

SCENARIOS FOR FUTURE POPULATION GROWTH IN MALAYSIA

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[Concerns with the new population of Malaysia have so far focussed only on the "logistics" of achieving a 70 million population target by the year 2100. This article examines the demographic implications of future population growth for Malaysia. Various projections based on assumptions of the same future declines in mortality and declines in fertility differing in speed and timing are selected to portray the range of likely future population scenarios. The projections indicate that to have a 70 million population in 115 years time does not require a trajectory that involves overall increasing dependency ratios; so that provided the larger work force can be productively employed, there is no need to fear a fall in per capita income levels. The degree of over-crowding and access to the natural environment in Peninsular Malaysia will, however, deteriorate. The projections also make it clear that small differences in assumptions about trends in the next decade or two can make a big difference to the total population generated over the next 115 years. Even though the target is a long-term one, it does have implications for population policy here and fertility even to remain constant in the short term for the 70 million target to be reached; all that is required is that it does not fall too rapidly. However, the country might not reach a 70 million population without effective pro-natalist policy measures.

Tumpuan terhadap dasar kependudukan di Malaysia sehingga kini hanya berkisar di atas "lojistik" pencapaian tahap kependudukan 70 juta menjelang tahun 2100. Rencana ini sebaliknya meneliti implikasi-implikasi demografik pertumbuhan kependudukan masa depan di Malaysia. Beberapa projeksi dibuat berdasarkan kepada anggapan penurunan kematian dan kesuburan (fertility) yang sama dalam kepantasan masa serta tempo di dalam keadaan berbeza telah dipilih bagi mencerminkan scenario yang meluas di dalam kependudukan di masa depan. Projeksi kearah pencapaian kependudukan 70 juta di dalam jangkamasa 115 tahun tidak memerlukan pergerakan yang melibatkan nisbah pertambahan tanggungan (increasing dependency ratios) dan jika sekiranya tenaga kerja yang lebih besar dapat digunakan dengan produktif maka tidak harus dikhuatiri tentang penurunan tahap pendapatan per kapita.

Tahap kesesakan dan access kepada alam sekitar di Semenanjung Malaysia akan bertambah buruk. Projeksi tersebut juga menerangkan bahawa perbezaan-perbezaan kecil di dalam andaian-andaian tentang haluan di dalam satu dua dekad yang akan datang membawa perbezaan yang besar di dalam jumlah penduduk dalam 115 tahun. Walaupun sasarannya adalah di dalam jangkamasa yang panjang, ianya mempunyai implikasi keatas dasar kependudukan kini. Projeksi tersebut menitikberatkan bahawa tidak semestinya bahawa kesuburan akan konstant dalam jangkamasa pendek untuk pencapaian 70 juta; apa yang diperlukan cuma supaya ianya tidak menurun dengan terlalu cepat. Walaubagaimanapun negara tidak mungkin mencapai kependudukan 70 juta tanpa dasar pro-natalist yang berkesan.]

The 70 million Population Policy

The announcement by the Prime Minister of Malaysia in September 1982 that the country should aim for an ultimate population of 70 million or

nearly five times its present size was initially greeted with disbelief and not taken seriously even among government circles. Since then, there has been a complete reversal. A new population policy has been officially entrenched in the country's development plan with the target of 70 million people to be achieved by the year 2100, the National Family Planning Board has dropped its target of 2 per cent population growth by 1985 and changed its name to the National Population and Family Development Board, child relief tax allowance have been revised to offer greater reductions for every subsequent child instead of the earlier downward scale, and maternity benefits have been extended up to the fifth child. Politicians have with fervour but little substance lauded the benefits of large families and early marriage, and academics and laymen alike have been vocal in their support of or objections to the new policy.

The concerns with this new population policy have so far focussed on two key issues – the “logistics” of getting to 70 million and the socio-economic implications of a significantly larger population. At one level, various projections have suggested alternative paths and time periods for reaching the target and drawn out the implications for fertility trends (the only variable of relevance to policy, since mortality levels are already very low and international migration has been officially rejected as an option). The crucial fact emerging from these projections is that unless the recent rates of fertility decline slow down the target will not be achieved. Accordingly, attention has been devoted to the strategies, incentives and disincentives for encouraging marriage and childbearing.

At another level, debate has raged over the potential socio-economic advantages of a much larger population. The explicit gain cited by the Prime Minister is a larger domestic market which would enable greater diversification and intensification of industrialization and less reliance on the increasingly protectionist international environment. The targeting of a specific population size rather than just a larger population suggests that 70 million would be in some sense “optimal” and within the population-carrying capacity of the economy. But public comments in the press have clearly indicated that there is widespread doubt over this “optimality” and concern over the negative socio-economic implications of a larger population, based mainly on the projected magnitudes of future demand for jobs, schools, health facilities, food and nutrition, energy sources and housing.

These reactions do not, however, appear to be premised on an understanding of the underlying demographic components of a rapidly growing population size. Aside from the need to slow the fertility decline, the basic demographic preconditions for reaching a population of 70 million have so far not represented the focus of concern, perhaps because it is a target set far into the future. Still less has attention focused on the implications of differing demographic trends for the different ethnic and

regional sub-groups in Malaysia's complex society. Yet clearly, if the target is to be taken seriously, it is crucial to grasp the extent and direction of demographic changes in the process of getting there. Also, it is only through understanding the trajectory of achieving a 70 million population that its socio-economic implications can be realistically assessed.

The implications for ethnic composition, for instance, are certain to be of interest, because ethnic shares in the population are the basis of political and economic power. The inherent potential in Peninsular Malaysia for the Malay population to grow more rapidly than the non-Malay population, because of its younger age structure and currently higher fertility levels than the Chinese and Indian populations, is not widely recognized. A clearer understanding of the implications of demographic trends for the ethnic composition of the population may serve to allay fears in some quarters based on a misconception of likely trends. Availability of analysis based on a clearly stated set of assumptions will facilitate a sober evaluation of the prospects.

Another important aspect is the distribution of future population between Peninsular and East Malaysia. Consideration of the future demographic scene cannot ignore the basic fact that the country is divided into two geographically widely separated areas and that the present Constitution allows the less densely populated East Malaysian states control over their own immigration. If a population of 70 million is not to lead to what many would consider unacceptably high population densities in Peninsular Malaysia, there would have to be substantial migration from Peninsular to East Malaysia unless further fertility declines in East Malaysia are assumed to be considerably delayed.

The age structure effects of deliberately slowing fertility decline also represent a key consideration, not only because of its implications for the growth potential of the population but also because an argument that has sometimes been cited in support of the new policy has been that it will postpone problems of an ageing population.

There is a clear need, then, for a more detailed examination than has hitherto been conducted of the main demographic implications of future population growth for Malaysia, and that is what this paper sets out to provide. Given the long time period involved in the 70 million population target and the obvious uncertainties inherent in looking very far into the future, various projections under assumptions of alternative fertility trends have been selected. The main demographic components are fleshed out to indicate what is likely to happen to the growth trends, age structure, ethnic composition and geographical distribution of Malaysia's population in the future.

