

IN THE THROES OF TRANSITION: FERTILITY TRENDS AND PATTERNS IN THE PHILIPPINES

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Based primarily on period estimates of the crude birth rate from the early 1900s to the 1980s, this paper provides an overview of the changes in Philippine fertility and the beginnings of a fertility transition around the 1970s. These changes are related to parallel developments in the known proximate and socioeconomic determinants of fertility as well as to broader community influences. Some of the factors that have impeded the fertility decline are identified, particularly those relating to family size norms and the incidence of contraceptive use. Future research will also have to pay closer attention to the influence of community-level or environmental factors on fertility, especially since micro-level studies on socioeconomic fertility differentials are not likely to yield new findings on fertility behavior.

Introduction

Following declines in the birth rate of several developing countries since the 1970s, there has been growing interest in the study of demographic transitions in the Third World. Demographic transition experiences in the Third World have been varied, with some countries exhibiting faster rates and larger magnitudes of birth rate falls than others. Demographers agree ongoing fertility changes in the Third World offer an opportunity to better understand the circumstances surrounding the onset of fertility declines, the manner in which small family size norms spread to larger sectors of the population, and the factors impeding or accelerating the tempo of fertility declines. Many feel these contemporary changes in Third World fertility will contribute to a reappraisal of classical demographic transition theory, which, in general terms and based on the experience of now industrialized nations, describes the direction of fertility changes as societies pass from traditional agrarian ones to modern industrial states.

In the Philippines, the country's population growth rate and fertility levels have not emerged as a continuing concern of the present government of President C. Aquino, even as the preceding government of President F. Marcos pursued explicit population control policies and programs since the 1970s. It is widely believed the strong influence of the Catholic Church on the Aquino government has caused the shelving, if not the reversal, of earlier antinatalist policies. In turn, this has lowered the significance of population matters as a national issue, and withdrawn the public legitimacy previously accorded the practice of birth control and family planning. In addition, the

widely perceived failure of the past and present administrations to implement development programs has contributed to a sense of public cynicism over government's ability to address the country's twin problems of a poor economy and a growing population. Hence, outside of demographers and other scholars, interest in national fertility trends remains limited to a few others who feel that, though the country's population growth rate has been declining, progress made on lowering the birth rate has been sluggish. Some expect the forthcoming 1990 Census will reveal a large absolute increase in the Philippine population which could jeopardize ongoing efforts at revitalizing the economy — earlier weakened by the country's worst economic crisis which resulted in negative real per capita GNP growth rates - 3.4 percent per year from 1980 to 1985 (NEDA 1987).

Recognizing that demographic events are affected by several factors ranging from biological factors and individual and family circumstances to national policies and broader cultural and economic forces, this paper attempts a review of Philippine fertility patterns over time. The review includes a discussion of the changes in Philippine fertility levels based on various period estimates of the national birth rate. Following theoretical formulations on fertility behavior, it proceeds with a discussion of the trends in "proximate fertility determinants" or those factors that most immediately impinge on fertility. This is followed by a review of research findings on fertility differentials which highlight the effect of socioeconomic factors on fertility, and finally by a discussion of available studies on the impact of broader cultural or environmental factors on fertility. A review of these related information on the country's fertility trends

and patterns may help identify areas for useful research that can inform subsequent discussions and policies on population and fertility matters.

Philippine Fertility Levels and Trends: 1900s to the 1980s

Prior to 1970, estimates of the national birth rate consisted of indirect estimates derived from the earlier censuses of 1903, 1918, 1939, 1948 and 1960. Direct estimates from these and the then existing birth registration system were considered unreliable, in view of serious bias in the reporting of age data in census records, and the severe deficiencies of the vital registration system (Alcantara et al. 1980). Since then, however, the coverage of birth registrations and the quality of census data have improved, at the same time that increasingly sophisticated estimation procedures have been developed. These improvements now allow for more robust fertility measures and for re-examining previously existing birth rate estimates. Moreover, the conduct of national demographic surveys since 1968 currently offer additional data sources for regularly monitoring fertility levels and trends. These surveys are undertaken every 5 years by the University of the Philippines Population Institute (UPPI) and are known as the National Demographic Survey (NDS) series. The NDS rounds include the special 1978 Republic of the Philippines Fertility Survey (RPFS) which was part of the World Fertility Survey, and the most recent 1986 Contraceptive Prevalence Survey (or CPS).

Owing to different data sources and estimation procedures, there are no single agreed-upon estimates of national fertility levels over time. But using 3 sets of time series estimates of the crude birth rate (CBR) Figure 1 reveals roughly similar long-term trends in Philippine fertility. These 3 sets of estimates consist of 1) those assessed by Alcantara et. al. (1980) to be the more plausible measures of Philippine fertility in earlier periods, 2) those generated by de Guzman (1987) with more recent data and improved estimation procedures, and 3) those most recently released by the UPPI (1988) based on the 1986 CPS.

Figure 1 shows the national CBR hovered at a high level of over 50 births per thousand people during the first half of the century, after which it

began to decline slowly in the 1950s and fell to around 45 to 46 births per thousand in 1960. The gradual pace of decline proceeded in the next 5 years and accelerated even further in the next quinquennium when the CBR declined by 11 percent to reach a new low of 34.8 births in 1975. Given the magnitude and the sources of the decline (see next section), first significant reductions in the birth rate noted between the late 1960s and through the first half of the 1970s signified the beginnings of a fertility transition in the Philippines.

However, CBR estimates for the subsequent 1980 period reveal somewhat uneven trends that point to a likely deceleration of the national birth rate fall after 1975. Employing the same estimation techniques he had used for earlier periods, de Guzman (1987) applied the age-specific birth rate figures of the 1983 NDS to the 1980 Census and arrived at an increased CBR of 36.3 for 1980. In turn, recalculations of trend estimates to make these comparable with the CBR derived from the 1986 CPS reveal a slowed but continuing decline from 34.4 births in 1975 to 33.9 in 1980, and then followed by a reaccelerated drop to 30.8 births in 1984 (UPPI 1988). Disregarding differences in the currently available CBR estimates for 1980, the trends in Figure 1 indicate a much slower 10 percent fall in the CBR between 1975 to 1984, as against the 20 percent reduction attained in the preceding 10-year period, 1965 to 1975.

A similar pattern of declining fertility is also seen from estimates of the total fertility rate (TFR), a measure of the average completed fertility per woman and considered a finer measure of the birth rate. Cabigon's (1986a) analysis of own-children data from the 1974 NDS yielded TFR levels of 6.5 births in 1960, 6.3 in 1965, and 5.9 in 1970. For subsequent years, the NDS series reveal continuing downtrends in the TFR to 5.2 births in 1975, 5.0 in 1980, and 4.6 in 1984. Similarly, TFR estimates derived from the application of the Bogue-Palmore method on census data indicate a declining trend from 5.7 births in 1970 to 5.1 in 1980 (Pacheco and Engracia 1985). Like the trend in the CBR, the TFR estimates show a quickening of the birth rate fall after 1965, with the most significant drop (11 percent) occurring between 1970 to 1975. A slackening of the fall is again evident in the immediately

following period when the TFR dropped by a mere 4 percent between 1975 to 1980. The 1984 TFR estimate of 4.6 births derived from the 1986 CPS however, similarly points to some reacceleration of the decline after 1980. Like the trends in the CBR, longer-term comparisons of the TFR show a lower 12 percent decline in the more recent 9-year period (1975 to 1984) as against the larger 17 percent reduction observed between 1965 to 1975.

Further confirming the onset of a national fertility decline are regional TFR figures which show these declined in all of the country's 13 regions between 1960 (figures from Cabigon 1985) and 1984 (from UPPI 1988). The largest reductions occurred in Metropolitan Manila and neighboring Central Luzon where the TFR fell by 43 percent and 40 percent respectively. All other regions posted reductions of between 25 to 39 percent, with the exception of the depressed Bicol and Eastern Visayas regions which exhibited the least reductions of 11 to 16 percent. As of 1984, Metropolitan Manila had the lowest TFR of 2.9 births, whereas medium fertility areas with TFRs of 4.1 to 4.7 births included Central Luzon, Southern Tagalog, the Ilocos, Central and Western Visayas and Northern Mindanao (see Figure 2). The high fertility areas with TFRs of 4.8 to 6.1 comprised the rest of Mindanao (Central, Western and Southern), the Cagayan Valley, Bicol and Eastern Visayas.

