

The Economic and Social Impact of Declining Fertility : A Case Study of Thailand

*Declining fertility has made
it easier for Thailand to
sustain the shock of previously
falling economic growth*

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Thailand is by all odds one of the most successful economic and demographic stories in South-east Asia, an area in which other success stories can also be found. The average annual growth of Thailand's gross national product

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(GNP) from 1960 to the early 1980s was almost 8 per cent and, during the period 1970 to 1985, the country's population growth rate fell from over 3 per cent per annum to about 1.5 per cent.

Prospects are for a continuing decline in fertility; replacement level fertility is expected to be reached at or not long after the turn of the century, with population stabilizing a generation or two thereafter.

The causes of Thailand's economic success and its rapid fertility decline have been investigated and discussed elsewhere and are not the point of this article (Knodel, et al., 1986). Instead the article examines the socio-economic consequences for Thailand of past, present and future declines in fertility.

For a long time, it was accepted more or less uncritically that population growth was always deleterious to economic growth. Recent "revisionist" attacks have led to abandonment of this old orthodoxy and most contemporary authors strive for a middle-of-the-road position between the extremes of the "population bomb" school on the one hand and the "ultimate resource" point of view on the other (Preston and Donaldson, 1986; Simon, 1982).

Instead of searching for a single theoretical paradigm capable of dealing with all cases, it would perhaps be more useful to examine closely the effects, positive and negative, of population growth on economic development in specific countries for specific periods. This is the rationale and the approach of this article.

The analysis focuses particularly on the economic and social prospects for Thailand in view of its continuing fertility decline. The main questions addressed are: "What are the implications of this trend?" and "what policy responses are likely to be required?"

Whatever may be said about the past economic effects of population trends, it seems clear that the most important economic influences shaping the recent past and the present in Thailand have been larger forces arising from world-wide economic trends. As with most countries of the world, Thailand has been buffeted during the last decade by momentous swings in the revenues earned from its exports, by widening gaps in the balance of trade and by fluctuating exchange rates. These events were largely outside the control of any policy maker; thus an economic slow-down would have occurred whether the population growth rate had been higher or lower than the one actually achieved. Therefore, the question is whether declining fertility now and in the future will make Thailand's ability to adjust to these changing economic circumstances easier or more difficult.

In anticipation of our conclusions, we found that the declining rate of

population growth has made it much easier for Thailand to sustain the shock of falling economic growth and the temporary uncertainty about the economic future which existed between 1982 and 1985. Moreover, the sharp declines in fertility helped and will help for some time to offset the negative economic effects of slow growth in those years.

By removing the continued pressure of rapid population growth on the labour force, Thailand's unemployment problem, while real in the short term, will be very manageable over the longer term. By easing the pressure for an increased volume of public services (education, health etc.), declining population growth will make possible an increase in the quality of those services. Thus, regardless of what can be "demonstrated" using elaborate econometric models for the long term, Thailand is much better off today and will be tomorrow as a result of having previously reduced the level of fertility. This case-study demonstrates various aspects of the effects of population on development in a developing country.

Demographic trends

In the late 1960s, the Thai Government launched a vigorous family planning programme which has been successful beyond even the most optimistic expectations of the early plans (Knodel, et al., 1982). Fertility has fallen from an average completed family size of 6.6 children per couple in 1960 to roughly 3.0 children per couple in 1985, a reduction of over 50 per cent in one generation. The net growth rate has fallen from over 3 per cent to about 1.5 per cent per year in the same period. These trends continue, albeit at a slowing pace, and a replacement level of fertility is almost certain to eventuate in the next 10 to 15 years.

An average completed family size of 2.1, resulting in a net reproduction rate (NRR) of 1, means that husband and wife are, on average, replacing themselves with two children. A full "zero growth" or stationary population will occur after approximately another two generations, during which time the age distribution will slowly take on the proportional shape consistent with the low (and constant) level of fertility. During this period, i.e. between reaching $NRR = 1$ and ultimate stabilization, the total population size will slowly level off and approach an upper asymptote.

There is some debate regarding the exact time when Thailand will reach a total fertility rate (TFR) of 2.1, but it seems clear that, whatever policy may be pursued during the next five to ten years, fertility will continue to decline and $TFR = 2.1$ will be reached not long after the year 2000.

The decline in fertility also has had a substantial impact on the age struc-

ture of the population. The proportion of population under 15 years of age has fallen from 45 per cent in 1960 to 36 per cent in 1985; even more striking is the reduction in the proportion of total population represented by children under five years of age from 19 per cent in 1960 to 12 per cent in 1985. However, despite those proportional declines, the absolute number of children in the youngest age group increased during the same period. Nonetheless, a decline in the absolute number of persons in that age group will occur in the near future.