Assumptions Underlying the Projections

An infinite number of projections can be produced by varying the fertility and mortality assumptions on which they are based. Our aim was to keep the number of projections down to a minimum, while giving sufficient representation to the range of possible outcomes. For this reason, four scenarios have been followed, labelled Projections 1, 2, 3 and 4. Projection 2 is the projection which fulfils the official target of reaching a 70 million population in about 115 years (actually in 110 years in this projection). Projections 3 and 4 assume more rapid fertility declines than in Projection 2 for the Malay population of Peninsular Malaysia and the East Malaysian populations. Projection 1 is presented to demonstrate the implications of Malay and East Malaysian fertility remaining constant at its current level for the next 15 to 20 years, before a decline sets in.

Tables 1 and 2 show the basic assumption underlying the projections and Figure 1 shows the trajectory of total fertility rates for the population sub-groups for Projections 2, 3 and 4. Projections 2, 3 and 4 utilize only one fertility trajectory for the Chinese and Indians, two for East Malaysia and three for Malays. The reason for this differential treatment is that the Malays are both the largest component of Malaysia's population and also the component whose fertility trends are hardest to predict. Chinese and Indian fertility has been falling rapidly and has reached levels not far above replacement fertility (Chinese fertility was only 30 per cent above replacement level in 1983). International experience would strongly support the assumption that this downward trend will continue until replacement level fertility (TFR of 2.1) is reached – around 1995 for the Chinese, and around 2000 for the Indians. It is assumed that the TFR will then level off.

The scenarios for the Malays and for East Malaysia differ with respect to the speed of the fertility decline and therefore the year in which replacement level fertility is reached. The fertility trend for East Malaysia adopted in Projections 3 and 4 represents a continuation of the trend estimated to have occurred in the 1970-80 period (Leete and Kwok, 1985, Table 12) and results in replacement level fertility being reached just after 2025. In Projection 1, by contrast, fertility is assumed to level off for a period and then to decline only slowly so that replacement level fertility is not reached until the year 2080.

Recent fertility trends for the Malays are more difficult to interpret because, after a long period of decline, total fertility rates rose between 1977 and 1982 (See Figure 1) This rise appears to have resulted from a halt in the upward trend in age at marriage, thus leading to a temporary "bunching" of births as later-marrying couples set out to achieve family size goals that are still fairly high. Although recent survey data on "ideal" family size among Malay women suggests the possibility of an increase compared with

earlier surveys (Lim, Jones and Hirschman, 1985) there is no evidence from analysis of trends in age-specific fertility rates by birth order that the average completed family size is likely to rise (Hirschman, 1985). It is therefore reasonable to assume that Malay fertility rates will resume their downward course, though both the timing of the resumption of the downward trend and the speed of the decline are very uncertain. In Projections 2, 3 and 4, replacement level fertility would be reached in the years 2060, just after 2045, and just after 2020, respectively.

It will be noted that the fertility projections for East Malaysia in Projections 3 and 4 have fertility rates falling below those for Malays in Projection 3. Although this is perhaps unlikely, it is certainly not impossible. Though fertility rates in East Malaysia are still well above those for Malays, they decline more rapidly than Malay rates in the 1970-80 period. Fertility rates for the Chinese in East Malaysia have been falling rapidly, and this decline shows every sign of continuing.

As far as mortality is concerned, only one set of assumptions has been used for each ethnic group (see Table 2). This is because mortality rates are already so low in Malaysia that alternative assumptions about trends of mortality decline will make little difference to the size of the projected population. The basic assumption is that once the expectation of life at birth for either sex reaches 70 years, (a level already reached by Malay and Chinese females and almost reached by Malay and Chinese males and Indian females), the mortality decline slows such that it takes 10 years to add one additional year to the expectation of life of birth.

A few further minor points about the projections should be made. The base population used for each population sub-group in 1980 was the population adjusted on the basis of the post-enumeration survey of the 1980 Census, except that in East Malaysia a further adjustment was made by inflating the 0-4 age group by six per cent to allow for excess underenumeration in this group (see Leete and Kwok, 1985, pp. 22-23). Life tables used for projection of mortality were the Coale-Demeny "West" model. The projections were performed using the FIVFIV SINSIN package, and although the new United Nations "East Asian" life tables fit the Malaysian mortality situation better than the "West" model, difficulties were experienced in using these life tables. As the "West" life tables are already built in to the program, it was decided to use them instead. The effect on the projected populations would be relatively minor.

Population Growth Trends in the Three Scenarios

Figure 2 shows the projected population growth trends in the various Projections (Population size is measured according to the scale at the left of the figure, and growth rates according to the scale at the right of the figure).

Projection 2 is the scenario that fulfils the Malaysian government's population target; the 70 million population is reached a few years before the 2100 target date, but the rate of population growth is by that time very slow indeed, and little further growth takes place thereafter. By the year 2120 population growth would have essentially ceased, and the population by then would have grown only to just over 73 million.

In Projections 3 and 4, the more rapid decline in fertility assumed for the Malays and for East Malaysia results in a stationary population being reached well below the target figure of 70 million: at 46 million in Projection 3 and at just over 38 million in Projection 4. In the case of Projection 4, because replacement level fertility is assumed to be reached quite early for all ethnic groups, the stationary population of 38 million is reached, to all intents and purposes, by the year 2060. In Projection 3, a longer lag in reaching replacement level fertility delays the attainment of a stationary population until the year 2080 at a population about 7 million larger than in Projection 4.

Were fertility levels for Malays and in East Malaysia to remain steady for a period at their 1985 values, and then decline only slowly, a population figure of 70 million could be reached much earlier than the 110 year required in Projection 2. In fact, in Projection 1, which utilizes such assumptions, the 70 million population is attained before the year 2060, less than 80 years from the beginning year of the projections – and this despite the assumption that the Chinese and Indian populations reach replacement level fertility in the near future. But Projection 1 illustrates well the problem of "overshoot", if fertility is maintained at relatively high levels, so that the 70 million population is reached more quickly, both the resulting higher-fertility age structure and the fact the target figure is reached with fertility still a little above replacement level mean that population growth cannot be "shut off" at that point, so the population goes on to reach 100 million by the year 2100 before it finally becomes stationary around 107 million in about the year 2120.

The annual number of births would differ widely between the different projections (see Table 3). In Projection 1, from an initial figure of 461 thousand the number of births in Malaysia would climb to more than a million by the year 2035 and remain at more than 2½ times the 1980 figure for the rest of the projected period. In Projection 2, the annual number of births more than doubles by the year 2035 but never exceeds a million. In Projection 4, the annual number of births remains essentially unchanged throughout the projection period, despite the growing population base, because declining fertility almost exactly offsets the effect of the larger base population. In all projections, the annual number of deaths climbs steadily, despite further improvements in mortality, because of the rapidly growing population. By the last two decades of the 21st century, annual deaths are

almost equal to births in Projections 3 and 4. This is, after all, the meaning of a stationary population.

