

CHAPTER 1

BACKGROUND TO THE STUDY

1.1 Introduction

In traditional societies with high mortality, many births were needed to ensure a sufficient number of surviving children. The norm for large family also rested on the economic contributions of children in helping out in the farms and providing old-age support. With socio-economic progress, fertility has been declining. First, better health care reduces the need to bear more children to insure against child mortality. Urbanization and education reduce the net economic value of children in many ways. Urbanization results in the need for more educated workforce, thus increasing child-rearing costs, and lowering the utility of children in the farms. Private pensions and social security systems further reduce parent's old age reliance on children. Better educated women are more likely to work and postpone marriage. And when they do marry, they tend to opt for smaller family.

In more than 40 years since independence, Malaysia has undergone rapid socio-economic progress. The population which has been growing at above 2 percent annually, is now estimated at 23.7 million¹. Malays and other Bumiputera make up about 66.1 percent of the population, Chinese 25.3 percent, Indians 7.4 percent and 'Others' 1.2 percent. About 61.8 percent of the population now live in the urban areas.

¹ Estimates are based on the preliminary count of the Population Census 2000 and had been adjusted for under-enumeration. Source: <http://www/statistics.gov.my/English/DataawalCensus.htm>.

Education has become almost universal and improved substantially over the years. In 1998, enrollment in primary school and secondary school was 95 percent and 58 percent respectively (Department of Statistics, 1999). The educational profile of the labour force shows that the proportion with tertiary education had increased from 3 percent in 1980 to 13 percent in 1997. This achievement was due to better performance at the secondary school and greater access to tertiary education. Gender differential in educational attainment has narrowed. Female workers now make up about 34 percent of the total workforce (Department of Statistics, 1998).

Rapid socio-economic progress has the effect of depressing fertility levels. Women have been marrying later and are having fewer children. In 1997, the crude birth rate has fallen to 25 per 1000 population from 46 per 1000 population in 1957. In the 70s and 80s, marital fertility changes, greater contraceptive use and marriage postponement have resulted in fertility decline (Chander et al., 1977; Leete, 1989; Jones, 1990; Saw, 1990). Changing norms in favor of smaller families can be observed by the sharp decrease in higher birth orders. In 1971, fifth and higher order births make up some 33 percent of all total births, but this decreased to only 16 percent in 1997 (Department of Statistics, Vital Statistics). The total fertility rate dropped by 51 percent from 6.6 in 1957 to 3.3 in 1997.

Figure 1.1 shows that the onset and rate of fertility decline vary substantially among Malays and non-Malays. In 1957, Indians had the highest total fertility rate at 7.6 per woman, followed by the Chinese 7.2 and Malays at only 6.1. While the Chinese and Indian fertility declined sharply since 1957, the fertility decline for the Malays started

only in 1960s and the rate of decline has been more gradual. In 1997, Malays had the highest total fertility rate at 3.8, followed by the Indians at 2.6 and Chinese 2.5.