The national declining fertility contributed to the reduction of the country's population growth rate from over 3 percent per annum in the 1960s to 2.8 percent per year between 1970 to 1975, and a slightly reduced 2.7 percent yearly from 1975 to 1980. The latter figure is short of the 2.4 percent target which the Marcos-sponsored population program had aimed to attain by 1980. Government estimates of the national population for the 1980 decade have been based on the 2.4 percent target and show an estimated population of around 59 million in 1989. Even on the assumption of a slowed 2.4 percent growth rate therefore, current estimates reveal a substantial population base which will result in large absolute increases in the country's population well into the 21st century.

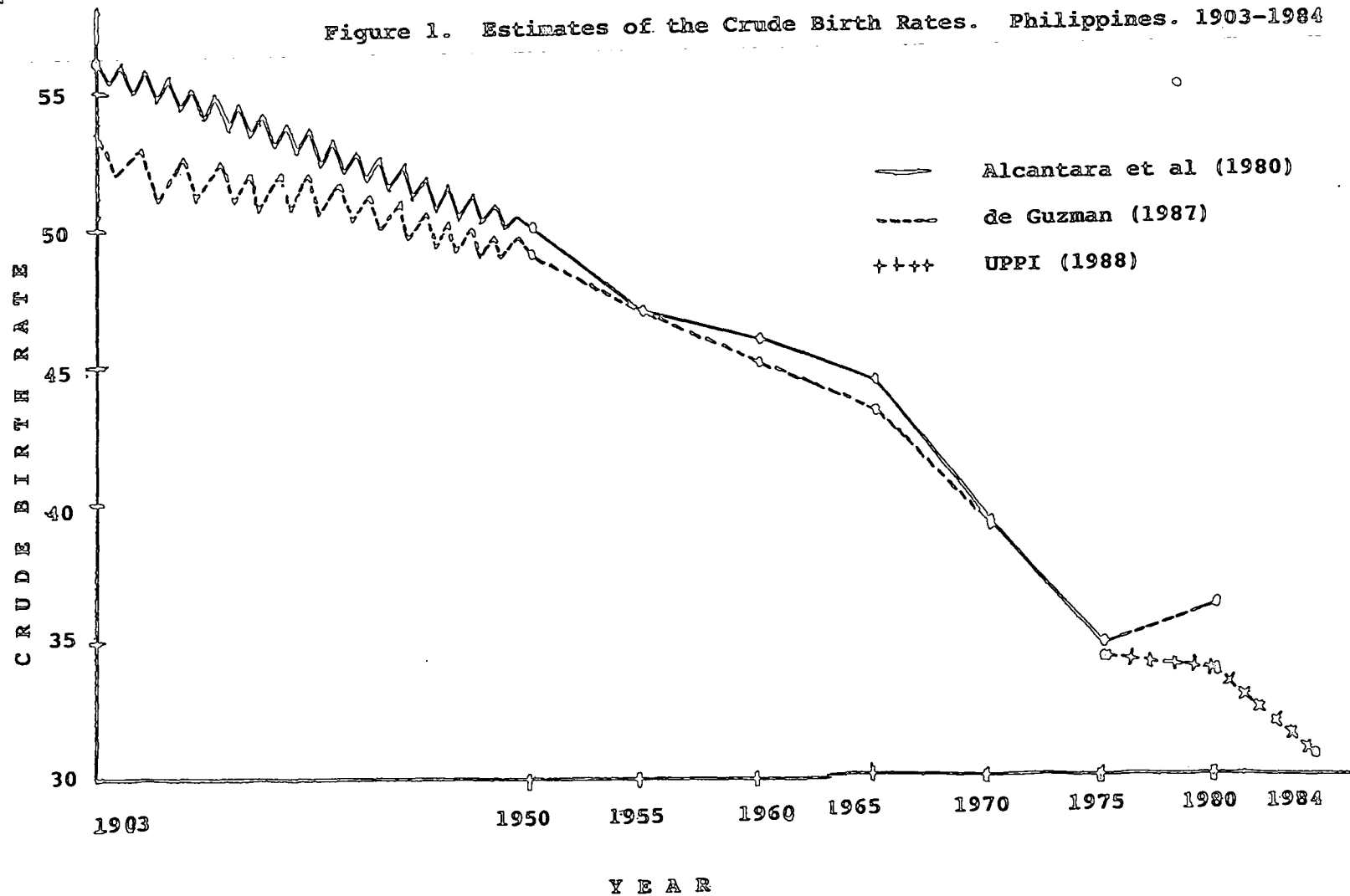
Sources of Fertility Change

The sources of fertility change are usually analyzed through demographic decomposition procedures that indicate how much of observed fertility changes stem from changes in prevailing age at marriage patterns (or in the proportions of women marrying), age-sex compositional factors (or in the number of women of reproductive age), and to the control of fertility within marriage. More than changes in marriage timing or in age-sex composition, the significant reductions in fertility are more usually associated with the control of marital fertility.

Analyses that have been done on the country's falling fertility show that the initial gradual declines prior to the 1970s owed largely to changes in marriage timing and patterns. Analyzing the fertility change between 1903 to 1960 with the use of Coale's (1967) fertility indices for example, Smith (1975a) reports that the country's rising age at marriage trend during the first 6 decades of the century exerted a substantial downward pressure on the birth rate. However, the negative impact of marriage delays on the birth rate was offset by increases in marital fertility, so that only small and gradual declines in overall fertility occurred during the period. Delayed marriages continued to account for the more perceptible drops in the birth rate in the 1960s, although some reduction in marital fertility was also noted during the decade. Cho and Retherford (1973) report that the CBR decline from 1960 to 1968 arose largely from delayed and less universal marriage, while Fliieger (1975), using data from the 1968 NDS, noted some minimal reduction in marital fertility for the same period. Consistent with these findings, the UPPI's (1985) decomposition analysis of the birth rate fall for the 1960 to 1970 decade shows that improvements in the age at marriage accounted for 52 percent of the reduction in the CBR, as against a 28 percent contribution of declining marital fertility, and an 18 percent reduction arising from a slight decrease in the number of women of reproductive age.

Only after 1970 did the control of marital births assume a greater role than marriage timing or age-compositional factors in the country's fertility decline. Whereas in earlier years, younger women

Figure 1. Estimates of the Crude Birth Rates. Philippines. 1903-1984



contributed most to the fertility decline by postponing marriage, reconstructed age-specific fertility rates (ASFRs) from the 1968 to 1978 NDS reveal an accelerated pace of fertility decline in all age groups after 1970, but especially among women over 25 years old (RPFS Report 1979). Decomposing the TFR change between 1972 and 1975, Mejia Raymundo (1984) similarly concludes that the control of marital births among older women contributed most to the country-wide reduction in fertility during the 3-year interval. This changing age pattern of fertility suggests the increasing adoption of contraception among older women causing a sharp drop in the national birth rate between 1970 to 1975. Indeed, the UPPI's (1985) decomposition of the 1970 to 1975 CBR change shows that the large reduction in marital fertility during the quinquennium more than offset the upward pressures exerted on the birth rate by increases in the number of childbearing women and in the number of young women marrying.

The above unfavorable trends in the proportions of childbearing women and of those marrying persisted in the next few years however, and are partly responsible for the weakening of the national fertility decline after 1975. In addition, there are also indications that the pace of marital fertility decline slowed between 1975 to 1980 and contributed further to the deceleration of the birth rate fall.

Comparisons between the 1975 and 1980 censuses show increments in the absolute number of women of reproductive age particularly among those aged 20 to 34, as well as increases in the proportions of married women in the age groups 15 to 29. Departing from the earlier 1970-75 period when the ASFRs of women in all age groups posted significant reductions, de Guzman (1987) and Cabigon (1988) further report the ASFRs of women aged 15 to 19 increased by 8 percent from 1975 to 1980, while those of women aged 20 to 24 and 25 to 29 each increased by 2 percent. Based on her inter-cohort analysis of data from the 1983 NDS, Cabigon attributes the surge in teenage marriages and births to an increased incidence of premarital sex, elopement and premarital conceptions during the period. But since teenage mothers did not move on as quickly to have a second pregnancy or birth as did their counterparts in the 1978 RPFS, Cabigon argues the deceleration of the

national fertility decline after 1975 represented no more than a temporary lull arising from changing patterns of family formation (i.e. with women marrying and having their first births earlier but delaying their second and successive births by a longer period than their older counterparts).

