 1970s. These data indicate that voluntary separation is the dominant factor in the total separation rates and that quits also increased throughout the 1977 and 1978 period, confirming again that any distortion caused by the January 1975 minimum wage was temporary.

**Labor turnover costs**

Thus far, we have examined the role of the government and of employees in maintaining wage rates above labor’s supply price. It is also possible that employers may choose to pay wages in excess of the supply price of labor. If turnover costs are high, an employer may choose to pay a higher wage to retain labor for a longer period, thereby minimizing total labor costs (i.e., wage payments and turnover costs). Table 9 shows the relationship between accession and separation rates and wage rates for selected industries in the
TABLE 9

Turnover rates and wage rates in selected nonagricultural sectors, 1973

<table>
<thead>
<tr>
<th></th>
<th>Average monthly accession rate (%)</th>
<th>Average monthly separation rate (%)</th>
<th>Average daily wage rate (Baht)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transport equipment</td>
<td>1.61</td>
<td>1.41</td>
<td>24.4</td>
</tr>
<tr>
<td>Metal products</td>
<td>5.28</td>
<td>4.57</td>
<td>22.5</td>
</tr>
<tr>
<td>Textiles</td>
<td>2.12</td>
<td>1.60</td>
<td>19.2</td>
</tr>
<tr>
<td>Construction</td>
<td>4.63</td>
<td>5.15</td>
<td>17.7</td>
</tr>
</tbody>
</table>

Source: Bank of Thailand [8; 1974] and Department of Labor [8; 1975].

manufacturing sector and for the construction sector in 1973. The negative relationship apparent for three out of the four industries does suggest that this may be a factor explaining intersectoral differences in wage rates.

It might be argued that the fact that unskilled labor in textiles is paid appreciably more than in construction (see Table 5) is evidence of labor market distortions. However, the differences in wages can be explained by the practice of paying higher wages to workers who remain a long time with their firms in textiles. Vichai [58] reports that in the textile industry the initial period of on-the-job training lasts 2–3 months during which time workers receive wages below the minimum (20 B per day when the minimum was 25 B per day) and below the wage in construction (24 B per day). On the completion of their training, workers usually start at the minimum wage. Vichai also presents evidence on the relationship between wage rates and the duration of employment for 60 textile workers interviewed in 1974. Workers with less than 1–5 years of experience received wages between 25–35 baht per day, whereas workers with six or more years of experience received wages between 35–55 baht per day. Thus, employers pay higher wages in the textile industry in order to protect their investment in human capital. On their part, workers must commit themselves for a longer period and accept a low initial wage, especially during training.

Urban employment and rural urban migration

The Bangkok metropolis has expanded rapidly in the 1970s with a population of 3.2 million in 1971 and 4 million in 1978. Migration into Bangkok was 70,000 in 1973, 60,000 in 1974, 67,000 in 1975, and 92,000 in 1976. The 1970 census indicated that some 35% of Bangkok’s population was born outside of Bangkok [38].

Current theories of migration are based on the premise of an institutionally determined urban wage rate considerably in excess of the supply price of labor from the rural sector, the defining characteristic of “modern sector dualism.” While the analysis of the wage determination mechanism suggests that any gap between modern sector wages and the supply price of unskilled
a week in the rainy season. In 1974 in the Northeast, 42 percent of the male labor force in agriculture worked less than 30 hours per week while 32 percent worked more than 70 hour weeks in the rainy season. In 1974 in the Northeast, 42 percent of the male labor force in agriculture worked less than 30 hours per week while 32 percent worked more than 70 hour weeks in the rainy season. Village studies show lower average annual work hours in the Northeast, but at levels that are close to work norms in developed economies. Similar studies for villages in other parts of the country indicate higher work hours on an annual basis with a less severe 20–25% reduction in hours worked during February through June dry season.18

Non farm employment opportunities

A further adjustment to the seasonality of agriculture in Thailand occurs through a dry season expansion in nonagricultural activities; mainly in manufacturing, construction, commerce and services. The latter factor is clarified by the labor force data by production sector in Table 3. The employment share of agriculture is generally some five percentage points lower in the dry season prior to the 1974 change in labor force definitions and about 13 percentage points afterwards. While the employment gains in manufacturing and construction in the dry season are in the hundreds of thousands (255 thousand in 1975 and 274 thousand in 1976) compared to the decline in agricultural employment in the millions in agriculture (3 million in 1975 and 4-4 million in 1976), this must be interpreted in the context of the importance of females and youngsters in the labor force. A quarter of a million additional jobs in nonagricultural activities in the dry season is sizeable relative to the declines that take place in male post teen age labor force activity in agriculture.

| TABLE 3 |
| Employment in non-municipal areas by sector and by season, 1974–75 (Thousands) |
| | 1974 | 1975 | 1976 |
| Agriculture | 6,984 | 11,138 | 8,215 | 13,187 | 8,568 | 13,856 |
| | (+4,154) | (-2,923) | (+4,972) | (-4,619) | (+5,288) | (Change) |
| Manufacturing & Construction | 1,925 | 1,459 | 1,714 | 1,074 | 1,348 | 857 |
| | (-466) | (+255) | (-640) | (+274) | (-491) | (Change) |
| Total | 11,635 | 15,112 | 12,142 | 16,125 | 11,732 | 16,267 |
| | (3,477) | (-2,970) | (3,984) | (-4,393) | (4,535) | (Change) |


18 Based on a 40 hour-50 week work year, with 20% of the labor force given a norm based on half-time work to allow for the high proportion of children in the labor force, data from a National Economic and Social Development Board study reported in Sonchai Sunkool [50] indicate that villages in the Northeast are from 8% to 17% below this norm while villages in the Central Plain and North are 37% to 43% above the norm. For a more detailed analysis, see Bertrand [6, Chapter II].
The importance of nonagricultural activities is also indicated by detailed studies of labor utilization in selected villages. Nonagricultural activities typically account for some one third of labor time in the rainy season and two thirds of labor time in the dry season. Studies in the North covering both land holdings with single and with double cropping capability are especially noteworthy. If the "underemployment because of agricultural slack" thesis has much relevance in Thailand, it would certainly imply that underemployment would be concentrated among those farmers with land that cannot support high crop intensities. It is just the opposite with observed work hours significantly greater among single cropping farmers due to higher off farm employment. Since income levels are higher on double cropped farms, these data reflect positive income elasticities of demand for leisure and are inconsistent with the main tenets of the underemployment thesis.