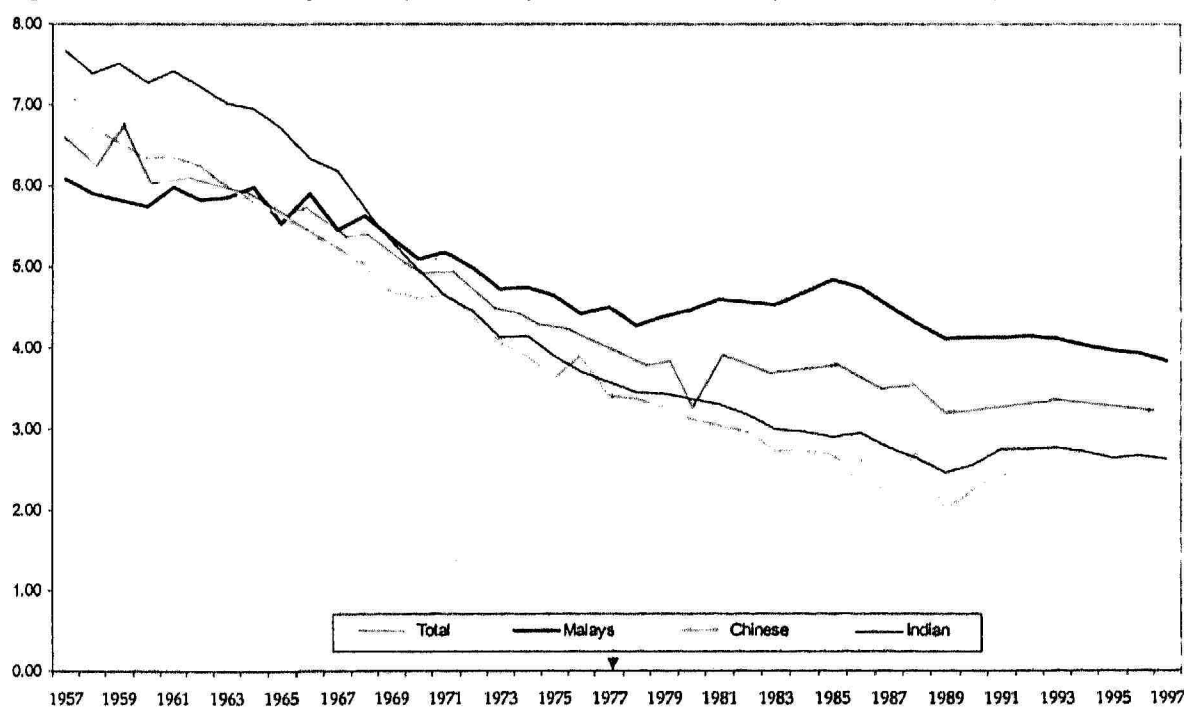
Table 1.1: Crude birth rate by ethnicity, Peninsular Malaysia (1957-1997)

	Total	Malays	Chinese	Indian
1957	46.2	48.1	43.3	39.7
1967	35.3	36.9	32.9	36.7
1977	29.7	32.8	25.4	28.5
1987	28.7	34.6	19.0	25.6
1997	25.6	29.0	20.1	22.8
% decline (1957-1967)	23.6%	23.3%	24.0%	7.6%
(1967-1977)	15.9%	11.1%	22.8%	22.3%
(1977-1987)	3.4%	-5.5%	25.2%	10.2%
(1987-1997)	10.8%	16.2%	-5.8%	10.9%

Source: (1957-1977) Nor Laily Aziz et al., (1981) *Malaysia: Population and Development*, National Population and Family Development Board; Malaysia
 (1987-1997) Department of Statistics, *Vital Statistics Malaysia*.

Note: Negative sign (-) shows increase in fertility in that period.

Figure 1.1: Total fertility rate by ethnicity, Peninsular Malaysia (1957-1997)



Source: (1947-1987) Saw S. H., (1990) *Ethnic Fertility Differentials in Peninsular Malaysia and Singapore*, *Journal of Biosocial Science*, 22: 102, 104
 (1988-1997) Department of Statistics, Malaysia, *Vital Statistics*.

Table 1.2 shows the trend in total fertility rate for all ethnic groups since 1989. The marginal increase of total fertility rate from 1990 to 1995¹⁹⁹⁴ was the result of fertility increase in all age groups except 15-19 among the Chinese and Indians (Table 1.2). During this period, the Chinese and to a lesser extent the Indians had registered an increase in the age-specific fertility rates for women aged 20-29 (early childbearing years). For the Malay women in their late childbearing years (aged 35-39) there was a sharp decline, probably due to increased contraceptive use after having achieved their desired family size.