The corollary to these changes is that the population aged 60 years and over will continue to increase in both relative size and absolute numbers; the figure on the next page illustrates this changing age structure.

Regional rates of natural increase still differ, but show signs of convergence towards the emerging low overall level of population increase. Between 1970 and 1980, the northern region of the country grew slowest (1.8 per cent per annum) while Metropolitan Bangkok grew fastest (3.5 per cent per annum). The central and the southern regions grew about 2.6 per cent per annum, slightly above the national average of 2.5 per cent per annum, which was also the rate of growth of the north-eastern region.

Since 1970, the sources of growth in the various regions varied from region to region depending on the magnitude of net migration compared with natural increase. The northern, north-eastern, western and sub-central regions are all experiencing fertility declines and also net out-migration.

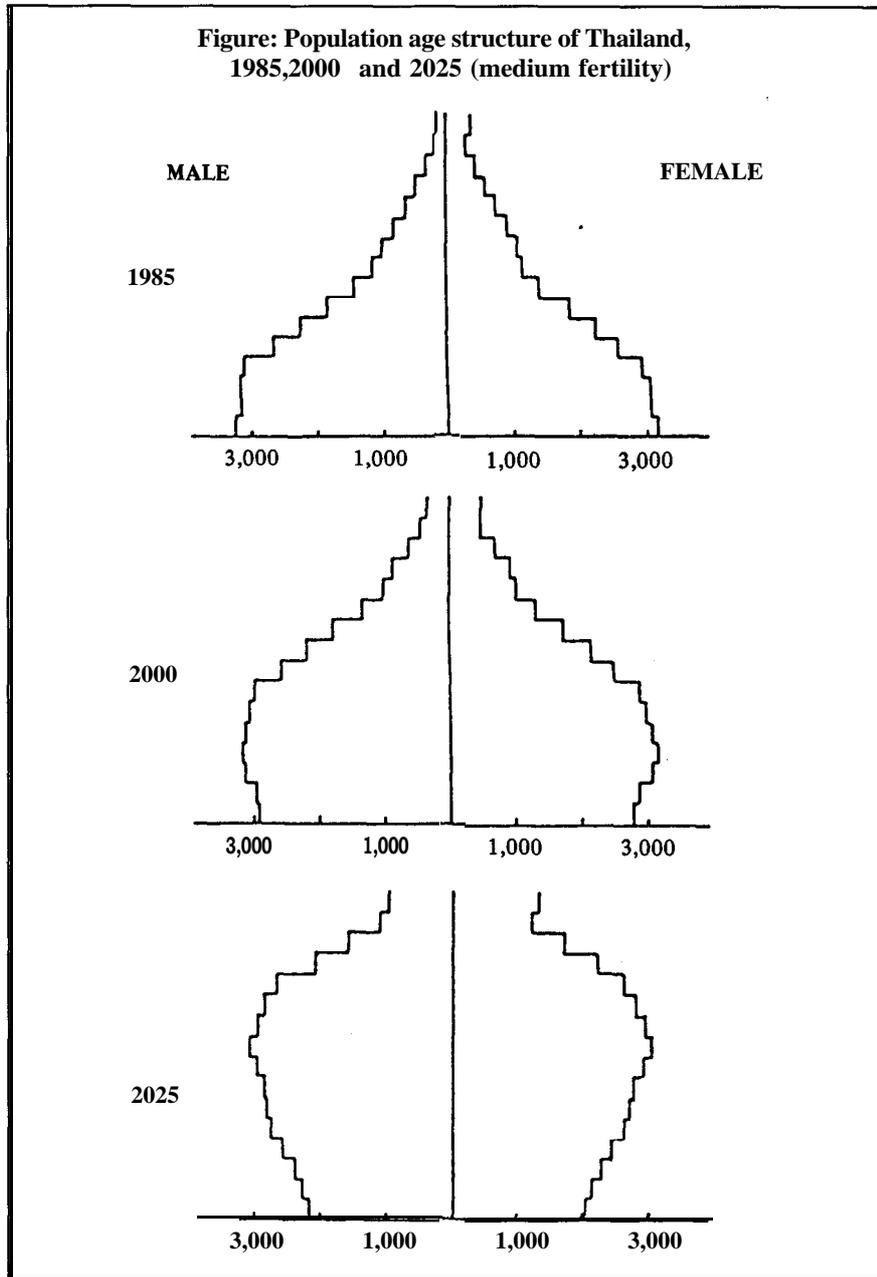
Aside from Metropolitan Bangkok (which includes the city of Bangkok and six neighbouring provinces), only the eastern region (the site of many new development projects) is gaining population through migration. In the longer term, the northern region may also be a net gainer from migration.

