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Do Fertility Intentions Predict Subsequent Behavior? Evidence from Penninsular Malaysia

Poo Chang Tan and Nai Peng Tey

Data from the 1984 Malaysian Population and Family Survey were matched with birth registration records for 1985-87 to determine the accuracy of statements regarding desired family size that were reported in a household survey in predicting subsequent reproductive behavior. The findings of this study were that stated fertility intention provides fairly accurate forecasts of fertility behavior in the subsequent period. In other words, whether a woman has another child is predicted closely by whether she wanted an additional child. Informational, educational, and motivational activities of family planning programs would, therefore, have greater success in reducing family size if fertility intentions were taken into account. (STUDIES IN FAMILY PLANNING 1994; 25, 4: 222-231)

In most demographic surveys, respondents are asked to state their desired family size and whether they intend to have additional children. However, the predictive accuracy of their statements about future fertility has been the subject of considerable controversy. The validity of such statements as predictors of fertility has been criticized on the grounds that couples' values change with their own experiences, with their age, and with their evaluation of the socioeconomic and cultural changes taking place around them. Also, discrepancies may arise between their statements and deeds because of the sheer indifference they may feel concerning the importance of their responses.

This report evaluates fertility preference measures collected in a large-scale demographic survey in Peninsular Malaysia by matching them with fertility behavior, as reflected in the country's complete birth registration records. The findings are of interest and importance from both methodological and policy perspectives. In particular, the relevance and applicability of the subject for program purposes in the local context should be dealt with in greater detail. In Asian countries, preferred family size tends to cluster in the range of 3.5 to 4.5 children (ESCAP, 1987). The ability of couples to realize their fertility intentions is an important factor in explaining fertility differentials. Beyond establishing the predictive validity of attitudinal responses, this study highlights sections of the population that might benefit from program intervention-particularly those with large family norms and those with an unmet need for contraception.

The increasing availability of contraceptive methods provides the means for women to decide on the number and timing of births. Nevertheless, as in most developing countries, a sizable number of women in Malaysia who reported wanting no more children were not using a contraceptive method. Malaysia provides an interesting case study with its diverse cultural setting. According to the 1984 Malaysian Population and Family Survey (MPFS), 56 percent of Malay women who wanted no more children were not using contraceptives, as compared with 26 percent and 25 percent of Chinese and Indian women, respectively.

Earlier studies (Tan, 1983; Tan et al., 1988) showed that eventual family size often exceeded desired family size; birth cohorts nearing the completion of their childbearing years in the 1980s showed a higher total fertility (estimated using birth registration data) compared with their reported desired family size in the 1974 Malaysian Fertility and Family Survey. A later study (Peterson and Reichman, 1993), using a panel of 866 Malaysian women (and their husbands) interviewed 12 years apart (1976 and 1988), found fertility preferences to have only a moderate effect on subsequent fertility.

Studies conducted in the United States, Taiwan, and Korea have shown that statements about wanting more children are highly predictive of subsequent fertility in different settings (Goldberg et al., 1959; Westoff et al., 1963; Freedman et al., 1975; Westoff and Ryder, 1977; Hermalin et al., 1979; Nair and Chow, 1980; Foreit and Suh, 1980). However, such studies are based largely on information from developed countries and those with early success in family planning programs. Little has been done in developing countries with high fertility to establish fully the usefulness and predictive power of statements regarding preferred family size elicited in demographic surveys for policies and programs. Two studies conducted in India (one in Haryana and the other in a rural village in Maharashtra state) found that statements about desired family size have low reliability in forecasting subsequent fertility (Mukherjee, 1975; Vlassoff, 1990). One reason was the strong emphasis placed on having a certain number of sons (Vlassoff, 1990).

In this study, a further perspective on the predictability of stated fertility intentions in a cosmopolitan country is presented. The data set comes from a large household survey based on a representative sample of the peoples of Peninsular Malaysia. For the first time, fertility behavior is linked to computerized birth registration records that are known to be complete.

Data and Methodology

The study uses a prospective analysis of the fertility behavior of a panel of women who responded to the 1984 Malaysian Population and Family Survey. [A] Their subsequent fertility behavior is studied using the Department of Statistics' birth registration records for the period 1985-87. Respondents in the survey can be matched by means of computer to birth registration records, using their personal identification numbers, numbers unique to each individual in the country. The vital registration system in Peninsular Malaysia is well known for its completeness and accuracy, and, therefore, it can be used with confidence.