The UPPI's (1985) decomposition of the 1975 to 1980 CBR change generally confirms the positive impact of women's age-compositional factors and early marriages on the birth rate. Moreover, other than the surge in young women's fertility, decomposition procedures also reveal smaller reductions in marital fertility among women in older age groups. This weakening of the marital fertility decline has been associated with the drop in contraceptive usage noted for roughly the same years or period (see later section), and contributed likewise to the slackening of the birth rate fall between 1975 to 1980.

Subsequent trends which indicate a quickening of the fertility decline momentum in the latest 1980 to 1984 period remain a topic of continuing appraisal by demographers and other scholars. Initial results from the 1986 CPS suggest the earlier rising trend in young women's marriages and fertility may have been arrested. De Guzman et al. (1988) report that the ASFRs of women aged 15 to 19 dropped by 9 percent between 1980 to 1984, while those of women 20 to 24 and 25 to 29 dropped by 6 percent and 2 percent, respectively. These reductions, however, are much less than the first significant declines of 8 to 17 percent recorded for these same age groups in 1970 to 1975. Decomposition procedures are still to be applied on the 1980 to 1984 fertility change, although more conclusive assessments of the country's recent birth fluctuations may come only after the young cohorts of the 1970s and 1980s will have passed through their own childbearing years.

Proximate Fertility Determinants

In analyzing the determinants of fertility, demographers focus on a number of proximate determinants known also as intervening or intermediate variables which directly and immediately bear on fertility outcomes. These proximate determinants consist of prevailing marriage patterns and post partum infecundability arising from poor nutrition

or breastfeeding which determine fertility in the absence of conscious efforts to control births. In addition, proximate determinants include "fertility-control variables" as contraceptive use and abortion which reflect deliberate attempts to control family size or to space births. They include as well such other factors as the value of children and the incidence of infant/child deaths that are known to influence couples motivations for having children and their fertility behavior.

In fertility models, proximate determinants stand between fertility and all other preceding fertility determinants as socio-economic factors or other macro-influences on fertility (Freedman 1987). In fact, it is through these proximate determinants that most socioeconomic factors, and other broader cultural forces affect fertility behavior. This section briefly reviews national trends in some of these intermediate fertility determinants.

Nuptiality Levels and Trends. Given the near-universality and permanence of marriage in the Philippines, nuptiality patterns have, historically, exerted an important influence on the birth rate. As indicated earlier, the steady declines in the country's birth rates since the 1950s and through the 1960s have been attributed mainly to a rising age at marriage trend, whereas the deceleration of the birth rate fall after 1975 owes in part to increases in young women's marriages or to a drop in women's mean age at marriage.

Using both the proportions single at various ages and Hajnal's singulate mean age at marriage (SMAM) index, Smith (1975a) documented the long-term rise in the age at marriage in the Philippines from 1903 to 1960 with data from the 1968 NDS and the first four national censuses. Between the census years 1903 to 1960, the proportion of single women in the 15 to 19 age group increased from 74 percent to 87 percent; while the proportion single among those aged 20 to 25 increased from 33 percent to 44 percent. As indexed by SMAM, the average age at marriage also rose from 20.9 years in 1903 to 22.3 years in 1960. In turn, the rise in the age at marriage up to 1960 has been attributed to the heavily male pattern of early inter-provincial migrations which produced distortions in the sex ratio and caused the female age at marriage to rise (Concepcion and Smith 1977). Increases in the age of marriage occurred mostly in

previously densely settled provinces as the Ilocos, Bohol and Cebu, which later became areas of heavy outmigration. Owing to the selective outmigration of males, celibacy rates among older women in these provinces were as high as 11 to 15 percent in 1960.

Similar measures of marriage timing as those used by Smith and drawn from subsequent censuses and surveys show a faster acceleration in the rising age at marriage trend in the next two decades of the 1960s and 1970s. From 22.3 years in 1960, the 1970 and 1975 censuses revealed sharply increasing SMAMs to 22.8 and 23.2 years respectively. By 1978, the proportion of single women had climbed to a high 93 percent among those 15 to 19 years old, and to around three-fifths of women aged 20 to 24 (RPFS Report 1979). Studies attribute this sharply rising age at marriage trend to the impact of urbanization and modernizing influences which expanded women's opportunities for education and employment (Concepcion and Smith 1977). From 11 percent in 1903, female literacy levels increased to 71 percent in 1960, and by 1970, the female literacy rate of 82 percent was only 3 percentage points lower than male literacy. Associated urbanization processes also expanded women's employment opportunities outside of the home and agriculture, and encouraged their migration to Metropolitan Manila and other urban centers to take on modern-sector and services occupations (Herrin 1981). Reflecting these developments, the 1978 RPFS reveals that college educated women married 4 years later than unschooled women, while urban women married a year later than their rural counterparts. On the other hand, women in white collar jobs married 4 years later, and those in services jobs close to 2 years later than women who worked in agriculture (RPFS Report 1979).

As indicated earlier, the subsequent 1980 census and 1983 NDS suggest a reversal in the country's rising age at marriage trend for reasons that are still not clearly understood. The 1980 census showed a decline in the mean age at marriage from the 23.2 years yielded by the 1975 census to 22.4, or slightly below the 22.8 years of the 1970 census. Likewise, the 1983 NDS yielded a mean marrying age of 23.4, down from the 1978 RPFS figure of 24.4, and the 1973 NDS level of 23.7. Using data

from the 1970, 1975, and 1980 censuses, Cabigon (1986a) and de Guzman (1987) further report the proportion never-married women aged 15 to 19 declined from 89 percent in 1970 to 86 percent in 1980; whereas corresponding figures for women 20-24 decreased from 50 percent in 1970 to 45 percent in 1980. Comparing results from the 1973 and 1983 NDS, de Guzman also notes a 4 percent decline in the proportions of single women aged 20 to 24. Although the reversal in marriage timing has been related to Cabigon's (1988) earlier cited findings showing increases in the incidence of teenage elopement and premarital conceptions in recent years, still unavailable estimates from the 1986 CPS and future data are probably needed to confirm ongoing changes in Philippine nuptiality patterns. The recent drop in the age at marriage has likewise been associated with the deceleration of the national fertility decline although the current mean age of marriage of 22 to 23 years is generally considered high for Third World countries. For this reason, Herrin (1981) observes that delayed marriages as a means of controlling births may have reached its limits in the Philippines.

Trends in Contraceptive Use. As with the age at marriage patterns, trends in contraceptive use in the Philippines are broadly consistent with the changes in the national birth rate. Based on earlier trends, analysts agree a more rapid acceptance of contraceptive use than has occurred to date is needed to significantly reduce the national birth and population growth rates.

Analyses of contraceptive prevalence trends in the Philippines (Cabigon 1986b, Zablan 1984, and Perez and Cabigon 1985) are based on the NDS rounds and use the simple measure of currently married women of reproductive age who were using some form of contraception at the time of the surveys. From a 16 percent current-use level in 1968, the NDS time series data reveal a slight increase in contraceptive prevalence rates (or CPRs) to 18.3 percent in 1973, a much sharper rise to 37 percent in 1978, followed by a notable drop to 33.5 percent in 1983. Zablan's analysis of data from a 1972 FP-KAP survey of the Bureau of Census and Statistics, the 1976 National Acceptor Survey, and the 1980 and 1981 Community Outreach Surveys indicate similarly rising and declining CPR trends for roughly the same periods. But as with the birth

rate decline which appeared to accelerate again in the early 1980s, the latest 1986 CPS similarly reveals a resumption of contraceptive use, with the survey registering an increased CPR of 45 percent over the 1983 figure of 33.5 percent (de Guzman et al. 1988). Despite this resumption, however, the pace of contraceptive use diffusion was much slower in the latter 1978 to 1986 interval (an increase of 8 percentage points) than in the previous 10-year period (1968 to 1978) when the CPR rose by 21 percentage points.