Demographic projections

The Working Group on Population Projections of the National Economic and Social Development Board (NESDB) analyzed trends in fertility, mortality and inter-regional migration, and prepared population projections at the national and regional levels for the Government's Sixth Five -Year Plan.

Three sets of national population projections were prepared based on three assumed levels of fertility (high, medium and low) and a single assumed projection of mortality. By 2000, expectation of life at birth rises to 66 years for males and to 70 years for females. This assumption was made after a detailed study of mortality statistics to estimate a reasonable pattern of the expectation of life at birth for both sexes. Using the United Nations study of cross-

Figure: Population age structure of Thailand, 1985, 2000 and 2025 (medium fertility)



national experience with increases in life expectancy, the Working Group adjusted the pattern to one considered suitable for Thailand.

All three projections assume a base fertility of TFR = 3.46 in 1980 and then the following levels to the year 2000:

- Projection I (high fertility): fertility would decline to the replacement level (TFR = 2.1) between 2000 and 2005.
- Projection II (medium fertility): fertility would decline to the replacement level between 1995 and 2000.
- Projection III (low fertility): replacement level would be reached between 1990 and 1995.

The short-term differences in the three variants are modest; by the end of the sixth plan period (1986-1991) the high and medium projections differ by only 1 million people, and the medium and the low projections by fewer than 1 million. By 2010, the high and the medium projections differ by about 6 million people, and the medium and the low projections by about 2 million. From 1980, the base year, the increase in population using the high projection is 46 per cent by the year 2000, and 65 per cent by 2010 compared with 38 per cent and 45 per cent using the medium projection and 36 per cent and 43 per cent using the low projection, respectively.

All three projections show a decline in the proportion of the population in the age group under 15 years. By the year 2000, the high projection estimates that 31.3 per cent of the population will be under 15 years of age; the low projection, that 26.4 per cent of the population will be under age 15, a difference of only 5 per cent (**table 1**). The differences among the three projections almost disappear by the year 2015.

By 2010, in all three projections those under 15 years of age will constitute about one fifth of the total population while those in the economically active age group will constitute about 68 per cent of the total population. The proportion of the population aged 65 years and over will increase from 5.4 per cent in 1980 to 7.7 per cent in 2000 and to 9.5 per cent in 2010.

As previously noted, the various regions of the country differ markedly with regard to their demographic growth rates. Regional population changes, therefore, cannot be estimated from a fixed relationship with the national population. Thus the Working Group analyzed regional fertility, mortality and migration trends and made alternate regional projections consistent with the three national projections described previously.

Fertility was found to be highest in the southern region (TFR = 4.7) and lowest in the city of Bangkok (TFR = 2.49). In the north-eastern region,

Table 1: Projected per cent breakdown of population by fertility assumption and broad age groups, 1980-2015

Level of fertility and age group (years)	1980	1985	1990	1995	2000	2005	2010	2015
High fertility								
0 - 14	40.0	36.5	34.3	32.8	31.3	29.0	26.3	21.0
15-59	54.6	51.9	58.9	60.7	61.6	63.3	65.1	68.0
60+	5.4	5.6	6.0	6.5	7.1	1.1	8.5	11.0
Medium fertility								
0 - 14	40.0	36.5	33.4	30.3	21.4	25.0	23.0	21.0
15-59	54.6	51.9	60.6	62.9	65.0	56.8	61.1	68.0
60+	5.4	5.6	6.1	6.1	7.6	8.2	9.3	11.0
Low fertility								
0 - 14	40.0	36.5	33.2	29.1	26.4	23.1	21.8	20.0
15-59	54.6	57.9	60.7	63.5	66.0	68.0	68.7	68.7
60+	5.4	5.6	6.1	6.8	7.1	8.4	9.5	11.3

fertility was lower than in the southern region, but higher than the national average, and the western region was higher than the eastern region, which was lower than the national average.

Regional mortality differentials were derived from the 1979-1981 mortality survey of the Ministry of Public Health; from the pattern of increase in the expectation of life used in the national population projections, a set of regional mortality assumptions was constructed. Mortality was found to be highest in the southern region, followed by the north-eastern and northern regions, and lowest in Metropolitan Bangkok, followed by the central, eastern and western regions, respectively.

The size, growth and age-sex structure of the regional populations are determined not only by fertility and mortality changes, but also by the magnitude and pattern of inter-regional migration. The following inter-regional migration assumptions were made:

- Constant net migration rate of 7.20 per cent of the total population per quinquennium and constant pattern of inter-regional net migration.
- Net migration rate declining by 3 per cent per annum (i.e., from the initial 7.20 per cent in 1975-1980 to 6.56 per cent during the period 1985-1990, and 5.97 per cent during 1990-1995) and a changing pattern of inter-regional net migration.