Table 1.2: Total fertility and age specific fertility rates, Peninsular Malaysia (1990-1997)

All races	Total	15-19	20-24	25-29	30-34	35-39	40-44
1990	3328	19	124	203	171	106	39
1991	3359	20	130	208	169	103	38
1992	3399	20	132	211	172	104	38
1993	3420	19	132	215	173	104	37
1994	3369	19	129	214	171	100	37
1995	3323	17	125	213	171	100	35
1996	3332	17	125	216	173	98	34
1997	3272	16	121	214	172	96	32
Malays	Total	15-19	20-24	25-29	30-34	35-39	40-44
1990	4092	23	152	231	201	147	66
1991	4131	22	148	237	204	146	64
1992	4139	22	148	237	205	145	64
1993	4111	22	147	239	202	143	62
1994	4028	21	147	236	197	139	60
1995	3971	19	144	234	197	136	57
1996	3934	19	146	235	195	132	54
1997	3840	17	142	232	193	127	52
Chinese	Total	15-19	20-24	25-29	30-34	35-39	40-44
1990	2254	9	75	164	135	58	10
1991	2435	11	90	183	135	57	10
1992	2483	10	91	188	138	58	10
1993	2582	10	93	196	146	61	10
1994	2532	10	85	195	149	57	10
1995	2510	10	80	193	149	59	10
1996	2544	10	77	194	158	59	10
1997	2511	10	70	191	160	61	10
Indians	Total	15-19	20-24	25-29	30-34	35-39	40-44
1990	2552	23	126	178	121	51	11
1991	2765	25	139	188	132	57	11
1992	2762	25	137	190	134	55	11
1993	2780	25	139	192	132	56	12
1994	2719	26	133	190	129	54	11
1995	2650	22	124	189	127	56	11
1996	2675	24	125	190	131	53	10
1997	2637	21	123	188	131	53	11

Source: Department of Statistics, Malaysia, *Vital Statistics* (various years)

1.2 Objectives of the study

Fertility behavior in Malaysia has been studied extensively. Education, ethnicity, place of residence, female employment and husband's income are important socio-economic variables associated with fertility. A growing awareness of the complexity of the relationship between socio-economic variables and fertility leads to a change in the focus of research. Research interest has been shifting from the descriptive studies to examination of statistical associations and the exploration of the direct and indirect effects of socio-economic variables on reproductive behavior.

This paper hopes to provide an update on the fertility effects of socio-economic variables based on the 1994/95 Malaysian Population and Family Survey (MPFS). The objectives of this paper are as follows:

1. To examine the fertility differentials across various sub-groups of the population, with the use of various measures such as the number of children ever born, recent fertility (the number of children ever born in the five years preceding the survey) and completed fertility (the number of children ever born to women aged 40-49).
2. To examine the changing trends of fertility using the cohort approach.
3. To determine the independent effect of each socio-economic variable on childbearing.
4. To provide some recommendations for evaluating the population and family development programs, and assessing the course of future fertility.

1.3 Significance of the study

Singh and Casterline (1985) advanced two reasons for the long-standing interest in the socio-economic link with fertility. Firstly, socio-economic differences indicate the considerations that underlie fertility decisions. Secondly, observed differentials can be interpreted in terms of the conditioning by the recent demographic experience. In the course of transition to lower fertility as in Malaysia, observed differentials can reveal much about the nature of change and direction in future fertility levels.

In spite of the fact that Malaysia has been undergoing socio-economic progress for over 40 years, wide variations in fertility levels across ethnic and urban-rural sub-groups still exist. The third motivation to study fertility in the socio-economic context, is therefore to capture these variations.

Last but not least, fertility behavior has widespread implications at the national, household and individual levels. At the national level, when fertility falls below replacement level, population growth will slow down, with consequent changes in the age structure. Firstly, the proportion of population in the working age will decline. After a time lag, the proportion of elderly group will increase significantly due to the interplay of fertility decline and increased life expectancy. As the dependency ratio rises, elderly care and support issues will become increasingly important. Future housing and health care developments will need to cater to the elderly and both government and private sectors may need to look into extending retirement beyond 56 or deploying the elderly in the workforce again. Young work force will be harder to come by, placing increasing reliance on expatriate manpower and automation.

The family structure is clearly moving from extended family to nuclear family. The family size in urban areas has dropped by at least 0.5 person between 1980 and 1994 (National Population and Family Development Board, 1999). Children will have less siblings to interact and grow up with, making parents' and teachers' roles in the socialization process of children more important.