Each year there are about 400,000 births in Peninsular Malaysia. Hence, over the three-year study period, substantial resources in terms of time, space, and personnel were required to match the 1.2 million birth records to the survey data. While all female respondents in the survey had reported their personal identification numbers, each year some 3 percent of the birth records did not carry the mother's identification number. Hence, women who could not be matched with a birth record for this reason were treated as not having had a child during the period concerned. Estimating how many of the women in the 1984 MPFS were affected is difficult, but the proportion is expected to be no larger than 3 percent, since the non-reporting of mother's identification number is expected to be random. The three-year study period following the survey may have been too short to include some births, particularly among the spacers. Some of the spacers might have chosen to postpone having another child to a much later date. In view of the large numbers of birth records involved every year, extending the longitudinal data set was not possible. An earlier study (Tan, 1983) found the mean total birth interval for women younger than 45 years to be about two years for the Chinese and 30 months for the Malays. The study also found that the majority of women had their first three children at intervals of less than three years' duration. This interval length was found for all ethnic groups in the 1984 MPFS, where about 80 percent of women surveyed wanted their next child within a three-year span.

The fertility intentions of the respondents and their husbands were obtained from the following questions in the 1984 MPFS: "Do you want to have any (more) children?" and "Does your husband want to have any (more) children?"

These questions were posed to all women in the survey. However, for women who were pregnant at the time of the survey, these questions referred to whether they wanted subsequent children after their present pregnancies. Hence, for these pregnant women, who made up 12 percent of the sample, only the birth records of subsequent children were considered in the analysis.

The desired timing of a woman's next child was obtained by asking her: "How soon (after this pregnancy) would you like to have your next child: As soon as possible or after how many years?" The responses enabled a distinction to be made between women who intended to space their children and those who wanted another child almost immediately.

A multitude of demographic and socioeconomic factors may influence the propensity of couples to translate their stated intention to halt childbearing through contraceptive practice, abstinence, or abortion. A multivariate analysis is therefore necessary to separate out the effects of all these variables in order to identify the groups that have succeeded or failed in realizing fertility behavior according to stated intentions .[B]

Specifically, the models incorporate the variables related to family-size desires and a host of other relevant variables. Among them, both the wife's and husband's desire for an additional child will be compared to yield the following conditions: (1) both partners wanted no more children; (2) both partners wanted more children; (3) only one partner wanted more children, while the other did not; and (4) one or both partners expressed un-certainty.

Life-cycle variables, such as length of marriage, age, and parity, are incorporated into the model, insofar as they are statistically significant in affecting fertility intentions and behavior. The models also include such background variables as ethnic descent (Malay, Chinese, Indian), place of residence (urban, rural) and education (none, primary, secondary and above). Including these variables incorporates in the models socio-cultural, attitudinal, and modernizing influences that affect both fertility intentions and behavior, including the use of contraceptive methods. The experience of child mortality is also introduced to determine its effect on fertility intention and behavior.

Results

While some 87 percent of the women in the 1984 MPFS reported that their fertility desires were similar to their husbands', subsequent fertility behavior is found to be better explained by the joint intentions of husband and wife, rather than by either partner's sole intentions (see Table 1). For example, for those individuals who stated their intention to have another child in 1984, some 52 to 54 percent had one in the subsequent three years, compared with 55 percent of respondents for which the joint intention of both husband and wife is considered. In contrast, a smaller proportion of couples in which both partners had decided to halt childbearing had produced an additional child, compared with those who did not agree. In cases where one partner wanted another child and the other did not, the chance of bearing a child was about two and a half

times higher than for couples in which both partners agreed not to have more children, and about half as likely as it was for couples in which both husband and wife wanted additional children. The probability of a birth's occurring in the three-year time period, however, was not significantly different for those cases in which one partner wanted another child but the other did not. Hence, a woman's fertility behavior appears to be influenced equally by her own fertility desires and by those of her husband. The subsequent results may, therefore, not distinguish between the husband's and the wife's fertility desires, particularly where the sample size is small.