Both of these regional projections consistently show slight declines in the percentage share of population in the north-eastern, central, northern and western regions and an increase in the percentage share of population in Metropolitan Bangkok, the southern and eastern regions. The southern region gains relatively because its fertility falls more slowly than all other regions owing to in-migration.

Using the method of Kiranandana et al.,^{1/} we adopted the “medium” urbanization model throughout the projections,^{2/} since it, in effect, assumes that the recent past, rather rapid, rates of urbanization will continue. Less rapid urbanization seems unlikely; more rapid urbanization would yield impossible results within five to ten years.

In summary, the most likely scenario is one of continued declines in mortality and fertility, and a convergence of all regions on low rates, but with net growth remaining positive for the foreseeable future. Continued high

1/ The methodology was developed in connection with this project by Prof. Thienchay Kianandana and his colleagues at Chulalongkorn University, Bangkok.

2/ Within the framework of the national and regional population projections described previously, separate projections were made of the urban population over the next 15 years. This was done using methodology developed by the United Nations which centres around the concept of “tempo of urbanization”, or the urban-rural growth rate differential (URGRD), which is the simple difference in the net growth rates of the two sub-component populations. For example, in Thailand between 1970 and 1980, the urban population grew at about 5 per cent per year while the rural population grew at about 2 per cent per year, making the URGRD a little under 3 per cent per year. The URGRD coefficient, or “d” value, could then be used to project the future urban population as a ratio of projected future total population. Also, the concept of urban, which is employed in the projections, is somewhat broader than the one used by the National Statistical Office, i.e. the projections cover the population of all municipal areas and all sanitary districts with a population over 5,000 and which meet certain other requirements concerning density or location. This approach was followed using two assumed values of “d”: a constant one at the 1970-1980 average level and a value increased by 20 per cent, the former being the “constant” urbanization assumption and the latter, the “high” urbanization scenario. (A “low” urbanization scenario was also explored, but it and the high one were not adopted).

The value of “d” was calculated as follows:

$$U_2 = \frac{(T_2 + (d)R_1}{T_1} U_1$$

where T is total population and R and U are rural and urban populations, d is the tempo of urbanization coefficient (or $u - r$ where u and r are the urban and rural growth rates) and the subscripts refer to year 1 (the present) and year 2 (the future).

levels of population redistribution are predicted, centering around rapid growth of old and new urban centres.

Employment implications

The socio-economic impact of population trends over the period of the next five-year plan and beyond has two main aspects: (a) employment and labour-market problems and (b) other socio-economic problems likely to arise owing to the shifting composition, distribution and age structure of the population in the near and also longer-term future.

With regard to the well-being of the population, the primacy of employment scarcely needs justification. The other issues concern the impact on public services of the changing demographic structure which arise from the population trends projected. Areas judged to be the most important for future policy were (a) the demand for urban housing and infrastructure, (b) educational needs, (c) health needs, and (d) the special problems of the aged.

Basic economic projection

The rapid sustained economic growth (about 7 per cent per annum) of the Thai economy over the last several decades had slowed in 1982, as did real growth in nearly all countries in the Asian and Pacific region. The reasons for this slow-down involved essentially uncontrollable forces such as falling export prices, instability in world financial markets and rising costs and declining profits in domestic industry. Although these elements are beyond the scope of this article, they form the background to the macro-economic projections which NESDB prepared for the Sixth Five-Year Plan (1986-1991).

NESDB proposed an average growth rate in gross domestic product (GDP) of 5 per cent, as being the most likely to eventuate during the five-year plan period. That rate assumes the successful completion of the various projects called for in the plan, but is relatively conservative in its assumptions regarding the exogenous forces and the general state of the world economy.

The projected GDP growth rate of 5 per cent per annum comprised a growth rate of 2.5 per cent annually in the agricultural sector and 6.2 per cent in the non-agricultural sector. Manufacturing was expected to grow at 6.1 per cent and the service sector at 6.5 per cent during the five-year period. In actual fact, however, GDP growth by sector in 1986 was as follows: agriculture (-0.2 per cent), manufacturing (7 per cent) and services (4.3 per cent) (Bowring, 1987).

No regional breakdown of the national figures is available; however, indications are that the central region will lead in the growth of the non-agri-

cultural sector, followed by the eastern, northern and northeastern regions. The central and northern regions will also show the most rapid overall growth in non-agricultural output. The southern region's great potential, both in agriculture and industry, will begin to assert itself; eventually the growth rate in that region will begin to overtake that of the other regions.