At the individual level, women are having children later due to rising age at first marriage and may eventually end up with smaller family size. Also, risks associated with childbearing increases with age, with adverse effects on both maternal and child health and pregnancy outcome. On the bright side, with smaller family size, women can afford more personal comfort and freedom.

1.4 Literature review

In a framework that has gained wide acceptance, Davis and Blake (1956) proposed that social, economic and cultural factors affect fertility through a set of intermediate variables. The level of fertility and its determinants have been studied in Malaysia and other parts of the world. Some of these are descriptive in nature while others seek to explain the differentials in fertility using the Davis-Blake model. In this sub-section, the effects of socio-economic variables on fertility as documented in past studies will be reviewed briefly.

Ethnicity and fertility

Ethnicity has emerged as an important predictor of fertility behavior in Peninsular Malaysia (Saw, 1967; Chander et al., 1977; Tan, 1981^a; Tan, 1983^b; Nor Laily Aziz et al., 1980; Tey et al., 1988). Given the cultural diversity of the various ethnic groups in Malaysia, the ethnic variable would represent the cultural practices which affects fertility. Tan (1981^a) observed that ethnicity is the most important factor in explaining fertility differentials in Peninsular Malaysia. This may be explained by the fact that the different ethnic groups differ in terms of age at first marriage and contraceptive use.

Saw (1967) estimated that the Indian fertility was 10 percent higher than Chinese and 15 percent higher than that of the Malays in early postwar years. The relatively low fertility among Malays at that time could be attributed to high rate of divorce. Palmore

and Ariffin (1969) also contended that early marriage led to higher cumulative fertility, but marital disruption among the Malays tended to result in lower fertility.

By 1977, the fertility of Malay was highest and the fertility for Indian was slightly lower than that of the Chinese. In 1984, among currently married women, 64 percent of Chinese and 66 percent of Indian compared to only 41 percent of Malays were using contraception (Leete, 1989). Between 1974 and 1985, the use of efficient contraceptive methods increased among Chinese and Indian women but declined among Malays. DaVanzo and Haaga (1982) also found increasing contraceptive use especially among Chinese women. While the incidence and duration of breastfeeding has been declining among all three races, the decline was greatest among Chinese women.

There was an apparent rise in fertility the late 1970s through mid 1980s for the Malays. It was observed that this rise could be due to the "making up of postponed births among a population in which young adults, though marrying much later than before, showed little evidence of wanting fewer children than the previous generation" (Jones, 1990; Hirschman, 1986). During that period, the fertility rates for Chinese and Indian declined for birth orders 4 and above. For the Malays, third and fourth order fertility rates remained close to the 1970 levels. Only sixth order and higher births showed a significant downward trend among women of older childbearing ages and of longer duration of marriage (Leete, 1989).

Place of residence and fertility

Rural-urban differential in fertility which existed since the 1940s continues to this day. Fertility is higher in rural areas for all ethnic groups and the largest gap can be observed between the rural Chinese and urban Chinese.

Several other studies have shown that the average number of children born to women in metropolitan towns was significantly smaller than that of women in small towns or rural areas (Chander et al., 1977; Arshat et al., 1988). However, the urban-rural differential in fertility may be explained by the higher level of education, delayed age at marriage, higher labor force participation, higher family income and greater access to family planning services among urban residents (Chander et al., 1977; Tan, 1981^b). Urbanization is associated with modern attitudes and norms such as smaller family size desire and later marriage (Lee, 1982; Von Elm and Hirschman, 1979).

The urban-rural differential in fertility is also closely intertwined with patterns of rural-urban migration. Pryor (1979) observed that migrants to Kuala Lumpur in particular may be in the forefront of the fertility decline - they advocated a smaller ideal family size and were more likely to desire three to four children rather than the four or more desired by non-migrants. Using data from the 1976/77 Malaysian Family Life Survey I (MFLS I), Lee (1989) and Manner (1996) confirmed that rural-urban migration is indeed selective of couples who are more likely to opt for smaller family size.