The Peninsular Malaysia – East Malaysia Balance

In 1980, only 16 per cent of Malaysia's population lived in East Malaysia, despite its much larger land area (60 per cent of the total for Malaysia). The different projections have different implications about East Malaysia's share in future, as shown in Table 4. In Projection 2, which generates a ten-fold increase in East Malaysia's population, East Malaysia's share of the Malaysian population doubles to almost one-third. But the lower projection for East Malaysia, which is a component of both Projections 3 and 4, although it quadruples East Malaysia's population, results in only a modest increase in East Malaysia's share, because the population of Peninsular Malaysia will increase almost as rapidly.

One point worth noting is that in Projection 2, the number of births in East Malaysia reaches 46 per cent of all births in Malaysia by the 2060s, and maintains roughly that proportion thereafter. This reflects the higher population growth potential built into the East Malaysia age structure.

In Projection 2, though exceptionally rapid natural population increase in East Malaysia makes an important contribution to reaching the 70 million target, the population of Peninsular Malaysia is nevertheless projected to rise by 4.4 times, thus raising Peninsular Malaysia's population density from 86 per sq. kilometer to 373 per sq. kilometer. This figure exceeds present population densities in the U.K., the Netherlands, Japan and Korea. If such a density is considered unacceptably high, then the only recourse consistent with attaining the 70 million target would be to transfer some of Peninsular Malaysia's population growth to East Malaysia through a migration programme.

Ethnic Composition of Future Population

Nothing is more certain from the various sets of projections than that the Malay proportion of the total population in Peninsular Malaysia will rise in the future. The higher fertility levels and younger age structure of the Malay population imply a greater potential for growth. The different possible demographic scenarios are all dominated by an increasingly unbalanced ethnic composition, with the Malays strengthening their majority position and shrinking non-Malay shares in Peninsular Malaysia (We have not attempted in these projections to examine the likely proportions of the various ethnic groups in East Malaysia because of the greatly more complex ethnic mix).

In both the high projection (Projection 1) and in the scenario that appears in line with the government's population policy (Projection 2), Table 5 shows that the share of Malays in the total population of Peninsular Malaysia will rise from slightly more than half in 1980, to more than two-thirds before the year 2025, and to more than 80 per cent by the time the ultimate population target is achieved. Correspondingly, non-Malays will have their population share more than halved, so that in 115 years time, they will account for less than one-fifth of the Peninsular Malaysian population.

The more conservative estimates in the third and fourth projections still give scenarios in which the non-Malay share would be eroded to about a quarter of Peninsular Malaysia's population in the former scenario and about 32 per cent in the latter by the year 2100.

Population Age Structure in the Different Scenarios

Fertility assumptions for the different projections strongly influence the age structure of the resultant population. Age structure in turn influences the potential for further growth (depending on the size of the cohorts of young people moving into the child bearing ages). The interplay of fertility rates and age structure takes a long time to work itself out and meantime, the population base on which these forces are operating is growing steadily larger. The whole process explains why in all the demographic scenarios, replacement level fertility is reached many years before growth ceases and population size stabilizes, and also why the Malay population and the population of East Malaysia increase more rapidly.

Figure 3 which focusses on Projections 2, 3 and 4 shows the younger age structure (and therefore higher growth potential) of the Malay population and the even younger age structure of the population of East Malaysia. For these two groups, in all three scenarios the young age structure will change very little before the end of this century. For the Chinese in Peninsular Malaysia, on the other hand, the proportion of the 0-14 age group would have dropped for less than one-fifth of the Peninsular Malaysian population.

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While in all scenarios the proportion in the youngest age group declines in every period examined (except for East Malaysia between 1980 and 1990), the pattern of change in absolute numbers will differ for the ethnic groups (compare Figure 3 and Table 6). For the Chinese, the actual numbers in the youngest age group remain roughly constant throughout the entire period of the projections at about 1.4 million, but the number of old people will increase sixfold, and the number in the productive age group will double. Among the Indian community too, the absolute numbers aged 0-14 show little change after 1990 - but the increase in the number of old people is more dramatic. By the year 2025, the number of old Indian people would already be six times the number in 1980 and by the year 2100, the increase would be almost twelve times. For both Indians and Chinese, the bulk of the increase in population is concentrated initially in the working age group (at least up to the year 2025) but subsequently in the older ages. This will mean that the growth of the child population will occur almost wholly within the Malay population, a continuation of a trend already evident over the decade of the 1970s (Jones and Tan, 1985). The Malays will experience substantial increases in all three age groups because of the built-in growth potential. What is most striking, however, is that the greatest proportional changes will be experienced in the oldest age group. In the second scenario, for instance, the number of old people in the Malay population in the year

2100 would be an amazing 32 times the number in 1980. The proportionate rise in the number of old Malays will accelerate rapidly after the turn of the century when the cohorts born in the high fertility post-World War II era will be reaching old age.

This aspect of the ageing of the population is important. Even where fertility decline is slow, the proportion of old people in the population will rise. By the year 2100, the country will have at least 16 per cent of its population above the age of 65 years, irrespective of the actual population size at that time. In terms of ethnic trends, the Chinese, who in all cases have lower fertility, will age fastest, followed by the Indian. But the Malay scenario illustrates a fundamental point – that the issues posed by an ageing population can be side-tracked only temporarily by slowing fertility decline; ultimately the proportion of old people will rise, indeed even more sharply than otherwise (compare Projection 2 with Projections 3 and 4). The point to be stressed is that stabilization of population growth inevitably brings with it an ageing population, not only in Malaysian but in all countries.

Total dependency ratios (the ratio of young and old dependants to the working-age population), however, will decline substantially and over a lengthy period in all projections, because the decline in the proportion of young people in the population is only partly counteracted by the rise in the group aged 65 years and above. On balance, there is increasing concentration of the population in the working ages for quite some time, before the effects of ageing begin to outweigh the drop in the proportion of young people and so push the dependency ratios up. Table 7 shows a trend of falling dependency ratios over a considerable period before a slight upturn. Of course the younger the age structure of the population sub-group, the longer the period of time before the dependency burden starts rising again. Among the Chinese, this may happen around the turn of this century, but among the Malays the effects of ageing on the dependency burden may not be felt before the turn of the next century (in Projection 2). Table 7 also confirms that to have a population of 70 million in 115 years time does not require a trajectory that involves overall increasing dependency ratios (at least in demographic terms). Although the proportion of old people in the population will rise over time and dependency burdens will increase, at the time when the ultimate population size is achieved, dependency ratios will still be considerably lower than they are at present.

Conclusions

The scenarios portrayed in this paper may be considered conservative, in that they all assume the same future declines in mortality and declines in fertility differing only in their speed and timing, and therefore do not cover the full range of assumptions that are logically possible. We believe, however, that they cover the range of likely outcomes, except for one which

we will discuss below. Certainly we do not anticipate a sustained rise in fertility after 1985 for any ethnic group of region of Malaysia, although short-term fluctuations are possible. There is not much point in presenting scenarios that have little more than curiosity value.