Since the first significant gains in contraceptive use correspond with the timing of the implementation of the national family planning program in 1970, the program has been credited for the diffusion of contraceptive practice and for aiding the onset of a national fertility decline. In its initial phase, the family planning program reached an available pool of relatively more urban and educated women who were likely desirous of controlling births, but who had no access to contraceptive services before the program. The program also concentrated on the promotion of efficient contraceptives (primarily the pill and the IUD), which contributed further to the substantial fall in the birth rate from 1970 to 1975. Zablan (1984) reports that in 1973, the pill was the single most popular birth control method in use, claiming over 30 percent of all family planning users in the country.

Contraceptive use continued to rise through the mid-1970s, although there are indications women began to shift away from the efficient contraceptives promoted by the program to the less efficient or non-program ones. Results from the 1978 RPFS show that rhythm and withdrawal had overtaken the use of efficient contraceptives. Both rhythm and withdrawal emerged as the more widely used methods and accounted for over half of all users in 1978 (RPFS Report 1979). FP-KAP studies of the period (Martinez-Esquillo 1976 and Miralao 1973) indicate the shift to less efficient methods was due mainly to the many contraceptive complaints of women. The trend towards less efficient birth control and the increasing number of family planning drop outs towards the late 1970s and early 1980s further suggest a failure on the part of the program to respond effectively to contraceptive complaints via a more balanced information on

contraceptive risks, or through follow-up care to assure women of the safety of contraceptives.

Owing to the continuing decline in contraceptive use, the 1983 NDS registered a 5 percentage-point drop in CPR from its 1978 level of 37 percent, in addition to still another shift in method preferences. Although less efficient birth control methods remained the most widely used, those preferring efficient contraceptives seemed to be increasingly opting for permanent sterilization. Hence, both ligation and vasectomy accounted for 26 percent of all users in 1983. The upward trend for ligation and vasectomy is confirmed by the 1986 CPS which also showed a resumption of contraceptive use levels from 33.5 percent in 1983 to 45 percent in 1986. A breakdown of the 45 percent prevalence rate in 1986 reveals a still higher 25 percent combined prevalence rate for less efficient contraceptive (rhythm, condoms, withdrawal and abstinence) as against a slightly lower 20 percent for efficient contraceptives (ligation, vasectomy, pill, IUD and injections).

While the recent shift to permanent birth control forms represents a positive trend in contraceptive use, contraceptive diffusion in the Philippines has proceeded at a slower pace when compared to the experience of other Southeast Asian countries (Hirschman and Guest 1988). In part, this has been attributed to some inadequacies and inefficiencies in the implementation of the national family planning program. Examining data from the 1980 Community Outreach Survey, for example, Perez and Cabigon (1985) report program personnel were uncommon sources of family planning methods, and that communication and contact between them and eligible women were unsatisfyingly low. Herrin (1987) further notes that cuts in the funding allocations of the national population program towards the later part of the Marcos years and the earlier frequent changes in program leadership contributed to inefficiencies in the delivery of program services. Since many had expected the new government of President Aquino to improve and revitalize the program in order to curb the country's population growth, there is now concern over the even more complete withdrawal of government support for population matters and the national family planning program.

Value of Children. Other than the inefficiencies

of the family planning program which may have adversely affected access to contraceptive services, other socioeconomic and cultural factors are seen likewise as having inhibited the wider acceptance of contraceptive use. Of these, the more salient factor cited in the Philippines as in other Third World countries, is the continuing high value placed on children. Underlying the demand for contraceptive use and declining fertility in theoretical formulations is the diminishing value or "utilities" of children which lead parents to desire smaller families and to an increased demand for contraceptive use.

Data from the NDS series show family size preferences in the country has been declining over time. From 5.6 children in 1968, the mean number of children desired by Filipino families dropped to 4.4 in 1978 and to a lower 4.1 in 1986. The proportion of women wanting fewer than 5 children also rose substantially from 39 percent in 1968 to 66 percent in 1978. As measured by the TFR, actual family sizes in the country are still higher (4.6 children in 1984) than the current family size preference of around 4 children, although the latter remains two times higher than is required by replacement level fertility. While the discrepancy between actual and desired family sizes has been seen as indicating a continuing unmet need for family planning (de Guzman 1987 and Herrin 1988), it has also been argued that lowering the birth rate would require further reductions in the number of children desired by Filipino families in addition to the provision of family planning services.

The preference for still relatively large families in the Philippines is traced to certain features of the national culture and the economy which tend to reinforce the value of children. Anthropologists, for instance, call attention to the close-knit and extensive kinship system in the Philippines in which children play many useful roles. Children cement family relationships and widen one's kinship networks, whereas the extended kinship system itself lowers the "costs" of children by allowing the wide dispersal of child care responsibilities (Yu and Liu 1980, Matthews 1986). Even more importantly, poverty conditions among the country's large number of rural and urban poor households make children particularly valuable as

a source of income and labor, and as a source of security to parents in their old age and in times of crisis. The economic utility of children finds further support from Madigan (1977) and Madigan and Almonte's (1977) analyses of provincial surveys which reveal substantial numbers of parents expect their children to support them in the future. Analyzing data from the 1983 NDS, Domingo et al. (1985) similarly report over a third of women with children 18 years and over regularly receive financial assistance from their children, while close to half of those with younger children expect future assistance from their children. In his cross-national "value of children" studies, Bulatao (1975 and 1979) concludes that compared to other Asian countries, children are more valued in the Philippines both for financial and practical assistance and for the psychological and social rewards to parents. On the whole, the above findings lend some support to Caldwell's (1976) hypothesis linking the conditions of a fertility decline to a shift in "intergenerational wealth flows" between parents and children. He argues fertility transitions come about when children no longer serve as a major source of parental support for children and when in fact, parental support for children finally exceeds those that parents can expect of children.

Finally, since the value of children particularly in economic terms thrive on conditions of poverty, Herrin (1987) notes that the national economic crisis in the late 1970s and early 1980s eroded the supports for small family size norms and curtailed the growth of a spontaneous demand for contraception. In particular, he cites the slower transformation of the Philippine economy since 1970, the declining opportunities for employment and occupational mobility (especially for women), and the country's increasing poverty rates as eroding the incentives for smaller families and eventual contraceptive practice.

Abortion. Because abortion is illegal in the Philippines, little is known about its incidence and its role in ongoing fertility change. Available literature suggests its incidence is considerable and that the practice may be an important method for reducing unwanted pregnancies.

In her study of a rural Laguna community in the late 1960s, Valenzuela (1975) reports 13 percent of women 15 to 45 admitted having at least one

abortion in the last five years. Valenzuela estimates that as many as 30 percent had an abortion at least once in their reproductive history. In a later study of five rural barangays in Cavite in 1976, Flavier and Chen (1980) found 17 percent of married women admitting to at least one abortion, while a smaller percentage had two or more abortions. A higher incidence of abortion is suggested by more recent anthropological studies covering smaller but more intensely studied samples in urban areas. Of the 134 mothers followed up by Makil and Simpson-Hebert (1986) over an 18-month period in Metro Manila slums, 37 percent had attempted an abortion. Similarly, Savina-White (1987) reports an incidence of attempted abortion of over 30 percent among her sample of 100 mothers in Dumaguete City. Still other estimates based on city hospital records reveal 17 percent of admissions to obstetric wards consist of abortion cases (Valenzuela and Jara 1978).

Based on other studies of Filipino women who have undergone abortions, Gallen (1979 and 1982) reports most of them are married and undergo abortions after their third or fourth child. Not a few were practicing natural family planning (rhythm and withdrawal) before their abortions, but most tended to adopt effective forms of contraception after abortion.

Though available survey data on abortions are not easily comparable and do not yield clear estimates of their incidence, it is important to note that the surveys were undertaken among married women, and that Gallen's study similarly shows most women who undergo abortions are married. Hence, abortion incidents reflect a desire on the part of mothers for fewer births and lend support to the contention of an existing unmet need for family planning services among Filipino families. The continued non-provision of family planning services, therefore, can be expected to increase the number of illegal abortions not only among young or unmarried women but among married women wishing to control their births.

Breastfeeding. As in the case of abortion, little is known about the contribution of breastfeeding to national fertility change. Studies suggest that breastfeeding may play an important role in regulating fertility by lengthening birth intervals, particularly among women in the lower classes who

also are less likely to adopt contraception.