Thus, the picture which was projected is one of continuity with the past. Metropolitan Bangkok and the central region combined will continue to be the largest "growth pole", regardless of what government policies are adopted. The central region will also lead in income per capita in the non-urban sector. Hence, the combined Bangkok-central region will continue to attract a stream of net immigrants from other regions, particularly the north-eastern, western and southern regions. The northern and eastern regions will also begin to attract their own in-migrants during the plan period.

The economic projections interact with the demographic projections adopted. The process of industrialization and rural transformation will continue for the next five years and beyond. Also, the demographic transition will all but be completed during this period. Rapid out-migration from the areas of previous most rapid population growth and lowest economic growth will continue. But falling fertility in the areas of previous rapid growth will begin to reduce the pressure for such out-migration.

Rural-agricultural projections

The rural-agricultural projections involved the construction of a model,^{3/} relating inputs to outputs in order to generate alternative future supply potential based on varying assumptions about the availability of inputs and of productivity of input use.^{4/} The projections of potential supply were then related to alternative projections of possible future demand for output, yielding, as a last step, estimates of the degree of labour utilization likely in Thailand under the assumed conditions during the sixth plan period and beyond.

Four scenarios were traced using that model, but the underlying assump-

3/ The agricultural model is very detailed, involving eight categories of land, with labour and capital as additional inputs for some 30 categories of final agricultural crop and livestock products. It is, in effect, a linear programming model based on micro-level data aggregated to a regional level. The available inputs yield a certain potential total output given assumptions about product mix. Conversely, the total output required can be shown to imply the need for a definite set of inputs. Changes in total product (and in mix), in availability of inputs and in efficiency of factor use can thus be traced as alternative scenarios.

4/ These projections and this methodology were developed by Prof. Yonngyuth Chalamwong and his colleagues at Kasetsart University, Bangkok.

tions regarding input availabilities were the same for all the variants. The availability of labour follows from the demographic scenario chosen (medium fertility, constant urbanization). The logic is that the socio-economic forces shaping the continued fertility transition as well as out-migration from the rural areas will not be affected by the level of output which agriculture produces year by year. Under the best of conditions, rural areas will not be prosperous or attractive enough to alter the long-standing trend of population out-migration.

As for land availability, the model assumes that prime, low-lying land for the production of rice is not capable of further expansion. Other rice-growing land can be expanded through capital expenditure, but only modestly. The other categories comprise the "frontier" which in the past has played a major role in absorbing labour as high natural increase forced persons to migrate out of traditionally agricultural areas. Those categories can be increased only modestly in the future. An average increased availability of 1.5 per cent per annum for all those categories was projected.

The rural population was that of the medium fertility constant urbanization model. The age-sex specific labour force participation rates from the 1983 labour force survey of the National Statistical Office were assumed constant from 1985 throughout the projection period. An adjustment to labour requirements was necessary to allow for the fact that the previously described basic production model covered only field crops and livestock whereas it is obvious that some available labour would also be used for horticultural crops (fruit, vegetables, flowers), fisheries and plantation crops. The total requirement for labour for those types of production in all scenarios was estimated, on average, as being 10 per cent of the labour available throughout the projection period.

This adjustment was made in a region-specific way since data suggested variations in the importance of non-field crop and non-livestock production items.

No adjustment was made in land availability nor was any allowance made for the numerous local industry and handicraft uses of labour which also occur in the rural areas. These are chiefly services or small-scale manufacturing industries for local markets. No allowance was made in the model because of a lack of hard data on which to base estimates; awareness of this fact must be kept in mind in interpreting the results.

Projected labour availabilities are necessarily sensitive to those underlying assumptions. Relatively small changes in labour force participation rates, in the relative importance of the non-field crop and non-livestock sectors, or

in the relative importance of local services and handicraft production could affect the conclusions significantly.

Four versions of the basic model covering requirements for field crops and livestock were run. The first scenario used the then official (but later revised) NESDB-Ministry of Agriculture and Agricultural Co-operatives projected growth rate of 2.5 per cent per year, based on the assumption that foreign and domestic markets for agricultural products will remain constrained. The second scenario removed the demand constraint and projected what possibly could be produced if markets are buoyant and expanding.

The third scenario assumed increased labour force participation rates after 1985; the fourth scenario, an increasing rate of urbanization, i.e. of out-migration from the rural-agricultural sector. However, the projections of the third and fourth scenarios were not considered plausible and the policy implications thereof were not discussed.

The first and second scenarios estimated future labour availability versus requirements under relatively pessimistic and relatively optimistic assumptions regarding market conditions.