Data on incomes by source also show substantial importance of non-agricultural activities for farm families in Thailand. After accounting for non-cash income comprised mainly of agricultural goods produced for on farm consumption, nonagricultural incomes account on average for a quarter to almost a half of total income. These high levels of nonagricultural incomes are difficult to reconcile with the hypothesis of severely limited employment opportunities during the slack agricultural period.

Hired farm labor

The lack of a year round labor surplus on farms is also indicated by the significance of hired labor, especially in areas with some double cropping potential. In the Northern Chao Phya region, for instance, more than half of

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19 Agricultural activities accounted for 42%, 50%, and from 51–55% of labor time in Central Plain, Northern, and Northeastern villages covered by a National Economic and Social Development Board Survey reported on in Somchai Sunkool [50]. Off-farm labor time accounted for 34% of male labor and 61% of female labor in Northern villages as reported in Thodey and Laramee [52]. For a more detailed analysis, see Bertrand [6, Chapter II].

20 The data are reported in Tongsiri, Lertamrab, and Thodey [54]. Farm families on small single-cropped farms had per capita incomes 17% below those on small double-cropped farms but had labor inputs per full-time worker that were 31% higher in the rainy season and 40% higher in the dry season. Farm families on medium-sized single-cropped farms had per capita incomes 8% below those on medium-sized double-cropped farms but had labor inputs per full-time worker that were 27% higher in the rainy season and 9% higher in the dry season. Farm families on large single-cropped farms had per capita incomes 14% below those on large double-cropped farms but had labor inputs per full-time worker that were 24% higher in the rainy season and 10% higher in the dry season. For more detailed analysis, see Bertrand [6, Chapter II].

21 Data from Ministry of Agriculture and Cooperatives [30, Tables 94 and 95] indicate that some 40% of net cash income in the average farm household in Thailand was derived from non-agricultural activities, varying from 53% in the northeast and South to between 27% and 32% for other parts of the country. Using cash income to total income ratios by region reported in National Statistical Office [37], non-agricultural incomes on the average are calculated to account for 24%, 28%, 32%, and 43% of total income in the North, Central, Northeast, and Southern regions of the country.
farm labor requirements in rice production are supplied by hired labor compared to the 30–40% ratio observed prior to the introduction of double cropping. Hired labor accounted for 52 percent of labor inputs in rubber production in areas covered by a 13 Changwad survey in the South and for 92 percent of labor inputs in sugar cane production (although the ratio was lower in smaller sized farms). Ratios for upland crops tend to be lower with some crops (such as cassava) usually not requiring hired labor on most holdings.

Wage rates

Wage rate movements should be a primary source of information on labor market conditions. Unfortunately, rural wage rate data are not systematically collected. The data that are available show considerable stability in nominal and real wages from 1965 to 1972 with significant increases observed after 1972. These latter changes reflect favorable developments in many agricultural markets. Rubber prices in the South, even after a decrease from the peak prices of 1974, were higher in real terms than in the 1960's. A similar factor was operating in the East and Western parts of the Central region during the 1973–76 boom in sugar prices. Farm prices for rice more than tripled from 1970/71 to 1973/74 and, although rice prices have receded somewhat, a rapid adjustment in wage rates occurred during the tight labor markets in planting and harvesting seasons. Double cropping in the Northern Chao Phya irrigation area expanded rapidly in the 1970s with wage rates responding to the increased demand for labor. In the Northeast, labor markets have been affected by a cassava boom that has swept the region. The latter is not a labor intensive crop but the rapid expansion in areas under cassava, requiring some clearing and establishment of drying and processing establishments, led to some increase in the demand for labor. Bumper crops in maize and tobacco in 1975 also were important factors in

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22 Data on labor inputs with double cropping in the mid 1970s are available in ILACO–Ministry of Agriculture and Cooperatives [17, pp. 9–12] while data for the pre-double-cropping periods in the 1960s are from Small [47, pp. 104–105].

23 Data on rubber are from [15, p. 42]. The data on other crops are from unpublished surveys carried out as part of the input-output project at the National Economic and Social Development Board, Government of Thailand.

24 The landless labor class in rural Thailand is very small. In 1963, only 60,000 families representing 1.6% of total farm families (3.9 million) were without land [33]. Employees in agricultural activities accounted for less than 5% of the agricultural labor force in rural areas of the North and Northeast throughout the 1971–75 period [35]. A higher rate is found in the more commercialized Central Plain and the South, but even in these areas employees accounted for only about 10% of the labor force [35]. Since over 99% of the remainder are either self-employed farmers or unpaid family workers, the dominance of family labor on family farms is a striking characteristic of the Thai rural sector and in sharp contrast to other Asian countries. Self-employed workers in agriculture were 75% of the total labor force in Thailand in 1970 compared to 48% in Indonesia, 47% in the Philippines and 44% in Korea. [39, p. 15].
the northeast Central Plain, the North, and the Northeast. The Tambol Development Program put a U.S. $300 million stimulus into the rural sector in the 1975 and 1976 period. These factors led to an increase of real wages in many parts of the country and to adjustments in nominal wages sufficient to prevent declines in real wages in the face of inflationary pressures in other areas.

Some degree of arbitrariness in the particular wage rates reported in Table 4 is unavoidable, particularly for the 1975 and 1976 observations. There is considerable wage rate variation for the Northern Chao Phya area where these rates were observed. The 1976 wage is on the dividing line between reported agricultural wages ranging from 15–30 baht a day in slack seasons to 30–40 baht in the peak seasons. The 1975 wage is calculated from 1975 piece rates for transplanting which led to a range of daily payments from 18 baht a day at the beginning of dry season transplanting to 45 baht a day at the peak. The 25 baht used in the Table is the mid point between the 20–30 baht range for most actual daily payments. Even correcting for an almost doubling of consumer prices, these wages are 50% above the 1965 rates in real terms.

The relevance of the wage rate series for other parts of the country is also subject to question. For the North, Usher [57] reports a 6 baht a day wage in 1965 while in 1974 farm labor near Chiangmai was paid 15 baht a day [52]. This gives similar changes in real wages as observed in the Central Plain. For the Northeast, female labor that was paid 8 baht a day in the mid 1960's earned 15 baht a day in 1977. Wage rates for unskilled males are in the 20–25 baht range compared to 1967 wage rates of 10 to 12 baht. These Northeast wages result in fairly constant real wages rather than the increases observed in the Central Plain and areas near Chiangmai where rapid growth

### Table 4

*Farm wage rates for selected years 1965–1977 in the central plain in Thailand*  
(Baht: 1 Baht = U.S. $0.05)

<table>
<thead>
<tr>
<th>Year</th>
<th>Wage Rate: Nominal</th>
<th>Wage Rate: Real* (1965 Prices)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1965</td>
<td>10.0</td>
<td>10.0</td>
</tr>
<tr>
<td>1967</td>
<td>10.0</td>
<td>9.2</td>
</tr>
<tr>
<td>1970</td>
<td>12.0</td>
<td>10.4</td>
</tr>
<tr>
<td>1972</td>
<td>12.6</td>
<td>10.6</td>
</tr>
<tr>
<td>1975</td>
<td>25.0</td>
<td>13.6</td>
</tr>
<tr>
<td>1976</td>
<td>30.0</td>
<td>15.6</td>
</tr>
</tbody>
</table>


*a Deflated by the consumer price index for the Central Region obtained from the Bank of Thailand, [1, various issues].
is concentrated. In the South, real wages have increased in rubber areas while changing less perceptibly in areas specialized in rice.  