Migration has been found to be associated with disruption in child-spacing patterns. Women who move between two specified events e.g. marriage and first birth or second or third births experience substantially longer intervals between these events. This is true even after controlling for contraceptive use and breastfeeding, temporary separation of spouses (Goldstein and Goldstein, 1983). However, the number of moves after controlling for background variables has no significant effect on fertility.

Manner (1996) also demonstrated a third reason for lower fertility among rural-urban migrants. It was observed that contraceptive use increased significantly for migrants one year after migration. The largest increase in the number of children born occurs between 5-10 years after migration, suggesting an adaptation to urban norms after migration. His analysis pointed to the importance of the effect of timing of migration on fertility. On the other hand, Goldstein and Goldstein (1983) concurred that even with their lower fertility, migrants would still be contributing to raising the number of births in urban population growth because many of them are in the prime reproductive age.

Wife's education and fertility

In the 1974 MFFS, a negative relationship between educational attainment and fertility was observed among women with seven or more years of schooling (Chander et al., 1977; Jain, 1981). However, women with no schooling exhibited the same fertility as those having 1-6 years of schooling.

In the 1984/85 MPFS, a strong inverse relationship between fertility and educational attainment was observed among the Chinese (Tey and Chak, 1988). Mean number of children ever born was consistently higher for women with no schooling. In 1984, women with no schooling had 3.2 children more than those with more than 12 years of schooling. After standardizing for women's age, the difference narrowed to 1.9 children due to the fact that educational level is generally higher among younger women.

One possible explanation for this has been advanced: while education generally exerts a negative influence on fertility, the strength of this association depends on the level of economic development, social structure and cultural milieu. In some of the poorest societies, modest improvements in education have been shown to raise fertility (Cochrane, 1979; Jain, 1981; Cleland and Rodriguez, 1988). The rapid socio-economic development in Malaysia may have contributed to the strong negative effect of education on fertility.

The second explanation can be found from studies of education and nuptiality. Major postponement of marriages occurred at post primary education levels among Malay, and Indian women. Chinese women with nine or more years of education further delayed their marriages for 2-3 years (Von Elm and Hirschman, 1979; Hirschman and Rindfuss, 1980). Rising age at first marriage has been found to exert a very strong fertility inhibiting effects. The negative relationship between women's education and fertility can be explained by the fact that years of schooling tend to delay age at first marriage (Palmore and Ariffin, 1969; Chander et al., 1977). Chander and co-researchers observed that a shift from no schooling to primary education delayed

marriage by slightly more than one year whereas transition from primary to secondary education delayed marriage by three years. Pullum (1978) found a differential of 0.4 child between women with no schooling and those with 1-6 years of education among the Chinese and Indians.

Tan (1983^b) showed that education and age at first marriage are both important determinants of fertility differentials and that they have stronger effects for younger cohorts than older cohorts. At the multivariate level however, age at first marriage is found to be a stronger predictor for fertility than education (Tan, 1998).

Jain (1981) advanced that higher education influences fertility not just through age at first marriage but also through exposure to family planning practices such as contraceptive use and breastfeeding. Contraceptive use has been shown to increase with education whereas breastfeeding practice decreases with education (Othman A, 1985; Weinberger, 1987). Also, the education-fertility link has generally been stronger in the urban areas as compared to the rural areas (Chander et al., 1977; Tey and Chak, 1988; Tan, 1998).

It must also be recognized that the effect of female education on fertility is felt at many stages of the female lifecycle. It is an 'omnibus' that affects choice of mates in marriage, preferences for children, women's economic participation and earning, child mortality and the ability to regulate the timing of births. In a study of interactive effects, Tan (1981^a) found that the negative impact of education on fertility was mediated through its positive relationship with husband's occupation, monthly family

income, age at marriage and contraceptive knowledge score and its negative relationship with net marital duration.

Husband's education and fertility

Cleland and Rodriguez (1988) found that the unadjusted effects of wife's education and husband's education are rather similar for Malaysian families. Analyzing the 1988 Malaysian Family Life Survey II (MFLS II) data, Tan (1998) found that the family size for women who married in the ages 18-21 tend to be smaller if their husbands are more highly educated, however there appear to be no systematic pattern or association at the other ages of marriage.