Urban-industrial projections

The urban-industrial sector is the complement of the rural-agricultural sector and the growth of the two is inescapably linked. In the development of Thailand thus far, the rural-agricultural sector has been the base on which growth has occurred. This had to be the case since it was and continues to be - the dominant sector in terms of population and labour force. The rural-agricultural sector produces surplus food to feed Thailand's cities and to export for earning foreign exchange; and it produces "surplus people" who provide the labour force for the urban-industrial sector. This process will continue throughout the next plan period, but owing to falling fertility, the flow of surplus rural labour will be reduced over the longer term.

In the past, the urban-industrial sector has grown rapidly enough to absorb an expanding share of the total labour force of the country. The rural labour force in earlier years grew by 3 to 4 per cent per year, but fully half of that growth was channelled into urban-industrial activity. The urban-industrial labour force has grown at 6 to 8 per cent per year, as has urban-industrial employment. Open unemployment in this sector has been typically less than 5 per cent, although it has risen in recent years.

Future labour available to the urban-industrial sector was derived from the age-sex and region-specific demographic projections discussed earlier (medium fertility, constant urbanization variant). The 1983 labour force par-

icipation rates were applied to the age-sex specific population projections yielding estimates of labour available by region, through the sixth plan period and beyond.^{5/}

Using the method of Hongladarom et al., future urban-industrial demand for labour was estimated by: (a) establishing from historical data the apparent relationship between changes in employment and changes in output by region for the major non-agricultural sub-sectors of the economy (manufacturing, mining, construction, trade and services); (b) calculating the coefficient of elasticity of labour required with respect to output (the per cent change in employment caused by a given per cent change in output) and (c) deriving the labour utilization levels implied by the GDP projections (discussed previously) and the calculated elasticity relationships. With regard to future growth, these results comprise the “pessimistic” urban-industrial scenario. An “optimistic” scenario was also projected using projected GNP growth rates a full percentage point higher than those of the NESDB series for all the sub-sectors (i.e. roughly 7 per cent for the entire non-agricultural sector).

Labour requirements and availability

Summing the urban-industrial and rural-agricultural data yielded estimated labour availability versus requirements for the economy by major sub-sector and region for the sixth plan period and beyond.^{5/}

For the rural-agricultural sector the pessimistic scenario projects a 70 per cent utilization of labour available for field crops and livestock throughout the sixth plan period (i.e. to 1991). Allowing for the other ways in which rural labour is absorbed (horticulture, handicrafts etc.), this suggests an overall 90 to 95 per cent utilization of the labour available. There are large regional differences in these estimated utilization rates and the lowest levels appear in the southern and western regions. Since these are also the regions in which other (non-field crop, non-livestock) activities are important, these results may partly be an indication of problems in the estimation procedure.

The pessimistic scenario calls for labour used in agriculture to increase at the rate of about 1.92 per cent per year while available labour is growing at 1.99 per cent per year. Hence, even for such a relatively low-growth demand-constrained economic scenario, rural-agricultural labour utilization holds its own through the sixth plan period.

The second scenario, which is the optimistic demand unconstrained output projection, shows a more favourable labour utilization picture. In fact,

^{5/} These projections and this methodology were developed by Prof. Chira Hongladarom and his colleagues at Thammasat University, Bangkok.

for the northern and central regions the amount of labour required exceeds available supply, implying that rural-to-rural migration from the western or the southern regions would raise the utilization levels in those regions too.

The urban-industrial sector's labour balance under both scenarios was projected using estimated base-year 1986 labour utilization rates. Under the pessimistic scenario, the moderate overall GNP growth model, labour utilization holds at about the 1986 level throughout the plan period. Both labour required and labour available grow at about 3.5 per cent per year, while urban-industrial GDP grows at about 6 per cent per year. Thus, the recent high rates (relative to earlier historical trends) are projected as continuing, but not worsening, if GDP growth is moderate.

The optimistic scenario, which calls for growth one percentage point higher after 1986, shows the level of labour utilization rising by moderate amounts after 1986. By 1991, it is close to its historical trend at 95 per cent.^{6/} There is less regional variation in the levels of labour utilization in the urban-industrial sector; however, the north-eastern region shows the lowest GDP growth rate and hence the lowest degree of urban-industrial labour utilization under both scenarios.

These findings are sensitive to the assumptions made in the projections. But, the assumptions chosen for this exercise were based on the best available information. The overall economic growth is in the range of 5 per cent per annum. Growth above that level would generate nearly full employment; growth below it would produce unemployment higher than that experienced in the last several decades. But, unemployment would still be moderate by international standards, and it would not worsen appreciably during the plan period.

If the optimistic scenario eventuates, the lower rates of unemployment shown for the urban-industrial sector will, in a fully interacting way, affect the higher rates of overall under-utilization of labour in the rural-agricultural sector. That is, the constant urbanization scenario could become, in the short-run, a high urbanization scenario, as the rate of migration from rural to urban areas increases.