Considerable information is also available on the rural labor market from data on the Tambol Development program. While a wage rate of 18 baht a day for unskilled labor was set by the Government, actual wages were considerably higher with an average wage of 30 baht and only 7% of a sample of 2145 workers earning 18 baht a day. These payments, however, are not a reliable guide to the supply price of labor because the projects were often viewed as a Government subsidy to the rural sector and there was little pressure to minimize project costs or wages. Nevertheless, the data provide some interesting information on incomes of the workers in the project. Average personal annual income of participants exclusive of earnings from the project itself was 3,300 baht and 65% of the workers had a personal annual cash income of over 2,500 baht. Family cash income of participants averaged 7,125 baht and was above 5,000 baht for 65% of the workers. Since rice is mainly grown for home consumption in Thailand, cash incomes of most Thai farmers come from sales of upland crops and from off farm employment. The average worker in the Tambol Development Project had cash income levels equal to those of a farmer producing crops from home consumption and working off the farm earning 30 baht a day for about 4 months. Given the labor requirements in producing crops for home consumption, this is not the picture of a seriously underemployed farmer. If cash crops are allowed for, the number of months of off farm employment implied by the data is reduced but the time input in farm activities must be increased correspondingly. It is difficult to reconcile the cash income figures with the unemployment-underemployment hypothesis.

Choice of techniques

An indirect test of the hypothesis of rising costs of labor is the extent to which less labor intensive techniques are being adopted in rural areas. Mechanization and some limited adoption of less labor intensive rice production provides examples of such a process.

While tractors are appearing in increasing numbers in most areas of the country, mechanization has been most pronounced in the Central Plain. A recent report on the Northern Chao Phya irrigation area notes:

"The farmers had to find some solution in order to be able to achieve a higher cropping intensity. Firstly, they mechanized the land preparation... Secondly, they leased part of their land, which they could not cultivate with the available..."

25 These wage rate observations were obtained during field work by the authors in Khonkaen and Kalasin in the Northeast and in Phuket, Haad Yaaj and Songkhla in the South in early 1977.

26 This information was made available by the Asian Regional Team for Employment Promotion at the Department of Labor, Ministry of Interior.
family labor. And thirdly, they hired an increasing number of laborers, mainly
during peak periods of land demand." [17]

The extent of the mechanization process was striking. In wet season ac-
tivities in 1972, 40 percent of the first tillage and 5 percent of the second
tillage was done by tractor. By 1974, 90 percent of the first tillage and 100
percent of the second tillage was by tractor. For the dry season, tractors
were used in the first tillage on 50 percent of the land in 1971 compared to
90 percent in 1974. While an extensive land consolidation program and
decreased flexibility in timing agricultural activities with double cropping
have contributed to the increased wage rates in the Northern Chao Phya,
the spread of mechanization is also apparent in wide areas of the Central
Plain and gives indirect evidence of the changing structure of factor costs.

A second area where an increase in the cost of labor can be expected to
have repercussions on techniques is in the choice of broadcasting versus
transplanting in rice production. Transplanting requires about 40 percent
more labor than broadcasting since nursery bed preparation and transplant-
ing rice seedlings are a major component of total labor requirements.27 In
the past, rice was transplanted if water control was adequate and "floating"
varieties28 were broadcast in areas with rapid flooding. It is not uncommon
in areas where water control has been improved by irrigation facilities to
find a complete shift to transplanting. However, because of widely divergent
labor requirements in the two processes, relative profitability of the two
alternatives is also a function of the cost of labor. While very little variation
can be observed prior to 1970, there is some evidence of a shift towards
broadcasting in certain areas of the country in more recent years. An annual
survey recorded a decline in the ratio of sample farmers transplanting rice
from 90 percent to 81 percent in the North and from 67 to 61 percent in the
Central Plain between 1970 and 1973 [34]. The Central Plain figure is of
special interest since an opposite shift towards transplanting was known to
be occurring in response to improved water control.

A third type of cultivation whereby sprouted seeds are broadcast into the
main fields and the water level is increased in line with the growth in the
seedings is becoming important in areas with complete water control. The
most important factor in the shift towards this type of broadcasting has been
the rising cost of labor. This is confirmed in a study of rice cultivation in
Changwad Chachangsao to the east of Bangkok:

"Most farmers claim that the difficulty in finding hired labor and the high cost of
labor induced them to adopt broadcasting. It seems that non-farm employment
opportunities ... are adequate both in and around Chachangsao." [25, p. 122].

27 In the Central Plain in 1970-71, transplanting required about 137 man-hours of labor
versus about 94 hours per rai (data from Small [47]).
28 "Floating" varieties elongate rapidly in response to rising water levels.
The above evidence does not support the main propositions of the surplus labor hypothesis that provides the primary foundation for "traditional sector dualism". Rural labor markets in Thailand appear to be particularly tight during peak agricultural seasons with the labor force stretched by drawing youngsters, females from household activities, and workers from nonagricultural jobs into agricultural employment that is characterized by long work hours. In the dry season, the labor force contracts with a large decline in participation by females and youngsters, a shift to off-farm employment by members of farm families, and a substantial reduction in work hours. Even in the dry season, however, unemployment in rural Thailand is insignificant. Labor utilization is characterized by considerable off-farm and nonagricultural employment that accounts for large parts of money income and significant shares of total income. Lower income families with limited farm land resources are able to expand their participation in off-farm employment and to reduce income differentials that would otherwise exist between farm families. Labor shortages and rising wage rates are important phenomenon in significant areas of the country.