All scenarios portray an eventual decline to replacement level fertility, differing only in the time required for this level to be reached in the case of the Malays and for East Malaysia. Yet the outcomes differ greatly, with Projection 2 yielding a population in 2100 that is 32 million, or 84 per cent, larger than in Projection 4. As for the structural change in the populations, the basic trends (decline and finally rise in dependency ratios; population ageing) are shared by all of them. The differences are with respect to the timing and speed of these trends.

It can be confidently asserted that East Malaysia's share of Malaysia's population and the Malays' share of Peninsular Malaysia's population will continue to rise, as they have both done over the 1970-80 decade. In both cases, this is ensured by the built-in momentum of their higher-growth population structure and excess fertility compared with the rest of the population. How sharply these shares will rise will depend, of course, on the exact trends in fertility and mortality for the different groups. The other certain trend is towards an older population. Ageing will reach an advanced stage among the Chinese and Indian populations well before it does so for either the Malays or for the East Malaysians. But ageing, over the medium term, will not mean a higher ratio of dependants to producers. Provided that Malaysia's much larger workforce in the year 2100 can be productively employed, there is no need to fear that population growth will lower living standards - at least when these are expressed in terms of per capita income. In terms of the degree of crowding and limited access to the natural environment in Peninsular Malaysia, however, many people may consider themselves worse off with massive population growth.

The projections make it clear that small differences in assumptions about trends in the next decade or two can make a big difference to the total population generated over the next 115 years. In that sense, even though the government's 70 million target is a long-term one, it does have implications for population policy here and now. Of course, the skeptic will note that early trends have a big effect on the final outcome only because a basic consistency in trends is hypothesized. For example, were fertility for Malays in Projection 2, which assumes constant fertility over the 1985-90 period, subsequently to decline more rapidly than in Projections 3 and 4, then Projection 2 could yield an eventual population size that is the same or even smaller than in Projections 3 or 4. But again, although such an outcome is certainly logically possible, we do not believe it is very likely. There is nothing about an earlier resumption of the fertility decline that would make it likely to be slower than would one that is resumed later.

Even more dramatic fluctuations could be hypothesized. For example, Malay fertility, which rose over the 1978-83 period, could rise further before it resumes its decline. As noted earlier, we do not believe such a further rise is likely because the 1978-83 rise appeared to reflect a one-time effect of sharply rising age at marriage for Malay women, leading to a subsequent "bunching" of births when the rise in marriage age slackened (though there are some hints of a rise in ideal family size expressed by Malay women). It is possible of course that the relative stability in Malay marital fertility noted over the last decade will be maintained over the decade to come, and if age at marriage does not rise further, this would lead to unchanged overall fertility rates for Malays.

Because of misunderstanding in Malaysia about the basic preconditions for the attainment of a 70 million population, once finding of these projections needs to be strongly emphasized. It is not necessary for fertility even to remain constant in the short term for the 70 million population target to be reached. All that is required is that it does not fall too rapidly. Calls to "go for 5" or for girls to marry earlier are therefore quite misplaced. It is absolutely unnecessary for fertility to be increased in Malaysia in order to reach a population of 70 million in 115 years' time. Indeed, if the 5-child family became the average, not only would a 70 million population be reached well short of the 115 year target, but (depending on when a move toward smaller families began) a severe population "overshoot" could be expected that would carry Malaysia's population closer to 200 than to 100 million before it stopped growing.

To say that "all that is required for the Malaysia's population to reach 70 million is that fertility does not fall too rapidly" can be a very misleading statement, however. On the one hand, it might not be easy to prevent a more rapid fertility decline from taking place. If there is one lesson to be learned from the decline of fertility in both Western and Eastern Europe, it is that when underlying social and economic forces are motivating people to have fewer children, it is a difficult job to raise fertility above replacement level, or to prevent it falling below replacement level in the first place, even when an armoury of pro-natalist measures is at the disposal of governments.¹ In the case of Malaysia, if fertility trends of the past decade for Chinese and Indians and for East Malaysia continue, and if a moderate fertility decline resumes immediately for the Malays, then it is unlikely that

¹For more details of European pro-natalist measures and their outcomes, see Berelson, 1974; and the papers presented in Session F.16 ("Responses to policies aimed at increasing fertility in low fertility countries") of the International Population Conference of the IUSSP (IUSSP, 1985).

Malaysia's population will ever exceed 40 million – at least without an immigration programme. On the other hand, available evidence on Malay fertility trends does not provide strong grounds for assuming that Malay fertility will necessarily decline at all over the next few years, and if it does not, then the Malaysian population growth trajectory could well be headed towards a figure of 70 million or even higher – without the need for any pro-natalist policy measures.

We noted earlier that there is just one aspect in respect of which the range of likely outcomes is not represented by the projections presented in this paper. This is the possibility of fertility settling down at a level below replacement level. In all our projections, it is assumed that the decline in fertility rate ceases once a TFR of 2.1 is reached. Yet in most Western countries, and in neighbouring Singapore, fertility has fallen below replacement level and shows little sign of returning to replacement level or above. It is important to note that in Singapore, the fertility of each main ethnic group – Chinese, Malays and Indians – is below replacement. It could certainly be argued that in this respect our projections are too conservative, and that the population of Malaysia could not only level off at below 40 million, but also subsequently decline. Admittedly, survey data on desired family size indicate that Malaysian parents still want, on average, more than four children. But there is no saying that the desired number of children will not fall to replacement level or below over the next 30 or 50 years.

It is worth stressing that at this point, we do not understand well enough what factors are “driving” the fertility of the Malays and of the East Malaysian population to state confidently whether a “laissez faire” approach to population policy would be more likely to result in an ultimate population size closer to 40 million or to 70 million. Given this circumstance, the case for pro-natalist policy measures appears to be a weak one, particularly when it is borne in mind that even a figure of 40 million is more than 2½ times the present size of Malaysia's population, and just three years ago a prognosis that Malaysia's population would not exceed 40 million would have been greeted with relief, rather than with concern that an arbitrarily determined 70 million target would not be reached.

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TABLE 1
FERTILITY ASSUMPTIONS UNDERLYING PROJECTIONS FOR MALAYSIA

A. Peninsular Malaysia

- Chinese** - in all projections, TFR declines to 2.1 in 1995 (see Fig. 1).
- Indians** - in all projections, TFR declines to 2.1 in 2000 (see Fig. 1).
- Malays** - **Projection 1** - TFR remains at 4.6 until 1995-2000, then declines by 5 per cent every 5 years, reaching TFR of 2.1 in 2070-75.
- Projection 2** - TFR remains at 4.5 until 1990, then declines by 4 per cent in the 1990-95 period, 5 per cent every 5 years from then until 2030 and by 6 per cent every 5 years after that, reaching 2.1 in 2060 (see Fig. 1).
- Projection 3 and 4** - TFR declines as shown in Fig. 1, reaching 2.1 in 2045-2050 (Projection 3), 2020-2025 (Projection 4). This represents a decline of 6 per cent every 5 years (Projection 3) and 10 per cent every 5 years (Projection 4).