Traditionally, breastfeeding was an almost universal practice in the Philippines. Simpson-Hebert (1983) notes that initial decline in breastfeeding in the country began only in the 1960s, and even then the change was small and did not affect low-income and rural mothers. Longitudinal data from the NDS series reveal a slight downward trend in breastfeeding. From 87 percent in 1973, the incidence of breastfeeding declined to 85 percent in 1978, and then to 83 percent in 1983 (Zablan 1986). For the 10 years from 1973 to 1983, there was a very slight decline in the rural areas (from 89 percent in 1973 to 88 percent), and a small increase in the urban areas (from 72 percent to 74 percent).

More substantial declines, however, are noted in the durations of breastfeeding and postpartum amenorrhea, the latter being the process through which breastfeeding is known to delay births. Zablan reports the average duration of breastfeeding dropped from over a year in 1973 to around 10 months in 1983, whereas the duration of postpartum amenorrhea decline more perceptively from 8 months in 1978 to 6.2 months in 1983. While the shortened period of post-partum amenorrhea may be related to the shortened duration of breastfeeding, Zablan (1985a) and Simpson-Hebert (1983) suggest the introduction of supplementary foods to infants at ever younger months, and other shifts to mixed- and scheduled feedings may have reduced the frequency and intensity of infant suckling, thereby shortening also the period of lactational amenorrhea.

Earlier studies examined the contraceptive effect of breastfeeding by comparing the durations of postpartum amenorrhea and birth intervals between breastfeeding mothers and those who bottlefed their infants. Osteria (1973), for example, reported a much longer duration of postpartum amenorrhea lasting 9.8 months among breastfeeding mothers in Laguna than those who did not breastfeed their infants (1.9 months). In another rural study of 2,102 mothers, del Mundo and Adiaz (1970) found that 51 percent of mothers who breastfed 7 to 12 months had a birth interval of more than 24 months, compared with only 30 percent of mothers who bottlefed their infants.

In a more recent work, Zablan (1985b) assessed

the impact of breastfeeding on the Philippine total fertility rate by applying Bongaart's model with survey data on the incidence of "proximate determinants". Assuming that women who stay married from age 15 to 50 have the potential of bearing 17 births, Zablan estimates that breastfeeding reduces this potential by 4.4 births, while contraceptive use and non-marriage reduce this by 3.9 and 3.8 births, respectively. The fertility-inhibiting effect of breastfeeding is highest—5.4 births averted — among women with no schooling. In Metro Manila, the lower practice of breastfeeding accounted for only 1.5 births averted. This was compensated by the greater role of contraception and delayed marriage, which accounted for a reduction of potential fertility by 5.2 and 4.5 births, respectively. Nonetheless, based on their study of low-income mothers in Metro Manila slums, Makil and Simpson-Hebert (1986) report mothers who ever-bottlefed in the first 12 months had a 2.5 greater chance of pregnancy than those who either fully breastfed or mixedfed their infants. Given the low use of modern contraceptives among urban poor women, the authors conclude that breastfeeding may offer them good contraceptive protection in the short term, although in the longer term, urban poor women need family planning services to limit their births.

Infant and Child Mortality. Prevailing patterns of infant and child deaths are hypothesized to influence the birth rate in a number of ways. First, high infant mortality rates tend to promote larger family size norms and encourage parents to have many children in order to guard against possible losses among their children. Second, high levels of infant mortality may also increase fertility by shortening the intervals between births or pregnancies. Both hypothesized impacts find some support in the few available studies on the topic.

Although substantial differences arising from differences in data sources and estimation techniques characterize existing national infant mortality estimates, these generally point to a declining trend since the 1970s. Using census data and registration records, Abenoja and Flieger (1979) estimate the national infant mortality rate (IMR) stood at around 90 deaths per thousand live births in 1970, and declined to 75 in 1975. Direct estimates from the 1978 RPFS indicate a lower

IMR of 57 for the period 1973 to 1977 (Gonzaga-Esclamad et. al. 1984). More recent official reports place the 1980 IMR at 63, with a cumulative estimate that one out of 10 children die before the age of five (GRP-UNICEF 1987).

Most demographic surveys report a positive association between infant mortality and fertility (Harman 1970 and Gonzaga-Esclamad et al. 1984), but because the relationship operates both ways (e.g., high infant death rates can cause high fertility in the same manner that high birth rates can cause high infant death rates), it is difficult to establish causal order in these surveys. Hence, specific studies of the impact of infant deaths on fertility are limited to those done on the 1978 RPFs which contained the detailed pregnancy and fertility histories needed for establishing the sequence of births and infant deaths.

The thesis that the high incidence of infant and child deaths causes parents to replace children who die, or to have more children in anticipation of losses, finds some support in Morada and Alegre's (1984) analysis of the above data set. Compared to those whose children all survived, mothers with infant or child deaths expressed higher family size desires. This was particularly true among mothers of lower parities: those with one living child who had experienced a child death wanted 3.4 children as against the 2.8 desired by those with no mortality experience. Among those with 2 or 3 children, differences in number of children desired was about 0.5 between those with, and with no previous child death. Analysis of covariance results showed a significant 0.2 addition in desired family size for each additional child death.

Evidence that infant and child deaths increase fertility by shortening birth intervals is also available from other analyses of the 1978 RPFs. The death of the first birth hastens the second birth by 3 months, while the occurrence of a child death between the second and the third, and third and the fourth births shortens, on average, the birth intervals by 2.9 and 4.1 months, respectively (de Guzman 1984). After controlling for other determinants of the timing of births, Cabigon (1984) found infant and child deaths to significantly shorten intervals up to the fourth birth. Although the shortened birth intervals following an infant death may have resulted from the termination of breastfeeding, both

Cabigon and de Guzman suggest these owe likewise to the eagerness of parents to replace a loss, particularly among those with low parities.

There are also other indications that mothers whose children all survived are more likely to use contraception than those who had children who died. De Guzman found that women who had no child death began using contraception sooner (43 percent before their third child) than those with child mortality experience (23 percent). They also were more likely to be current users of contraception (52 percent vs. 42 percent), and exhibited much higher use of efficient contraceptive forms (54 percent vs. 38 percent).

Based on the foregoing findings, some have argued that the control of infant mortality, in addition to improving the health and welfare of children, can be an important measure for reducing births particularly in areas of high infant mortality. Like the age at marriage however, controlling infant deaths as a means of regulating fertility may have its limits in areas with already declining or low infant mortality rates.

Socioeconomic Determinants of Fertility

The analysis of the socioeconomic determinants of fertility is also a central concern of most studies on fertility change. In fertility models, these socioeconomic determinants consist of household level variables (e.g., as the income position or place of residence of households) or the characteristics of individual women (e.g., the education or work status of mothers) which impinge on any one of the earlier cited proximate fertility determinants. Most socioeconomic factors do not affect fertility directly, but do so through their effects on the age at marriage, the demand for children, or through couple's and women's knowledge of, and access to the means of reducing births.

The impact of socioeconomic factors are noted by examining variations in the fertility behavior of women coming from different socioeconomic groups in the population. The assumption is that women or households higher in the socioeconomic scale are the ones better motivated to have fewer children and to seek the means to regulate their births. Fertility transitions occur when such motivations for smaller families and contraceptive use,

initially shown only by the better educated and more urban women and those coming from the upper classes, spread to increasing numbers in the population. Fertility declines therefore, are generally accompanied by the narrowing of socioeconomic fertility differentials over time.

As in the preceding section, this section reviews some of the national trends in fertility differentials. The directions of fertility differentials in the Philippines are generally in keeping with expectations, although clearer relationships are obtained for women's education and rural-urban residence and less so for husband's occupation, women's employment status and ethnicity and religion. Since socioeconomic factors capture different aspects of social class, they tend to be highly correlated with one another. Confounding influences, therefore, plus other inadequacies in the conceptualization and measurement of socioeconomic variables may underline the weak relationship of some of these with fertility. Based on the more established trends in educational and rural-urban fertility differentials in the Philippines, there are indications that these have not narrowed substantially over time which accounts in part for the less than rapid rate of the national fertility decline.