III. The relevance of modern sector dualism

"Traditional sector dualism" has had the greatest impact on policy in Thailand by providing a rationale for heavy discounting of labor costs. The introduction and frequent adjustment of minimum wage rates and the explosive growth of trade union activities during the 1970's, along with the rapid growth of the congested Bangkok metropolis, have however generated considerable interest in "modern sector dualism." Recent consideration of employment or industrialization strategies aimed at limiting industrial concentration in and migration to Bangkok reflects this growing concern.

In this section, we analyze labor markets in Bangkok during the 1970's. Evidence is presented to the effect that: (a) wage rates have in general remained subject to forces of supply and demand with exceptions limited to short-time periods and narrow segments of the labor market; (b) urban labor markets have expanded rapidly, have been characterized by low unemployment rates, and appear well integrated with rural labor markets, and (c) the very active informal sector in Bangkok provides employment at terms competitive with the wage sector and cannot be characterized as a residual labor market providing low income employment to those unable to enter the wage labor market.

Modern sector wage formation

Government minimum wage legislation and/or labor union activity became potentially important in the modern sector wage determination
mechanism in the 1970s. Minimum wage rates covering all sectors except agriculture, forestry and fishing, were first introduced in February 1972 in the four most industrialized provinces around Bangkok. The minimum wage was increased and extended to the six provinces comprising the Bangkok metropolis in January 1974. In January 1976, the legislation was extended nationwide on the basis of a three region classification, with the minimum wage in the Bangkok metropolis some 40% above that in the least developed regions of the country. This system was maintained during subsequent wage rate increases in October 1977 and October 1978. The potential for labor market distortions due to trade union activity also increased during this period. Labor union activity was banned in Thailand from 1958 to 1972 and, although strikes occurred, it was not until 1973 that strike action was of significance. Between 1973 and 1976, years during which there was a move towards a constitutional democracy, strikes jumped from a previous high of 34 to an annual high of 501 in 1973 with resulting losses of working days jumping from a previous high of less than 25 thousand to about 1/4 million workdays in 1973, 1/2 million workdays in 1974, 3/4 million workdays in 1975, and 1/2 million workdays in 1976. Strikes were again banned after the October 6, 1976 coup. Despite this turbulent record, strike activity never accounted for more than an average of 8 days lost per striking worker per year nor for more than an average of one half day per year for workers in municipal areas of the country.

Wage rate data should represent a primary source of evidence concerning the effects of minimum wage rates and labor union activity. As with the rural sector, however, these data are not collected on a comprehensive basis in Thailand. Limited sample surveys on unskilled wage rates do, however, provide some basis for analysis. In Table 5, the minimum wage rates and wage rates for unskilled workers in construction, total manufacturing, and textile manufacturing are given for the post 1972 period. Since, in contrast to the 1960's, the 1970's have been characterized by periods of rapid price inflation, the same data deflated by a consumer price index are presented in real terms based on 1971 prices. The textile sector is considered separately from total manufacturing (a) because it represents the largest single industrial activity, accounting in 1976 for almost one-fifth of manufacturing employment in the Bangkok metropolis in firms with more than ten employees, (b) because it has consistently recorded the lowest average wage rates in manufacturing and therefore is one of the sectors most susceptible to an impact from minimum wage rates and (c) because it has accounted for a large percentage of strike activity. Data on the construction industry, on

29 Data on strikes are from Department of Labor [8; 1975, 1976, 1977].
30 In 1974, 79% of all strikes, 83% of all workers involved, and 81% of man-days lost through strike action were in the manufacturing sector; the corresponding percentages for the textile industry were 27%, 50%, and 56%.
Table 5
Minimum wage rates and average wage rates for unskilled labor in construction, manufacturing and textiles

<table>
<thead>
<tr>
<th>Year</th>
<th>Minimum Wage (Bangkok)</th>
<th>Average Wage Rates for Unskilled Labor</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Construction</td>
<td>Manufacturing</td>
</tr>
<tr>
<td>1972</td>
<td>16.1</td>
<td>19.5</td>
</tr>
<tr>
<td>1973</td>
<td>17.7</td>
<td>22.5</td>
</tr>
<tr>
<td>1974</td>
<td>20.6</td>
<td>25.5</td>
</tr>
<tr>
<td>1975</td>
<td>24.0</td>
<td>29.2</td>
</tr>
<tr>
<td>1976</td>
<td>27.2</td>
<td>39.5</td>
</tr>
<tr>
<td>1977</td>
<td>42.9&lt;sup&gt;a&lt;/sup&gt;</td>
<td>32.7&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>1978</td>
<td>46.2&lt;sup&gt;b&lt;/sup&gt;</td>
<td>34.8&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

Real Wage Rates (1971 prices)

<table>
<thead>
<tr>
<th>Year</th>
<th>Construction</th>
<th>Manufacturing</th>
<th>Textiles</th>
</tr>
</thead>
<tbody>
<tr>
<td>1972</td>
<td>15.5</td>
<td>18.8</td>
<td>16.3</td>
</tr>
<tr>
<td>1973</td>
<td>15.3</td>
<td>19.2</td>
<td>16.6</td>
</tr>
<tr>
<td>1974</td>
<td>14.4</td>
<td>17.8</td>
<td>15.9</td>
</tr>
<tr>
<td>1975</td>
<td>16.1</td>
<td>19.6</td>
<td>18.3</td>
</tr>
<tr>
<td>1976</td>
<td>17.4</td>
<td>25.3</td>
<td>19.3</td>
</tr>
<tr>
<td>1977</td>
<td>25.3&lt;sup&gt;a&lt;/sup&gt;</td>
<td>19.3&lt;sup&gt;a&lt;/sup&gt;</td>
<td></td>
</tr>
<tr>
<td>1978</td>
<td>24.8&lt;sup&gt;b&lt;/sup&gt;</td>
<td>18.7&lt;sup&gt;b&lt;/sup&gt;</td>
<td></td>
</tr>
</tbody>
</table>

Source and notes: Data for all sectors 1972-1974 from Bank of Thailand [2; 1974]. Data for 1975-78 for manufacturing and textiles from Bank of Thailand [2; 1978]. Data for 1975 for manufacturing and textile is the average wage for workers paid daily from National Statistical Office [35; 1975]. Data for construction in 1975 is the average wage of 1,402 unskilled workers employed by a private construction firm operating in the Central Plains. Data for construction for 1976 obtained by adjusting the average wage rate figure reported in National Statistical Office [35; 1976] by the ratio of unskilled to average wage rates obtained for the building construction industry in a 1972 survey covering over 8,000 workers in Dept. of Labor [8; 1973]. The real minimum wages were obtained by deflating the consumer price index one quarter prior to the introduction of a new minimum wage.

<sup>a</sup> Estimated by firms in 1977.

<sup>b</sup> Projections by firms responding in 1977.

