

Education has multiple, partially offsetting, effects on the biological supply of births or fecundity. In areas with the poorest health and nutrition combined with reliance on such contraceptive practices as lactation and post-partum abstinence, education would most likely have a strong positive effect on fecundity.

A counter-effect would probably be the effect of education on age at marriage. Exposure to pregnancy risk is reduced by raising age at marriage and also by reducing the probability of marriage in certain situations.

Increased fecundity can be offset by increased contraceptive use but the latter is expected to lag behind the former. Since the more educated tend to perceive changes in their environment more accurately, e.g., changes in infant and child mortality, education should reduce the adjustment lag. Therefore, the effect of education on fertility through the intervening variables tends to be negative except for possible effects through natural fertility (through biological and behavioral factors) and the ability to afford children.

The policy conclusions that can be drawn from existing work are:

(1) Education cannot be expected to automatically reduce fertility in all circumstances. In fact, small amounts of education may actually lead to higher fertility *initially* (cf. Encarnacion's "threshold" hypothesis). But there is tentative evidence that over time,

education ultimately will reduce fertility.

(2) Education is more likely to reduce fertility in urban than in rural areas.

The major policy dilemma is what policy should be pursued where education is unlikely to reduce fertility immediately and may in fact increase *it* in the short run. Since the tendency is for fertility to increase as a result of any program to improve the well-being of individuals and by the very process of modernization, the appropriate policy should be to minimize the time lag between the factors increasing fertility and the countervailing forces which tend to reduce it. Education seems to be one factor that might minimize such a lag. Once desired family size falls, it is quite evident from the literature that education enables people to better achieve smaller family sizes.

To design the best educational strategy, it is necessary to know what kind of education should be increased, not merely to say that education should be increased since the immediate consequence is an increased fertility under certain circumstances. Besides placing priority on female education, a policy that concentrates on mass literacy will result in initially higher individual fertility but will also raise aggregate literacy, which appears to shift the fertility increase to a fertility decrease in the long run. Perhaps, we are now beginning to reap the benefits of an educational system that was sown some decades ago!

REPLY TO DR. CONCEPCION

MICHAEL A. COSTELLO

I would first like to thank Dr. Concepcion for her comments. They go a long way towards clarifying the education-fertility relationship, a topic which is of some concern in my paper.

Readers who are further interested in this matter can also be referred to a recent paper by Graff (1979) which is, however, much more in agreement with my position than is

the rejoinder of Dr. Concepcion.¹

In the main, though, the points raised in the rejoinder are somewhat tangential to the basic thrust of the article, thus leaving me somewhat puzzled as to how I can reply to them. My paper was written from a sociological, rather than from a strictly demographic, perspective. Its main concern was with the way in which social demographers translate the empirical findings of their discipline into policy terms. Its main conclusion was that the social scientist's personal set of values and preconceptions may play an important role in this translation process. I had thought that the rather grandiose subtitle chosen for the article ("An Exercise in the Sociology of Demographic Knowledge") would make this perspective clear to the reader. Dr. Concepcion, though, has chosen not to deal with this issue, perhaps because it makes her somewhat uncomfortable to contemplate the spectre of non-"value free" demography.

In a more general sense, the paper was concerned with the question of whether social scientists were favoring certain types of policy proposals merely because of their "non-

threatening" nature. As David (1978: 93) has argued,

Most policies and programs follow the logic of dominant interests. For this reason, we should guard against social science research being enlisted to supply the necessary credibility and scientific aura to predetermined courses of action.

Like David, I am hopeful that social scientists in the Philippines will consider these issues closely.

I sometimes have my classes in introductory sociology play a game called "Deciding Who Gets to Stay in the Bomb Shelter." The game requires students to decide as to which seven persons (the bomb shelter can only support that many) from a list of ten (policeman, electrician, social scientist, etc.), will be permitted to remain as one of the few surviving citizens of a world devastated by nuclear war. The funny (or sad) thing is that the students usually choose the social scientist as one of the three persons to be eliminated. Perhaps they have keener insight into our profession than we give them credit for.

Notes

¹ Graff's analysis, which was published some time after my paper had been submitted to this journal, concludes as follows:

In keeping with the broad forces of western social thought, largely inherited from the twin thrusts of the Reformation and the Enlightenment, we place education among the highest of the various agencies supportive of change and progress. . . . Faith in education since that time has maintained its impressive hold over assumptions and theoretical forays, apparently deriving sufficient empirical support for its preservation. As we have seen in this article, neither negative results nor conceptual deficiencies have led to any significant level of critical attention. . . .

. . . . (The contributions of education and lit-

eracy) should be viewed as less abstract and as more concretely dependent on contextual and structural correlates of the society under examination. . . . (Graff, 1979: 133-134).

Mention might also be made of the fact that the most recent empirical data on the education-fertility relationship in the Philippines still fails to provide much support for the thesis that gains in educational attainment will serve to reduce fertility. In his analysis of data from a major demographic survey, Madigan (1979) did find evidence of an inverse pattern in a number of different regions of the country. Two other recent studies (Ulack, 1979; Reoma, 1979), however, fail to obtain the inverse relationship. The Ulack study, in particular, used stepwise regression techniques and found educational attainment to be the *least* significant independent variable among six factors entered into the regression equation.

References

- David, Randolph S.
1978 The use and misuse of social science research. *Philippine Sociological Review* 26(2): 93-94.
- Graff, Harvey J.
1979 Literacy, education, and fertility, past and present: A critical review. *Population and Development Review* 5(1): 105-140.
- Madigan, Francis C., S.J.
1979 Differential birth rates. *In Declining fertility: A 1979 survey study of fertility levels and of prevalence in 20,000 Philippine households.* Francis C. Madigan, ed. Cagayan de Oro, Research Institute for Mindanao Culture, Xavier University. Pp. 78-88.
- Reoma, Joseto M.
1979 Fertility in the Western Visayas (Region VI) in 1979: 1978 AFS. Area Fertility Survey Special Report (3), Series 1979. Cebu City, Office of Population Studies, University of San Carlos.
- Ulack, Richard
1979 The fertility of a low-income urban population in Southeast Asia. *Asian Profile* 7(1): 63-74.

NOW AVAILABLE*PSSC Social Survey Series 1***SOCIAL SURVEY RESEARCH DESIGN**

The first in a four-volume series on social survey research, the manual is primarily intended for students with no previous formal training in social survey research methods.

Cost: ₱38 (paperback); ₱55 (hardbound)

*PSSC Social Survey Series 3***DATA ANALYSIS AND INTERPRETATION**

The third in the PSSC Social Survey Series, this manual addresses itself to the analysis and interpretation of collected data.

Cost: ₱45 (paperback); ₱60 (hardbound)

Place your orders now at the PSSC Central Subscription Service, #7 Purok Heneral Aguin-
aldo, University of the Philippines, Diliman, Quezon City.