Table 1 : Percentage of women who had a child during the period 1985-87, by husband's and wife's fertility intention in 1984, Malaysia.

	Husband's Intention			
Wife's intention	**Wants another child**	**Wants no more children**	**Uncertain**	**Total**
Wants another child	55.0 (2,066)	29.0 (107)	50.7 (69)	53.6 (2,242)
Wants no more children	27.2 (184)	11.6 (1,243)	33.7 (86)	14.7 (1,513)
Uncertain	35.1 (37)	--- (10)	39.0 (82)	37.2 (129)
Total	52.4 (2,287)	13.2 (1,360)	40.5 (237)	38.0 (3,884)

Notes: The percents shown refer to women currently married at the time of the 1984 MPFS. Sample sizes are within parentheses.

--- = Data not calculated because cases number fewer than 30.

As shown in Table 2, the contraceptive prevalence rate was much higher among those who reported wanting to limit their number of children than among those who wanted more children. Spacers (those who reported wanting another child more than a year in the future) were also much more likely to use contraceptives than were those who wanted another child almost immediately. The large percentage of those who were not certain whether they wanted another child and yet were not using contraceptives warrants further attention. These respondents may be likely candidates for family planning program outreach if the reasons they are not using certain contraceptive methods can be determined.

Table 2 : Percentage distribution of respondents by wife's/husband's desire for children, according to contraceptive-use status, Malaysia, 1984.

Wife's/husband's desire for more children	Used contraceptives	Did not use contraceptives	Total	(N)
Both wanted more	43.8	56.2	100.0	(2,066)a

Within one year	9.1	91.9	100.0	(419)
In more than one year	53.1	46.9	100.0	(1,547)
Did not want more	65.3	34.7	100.0	(1,243)
Disagreed	58.9	41.1	100.0	(107)
Wife wanted more, husband did not	62.5	37.5	100.0	(184)
Husband wanted more, wife did not				
Uncertain	36.6	63.4	100.0	(202)
One partner uncertain	35.4	64.6	100.0	(82)
Both uncertain				

a There were some respondents who were uncertain of or did not specify the length of interval they wanted.

Contraceptive use did, in fact, prevent or delay some births, as Table 3 shows. For example, about 93 percent of those respondents who wanted no more children and were practicing contraception had no additional children during the three-year study period. In contrast, among those who wanted no more children and were not using contraceptives, some 21 percent had another child. Interestingly, of those wanting no more children and not using any method in 1984, some 6 4 percent had used a method prior to the study period (not shown). Restricting the sample to this group reveals that some 27 percent of them had a child in the study period. More information should be gathered to provide a better understanding of why they had discontinued the methods they used, so that appropriate motivational and educational strategies may be developed.

Table 3 : Percentage of women who had a child during the period 1985-87, by whether the wife or the husband had wanted more children, according to contraceptive-use status in 1984, Malyasia

	Women who had a child during 1985-87 a			
Wife's/husband's desire for more children	**Used contraceptives**	**Did not use contraceptives**	**Total**	**(N)**
Both wanted more	50.3 (904)	58.6 (1,162)	55.0	(2,066)
Both wanted no more	6.7 (812)	20.9 (431)	11.6	(1,242)
Disagreed	22.2 (63)	38.6 (44)	28.9	(107)
Wife wanted more, husband did not	15.7 (115)	46.4 (69)	27.2	(184)
Husband wanted more, wife did not				
Uncertain	23.0 (74)	50.0 (128)	40.1	(202)
One partner uncertain	24.1 (29)	47.2 (53)	39.0	(82)
Both uncertain				
Total (N)	28.3 (1,997)	48.2 (1,887)	38.0	(3,884)

A Women who were currently married at the time of the 1984 MPFS.

Of those who wanted more children and were not using contraceptives, some 59 percent had a live birth by 1987, as compared with about 50 percent of those who were using contraceptives. Further calculations carried out to remove from consideration those less fertile [C] or those who wanted to space their next child did not greatly alter the figures. Presumably, economic, medical or other reasons may have caused such couples to postpone having their next child to a later date. Some couples might also have revised their fertility intentions subsequently, particularly for the 9 percent who already had five or more children.