The data in Table 5 show that real wages declined slightly during the

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31 For instance, information provided by a large construction firm based on a sample of 1,402 employees indicated that unskilled wage rates paid during 1975 ranged from Baht 18 to Baht 25 with a mean wage of Baht 24, even though the minimum wage was Baht 25 during this period. Only about two thirds of firms inspected by the Labor Department were not in violation of the minimum wage laws [8] and enforcement procedures appear to be concentrated on the larger manufacturing firms.

32 The construction sector accounted for 5% of non-agricultural employment but only 2% of strikes, 1% of workers involved in strikes, and 2% of all man-days lost through strikes in 1974.
periods of rapid price inflation (at annual rates of 26% and 23% in 1973 and 1974 respectively). However, this was quickly reversed with real wages for unskilled labor in 1976 noticeably above the 1972 levels.

The minimum wage legislation prior to January 1975 probably did not have much of an impact on wage movements even when attention is focused on unskilled labor. While this conclusion must be held tentatively until factors leading to some variance in wages for unskilled labor are considered below, it is strongly suggested by the fact that the average wage rates in the previous year were substantially above the minimum wages introduced in either February 1973 or June 1974. More direct evidence is available for the June 1974 increase for which a comparison with previous year average wage rates is not as conclusive. A sample survey of 330 establishments [23; 1974] in various nonagricultural sectors found that only 8.2% of the workers received less than 20 Baht per day during April 1974, two months before the minimum wage was raised to 20 Baht during an inflationary period in which nominal wage rate increases were significant and frequent.

The evidence on the impact of minimum wage rates after January 1975 is less clear-cut. Based on the wage rate data of Table 5, a significant effect might be expected. The 25% nominal increase in the minimum wage rates represented a similar gain in real wages as prices temporarily stabilized in the last two quarters of 1974 and the first quarter of 1975. While the new minimum wage rate was below average unskilled wages in manufacturing in the preceding year, it was above these rates in the labor intensive textile sector. Further evidence of the potential effectiveness of the January 1975 rate is provided by a sample survey of 77 establishments [3] which indicated that, just prior to the increase in the minimum to B 25, 36.3% of those employed received less than B 25 per day. While this shows a completely different picture than the survey on the period prior to the increase in the minimum wage to B 20 per day, it is not directly comparable and exaggerates the potential impact; the survey concentrated on low wage “labor intensive industries” in an attempt to study the response to the minimum wage rates in firms that were affected. In any case, the impact was probably shortlived as inflation reduced the real minimum wage rate prior to the increase to B 35 in October 1978.

The comparison between the unskilled wage rate series for textiles and construction available for both sectors through 1976 is also of interest. Since both the minimum wage rates and strike activity had a potentially greater effect in the textile sector, the similarity of wage rate movements with the wage rate differential in favor of textiles remaining stable throughout the period suggests that any actual effect was limited.

The average wage rate series in Table 5 therefore suggests that significant distortion to the unskilled labor market seems unlikely except for brief
The relevance of the dual economy model

Table 6
Minimum wage rates and wage rates for unskilled labor by sex for selected sectors, 1972–1974
(Baht: 1 Baht = U.S. $0.05)

<table>
<thead>
<tr>
<th>Minimum wage</th>
<th>Construction Male</th>
<th>Female</th>
<th>Manufacturing Male</th>
<th>Female</th>
<th>Textiles Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>1972</td>
<td>17.8</td>
<td>14.0</td>
<td>21.7</td>
<td>17.3</td>
<td>18.2</td>
<td>15.6</td>
</tr>
<tr>
<td>1973</td>
<td>20.1</td>
<td>15.3</td>
<td>24.3</td>
<td>20.1</td>
<td>20.5</td>
<td>17.9</td>
</tr>
<tr>
<td>1974 (June)</td>
<td>22.8</td>
<td>18.4</td>
<td>28.0</td>
<td>23.0</td>
<td>24.2</td>
<td>21.2</td>
</tr>
</tbody>
</table>

Source: Bank of Thailand [37].

periods following the January 1975 and October 1978 changes. However, average wage rates even for the single category of unskilled labor may be an inappropriate basis of analysis if there is significant dispersion in wage rates. Unskilled wage rates are available by sex (Table 6) and by size of reporting firm (Table 7), but only for a few years. The data indicate that there is a significant wage differential by sex of some 3 to 5 baht a day or of about 15 to 30% evident in all three wage series. These data still would suggest that there was a limited potential effect from minimum wage rates during the 1973–74 period, but the existence of such a wage differential does suggest that the January 1975 and October 1978 legislation was potentially important for unskilled females in particular. The data on firm size wage differentials indicate that smaller firms do pay lower wages, but the differential appears very small in the low wage textile sector which was most susceptible to minimum wage legislation. We shall also see below that enforcement was less strict for smaller firms.

The comparison of minimum wage rates with wages of particular groups within the unskilled labor is only a rough indicator of any impact. Firstly, considerable variance might remain in the wage distribution for the more narrowly defined groups within the unskilled category. Thus age or length of employment with the firm might be important factors in explaining different wages and one might expect that minimum wages might be especially

Table 7
Minimum wage rates and unskilled wage rates by size of establishment, 1976–1978 (Baht = U.S. $0.05)

<table>
<thead>
<tr>
<th>Minimum wage</th>
<th>Small Manufacturing Male</th>
<th>Medium</th>
<th>Large</th>
<th>Small Textiles</th>
<th>Medium</th>
<th>Large</th>
</tr>
</thead>
<tbody>
<tr>
<td>1976</td>
<td>32.3</td>
<td>38.3</td>
<td>47.3</td>
<td>28.8</td>
<td>28.7</td>
<td>31.3</td>
</tr>
<tr>
<td>1977*</td>
<td>35.1</td>
<td>42.0</td>
<td>51.0</td>
<td>31.3</td>
<td>32.2</td>
<td>34.1</td>
</tr>
<tr>
<td>1978**</td>
<td>38.2</td>
<td>44.9</td>
<td>54.6</td>
<td>33.5</td>
<td>33.5</td>
<td>36.3</td>
</tr>
</tbody>
</table>

* Estimated by firms during 1977.
** Projected by firms responding in 1977.