Women's Education. The hypothesized inverse relationship between mother's education and fertility is supported by most studies in the Philippines. Studies reveal this inverse association holds true across rural-urban areas and regions (del Fierro 1980, Stinner 1975, Pascual 1971), and over time (Cabigon 1985 and de Guzman 1987).

Probably reflecting changes in the quality of Philippine education (with most agreeing this has been on the decline), earlier data suggest fertility began to decline at a lower educational level, while more recent data reveal a somewhat raised "educational-fertility threshold". Based on the Philippine Survey of Households of 1956, Cabigon (1985) found a substantial drop in children-ever-born (CEB) after the completion of the primary grades (1-4) and then a monotonic decline at each higher level of education. But subsequent data from the 1968 NDS indicate the sharpest drop in fertility occurred at the transition from the intermediate grades (5-6) to high school (7-10). This latter trend is further supported by the 1978 RPFS which similarly shows entry into high school as making a

crucial difference: those going to high school had one child less than those with lower levels of education, while continued reductions in CEBs are noted for women who went on to college and particularly for those completing college (RPFS Report 1979). There are also indications that educational fertility differentials may have widened over time. The difference in the mean number of children ever born to college educated women and those with no schooling increased from around one child in the 1968 and 1973 NDS to close to 3 children in the 1978 RPFS and the 1986 CPS.

Since women's education impinges on most of the identified proximate fertility determinants, its effects on fertility are pervasive. In his multivariate analysis of data from the 1968 NDS, Harman (1971) reports women's education lowered fertility by raising the age at marriage, increasing women's chances of premarital employment, and lowering their family size desires. In addition, women's education lowers fertility by influencing their use of contraception. The 1978 RPFS shows current contraceptive use levels were three times higher among women reaching high school when compared to those with no schooling (RPFS Report 1979).

Reviewing the education-fertility literature, however, Costello (1979) suggests that the fertility-inhibiting effect of education may be coured largely through the age of marriage. He notes that in most studies, educational fertility differentials narrow substantially after controls for marital duration or women's age at marriage. In the 1978 RPFS for example, controls for the age at marriage reduced the difference in the mean number of children born to college-educated women and those with no schooling from 2.9 to 2.2 births. Based on this, Costello has argued that the depressing effect of education on fertility in the Philippines may have been over-rated and that, by itself, the high level of female education nationally (most ever-married women reach at least 5 to 6 years of school and another 39 percent reach high school) cannot be expected to induce a large commensurate decline in fertility levels. Nonetheless, compared to other socioeconomic factors, studies show women's education has the most consistent and strongest inhibiting-impact on fertility. Other countervailing cultural or economic forces however, as the still

high value placed on children or the inadequate reach of contraceptive services may have prevented the nationally rising trend in women's education to result in further declines in the birth rate.

Rural-Urban Residence. Next to women's education, relatively more consistent associations are noted between rural-urban residence and fertility. While the residence variable is meant as a measure of modern and traditional values which can influence fertility motivations, it is also known to be closely associated with other socioeconomic factors. Rural-urban fertility differentials, therefore, may arise not only from rural-urban differences in modern or traditional childbearing values, but also from differential access to education, employment and family planning services which impinge on the demand for children and couples' use of contraception.

Consistent with the national fertility decline, fertility in both rural and urban areas in the Philippines has been declining although as expected, rural fertility remains higher than urban fertility. Based on the 1956/58 Philippine Statistical Survey of Households, CEB measures for women in their late childbearing years (45-49) stood at a lower 6.1 children for women in Metro Manila, 6.7 for those in other urban areas and a higher 7.6 for rural women. Similar CEB data from the 1973 NDS reveal a decline in fertility levels to 5.7 for women in Metro Manila, 6.0 in other urban areas and 6.4 in rural areas. These data indicate a possible narrowing of rural-urban fertility differentials during the period: rural women had between 0.9 to 1.5 children more than their other urban and Metro Manila counterparts in 1956/58, and between 0.4 to 0.7 more births in 1973 (Cabigon 1985).

But more recent data on rural-urban total fertility rates taken from the 1983 NDS and the 1986 CPS do not indicate as much reduction in rural-urban fertility differences. TFR figures drawn from the 1983 NDS for 1980 show urban women bore 3.98 children, or 1.67 children less than rural women whose TFR stood at 5.65. In 1984, the 1986 CPS reveals only a slightly reduced rural-urban TFR difference of 1.6 children, the TFR of urban women being 3.7 while those of rural women stood at 5.3 children (de Guzman et al. 1988).

The slow narrowing of rural-urban fertility dif-

ferentials is generally in keeping with observations that the diffusion of small family size preferences and contraceptive use in the Philippines has not gone much beyond urban areas and among the better educated and upper class women.

Husband's Occupation. More than other socioeconomic factors which are correlated with the socioeconomic standing of households, "husband's occupation" in fertility studies is treated as the closer proxy of the social class of households. The general formulation is that the increasing incomes or the upward mobility of families—as indexed by the occupation of husbands—would lower the demand for children and result in more efficient contraceptive practice.

Studies based on national surveys offer some support to the above formulation and reveal relatively consistent differentials in the fertility of women whose husbands are in the extremes of the occupational structure. Cabigon's (1986a) analysis of survey data from 1956/58 to 1978 for example show the wives of farmers and blue-collar workers had higher fertility (6 to 7.6 children) than those married to white-collar workers (4.4 to 5.6 children). Reflecting roughly similar patterns, her analysis of data from the 1983 NDS show the mean CEB of farmers' wives stood at 5.7, those married to blue and white collar workers at 4.1, while those married to top-rung professionals, executives and managers had the lowest CEB of 3.2. The foregoing data indicate reductions in the CEBs of various occupational categories, but not a clear narrowing of occupational fertility differentials over time.

Data from other provincial/local surveys yield less consistent findings on the relationship between husband's occupation and fertility. Madigan (1976), for instance, found that in the urban areas of Northern Mindanao, the wives of clerical workers manifested higher fertility than those of workers in lower occupational groups. In another study conducted in Davao City, Hackenberg et al. (1980) similarly found husband's occupation, treated as a nominal variable, to exhibit only a weak relationship with fertility.

Others trace the sometimes inconsistent findings on occupational fertility differentials to certain inadequacies in relating available measures for husband's occupation and fertility. In most studies, husband's occupation is a measure of

husband's *current* employment which, therefore, may be poorly related to their and their wives' *past* fertility experience. The migration of families from rural to urban areas and accompanying shifts in the employment of husbands from agriculture to non-agricultural occupations can exacerbate these measurement problems and conceal the relationship between husband's occupation and fertility. That measurement difficulties underlie the weakness of the occupation-fertility relationship is partly supported by de Guzman's (1980) analysis of earlier NDS data in which he found his index of husband's occupational mobility a better predictor of fertility than is the simple measure of husband's current occupation.

Wife's Employment. Like husband's occupation, the wife's current employment also suffers from methodological problems of causal order in relation to fertility. Nonetheless, a number of crosstabular analyses show some association between women's labor force and/or class of worker status and fertility. Most of these however, reveal fertility differences only between women who are not working and those working for pay in non-family enterprises, whereas women in traditional farm or family-enterprise employment exhibit fertility levels comparable to those of nonworking women (Pullum 1975).

The above pattern has led others to conclude that the role-incompatibility and opportunity cost assumptions that lead working women to have fewer children hold true only for women working in modern sector occupations (Concepcion 1974). This interpretation is further supported by other studies showing the female employment-fertility relationship in the country to be stronger in urban than in rural areas (Feranil and de Guzman 1977, Ruiz 1977), and among higher than among lower socioeconomic groups (Encarnacion 1975).

More recent studies have indexed women's involvement in the labor force in terms of the timing or pattern of their work (never worked, worked before or after marriage, or in between births) to better handle the temporal or sequencing problems in women's work and childbearing experiences. These measures combined with a multivariate framework show that women's employment operates to depress births in several ways. Women's premarital employment delays the age at marriage

(Miralao 1981) as well as the age at first birth (Cabigon and Hufana 1984), while women's post-marital employment lengthens the intervals between births (Cabigon 1984).