Other Socioeconomic Variables

The importance of sociocultural variables in affecting fertility intentions and behavior is assessed in terms of the basic characteristics of couples who reported wanting more children compared with those who wanted no more children. Table 4 shows that the latter tended to be older and of higher parity than the former. Fertility intentions clearly vary significantly across groups for all the listed variables. For example, significant differences occurred among ethnic groups according to whether they wanted additional children; Malays were about two times more likely than Chinese or Indians to want another child. In 1984, Malays were estimated to make up 55 percent of the population, Chinese, 34 percent, Indians, 10 percent and others, 1 percent. The high proportion of Malays who reported wanting additional births would contribute, therefore, a large number of subsequent births.

Table 4 : Percentage distribution of respondents, by fertility intention, according to selected characteristics, Malaysian Population and Family Survey, 1984

	Fertility Intention							
Selected characteristics	**Both wanted another child**	**Both wanted no more child**	**Husband wanted another child**	**Wife wanted another child**	**One partner uncertain**	**Both uncertain**	**Total**	**(N)**
Ethnic group **	65.6	19.8	3.5	2.3	6.0	2.6	100.0	(2,116)
Malays	37.9	46.8	6.4	3.0	4.2	1.7	100.0	(1,328)
Chinese	35.6	49.2	6.2	4.6	3.6	0.8	100.0	(390)
Indians	70.0	18.0	0.0	2.0	8.0	2.0	100.0	(50)
Others								
Area of residence **	56.0	28.8	4.3	2.3	6.3	2.3	100.0	(2,309)
Rural	49.0	36.8	5.4	3.4	3.8	1.8	100.0	(1,568)
Urban								
Age group **	94.7	1.3	1.3	0.0	1.3	1.3	100.0	(76)
< 20	88.9	3.9	1.5	1.7	2.7	1.2	100.0	(594)

20-24	80.3	8.6	3.2	2.4	4.3	1.2	100.0	(838)
25-29	55.3	26.9	5.1	4.4	6.0	2.3	100.0	(818)
30-34	34.1	43.7	7.8	3.0	8.2	3.2	100.0	(694)
35-39	16.5	64.9	8.0	2.1	5.7	2.7	100.0	(473)
40-44	6.6	80.8	2.9	2.4	5.0	2.4	100.0	(380)
45-49								
Education **	29.2	52.7	6.1	2.6	7.4	2.1	100.0	(657)
None	49.1	34.9	5.2	2.6	5.8	2.5	100.0	(1,862)
1-6 years	70.3	18.1	3.4	3.0	3.5	1.6	100.0	(1,365)
7 + years								
Work status **	43.9	37.5	6.8	3.0	7.2	1.7	100.0	(472)
At home	49.3	35.3	5.0	2.9	5.3	2.2	100.0	(1,747)
Away from home[A]	59.9	27.0	3.9	2.5	4.6	2.1	100.0	(1,665)
Unemployed								
Total living	92.2	2.0	1.0	2.0	2.4	0.3	100.0	(293)
children**	89.6	5.1	1.3	0.7	1.8	1.5	100.0	(550)
0	70.9	16.9	3.6	3.2	3.8	1.6	100.0	(746)
1	52.0	28.5	6.9	4.9	5.7	1.9	100.0	(736)
2	38.6	45.7	4.8	2.2	6.5	2.2	100.0	(541)
3	17.9	61.5	6.9	2.4	7.9	3.4	100.0	(1,018)
4								
5 or more								
Contraceptive use **	61.6	22.8	2.3	3.7	6.8	2.8	100.0	(1,887)
Nonusers	45.3	40.7	3.2	5.7	3.7	1.4	100.0	(1,997)
Users								
Open interval [B]	70.2	14.5	4.6	3.0	6.1	1.6	100.0	(884)
< 12 months	67.9	18.8	5.2	2.1	4.4	1.6	100.0	(574)
12-23	61.5	22.5	4.7	2.4	7.1	1.8	100.0	(382)
24-35	51.5	34.7	4.5	3.7	3.4	2.2	100.0	(268)
36-47	26.9	59.1	5.0	2.9	3.9	2.2	100.0	(1,302)
48 and longer								
Average monthly	60.9	23.3	4.0	1.8	7.4	2.7	100.0	(846)
household income **	56.4	29.2	4.3	2.2	5.7	2.2	100.0	(1,160)
< RM500 [C]	46.2	37.7	6.1	2.9	5.3	1.8	100.0	(718)
RM500-899	47.1	38.4	4.6	3.5	3.5	2.9	100.0	(346)
RM900-1,299	50.2	34.9	5.1	5.1	3.0	1.7	100.0	(235)
RM1,300-1,600	51.0	38.1	4.5	3.9	2.6	0.0	100.0	(155)
RM1,700-2,099	48.4	37.8	4.6	3.5	3.8	1.1	100.0	(386)
RM2,100-2,499								
RM2,500+								