Source: Bank of Thailand [2, 1978].
important in the labor market for the young, but the available data do not allow this to be tested. Secondly, the minimum wage rates could be expected to affect more than the workers with wages previously below the minimum. Of the 77 labor-intensive firms surveyed in 1975, 50 firms reported that they also increased the wages of workers already earning more than the minimum at the time wages were adjusted for workers below the minimum wage. The increase for such workers, however, tended to be less than the percentage change in the minimum rates (25%) and in many cases less than the absolute change (B 5). Thus, 32% of firms granting pay increases to workers earning more than B 25 allowed an increase of B 3–B 4, while 24% of the firms only allowed an increase of between B 1–B 2. The 25% increase in the minimum was associated with a 12.5% increase in the average wage paid to unskilled labor in the firms surveyed. The fact that some narrowing of the wage differential occurred gives further evidence that the minimum wage legislation exerted some influence on wage-rate determination in early 1975 and that recorded wage increases were not simply a response to inflationary pressures. Thirdly, the wage rate analysis may also exaggerate the effects because the labor laws were not uniformly or strictly enforced. Thus, almost one third of enterprises inspected in 1976 (covering 346,000 employees) were in violation of the minimum wage laws and for the smallest firms (less than 20 workers), the percentage was almost 45% [8; 1976].

*Modern sector separation and quit rates*

Given the limitations to the data base for and results obtainable from an analysis of wage rates, possible labor market distortions might be more evident from the nature of changes in labor turnover during the 1970s. If wages had risen above supply price of labor, one would expect to find a decrease in labor turnover and an increase in labor availability. Some fragmentary evidence of such an effect is available. In a survey of six textile firms conducted in 1975, Viuhai [58] found that four firms experienced substantial decreases in labor turnover and increased job applications after bringing wages for low paid workers up to the increased minimum wage and giving smaller absolute pay increases to those above the minimum.

A more comprehensive picture can be obtained from quarterly data on separation rates and quit rates in manufacturing and textiles (Table 8). The separation rates are high enough to suggest that returns in manufacturing wage employment are not significantly above returns in alternative activities. There is some mild support for our hypotheses that any distortionary effect in the labor market occurred after the January 1975 minimum wage and was temporary in nature. Separation rates during 1975, 1976, and 1977 were lower than in either 1978 or the 1970–72 period and there is some evidence
growth in the labor force is, however, not apparent in the 1971–73 data for any region. Since dry season employment opportunities have not changed markedly, and if anything have improved with increased water control and increased cultivation of upland annual crops, the variation in the 1974 labor force appears to be a consequence of the change in labor force definitions after 1973 whereby family members working less than 20 hours but not seeking additional work were classified as out of the labor force.

The nature of the shift in the structure of the labor force is clarified by data on participation rates by region and by age groups presented in Table 2. There is some decline in participation rates evident between the rainy season in the post 1973 data compared to generally stable rates during the 1971–73 period but the most striking changes occur in the dry season rates. For males, the 1974 dry season rates are 18 and 15 percent below the 1973 rate in the North and Northeast respectively compared to a corresponding 7

<table>
<thead>
<tr>
<th>Table 2</th>
<th>Participation rates* in non-municipal areas by region, season, and age group 1971–76</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Males</td>
</tr>
<tr>
<td>Whole</td>
<td>81 79 78 66 66 65</td>
</tr>
<tr>
<td>Country</td>
<td>82 79 79 76 78 77</td>
</tr>
<tr>
<td>Bankok</td>
<td>79 78 70 71 74 75</td>
</tr>
<tr>
<td>Central</td>
<td>80 77 72 73 78 72</td>
</tr>
<tr>
<td>North</td>
<td>78 78 75 70 69 70</td>
</tr>
<tr>
<td>North</td>
<td>83 78 81 63 68 62</td>
</tr>
<tr>
<td>North</td>
<td>83 81 80 73 76 76</td>
</tr>
<tr>
<td>South</td>
<td>80 77 76 72 71 72</td>
</tr>
<tr>
<td>11–14</td>
<td>80 77 76 72 71 72</td>
</tr>
<tr>
<td>15–19</td>
<td>85 80 82 48 47 47</td>
</tr>
<tr>
<td>20–29</td>
<td>84 80 80 71 71 70</td>
</tr>
<tr>
<td>30–39</td>
<td>95 97 85 78 78 71</td>
</tr>
<tr>
<td>40–49</td>
<td>97 96 96 93 94 93</td>
</tr>
<tr>
<td>50–59</td>
<td>99 98 88 93 93 91</td>
</tr>
<tr>
<td>60+</td>
<td>98 98 96 96 96 96</td>
</tr>
<tr>
<td>a The participation rate is defined as the ratio of those in the labor force to the civilian non-institutionalized population above the age of 11.</td>
<td></td>
</tr>
<tr>
<td>b Reclassification of unpaid family workers working less than 20 hours per week and persons without work not looking for work because of the belief no work is available: see text.</td>
<td></td>
</tr>
</tbody>
</table>
and 1 percentage fall in the rainy season rates. For females, the 1974 dry season participation rates are 18, 24 and 18 percentage points below the 1973 rates in the North, Northeast, and South respectively compared to a corresponding decline of 2, 0 and 2 percentage points in the rainy season. The age group data indicate that these changes in the dry season are mainly due to sharp reductions in participation rates for young males and for women of all age groups. The declines are particularly large for the two youngest age groups of both sexes. The participation rate for children from 11 to 14 is cut in half for both girls and boys and declines by 34 and 25 percentage points respectively for males and females in their late teens (from 15–19). This change in labor force activity by youngsters after the change in the classification of family workers with less than a 20 hour work week is crucial since 23% of the male and 27% of the female dry season rural labor force in 1973 were in the two youngest age groups. The dry season participation rates for males above 20 show some decline, but the change is relatively minor and some increases are also observed. The pattern first established in 1974 is again also observed in the 1975 and 1976 data.

The high rainy season participation rates and the importance of female workers and youngsters in the declines in the dry season rates suggest that the aggregate labor force data give little support to the labor surplus hypothesis. The labor force expands in response to heavy demands for labor in on-farm activities during the rainy season by drawing on females and youngsters who in the great majority of cases are not engaged in dry season off-farm employment by choice.\(^7\)

The tightness in rural labor markets in the rainy season is also reflected in labor force survey data on work hours. Despite the high proportions of females (with household duties not counted as labor force activity) and youngsters in the rainy season labor force, over a quarter of the rainy season labor force averaged over a 70 hour work week. Since most of these farm activities require daylight, this means that sizeable segments of the labor force were literally working all the time during the peak seasons. These long peak season work weeks tend to counter balance the shorter dry season work weeks resulting in annual work hours that are not very different from work norms in the developed economies. There is, however, some evidence that the seasonal variations in labor utilization are greatest in the poorest regions of the country—the North and the Northeast. In the North in 1973, 47 percent of the male labor force in agriculture worked less than 30 hours a week in the dry season while 35 percent worked more than 70 hours