B. East Malaysia

- Projection 1** - TFR remains at 5.6 until 1995-2000, then declines by 5 per cent every 5 years, reaching TFR of 2.1 in 2095-2100.

Projection 2 – TFR declines as shown in Fig. 1, reaching 2.1 in 2080-2085. The rate of decline is 4 per cent each 5 years until 2010 and 5 per cent each 5 years after that.

Projections 3 and 4 – TFR declines as shown in Fig. 1, reaching 2.1 in 2025-2030. This represents a decline of 10 per cent every 5 years after 1980-85.

C. "Official" Projection

TFR declines by 0.1 every 5 years, from 3.85 in 1980-85 to reach 2.1 in 2070-75.

TABLE 2
MORTALITY ASSUMPTIONS UNDERLYING POPULATION
PROJECTIONS FOR MALAYSIA

Initial e₀ (1980-85)

Malays – 68 (males), 71 (females); Chinese 68 (males), 76 (females);

Indians – 63 (males), 68 (females); East Malaysia, 66 (both sexes).

A. Peninsular Malaysia

Malays – until 1990, e₀ rises by 1 year every 4 years; thereafter by 1 year every 10 years, for each sex.

Chinese – for males, e₀ rises by 1 year every 4 years until 1990-95; thereafter by 1 year every 10 years. For females, e₀ rises by 1 year every 10 years.

Indians – a faster improvement is projected for Indians, since their initial levels were below those of the Malays and Chinese. For males, e₀ rises by 1 year every 2 years until 1990-95, by 1 year every 4 years until 1995-2000 and by 1 year every 10 years thereafter. For females, it rises by 1 year every 2 years until 1985-90, by 1 year every 4 years until 1990-1995 and by 1 year every 10 years thereafter.

B. East Malaysia

Until 1985-90 e₀ rises by 1 year every 2 years; until 1995-2000 by 1 year every 4 years; thereafter, by 1 year every 10 years.

C. "Official" Projection

For males, e₀ rises by 1 year every 4 years until 1990-95; thereafter by 1 year every 10 years. For females, e₀ rises by 1 year every 10 years.

In all projections, e₀ for females levels off at 79.5 years.

TABLE 3
PROJECTED YEARLY BIRTHS (in thousands)

	1980-1985	1985-1990	1990-1995	1995-2000	2000-2005	2005-2010	2010-2015	2015-2020	2020-2025	2025-2030	2030-2035	2035-2040	2040-2045	2045-2050	2050-2055	2055-2060	2060-2065	2065-2070	2070-2075	2075-2080	2080-2085	2085-2090	2090-2095	2095-2100	2100-2105	2105-2110	2110-2115	2115-2120	2120-2125
Malay (1)	234	277	314	346	363	390	427	467	501	524	542	558	575	589	597	597	591	581	574	586	593	595	592	588	588	590	593	593	595
Malay (2)	234	278	309	334	350	376	411	446	474	492	505	518	531	541	544	541	532	520	529	537	540	539	535	534	535	538	540	540	541
Malay (3)	234	270	288	298	309	327	347	364	372	372	369	365	360	355	364	368	367	365	363	363	365	367	368	367	367	367	368	369	369
Malay (4)	234	264	270	268	265	267	269	263	256	262	264	264	263	262	261	262	263	263	263	263	263	264	264	265	265	265	265	266	266
Chinese	93	89	88	93	94	93	91	90	91	92	93	93	93	92	92	93	93	93	93	93	93	94	94	94	94	94	94	94	94
Indians	34	14	33	30	31	32	32	32	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	32
Peninsular Malaysia (1)	361	400	435	469	488	515	550	589	623	647	666	682	698	712	720	721	715	705	698	710	717	720	717	713	713	715	718	718	721
Peninsular Malaysia (2)	361	401	430	457	475	501	534	568	596	615	629	642	654	664	667	665	656	644	653	661	664	664	660	659	660	663	665	667	667
Peninsular Malaysia (3)	361	393	409	421	434	452	470	486	494	495	493	489	483	478	487	492	491	489	487	487	489	492	493	492	492	492	493	495	495
Peninsular Malaysia (4)	361	387	391	391	390	392	392	385	378	385	388	388	386	385	384	386	387	387	387	387	387	389	389	390	390	390	390	392	392
Sabah & Sarawak (1)	100	118	136	156	173	197	224	253	279	304	329	355	380	403	422	439	452	462	469	471	470	464	454	461	467	469	467	465	465
Sabah & Sarawak (2)	98	111	123	135	151	171	190	208	223	239	254	269	282	292	300	305	308	309	307	302	298	303	306	307	306	305	305	305	305
Sabah & Sarawak (3) & (4)	95	101	105	108	112	116	117	115	110	106	109	111	112	110	109	109	109	109	110	109	109	109	109	110	110	110	110	110	110
Malaysia (1)	161	518	571	625	661	712	774	842	902	951	995	1037	1078	1115	1142	1160	1167	1167	1167	1181	1187	1184	1171	1174	1180	1184	1185	1186	1186
Malaysia (2)	459	512	553	592	626	672	724	776	819	854	883	911	936	956	967	970	964	953	960	963	962	967	966	966	966	968	970	972	972
Malaysia (3)	456	494	514	529	546	568	587	601	604	601	602	600	595	588	596	601	600	598	597	596	598	601	602	602	602	602	603	605	605
Malaysia (4)	456	488	496	499	502	508	509	500	488	491	497	499	498	495	493	495	496	496	497	496	496	498	498	500	500	500	500	500	502

TABLE 4
ASPECTS OF EAST MALAYSIA'S POPULATION GROWTH

	1980	1990	2000	2025	2050	2075	2100
A. East Malaysia's Share of Projected Malaysian Population (in percentages)							
Projection 1	16.3	17.9	19.6	24.4	29.7	34.3	37.4
Projection 2	16.3	17.7	18.9	22.5	26.2	29.1	30.6
Projection 3	16.3	17.4	18.1	18.9	19.0	18.7	18.5
Projection 4	16.3	17.4	18.4	20.3	21.5	22.1	22.3
B. Factor by which East Malaysia's Population Exceeds Its 1980 Size							
Projection 1	1.0	1.6	3.3	8.1	13.4	18.0	21.1
Projection 2	1.0	1.4	2.6	6.2	9.9	12.8	14.3
Projection 3	1.0	1.1	1.8	2.6	2.7	2.4	2.2
Projection 4	1.0	1.1	2.1	4.0	5.2	5.8	6.0

TABLE 5
PROJECTED ETHNIC COMPOSITION
As Proportion of Total Population in Peninsular Malaysia
(in percentages)