** Difference between groups is significant at p<.01.

[A] Includes those who worked both at home and away from home.

[B] Excludes women who were currently pregnant.

[C] 500 Ringgit Malaysia = about US$192 (RM1 = $US.3840)

The percentage of couples reporting that they wanted more children is higher in rural than urban areas. This finding is consistent with the higher percentage of Malays in the rural population and the higher fertility found in rural areas, compared with urban ones.

The results presented for education and work status probably reflect the effects of age, because female educational achievement has improved substantially, and, increasingly, younger and better-educated women are going out to work. Consequently, educated women were more likely to report that they wanted another child, compared with less-educated women. Women who worked away from home were more likely than those who worked at home to want another child, but the percentage for women who were not working was higher than that for the other two categories.

Couples in which both partners wanted additional children were less likely to use contraceptives than those who did not want more. Interestingly, among couples who did not want additional children, more than 20 percent were not using contraceptives.

The length of the open interval seems to be negatively related to fertility intentions, that is, the longer the open interval, the lower the proportion of couples who reported wanting an additional child. The high proportion (59 percent) of couples who had their last child at least four years prior to the survey who reported both husband and wife wanting no more children is noteworthy. The longer the open interval, the more likely the stated intention will coincide with actual fertility behavior (not shown).

In the table, household income has a U-shaped relationship with fertility intention. At low household income, a high proportion of couples reported wanting additional children, but this proportion decreases with increasing income and then increases again. This result probably reflects the effect of family size, which normally has a U-shaped relationship with income.

The study's findings reveal that differentials in fertility intentions vary significantly across subgroups for each of the socioeconomic variables studied; whether each of these variables affects fertility behavior, when fertility intentions are taken into account, is a relevant concern. Among those respondents who wanted more children, the proportion who had a child during the three-year period under review was highest among the Malays, followed by the Chinese and the Indians, regardless of contraceptive-use status (see Table 5). In contrast, the Chinese were relatively more successful in preventing unwanted pregnancies, compared with the other two ethnic groups. However, these differences are not statistically significant; this finding suggests that fertility

behavior does not differ greatly between ethnic groups, once fertility intention and contraceptive use are considered. Age, parity, and other important socioeconomic variables have not been taken into account in the ethnic comparisons here.

Table 5 : Percentage of women who had a child during the period 1985-87, by whether the wife or the husband had wanted more children, according to contraceptive-use status in 1984 and according to ethnic group, Malaysia

	Malays			Chinese			Indians		
Desire for more children	**Used contraceptives**	**Did not use contraceptives**	**Total**	**Used contraceptives**	**Did not use contraceptives**	**Total**	**Used contraceptives**	**Did not use contraceptives**	**Total**
Wanted more	50.2	59.6	55.8	46.6	56.2	51.2	42.7	52.1	46.9
Children	(602)	(881)	(1,483)	(292)	(267)	(559)	(89)	(73)	(162)
Wife	49.3	59.6	55.4	42.0	55.1	48.0	38.7	50.7	43.9
Husband	(608)	(881)	(1,489)	(324)	(274)	(598)	(93)	(71)	(164)
Both	51.3	60.3	56.7	49.6	56.2	52.9	44.7	52.4	48.2
	(563)	(826)	(1,389)	(254)	(249)	(503)	(76)	(63)	(139)
Wanted no	18.3	26.8	23.1	3.7	21.6	8.4	7.2	37.5	14.8
more	(240)	(306)	(546)	(541)	(194)	(735)	(167)	(56)	(223)
Children	18.0	22.6	20.5	3.4	18.1	7.2	7.5	41.2	15.6
Wife	(217)	(257)	(474)	(495)	(171)	(666)	(160)	(51)	(211)
Husband	17.0	20.4	18.8	2.4	16.5	5.9	6.1	38.6	13.5
Both	(194)	(226)	(420)	(464)	(158)	(622)	(148)	(44)	(192)