\(^7\) Note that family workers working less than 20 hours who want to work more and those not looking for work because of the belief it is not available remain classified in the labor force as unemployed. The "choice" to drop out of the labor force is a function of the available returns in employment and the decline in labor force participation is much less in areas with higher slack season wage rates.
Table 10
Comparison of labor force participation rates and unemployment rates for in-migrants and total population of Bangkok metropolis by sex, 1974-1977

<table>
<thead>
<tr>
<th>Year</th>
<th>Total Male</th>
<th>In-Migrants Male</th>
<th>Total Female</th>
<th>In-Migrants Female</th>
<th>Unemployment Rates Male</th>
<th>Unemployment Rates Female</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1974</td>
<td>65.2</td>
<td>73.0</td>
<td>53.9</td>
<td>1.6</td>
<td>1.4</td>
<td>1.3</td>
</tr>
<tr>
<td>1975</td>
<td>61.6</td>
<td>63.1</td>
<td>53.2</td>
<td>0.8</td>
<td>1.2</td>
<td>0.4</td>
</tr>
<tr>
<td>1976</td>
<td>64.9</td>
<td>76.5</td>
<td>55.2</td>
<td>1.1</td>
<td>1.5</td>
<td>0.6</td>
</tr>
</tbody>
</table>

Source: National Statistical Office [38; 1974, 1975, and 1977]. Labor Force Participation rates are as defined in Table 2. Unemployed are defined as those looking for work, during the survey week, those not looking for work because of the belief it was not available, and those working less than 20 hours a week as unpaid family workers while wanting to work more. In-migrants are defined as those who permanently or semi-permanently change residence to live in the Bangkok metropolis during the preceding two years. Labor was probably limited in terms of time and number of workers affected, the lack of comprehensive data does not allow this to be established conclusively. The prediction of extensive urban unemployment or low productivity employment, especially for new migrants, provides an alternative basis for evaluating the relevance of modern sector dualism.33

Tables 10 and 11 provide data on labor force participation and unemployment rates for migrants who came to the Bangkok metropolis in the preceding 24 months along with these rates for the total population. The overwhelming impression is of very high participation rates, especially for migrants, and very low unemployment rates. It is also interesting to note

Table 11
Comparison of labor force participation rates and unemployment rates for in-migrants and total population of Bangkok metropolis by age and sex, 1977

<table>
<thead>
<tr>
<th>Age</th>
<th>Total Male</th>
<th>In-Migrants Male</th>
<th>Total Female</th>
<th>In-Migrants Female</th>
<th>Unemployment Rates Male</th>
<th>Unemployment Rates Female</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11-19</td>
<td>20.2</td>
<td>67.8</td>
<td>22.8</td>
<td>70.6</td>
<td>1.1</td>
<td>0.7</td>
</tr>
<tr>
<td>20-29</td>
<td>78.2</td>
<td>90.0</td>
<td>56.3</td>
<td>63.6</td>
<td>2.5</td>
<td>1.8</td>
</tr>
<tr>
<td>30-35</td>
<td>97.7</td>
<td>97.8</td>
<td>54.5</td>
<td>56.0</td>
<td>0.4</td>
<td>1.5</td>
</tr>
<tr>
<td>40-59</td>
<td>93.7</td>
<td>69.0</td>
<td>45.3</td>
<td>1.0</td>
<td>0.1</td>
<td>5.7</td>
</tr>
<tr>
<td>60+</td>
<td>37.2</td>
<td>1.6</td>
<td>12.1</td>
<td>—</td>
<td>0.1</td>
<td>1.6</td>
</tr>
<tr>
<td>Total</td>
<td>63.1</td>
<td>80.1</td>
<td>40.0</td>
<td>56.8</td>
<td>1.1</td>
<td>1.5</td>
</tr>
</tbody>
</table>

* Less than 0.1%.
Source: National Statistical Office, [38; 1977].

33 The view of the informal sector as underemployed workers disappointed in the attempt to break into wage employment can be found in Harris and Todaro [14] and in Mazumdar [27]. For an alternative view where the urban self-employed are seen as having incomes that are higher than in rural areas and therefore an inducement to urban migration, see Harberger [13]. For a survey of the literature on internal migration in less developed economies, see Yap [63].
that the participation rates for migrants have in general increased throughout the 1974 to 1977 period despite the increase in factors potentially leading to distortions in the labor markets. The data by age groups indicate that the higher participation rates in migrant families are largely due to differences among the youngest family members and probably indicate a need in migrant households to use all available labor resources in income-earning activities at the expense of further educational attainment; the important point is that the urban labor market provides employment opportunities. While unemployment rates are higher among migrants, the rates in general are so low as to be expected due to differing proportions of migrant and resident families employed in short term job search in markets that are in general characterized by full employment.

The evidence from the migration surveys is consistent with the efficient labor market suggested by an ILO survey [19] of employed migrants in the Bangkok metropolis in 1963. Of those interviewed, 56% had found their jobs in less than three days, and only 14% spent more than two weeks looking for a job. The observation that the vast majority of employed migrants did not have to engage in long periods of job search indicates that the urban wage rate was not fixed above the supply price of labor at that time.

The high labor force participation and low employment among migrants indicates that the open urban unemployment variant of 'modern sector' dualism is not relevant for Thailand. The underemployment and low income informal sector variant also appears to be inconsistent with the data. The vast majority of migrants, 88% of males and 99% of females in 1977, obtained wage employment whereas wage employees account for only 69% of the male labor force and 62% of the female labor force for the Bangkok metropolis as a whole. The nonwage sector therefore cannot be viewed as providing employment to workers frustrated in the attempt to break into the wage sector.

**Labor returns in the informal sector**

The hypotheses that the informal sector is a low income residual labor market for those unable to obtain wage employment is also inconsistent with the limited evidence available on returns in nonwage employment.

A survey of the Khlong Toey squatter settlement [45] in 1970, one of the largest slum areas in Bangkok, found participation and employment rates almost as high as for the total metropolis. Some 92% of household heads were employed and only 3% were looking for employment. For all household members, 33% were employed, 8% were looking for employment, and

25% were either too young (under 7 years of age) to work, or else were ill or retired. Of those in employment, 61% worked seven days a week and 92% worked five or more days in a typical week. A comparison of the returns to the self-employed with prevailing wage rates is of special interest. The average daily earnings of the self-employed were 19.8 baht per day, over 20% higher than the prevailing wage rate in construction of approximately 16 baht. Of course, the return to the self-employed may include a return to nonlabor inputs. If the comparison is confined to those engaged in trade (mainly vendors) who one would expect use little other than their own labor, average daily earnings are reported to be 16.3 B, which is approximately the same as the then prevailing wage in construction.