	1980	1990	2000	2025	2050	2075	2100
Projection 1							
Malay	55.6	58.7	62.4	70.2	76.9	80.8	82.4
Chinese	34.0	31.4	28.5	22.5	17.3	14.3	13.1
Indian	10.3	9.9	9.1	7.3	5.8	4.9	4.5
Projection 2							
Malay	55.6	58.7	62.2	69.7	76.0	79.7	81.1
Chinese	34.0	31.4	28.7	22.9	18.0	15.2	14.1
Indian	10.3	9.9	9.2	7.5	6.0	5.2	4.8
Projection 3							
Malay	55.6	58.6	61.5	67.4	71.8	74.3	74.9
Chinese	34.0	31.5	29.2	24.6	21.2	19.2	18.7
Indian	10.3	9.9	9.3	8.0	7.1	6.5	6.4
Projection 4							
Malay	55.6	58.5	60.9	64.4	67.0	68.3	68.3
Chinese	34.0	31.5	29.6	26.8	24.7	23.7	23.7
Indian	10.3	9.9	9.5	8.8	8.3	8.1	8.1

TABLE 6
PROJECTED POPULATION BY AGE DISTRIBUTION
(in thousands)

	1980	1990	2000	2025	2050	2075	2100
Malays (Projection 1)							
0 - 14 yrs	2,556	3,381	4,567	6,847	8,479	8,635	8,777
15 - 64 yrs	3,562	4,813	6,353	12,308	19,814	25,925	28,209
65	199	290	415	1,115	2,307	4,673	6,899
Malays (Projection 2)							
0 - 14 yrs	2,556	3,387	4,489	6,530	7,829	7,819	7,956
15 - 64 yrs	3,562	4,813	6,352	12,099	18,961	24,102	25,751
65	199	290	415	1,116	2,307	4,531	6,497
Malays (Projection 3)							
0 - 14 yrs	2,556	3,346	4,169	5,312	5,321	5,415	5,448
15 - 64 yrs	3,562	4,813	6,353	11,341	15,760	17,474	17,549
65	199	291	415	1,114	2,306	4,039	4,997
Malays (Projection 4)							
0 - 14 yrs	2,556	3,319	3,905	3,864	3,885	3,904	3,920
15 - 64 yrs	3,562	4,812	6,535	10,579	12,533	12,614	12,684
65	199	291	415	1,115	2,307	3,523	3,581
Chinese							
0 - 14 yrs	1,419	1,343	1,322	1,342	1,366	1,376	1,384
15 - 64 yrs	2,253	2,985	3,584	4,388	4,361	4,399	4,432
65	197	209	280	752	1,173	1,174	1,175
Indians							
0 - 14 yrs	438	478	469	466	461	463	465
15 - 64 yrs	697	898	1,114	1,442	1,483	1,495	1,502
65	38	53	75	212	362	406	417
Peninsular Malaysia (1)							
0 - 14 yrs	4,413	5,202	6,358	8,655	10,306	10,474	10,626
15 - 64 yrs	6,512	8,696	11,051	18,138	25,658	31,819	34,143
65	434	552	770	2,079	3,842	6,253	8,491
Peninsular Malaysia (2)							
0 - 14 yrs	4,413	5,208	6,280	8,338	9,656	9,658	9,805
15 - 64 yrs	6,512	8,696	11,050	17,929	24,805	29,996	31,685
65	434	552	770	2,080	3,842	6,111	8,089
Peninsular Malaysia (3)							
0 - 14 yrs	4,413	5,167	5,962	7,120	7,148	7,254	7,297
15 - 64 yrs	6,512	8,696	11,051	17,171	21,604	23,368	23,483
65	434	553	770	2,078	3,841	5,619	6,589

	1980	1990	2000	2025	2050	2075	2100
Peninsular Malaysia (4)							
0 - 14 yrs	4,413	5,140	5,696	5,672	5,712	5,743	5,769
15 - 64 yrs	6,512	8,695	11,051	16,409	18,377	18,508	18,618
65	434	553	770	2,079	3,842	5,103	5,173
East Malaysia (1)							
0 - 14 yrs	943	1,383	1,984	3,695	5,591	6,838	6,827
15 - 64 yrs	1,206	1,668	2,307	5,280	10,319	16,306	20,961
65	63	91	132	362	873	2,155	4,083
East Malaysia (2)							
0 - 14 yrs	943	1,344	1,792	3,036	4,143	4,568	4,537
15 - 64 yrs	1,206	1,668	2,299	4,851	8,577	12,309	14,388
65	63	91	132	362	867	1,894	3,238
East Malaysia (3) & (4)							
0 - 14 yrs	943	1,280	1,521	1,673	1,638	1,619	1,624
15 - 64 yrs	1,206	1,668	2,285	4,111	5,167	5,294	5,306
65 yrs	63	91	132	362	856	1,422	1,548
Total Malaysia (1)							
0 - 14 yrs	5,356	6,585	8,342	12,350	15,897	17,312	17,453
15 - 64 yrs	17,718	20,364	23,358	33,418	35,677	48,125	55,104
65	497	643	902	2,441	4,715	8,408	12,574
Total Malaysia (2)							
0 - 14 yrs	5,356	6,552	8,072	11,374	13,799	14,226	14,342
15 - 64 yrs	7,718	10,364	13,349	22,780	33,382	42,305	46,073
65	497	643	902	2,442	4,709	8,005	11,327
Total Malaysia (3)							
0 - 14 yrs	5,356	6,447	7,481	8,793	8,786	8,873	8,921
15 - 64 yrs	7,718	10,364	13,336	21,282	26,771	28,662	28,789
65	497	644	902	2,440	4,697	7,041	8,137
Total Malaysia (4)							
0 - 14 yrs	5,356	6,420	7,217	7,345	7,350	7,362	7,393
15 - 64 yrs	7,718	10,363	13,336	20,520	23,544	23,802	23,924
65	497	644	902	2,441	4,698	6,525	6,721

TABLE 7
PROJECTED DEPENDENCY RATIOS (PERCENTAGE)

	1980	1990	2000	2025	2050	2075	2100
Malay (1)	77.5	76.3	78.4	64.7	54.4	51.3	55.6
Malay (2)	77.5	76.4	77.3	63.3	53.4	51.3	56.2
Malay (3)	77.5	75.4	72.1	56.7	48.5	54.1	59.7
Malay (4)	77.5	75.1	68.1	47.1	49.5	59.0	59.1
Chinese	71.7	52.0	44.7	47.7	58.2	58.0	57.7
Indian	68.2	59.1	48.8	47.1	55.5	58.1	58.7
Peninsular Malaysia (1)	74.4	66.1	63.9	58.2	54.5	52.7	56.0
Peninsular Malaysia (2)	74.4	66.1	63.9	58.1	54.3	52.5	56.3
Peninsular Malaysia (3)	74.4	65.6	60.8	53.6	51.1	55.0	59.1
Peninsular Malaysia (4)	74.4	65.6	58.5	47.3	52.0	58.7	58.7
East Malaysia (1)	83.3	88.3	91.7	76.9	62.6	55.2	52.0
East Malaysia (2)	83.3	85.9	83.6	70.1	58.5	52.4	54.1
East Malaysia (3)	83.3	82.1	72.4	49.5	48.4	57.5	59.9
East Malaysia (4)	83.3	82.1	72.4	49.5	48.4	57.5	59.9
Total Malaysia (1)	75.9	69.8	69.2	63.1	57.2	53.4	54.6
Total Malaysia (2)	75.9	69.5	67.2	60.8	55.5	52.4	55.8
Total Malaysia (3)	75.9	68.4	62.9	52.7	50.4	55.5	59.4
Total Malaysia (4)	75.9	68.1	60.8	47.7	51.3	58.2	59.0

Figure 1
PROJECTION OF TOTAL FERTILITY RATES, 1980-2065, PROJECTIONS 1,2,3 AND 4.