The propensity of couples to translate fertility intentions to behavior was found to be consistent for the various socioeconomic subgroups, as shown in Table 6. Couples in which both partners wanted more children were more likely to have a child subsequently than were those who wanted no more children. For couples in which both partners did not want more children, statistically significant differences in fertility behavior are found only across length of marriage and age categories. For example, among those who wanted no more children, more than 30 percent of respondents married for fewer than 10 years or who were younger than 30 years had a subsequent child.

Table 6 : Percentage of women who gave birth during 1985-87 by whether the wife or the husband had wanted more children in 1984, according to selected socioeconomic characteristics, Malaysia

	Fertility intention						
Characteristics	**Both wanted more childre**	**Both wanted no more**	**Husband wanted more**	**Wife wanted more children**	**One/both uncertain**	**Total**	**(N)**

	n	childre n	children				
Wife's place of residence Rural Urban	56.3 52.8	13.4 9.5	32.3 21.4	38.9 18.9	38.9 -	41.3 33.0	(2,309) (1,568)
Length of marriage(years) < 5 5-9 10-14 > 14	65.4 58.8 44.3 26.6	--* 31.7 15.2 6.5	-- 37.5 26.7 19.8	-- 40.6 -- 8.8	-- -- -- 31.0	64.0 51.7 33.1 13.7	(947) (870) (701) (1,366)
Age (years) 18-24 25-29 30-34 35-39 40 +	66.3 62.9 52.9 29.5 5.8	--* 38.9 24.1 12.2 2.2	-- -- 45.2 25.9 5.9	-- -- 36.1 -- --	-- -- -- -- --	65.4 59.1 43.0 22.8 3.6	(670) (838) (818) (694) (865)
Number of live births 0-1 2 3 4 5 6 or more	60.5 54.1 53.1 48.2 51.2 45.3	20.6 13.3 10.8 12.2 9.2 11.4	-- -- 22.4 24.0 -- 30.0	-- -- 27.0 -- -- --	-- -- -- -- -- --	58.2 44.9 37.5 29.8 27.3 20.8	(820) (700) (712) (531) (385) (737)
Education (years) None 1-6 7-11 12 or more	45.3 52.2 58.4 63.6	8.7 12.3 15.3 9.9	15.0 30.9 -- --	-- 32.7 -- --	-- 43.5 37.5 --	22.5 35.9 48.9 46.1	(657) (1,863) (1,031) (334)
Average monthly household income (SUS) < 500 500-899 900-1,299 1,300-1,699 1,700-2,099 2,100-2,499 2,500 or more	56.9 53.4 57.5 53.4 61.9 57.0 49.2	21.8 14.5 8.9 6.0 8.5 8.5 4.1	26.5 30.0 31.8 -- -- -- --	-- -- -- -- -- -- --	-- -- -- -- -- 0 --	46.4 39.2 35.6 30.9 38.3 35.5 28.5	(846) (1,160) (719) (346) (235) (155) (372)
Total	55.0	11.6	27.2	29.0	39.0	38.0	(3,884)

* Significant at p<.05. Test of difference was only carried out for couples in which both partners wanted or both did not want additional children, because of the small sample size for the other groups.

-- = Fewer than 30 cases.

0 = No case in this category.

For couples in which both partners reported not wanting more children, the predictive power of stated intention increases with age, as Table 7 shows. As many as 40 percent of such respondents who were younger than 30 years had at least one more child during the study period, compared with only 0.6 percent of those who were 45 years of age and older. The younger age cohorts, therefore, warrant special attention for program intervention to reduce their unmet need for contraception.

Table 7 : Percentage distribution of respondents (husbands and wives) who had reportedly both wanted no more children in 1984, by age group, according to number of births they had during 1985-87, Malaysia

	Number of births 1985-87				
Age group	**0**	**1**	**2**	**Total**	**(N)**
< 30	58.3	34.4	7.3	100.0	(96)
30-34	75.9	21.8	2.3	100.0	(220)
35-39	87.8	11.2	1.0	100.0	(304)
40-44	96.1	3.6	0.3	100.0	(307)
45 +	99.4	0.6	0.0	100.0	(316)

The percentages of women who had additional children according to their fertility intentions, after standardizing for compositional differences of selected social and demographic characteristics, are presented in Table 8. [D] Such variables as age, length of marriage, and parity contribute significantly to the explanation of the relationship between fertility intention and subsequent reproductive behavior.