Other research on the reciprocal effects between women's employment and fertility report less definitive findings. Rosenzweig (1976) found both women's accumulated work experience and current number of children (or parity) to influence their current market employment. Women's previous work experience does not affect fertility, however, although women's current employment tends to depress the birth expectations of women over 34 years old. On the other hand, Engracia and Herrin (1984) found CEB to be an insignificant predictor of women's current employment, although current fertility (births in the last 5 years) tended to negatively influence women's current employment. Both Rosenzweig, and Engracia and Herrin suggest that women's employment may operate to depress completed family size over the longer term, but that different causal mechanisms may govern the relationship at given periods in the life cycle and for given socioeconomic groups.

Religion and Ethnicity. The examination of fertility differentials by the religious and ethnic affiliation of individual women is meant to capture the effect of these "socio-cultural" factors on reproductive behavior. Religious affiliation in the Philippines, however, overlaps not only with ethnic origins (Islam followers are mostly Muslim Filipinos and Aglipayans are mostly Ilocanos) but also with regions of high or low development (Tagalogs are dominant in the more developed provinces surrounding Metro Manila). In turn, these confounding influences may account for the lack of consistency in religious and ethnic fertility differentials. The predominance of Roman Catholics in the Philippines (over 85 percent) also precludes other meaningful fertility comparisons with the other religious groups included in census and survey classifications (Protestant, Iglesia ni Kristo, Aglipayan and Others).

With data from the 1960 census and the 1968 NDS, Pascual (1971) found slight fertility differences between Filipino Catholics and non-Catholics. Catholics displayed higher fertility at older ages (45 and over) but religious fertility differentials decreased at younger ages. Moreover, after

controlling for regional levels of development, non-Catholics exhibited higher fertility in the more developed regions and lower fertility in those less developed. She reasoned that non-Catholics were more likely to be found among the lower socioeconomic classes in the developed regions. On the other hand, the predominance of Muslims in the less developed Mindanao regions and their practice of polygamy may have lowered average non-Catholic fertility in these places. It has also been suggested, however, that the greater under-registration of births in Mindanao may account for the observed lower Muslim fertility rate.

In a later study based on the 1978 RPFs, Cabigon (1985) notes no substantial differences across religious groups except among the followers of Iglesia ni Kristo who manifested the lowest fertility. She attributes the lower fertility of the Iglesia ni Kristo to the group's generally younger age composition and again to the fact that most Iglesia followers reside in the more developed Luzon provinces where fertility rates are also lower.

Still other studies employing measures of religiosity (frequency of attending religious services) rather than religious affiliation to examine religious fertility differentials yield findings that run contrary to expectations. Re-examining data from the 1978 RPFs, Cabigon (1988) reports a negative association between religiosity and the mean number of children born to couples in the last 5 years. Likewise, in their analysis of only the Catholic women in the 1978 RPFs, Pullum et al. (1984) report a higher incidence of contraceptive use among weekly churchgoers than among those attending church less frequently. The authors suggest the higher contraceptive use among the more religious Catholic women owe to their higher education. These women also live in urban areas where church services are held more regularly.

Finally, in their study of fertility differentials among five Philippine ethnolinguistic groups, Gastardo-Conaco and Ramos-Jimenez (1986) report the highest CEB for their Muslim-Maranao sample (4 to 5 children), followed by Bicolanos (4), Tagalogs and Ilocanos (3), and Chinese Filipinos (2.5). They attribute the high fertility of the Muslim Maranao to their pronatalist cultural milieu: compared to other groups, the Muslim Maranaos desire larger families, express the strong-

est preference for male children and the greatest expectations for economic support from children. However, other factors as differences in socioeconomic conditions and variations in regional marriage patterns may also account for these ethnic fertility differentials. The ethnolinguistic groupings in the above study roughly correspond to socioeconomic groups (Chinese-Filipinos being the highest and Muslim Maranaos the lowest in the socioeconomic scale), and exhibit differences in marriage patterns. In his analysis of regional nuptiality patterns for example, Smith (1971) found early marrying patterns among Muslim Filipinos and Bicolanos while Ilocanos manifest late marriage patterns.

In sum, the less than consistent findings on religious/ethnic fertility differences cited above indicate these factors are not major determinants of individual fertility behavior. In turn, this runs counter to the popular notion that it is religion and particularly Catholicism, which has prevented Filipino women from adopting contraception and having fewer children.

Broader Community Influences on Fertility

Most analysis of fertility behavior consist of the foregoing micro-level studies on fertility differentials which relate women's fertility decisions to their own characteristics or to those of their households. In these studies, individual women serve as the units of observation and analysis.

Theoretical formulations on fertility, however, also point to the importance of macro-level fertility determinants consisting of broader ecological or environmental factors which inhere in whole communities or groups in the population. These factors may consist of cultural and institutional milieus and the socioeconomic features of given communities. Environmental factors can influence fertility by shaping local economic opportunity structures, and by promoting or inhibiting the diffusion of lower fertility norms and the spread of contraceptive knowledge and practice. National policies and programs, particularly those bearing on population, also constitute macro-level determinants which can alter local fertility ideologies and popular awareness and acceptance of birth control.

The importance of environmental factors is suggested by studies showing distinct fertility patterns for certain geographical areas, between rural and urban places, and among certain ethnic or religious groups. The late marrying and low fertility patterns that have been noted among Ilocanos and the contrasting early marriage and high fertility patterns in the Bicol region offer some local examples of these trends. Hence, it has been suggested that the regional, rural-urban and ethnic and religious fertility differences yielded by micro-level studies may actually reflect other environmental influences on fertility (Pullum et al. 1984). Compared to micro-level studies however, fewer systematic studies have been done to trace the linkages between these environmental or community factors and fertility behavior.

In the Philippines, attempts to capture environmental influences on fertility are evident in some studies that relate community-level fertility measures with similarly aggregate measures of the socioeconomic conditions of communities. Of the earlier ones are Smith's areal analyses of nuptiality and fertility patterns in the Philippines which made use of provinces and the smaller municipal subdivisions of provinces as units of analysis. His provincial-level analysis of data from the 1939 and 1960 censuses (Smith 1971 and 1975a) relates several aggregate indices of marriage and fertility (consisting of Coale's fertility indices: percents single and CEB per married woman 15 to 49) with measures of the socioeconomic (housing conditions, education and literacy), demographic (population density and sex ratios), and cultural (religious-ethnic compositions) conditions of provinces. In both 1939 and 1960, he found his macro-level socioeconomic, demographic and cultural indicators better associated with marriage patterns than with fertility patterns. The effects of these macro-determinants, moreover, were not necessarily consistent on marriage and fertility. On the whole, the influence of his cultural or religious-ethnic factor (percent Roman Catholic and percent Muslim of provincial populations) tended to diminish over time, while macro socioeconomic factors assumed increasing importance in 1960. In his municipal-level analysis of the 1939 census, on the other hand, Smith (1975b) reports that literacy levels and housing conditions directly and indi-

rectly influenced municipal child-woman ratios, while ethnicity (dominant mother tongue) affected marriage patterns but not fertility directly.

Adopting a longitudinal and prospective research design to assess the impact of two emerging local industries on the economy and population of Bukidnon communities, Madigan and Sealza (1985, 1986) also worked with aggregate data. They traced the impact of newly established local industries on community employment and income levels and related these to subsequent local birth rates (CBR) and contraceptive usage (CPR). They found the development spurred by one of the local industries had little impact on contraceptive prevalence or the birth rate. They hypothesized that income improvements in the area remain below the necessary threshold level to lower fertility. Local economic development generated by the other industry also had little effect on the birth rate, although the active family planning campaign in the area may have increased the contraceptive prevalence rate. A similar study that examined the effects of local development projects (rural electrification, health, and irrigation) on local fertility patterns was done by Herrin (1986), but measurement problems and the confounding effects of other development efforts precluded the determination of the fertility impact of selected projects.

Another study done by Herrin and Paqueo (1985) attempts a macro-level analysis of fertility by relating nationwide economic trends with changes in the national birth rate. Their macro-economic determinants included time series national estimates (from 1960 to 1982) for real wage rates, GNP/capita, real prices of food and infant mortality, which they regressed on their measure of general marital fertility (number of live births per thousand currently married women). They found GNP/capita and real prices of food negatively correlated with fertility, and real wage rates and infant mortality positively correlated with it. Citing the reversals in the Philippine economy in the early 1980s, Herrin and Paqueo expect the combined effect of macro-economic trends to slow down the fertility decline observed in the 1970s. They concede, however, that the economic crisis may affect families in many different ways, and that the expectation of more difficult times ahead may lead some families to postpone or limit their births.