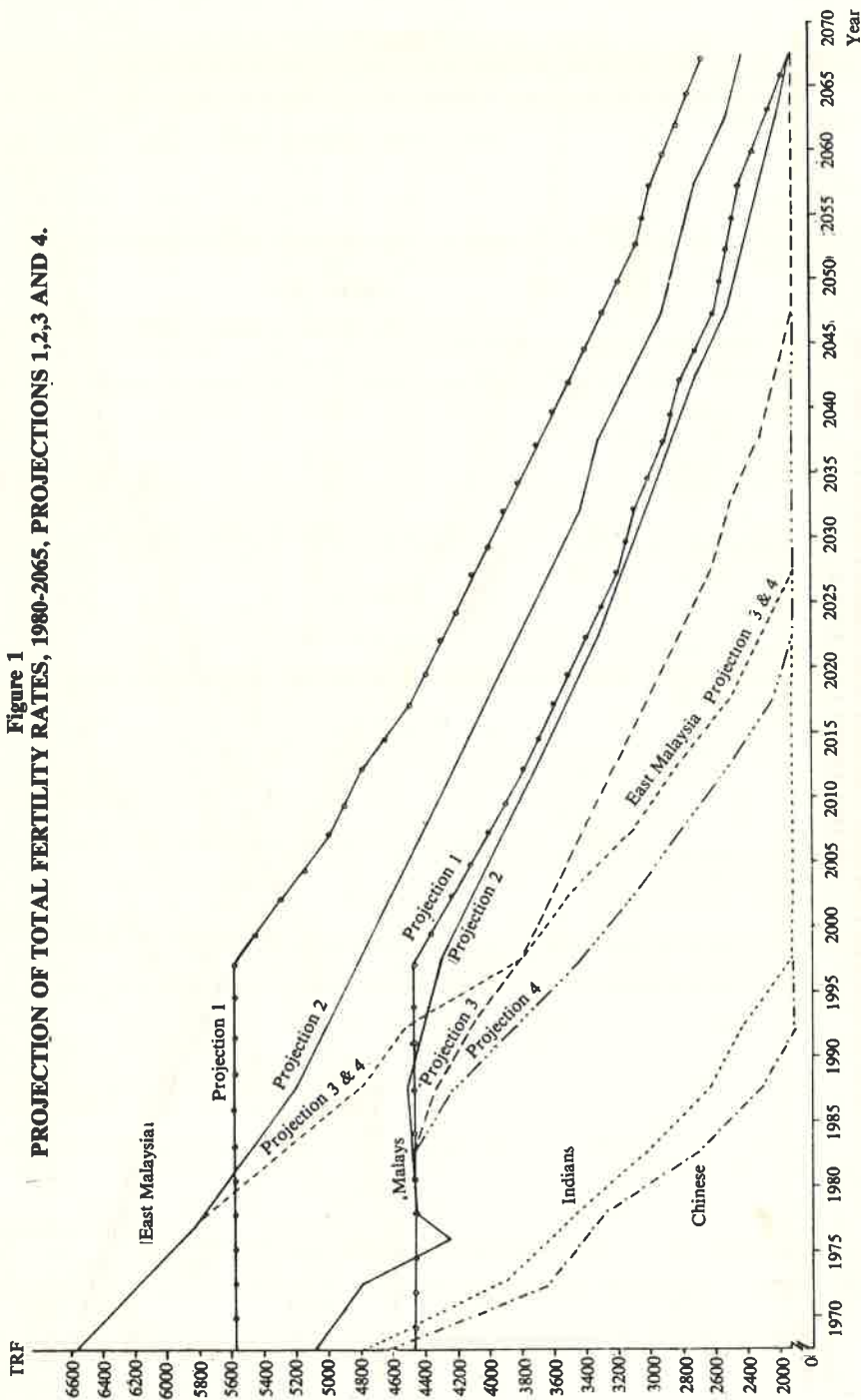


Figure 2
MALAYSIA: POPULATION TRENDS AND GROWTH RATES, 1980-2100,
PROJECTIONS 1,2,3 AND 4.