Table 8 : Percentage of women who had an additional child between 1985 and 1987, by whether both partners in the marriage wanted more children in 1984, standardized for selected characteristics, Malaysia

	Husband and wife both wanted more children in 1984	
Characteristics [a]	**Yes**	**No**
Total sample	54.9	11.6
Wife's characteristics	41.2	16.8
Age	46.3	20.8
Length of marriage*	53.2	13.3
Number of living sons	52.0	13.4
Number of live births*	53.8	11.7
Work status		
Husband's characteristics	53.8	11.9
Education	54.9	11.6

Employment status		
Family income	54.0	12.5

* Significant at p<.05.

[a] Percentage adjusted for compositional difference with respect to characteristics listed.

Multivariate Results

As explained earlier, the decision to have a child is considered a choice that may be influenced by the fertility intentions of couples and by various other factors. Several models were devised using the matched data of respondents in the 1984 MPFS and the birth registration records for the 1985-87 period. Most of the models fit the data well, with a likelihood ratio test statistic for goodness of fit being not significant at the 1 percent level. However, because the same variables are significant for all models, only the results of the basic model are presented in Table 9. The results are not presented separately for each ethnic group largely because of the small sample size, particularly for the Chinese and Indian groups.

Table 9 : Logistic regression showing the odds for a respondent to have a child during the 1985-87 study period, by selected characteristics, Malaysia

Characteristics	Odds ratio
Ethnic group **	1.41
Malays	0.87
Chinese	0.82
Indians	
Years since first marriage **	1.93
0-4	1.30
5-9	0.70
10-14	0.57
15+	
Current age group **	2.66
< 25	2.54
25-29	1.97
30-34	0.86
35-39	0.09
40+	
Parity **	0.44
0	0.86
1-2	1.07
3-4	2.45
5+	
Couple's fertility intention **	1.43
Both wanted more children	0.58

Both wanted no more children Only one wanted more children Both uncertain	0.92 1.31
Contraceptive use ** Using a method Not using a method	0.67 1.50
Educational level Primary or less Secondary Secondary +	0.95 0.89 1.18
Place of residence Urban Rural	0.96 1.04

** Significant at p<.01.

Note : Child-mortality experience was also included in the model but consistently found to be insignificant.

The basic model in Table 9 indicates that fertility intention is statistically significant in explaining the occurrence of a birth during the study period, when such life-cycle variables as length of marriage, age, and parity (all of which are also significant), such background variables as ethnic group, place of residence, and educational level (only ethnic group is significant), contraceptive use (also significant), and infant or child mortality experience (not significant) are taken into account. Such background variables as place of residence and educational level may have threshold values and may be important in affecting the realization of fertility intention only at a fairly high level. For example, those with at least secondary education or post-secondary education might be expected to have different fertility behavior from those with a lower level of education. In the study, the authors sought to discover whether using a higher level of education or urbanization would change the results. Both of these variables were found to be statistically insignificant, probably because of the small number of educated and urban respondents.

The odds ratios displayed indicate the change in the odds for a woman to have a child during the study period, according to her membership in a particular subgroup. An odds ratio of 1.0 indicates no effect. An odds ratio greater than 1.0 indicates that the probability of having a child is higher for members in this particular sub-group than for those in the other subgroups. An odds ratio less than 1.0 indicates a lower probability.

Multivariate analysis shows that, compared with non-Malays, Malay respondents tended to have greater odds of giving birth during the study period, when other variables were taken into account. The probability of having a child is in the expected direction, that is, higher for the recently married and younger respondents, when other variables are controlled. Interestingly, the probability of having a child is higher for those with three children or more than for those with fewer children. This probability is partly the result of the standardization of fertility intention, since women of higher parity were less likely to report wanting additional children, and, as indicated, women who intended to cease childbearing had lower subsequent fertility. Clearly, concerted efforts are needed to motivate women with large families to practice contraception.