While the above studies on macro-level fertility determinants relate similarly aggregated measures of fertility and environmental factors, Engracia's (1985) study of community influences on women's contraceptive use probably comes closest to a "contextual" analysis of fertility behavior. Contextual forms of analysis (sometimes also known as multi-level analysis) employ aggregated data to tap community-wide environmental features and relate these to individual fertility while controlling for the personal characteristics of women and their households (Smith 1989 and Hirschman and Guest 1988). Following this framework, Engracia posits four explanatory factors for women's adoption of modern contraception, two of which are macro-level determinants (measures of the level of community development in villages or barangays and of the availability of family planning services in these places), while the remaining two are individual-level determinants (women's age and desire for additional children). She notes that her indices of community development which consist of the availability of communications-infrastructures and of education and social services in the barangays exhibit strong associations with other known micro-level determinants or correlates of fertility as women's own education, work status and husband's occupation. Her index of the availability of family planning services on the other hand, consists of the presence of family planning clinics and personnel (from doctors to family planning outreach workers) in the barangays. Of her four explanatory variables, the individual-level "desire for additional children" variable emerged negatively and most strongly related to women's adoption of modern contraception. But the impact of her macroindices of community development and family planning accessibility also remained significant and prominent. Of the two macroindices, she found the community development indices more strongly associated with adoption of modern contraception than those for family planning accessibility. More than the study of micro-level socioeconomic correlates of fertility (some findings of which are already sufficiently validated), it would seem that empirical investigations of environmental influences on fertility as that of Engracia's may offer further insights into the complex of processes that trigger changes in the birth rate.

Summary and Conclusions

Although declining gradually, Philippine fertility levels remained high from the beginning of the century to the 1950s. More perceptible declines occurred around the 1960s and stemmed largely from changing marriage patterns. The age at marriage rose as a result of the predominantly male patterns of early migration which led to unbalanced sex ratios in many areas of the country. Later, the forces of modernization, including education and employment, led to a rising trend in the age at marriage which exerted a slow downward pressure on the birth rate.

More substantial changes in fertility levels occurred between 1970 and 1975, when the birth rate declined more rapidly as a result of declining marital fertility. The increasing importance of marital fertility control over delayed marriage in the 1970 to 1975 fertility decline is attributed to the nationwide implementation of the government's national population program beginning in 1970. Significant gains in family planning awareness, approval and use were attained during the period, with users adopting the modern contraceptives promoted by the program. The success of the national population program in its initial years is also attributed in part to the fact that it reached the highly motivated women of the period who had no access to contraceptive services before the implementation of the program.

But owing to the contraceptive complaints of women, some shift to less efficient birth control methods was evident by 1978. Contraceptive complaints and other inefficiencies in program implementation may have also contributed to the increasing number of family planning drop-outs who were later captured in the 1983 NDS, which showed a decline in the incidence of contraceptive use. Moreover, cuts in the program's funding allocations prompted in part by the beginnings of an economic crisis in the late 1970s may have constrained the program's ability to sustain and expand its family planning services, at the same time that the economic crisis itself may have weakened the cultural supports and economic incentives for smaller families.

The foregoing developments provide the background of the deceleration of the national fertility

decline observed from 1975 to 1980. The analysis of the fertility change during this period reveals a slowed rate of marital fertility decline, and increases in the number of women of reproductive ages as well as in young women's marriages and birth rates. Hence, the lull in the Philippines' fertility decline has been related to unfavorable changes in the age structure, a drop in women's mean age at marriage, and decreases in contraceptive use. As mentioned above, the deceleration of the birth rate fall also corresponds to the period of weakened population program efforts and the start of a national economic crisis in the late 1970s.

After remaining relatively unchanged between 1975 and 1980, the 1986 CPS registered a renewed drop in the birth rate by 1984, in addition to a rising trend again in contraceptive use. Whether this represents a resumed quickening of the fertility decline would have to be confirmed by further analysis and other data in the future. But even considering the drop in the birth rate in 1984 however, the decline in the national birth rate in the latter 1975 to 1984 period remains lower than that attained in the previous 1965 to 1975 period.

Of the proximate fertility determinants or those factors that directly and immediately impinge on the birth rate, studies show that the more important ones that could significantly affect the birth rate are the value of children and the incidence of contraceptive use. To date, the family size preferences of Filipino couples remain two times higher than replacement level fertility, whereas contraception is practiced by fewer than half of married women, many of whom are using inefficient contraceptives. Hence, further reductions in desired family sizes and increases in contraceptive use are needed to bring down the birth rate.

In contrast, many agree that the other proximate determinants as delaying marriages and reducing infant mortality may no longer result to further declines in the birth rate, given the Filipino women's already high mean age at marriage and the nationally declining trend in infant mortality. Nonetheless, the reduction of infant mortality as well as the promotion of breastfeeding may help contain fertility in some of the country's depressed regions or areas not reached by contraceptive services and where economic conditions do not generate the necessary motivations for smaller families. In the

same manner, abortion offers a means of reducing unwanted pregnancies among some women who are highly motivated to control their births but who have no access to efficient contraceptives.

Micro-level studies on fertility, on the other hand, demonstrate the strong influence of socioeconomic factors on most proximate determinants and on women's reproductive behavior. These studies show that fertility differences are sharpest across socioeconomic groups. Better educated women and those living in urban and more developed regions consistently desire fewer children, adopt contraception in greater numbers, and have lower fertility than their less educated, rural counterparts. In addition to socioeconomic development however, other studies also show that intensive family planning activities can help lower the birth rate. Declines in family size preferences and increases in contraceptive adoption for example, have been noted in the special outreach areas earlier served by the national population program. But, on the whole, the slow narrowing of socioeconomic differentials lends support to the contention that the fertility decline achieved to date has been contained largely among highly educated, higher income and urban women living in Metropolitan Manila and the country's more developed provinces. Based on the findings on socioeconomic differentials, some have argued for the expansion of development programs in the countryside in order to contain fertility and population growth, although others also see government provision of family planning services as necessary for a more rapid diffusion of small family size norms and the wider acceptance of contraceptive use.

Even as micro-level studies on fertility differentials offer sufficient support for the strong influence of socioeconomic factors on fertility, macro-level analysis also suggest that socioeconomic factors may not always be the major determinants of fertility behavior. Areal/regional analysis that have been done on Philippine nuptiality and fertility patterns for example, reveal distinct marriage practices and fertility outcomes in certain areas and regions (e.g., the Ilocos and Bicol regions) which are not easily explained by their levels of economic development. Similarly, although studies reveal the education-fertility relationship in the Philippines to be in the hypothesized direction,

some have observed that the fertility decline attained to date does not commensurately match the relatively high levels of women's education in the country. Moreover, other country experiences show the occurrence of more rapid and sustained fertility transitions in countries of lower socioeconomic development than the Philippines (Hirschman and Guest 1988). These observations reflect the operation of broader "environmental" influences on fertility which is suggested by theory but little covered in empirical investigations.

Hence, the pursuit of contextual forms of analysis which relate macro-level community characteristics to fertility behavior may help fill some of the gaps in understanding the country's fertility trends and patterns. The environmental or contextual approach could be applied for example, in analyzing the impact of community-wide fertility norms on childbearing behavior, as against simply looking at the relationship between women's stated family size desires and fertility. Similarly, other than examining the fertility effects of women's own education and work experience, the approach can be used to explore the influence of culturally-shared notions on women's roles on their fertility. In comparison with other countries moreover, contextual analysis may be used to assess the influence of different religions and national family planning policies on childbearing values. The comparison of the Philippines' fertility transition experience with those of other countries, especially with neighboring Southeast Asia and Catholic Latin America, may highlight the differences in fertility environments under which Third World fertility transitions are proceeding.

Notes

This paper draws from the literature review on Philippine fertility trends and patterns undertaken by the author in connection with an ongoing study on Fertility Transitions in Southeast Asia. Funded by the International Development Research Centre, the study is being undertaken jointly with other researchers in Thailand, Malaysia and Indonesia, and with Charles Hirschman and Philip Guest of the University of Washington.

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