The effect of husband's education on fertility is generally weaker than that of the wife's education (Tey and Chak, 1988; Cleland and Rodriguez, 1988; Tan, 1998). Tan (1998) found that after adjusting for other socio-economic variables, wife's education emerges as the more important factor in explaining fertility differentials.

Wife's employment and fertility

The *role incompatibility hypothesis* postulated that if employment is incompatible with childcare due to the nature of job or the lack of baby-sitting help, a negative relationship of women's work and fertility will emerge. Chander et al. (1977) found no consistent impact of work on fertility. Analyzing the 1974 MFFS data, Tan (1983^b) found a negative relationship that was only marginally significant among the Chinese.

Mason and Palan (1981) found weak evidence that women's employment tended to increase contraceptive knowledge and sometimes, contraceptive use. The negative work-fertility relationship was found to be true among urban women but work experience had no bearing on fertility among rural women.

The Mason-Palan's study identified the three opportunity structures that exist in the Malaysian population. Different groups occupy distinct places in the economy and social hierarchy. For the urban women, in the highest opportunity structure, career as well as schooling for children and childcare is deemed important. Knowing about contraceptive choices enable them to make conscious trade-offs between work and childbearing. The lowest opportunity structure belongs to the rural Indian women working on rubber estates. They displayed a *strong positive employment-fertility* relationship (see also Cheah, 1984). As additional children are born into the family, the role of wife to work and provide additional income is not in conflict with childcare as children are expected to help in housework and estate work. This is mainly due to limited opportunity for children's education. In the second opportunity structure occupied by Malays and rural Chinese, a weak positive employment-fertility structure was found. This group falls in between the rural estate workers and the urban women, where children's education opportunity is still limited and work is seen as rather compatible with childbearing though not as accessible.

Jones (1980) noted that increasing employment opportunities for Malay women, particularly with the industrialization and factory employment, was related to the increasing age at first marriage. Tey and Chak (1988) observed that for both urban and rural locations, women who worked after marriage have the highest fertility. However,

after controlling for age, the mean children ever born for women who worked after marriage is comparable to those who had never worked (4.2 and 4.0 respectively) - but both are much higher than those who worked before marriage who had only 2.8 children.

Women working as professionals or clerks had somewhat fewer children than those who were not working and to a lesser extent other occupational groups such as services, sales, skilled and unskilled workers (United Nations, 1987 as cited in Lloyd, 1990). In contrast, the fertility of women working in the agricultural sector was quite similar to those who never worked. Additional years of working in modern occupation were also significantly associated with fewer children ever born (United Nations, 1980 as cited in Lloyd, 1990).

Husband's employment and fertility

For all ethnic groups, fertility is highest among women whose husband worked in the agricultural sector, and generally lowest among those in the white-collar sectors (Tey and Chak, 1988). Interesting ethnic differentials was also observed: Malay fertility rate was highest in professional/administrative, sales and service and production sectors. Chinese women whose husband worked in the agricultural sector had registered the highest fertility. As for Indians, women whose husband worked in the sales and service sectors had the highest fertility.

Income and fertility

The relationship between income levels and fertility has been rather erratic. Ahmad and Chander (1976) found that there was an inverted U-shaped relationship between family income and fertility for each of the three ethnic groups, especially in the rural areas. Other studies concluded that family income was basically unrelated to reproductive behavior for much of the Malaysian population. Tan (1983^a) noted that the only significant impact of family income was on the contraceptive knowledge score, the higher the monthly income the higher the knowledge of contraceptive methods. In the 1984/85 MPFS, it was observed that in general fertility level was negatively correlated with husband's income (Tey and Chak, 1988).

Chander et al. (1977) also found negative impact of husband's income on mean number of children ever born. However this relationship disappeared after controlling for wife's education. Controlling for wife's age, duration of marriage, husband's and wife's education, Nor Laily et al. (1980) found that for rural Malays, the actual family size has a positive relationship with income whereas for rural Chinese and Indians, mean children ever born initially increased and then declined with income.