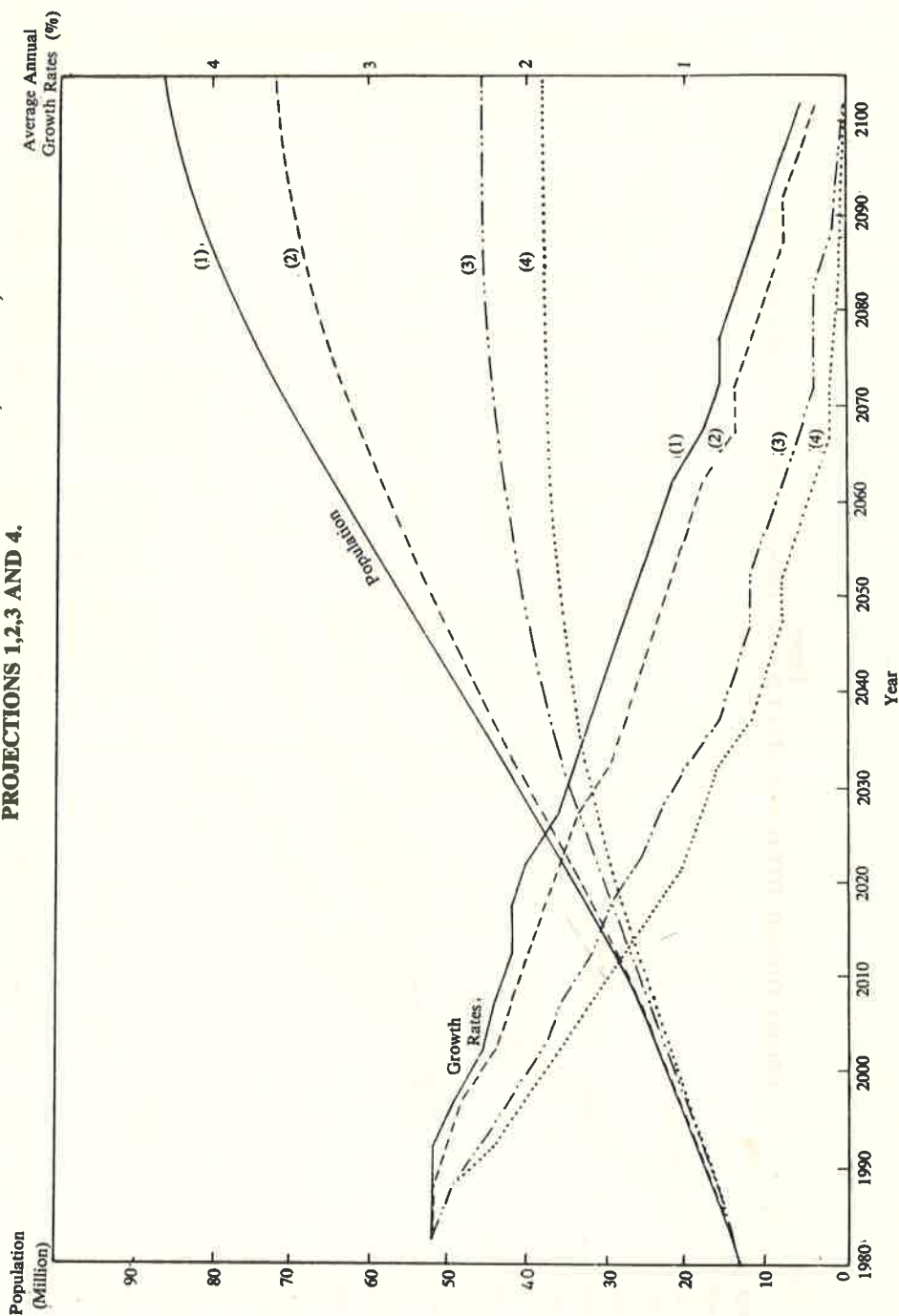
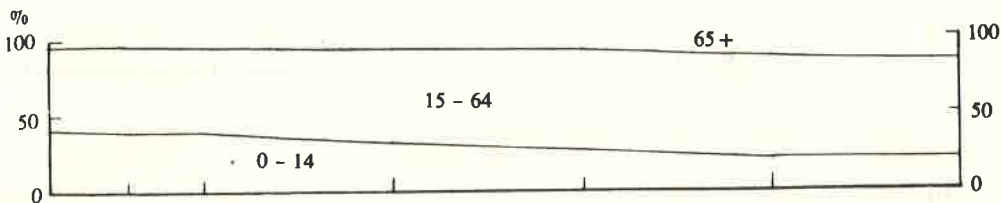
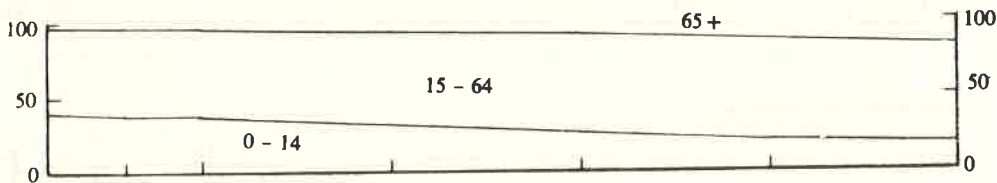


Figure 3
TRENDS IN AGE STRUCTURE FOR DIFFERENT POPULATION GROUPS

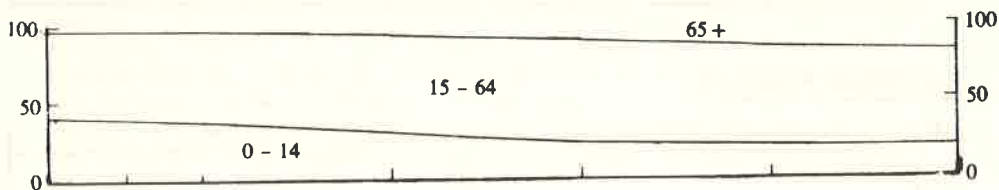
Malays: Projection 1



Malays: Projection 2



Malays: Projection 3



Malays: Projection 4

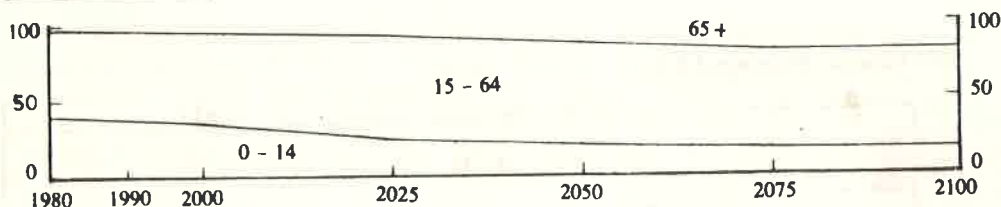
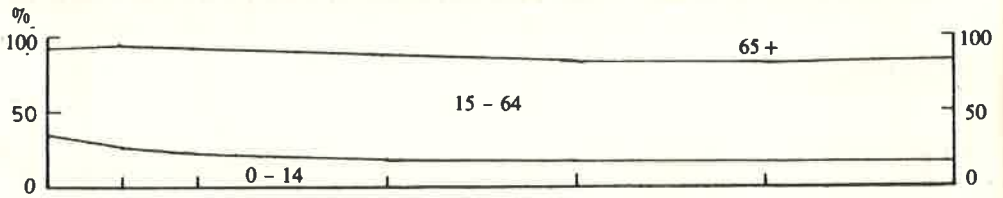
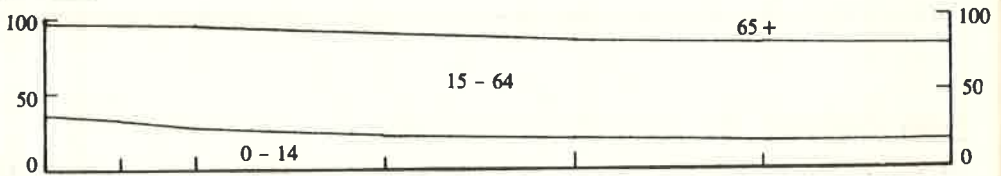


Figure 3 (contd.)

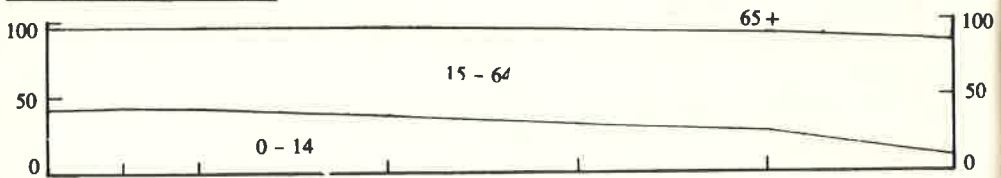
Chinese



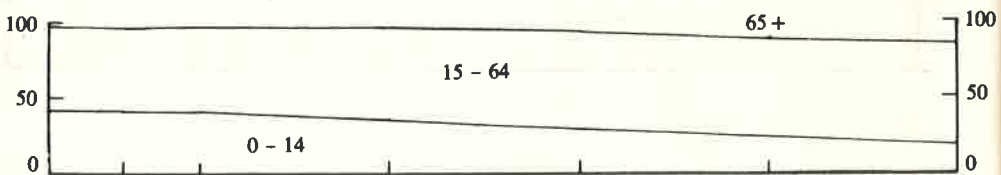
Indians



East Malaysia: Projection 1



East Malaysia: Projection 2



East Malaysia: Projection 3 & 4