Because the group who reported not wanting more children represents a latent demand for family planning, some models were also devised to examine which subgroups tended to have the highest failure rates (that is, which had children during the study period). The testing of various models incorporating background variables, life-cycle variables, use of contraceptives, length of last birth interval (<12 months, 12-23 months, 24-47 months, and 48+ months), and infant mortality experience resulted in the selection of the final model presented in Table 10.

Table 10 : Logistic regression showing the odds for women who reported wanting no more children who had a child during the study period 1985-87, by selected characteristics, Malaysia

Characteristics	Odds ratio
Ethnic group **	2.43
Malays	0.50
Chinese	0.83
Indians	
Age group **	1.56
< 30	1.69
30-34	0.38
35+	
Contraceptive use *	0.75
Using a method	1.33
Not using a method	
Length of last birth interval **	2.88
< 48 months	0.35
48+ months	
Educational level	0.90
Primary or less	1.17
Secondary	0.94
Secondary +	
Place of residence	0.91

Urban Rural	1.10

* Significant at p<.05; ** significant at p<.01.

Note : Other variables included in the model but consistently found to be insignificant were length of marriage and parity.

Again, among women wanting no additional children, the Malays were more likely than the non-Malays to have a child during the study period. The subsequent childbearing rate was also higher for those younger than 35 and those with a child younger than four at the time of the 1984 MPFS than for others. Most important, those respondents who were not using contraceptives were more likely to have at least one additional child compared with users.

Conclusion

The predictive power of the joint fertility intentions of couples is greater with regard to their subsequent fertility behavior than is the husband's or the wife's reported intention alone. However, when couples do not agree about fertility intentions, the wife's fertility behavior appears to be as greatly influenced by her own desires as by those of her husband.

Those respondents who wanted no more children were found to be more likely to practice family planning, and only 12 percent of these had a subsequent birth over the three-year period. However, among them were a fairly large proportion who were not using contraceptives. Of the group who were uncertain about whether they wanted another child, about 40 percent gave birth during the study period. Of the group who reported that they wanted another child, more than half gave birth within three years of the survey. For couples in which only one partner was eager to have another child, the proportion who did so was slightly less than 30 percent.

The multivariate model using logistic regression shows that fertility intention is a useful indicator of fertility behavior, when background and life-cycle variables are controlled. The different patterns of fertility intentions reported by such socioeconomic subgroups as ethnic group, urban or rural residents, the employed and unemployed, and the educated and uneducated suggest that different program strategies should be designed for specific target groups. For example, in a recent study, Govindasamy and DaVanzo (1992) showed that government policies affected Malay fertility intentions positively while suppressing those of non-Malays.

The findings of this study highlight the need to focus attention on families that have three or more children, because they are more likely than those with fewer children to have another child, after adjustment is made for background variables. Another target group should be people who are uncertain about whether to have another child, especially those with low incomes and those who already have several children. Concerted efforts should be made, therefore, to improve information, education, and motivational programs to promote family planning for family welfare. A clear need exists, as well, for a better understanding of the sociocultural factors that act as barriers to contraceptive use in order to better formulate appropriate family planning programs.

The study also shows that insight on fertility behavior can be gained by using such available data sources as birth registration records, matched here to survey data to create a unique data set for analyzing behavior.

Notes

A. This survey, carried out from November 1984 to January 1985, elicited detailed information relating to fertility, family planning, and demographic and socioeconomic conditions from a representative sample of 4,141 ever-married women aged 15-49 years throughout Peninsular Malaysia.

B. This fertility behavior can be shown in terms of a logit model as specified below, where the subsequent fertility behavior is assumed to be a function of various factors, among them fertility intentions:

P (F = 1 / X) = exp (å bkXk,) / [1 + exp (å bkXk)]

Here, F is a dichotomous variable taking on values of 0 or 1. F = 0 when a birth did not occur in the three-year period of 1985-87, and F = 1 when a birth occurred. The model is fitted using a maximum likelihood estimation procedure.

C. To determine which respondents were less fertile, a series of questions was asked, including, "As far as you know, would it be physically possible for you and your husband to have a child, if you wanted one?"

D. The method takes into account differences in fertility behavior and number of cases across subgroups for each variable of interest.

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