Employment in the longer term

The rapid decline in fertility in Thailand dates from about 1970. In the period 1985 to 1990, relatively smaller birth cohorts will begin entering the

^{6/} Agriculture is expected to remain the largest generator of employment, accounting for 33 per cent of all new jobs in the sixth plan targets. However, industry's component is expected almost to double to 20 per cent during the same period (Bowring, 1987).

Table 2: Percentage change in projected male labour force age groups, 1985-2000, (Medium fertility)

Age group (years)	1985	1990	1995	2000
15-19	100	101.4	101.0	102.6
20-24	100	115.2	117.0	117.0
25 -29	100	115.7	133.6	135.8
30-34	100	120.7	140.0	161.9
35-39	100	127.0	153.7	178.6
40-44	100	129.6	156.7	186.3

labour force, and growth in the overall labour force will begin to slow. In the late 1970s, the labour force peaked with a growth rate of well over 3 per cent per year. By 1991, the annual rate of increase in the population in the labour force age group will be well below 2 per cent and the rate will continue to fall as the overall demographic growth rate moves towards zero growth.

Table 2 shows how this age shift will occur. Those entering the labour force age group of 15-19 years will remain almost constant in absolute numbers from 1985 to 2000. By contrast, those in the 40-44 years age group will grow by nearly 90 per cent. The table shows that the number of those in the age group 20-24 years also becomes almost stationary by 1995; for those in the age group 25 -29 years, it becomes almost stationary by about 2000.

The age distributional shift arising because of past (and continuing) declines in fertility will within the next five to ten years bring about an appreciable reduction in the growth of the labour force. Labour redundancy will be a problem for the economy only in the short-term, if at all. By the end of the sixth plan period, labour availability will be falling and, with no change whatever in government policies, even a moderate growth scenario will produce high levels of labour utilization. By the year 2000, tight labour markets and "labour shortages" are quite likely to occur.

Unemployment in urban-industrial areas is more visible and more sensitive, but as the economy becomes more and more urban and industrial, it must expect and eventually accept a degree of short-term, temporary, demand-induced unemployment greater than it has been used to in times past.

The possibility of establishing an employer-employee contributory unemployment compensation scheme should be explored. However, the Govern-

ment cannot react with sudden changes of policy or large expenditure programmes every time exports sag temporarily or an inventory build-up causes temporary layoffs. Even current relatively high – by Thai standards – rates of unemployment, in the range of 7 to 8 per cent, are comparable to (or lower than) those of western countries and those in the Association of South East Asian Nations.

Implications for social programmes

Four categories of future needs for public services were examined: urban services, care of the elderly, education and health. Alternative projections of needs in each category were projected based on: (a) the basic demographic model deemed most likely to occur, (b) the economic scenarios previously described, (c) historically established relationships between population size and distribution and the volume and composition of public services, and (d) assumed future increases in the quality of those services.^{7/}

Education

Education is an important piece of unfinished business for the Thai Government. The greatest emphasis and priority must remain primary education for at least the next plan period. Basic literacy (already achieved) must be converted into a more regular system of enrolment retention and graduation from primary school. The emphasis must be on improving quality at the primary level. Even in the short-term (the next plan period) the number of new entrants into the system will become roughly constant, easing somewhat the previous need for the constant expansion of facilities to accommodate ever-larger entering cohorts. This reduction of quantitative pressure should make possible budgetary reallocations in line with a greater emphasis on quality.

Over the longer term (i.e. after the sixth plan period), when all or nearly all youth will be graduating from primary school, the need for increased emphasis on secondary school will develop naturally. By the year 2000, it would be a plausible goal to aim at ensuring that all youth receive at least 10 years of education and successfully obtain their diploma. Perhaps this should not be a legal requirement (as attendance at primary school is currently), but it should be strongly encouraged.

Specialized post-secondary school education, ranging from vocational-technical academies to the old-line universities, will continue to play a vital role in Thai society. But the present and foreseeable needs of the Thai economy

^{7/} The basic work on these projections was done by Prof. Thienchay Kiranandana and his colleagues at Chulalongkorn University, Bangkok.



Attendance at primary school is mandatory for all children in Thailand, but it is likely that by the year 2000 there will be increased emphasis on secondary school attendance as well. (UNICEF photograph)

provide no real argument for any great expansion or public financial encouragement to enlarge the capacity of such places.

Health

Health is another area which Thailand, in the future, could build on the substantial successes of the past. In broad terms, during the next plan period, the public sector health system could complete its task of promoting voluntary fertility control and ensuring nearly universal acceptance of contraception. It also could complete putting in place a system of hospitals and health centres throughout the country so that all rural areas will have access to adequate curative facilities even for relatively complex problems. Much of what is being done will not require redoing.