Research in nonslum areas of the city has found even sharper contrast with the ‘underemployed-low income’ view of the informal sector. A survey by Teilhet-Waldorf [51] of vendors, workers involved in unloading or transporting bricks, and small business people in the Dusit district of Bangkok in 1973 and 1974 found that weekly work hours varied greatly but that on average (55 hours per week for vendors, 52 for brick workers, and 79 for business people) were close to or above the normal work week for unskilled labor (56 hours per week). None of the 84 respondents in this survey indicated any desire to work longer hours. Returns were well above unskilled wage rates; on average B 68 per day for vendors, B 86 per day for brick workers, and B 217 per day for small-scale business people (with hourly returns used to calculate returns for an eight hour day). There is a significant nonlabor component to returns to brick workers and business people, some of whom had trucks, shops, and equipment. The high return for vendors, however, suggests that labor returns alone would significantly exceed unskilled wage rates. These high incomes probably reflect the nature of the sample which included mainly individuals in stable nonwage sector positions who probably developed considerable skills in getting along with people and attracting steady customers.35 The survey also found that 39 individuals in a sample of 79 had moved into informal sector positions from jobs outside the informal sector. Of these, 27 had been salaried employees in the private sector, 2 had been government employees, and only 12 had come from the rural sector. There was a high degree of mobility between the wage and the informal sector, and job histories showing moves back and forth between the two sectors were common.

*Rural urban income differentials*

Labor market dualism is associated with major sectoral productivity and income differentials. Such differentials would appear to exist for Thailand.

35 The average length of time spent in the occupation groups Teilhet-Waldorf dealt with was between 11 and 16 years.
For example, average labor productivity in agriculture in 1970 was only 12% of that in nonagriculture and only 10% of that in manufacturing. These average labor productivities, however, are not very informative since many farmers are heavily engaged in nonagricultural activities. As was seen in Section II, village studies show that nonagricultural activities account for large proportions of work time and income. A more accurate index of average rural income differentials is provided by the household expenditure surveys where income includes both money income and income in kind. Rural household incomes range from 30% (in the Northeast) to 70% (in Bangkok) or urban household incomes, the average differential being in the order of 37% [28]. Even adjusting for a lower cost of living in rural areas, the average income differentials remain substantial. Such differences in average returns do not, however, imply significant differences at the margin.

Data on geographical differentials in wage rates show that income differentials among unskilled workers are not very substantial. Thus, wage rate data obtained from a major construction company indicate that wages paid in the north and northeast for unskilled labor are roughly 15 to 20% below those paid for the same type of labor in the more developed Central Plain. The most extensive data for geographic wage differentials come from a 1972 survey conducted by the Department of Labor [8, 1973]. Wages were collected for 8,210 unskilled workers (classified as laborers, heavy physical work); 4,400 employed in construction of buildings and 3,810 in highway construction. The data, presented in Table 12, indicate little difference in the wage rates in Bangkok and the cities in the Central Plains and the South. The wage rates in the North and Northeast are somewhat lower, confirming the picture from the data provided by the private construction firm. However, the differentials are small, especially in light of differences in living costs among low income groups. While reliable regional cost of living indices are not available for low income groups, prices of rice, many other agricultural and food products, and housing are all below prices.

### Table 12.

| Unskilled wage rates in construction by region, 1972 (Baht: 1 baht = U.S. $0.05) |
|---------------------------------|-----------------|-------------|-------|-------|-------|-------|-------|
|                                | Central Bangkok | Chonburi    | Northeast | North | South |
| Building construction          | 18              | 19          | 15      | —     | 13    | 15    | 16    |
| Highway construction           | 17              | 22          | 13      | 16    | 12    | 12    | 15    | 16    |


Source: Department of Labor [8; 1973].

36 Calculated from data in National Statistical Office [36; 1973].
37 Dan Usher [56; table 21, p. 164] has estimated the cost of living for farmers in 1963 was 16% lower than for residents of urban areas.
in Bangkok and it is doubtful that a positive differential exists in real terms. It is very common for Northeasterners and Northerners to take temporary employment in Bangkok and these two regions, accounting for 57% of the Thai population, accounted for some 56% of the 92,000 migrants estimated in 1977.

IV. Summary and conclusion

Although the dual economy model has played a prominent role in theoretical analysis of the development process and has greatly influenced the basic methodologies for applied project analysis, our study for the Thai economy suggests that dualism is not an important factor in Thai labor markets. In contrast to the dual economy models in which equilibrium is secured in distorted labor markets at the cost of unemployed or inefficient utilization of productive resources, our analysis highlights the role of supply and demand forces in a dynamic disequilibrium context. Seasonality in agricultural activities, changing prospects for crops that are regionally specialized, uncertain production conditions dependent on weather, significant changes in labor demands in areas affected by infrastructure investments, and large scale structural changes in the Thai economy with relative expansion of urban labor markets have all been factors requiring substantial and continuous adjustment in labor markets. These adjustments have taken place in an environment in which the overwhelming majority of rural families have land holdings so that off-farm labor supply decisions must be reconciled with farm labor requirements in an environment with significant adjustment and information costs or in which migration decisions imply changes in life-styles and often in the structure of family assets. Nevertheless, labor markets appear to have been reasonably efficient and well integrated with little evidence of serious or prolonged unemployment, underemployment, or misallocation of resources. The case for Government intervention in labor markets or use of shadow prices significantly different from market prices, to the extent that it is based on 'labor market dualism,' cannot be supported by the best available evidence.

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REFERENCES

15. Hunting Technical Service Limited, South Thailand: Regional Planning Study Sector Studies, no. 8, Rubber.
18. Institute of Population Studies, Perspective on Thai Population, Chulalongkorn University, Bangkok, Thailand.
47. SMALL, LESLIE. An Economic Evaluation of Water Control in the Northern Region of the Greater Chao Phya Project of Thailand, Ph.D. Dissertation, Cornell University, 1972.
54. TONGSIRI, BENCHA VIN. LERTTAMRAB, PICHIT, and TOHDEY, A. Agro-Economic Characteristics of the Chiangmai Valley, 1972–73, Department of Agricultural Economics, Chiangmai University, January 1975.
55. United Nations: Economic and Social Commission for Asia and the Pacific: Committee for
Coordination of Investigation of the Lower Mekong Basin, Production Costs of a Number of Major Agricultural Products in the Lower Mekong Basin, mimeo, January 1975.