Over the longer term, health planners could also begin to reconsider options and plan for changing needs. Maternal and child health work will decline in importance relative to that of geriatrics, which will increase in importance. With lower levels of mortality and morbidity resulting from parasitic diseases, the emphasis must also shift from curative to preventive medicine. Health, sanitation and nutrition education should become important objectives of the Ministry of Public Health.

Urban services

The continuing rapid urbanization of Thailand means that there will be continued need for increasing the volume of urban public services. However,

because the changing age distribution will be occurring in the urban areas too, the relative (and eventually even the absolute) number of children to educate will diminish in the urban as well as the rural areas. Migration is mostly of young adults and is not likely to affect this phenomenon. The health and other needs of the elderly may be especially acute in urban areas, since in such areas more of the elderly live in nuclear families. Housing and other social services will probably have to expand, even on a per capita basis, compared with present levels, since such programmes have not received much emphasis thus far. Moreover, growing sophistication of the public will almost certainly lead to a greater demand for "quality" in such areas.

The urbanization projections presented in this article may very well be on the low side, owing to definitional problems. Many new urban areas will be created (with or, without deliberate policy efforts) and old urban settlements will expand their boundaries in unpredictable ways. Such elements of growth are hard to build into projections of the growth of an existing set of urban locations, which is essentially what was done. By the year 2000, Thailand could well be 50 per cent urban, in contrast to the 33 per cent which is the highest level that any of the projections show. Such an occurrence would mean an enormous increase, over and above the present estimates, in the demand for urban services throughout the country.

The growth of urban areas will also depend partly on the economic scenario which actually unfolds. Should the industrial-urban sector continue to grow at annual rates of 6 per cent or more, the result will be full employment of the



By the year 2000 and beyond, some public sector policy and programme initiatives for the elderly will be required because of Thailand's currently changing age structure.

available labour in this sector. Given the differences in urban and rural wage rates, however, such a good urban labour market will draw even more migrants from the rural areas and thus increase the rate of urbanization.

Care of the elderly

The changing age structure as a result of falling fertility has given rise to concern over the special needs of the elderly.

However, a comprehensive public sector social security programme is not proposed. Most of the elderly either work, are supported by their own offspring, or have an income from savings and assets. There is no indication that the elderly are represented disproportionately among the poverty group. Indeed, there is evidence that fewer elderly are poor compared with young persons. Thus, no new policy initiative seems required in this regard during the next plan period.

However, over the longer term, by 2000 and beyond, some public sector policy and programme initiatives will be needed owing to: (a) the increase in the proportion of the total population over 60 years of age (and the large increase in their absolute numbers), (b) the decrease in relative terms of the number of persons in the labour force age group who will provide support for the elderly, and (c) the steady increase in the proportion of the elderly who live in urban places where the traditional extended family support mechanisms are weaker. The Government should begin planning now for the public sector responses that should be made to meet the needs of the elderly before the problem becomes a serious one.

Conclusion

The transition from rapid demographic growth to slow (and eventually no) growth will have strongly beneficial effects for the economy and society. It will ease the burden on the public sector of providing many social services, education and health care, just as it will reduce the economic burden of child care for individual families. The slow-down of population growth will provide the opportunity for the public sector to raise "quality" as well, i.e. the quality of its services per capita and, ultimately, the quality of the country's human resources.

Such an emphasis on the quality of human resources is obviously consistent with, and even essential to, Thailand's longer term economic goal of moving away from primary products and light industry into "high-tech" and export-oriented complex manufacturing industries. Declining population growth and an improvement in the unemployment problem will make these changes easier.

The slowing down of population growth also provides an opportunity to insure that minimal public services are readily available to everyone in the country. Some groups have, for various reasons, been by-passed by progress and do not have meaningful access to education, health, personal security and other public services. These groups include urban slum dwellers, and those living in areas with security problems, such as along certain borders. The provision of such services should help to eliminate some of the more glaring of the regional and social inequities which still exist.

The convergence of all regions and strata of the population towards acceptance of the small family norm will also play a role in reducing the regional disparities in output and income per worker. Future inter-regional and inter-sectoral migration will not merely help to offset differences in natural increase, but instead will play an equilibrating role in eliminating regional economic differences. In a real sense, this is another major contribution of the family planning programme.

Whatever may be said in general theoretical terms about the relationship of demographic growth to economic well-being, in the case of Thailand, the picture is fairly clear. Declining fertility in the past helped to ease economic and social pressures on the economy at a particularly crucial stage of the country's development.

Continued fertility declines in the future will give Thailand the opportunity to provide higher quality public services, such as education and health, more equally, thus increasing the quality of the labour force as well as the quality of life of the people.

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