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## A REJOINER TO DR. COSTELLO

MERCEDES B. CONCEPCION\*

The Costello paper offers some thought-provoking statements. I disagree with him when he declares on page 10 that the relationship between education and marital fertility is "tenuous" and that to argue for increases in education is not the policy option to follow.

In presenting his thesis on Philippine findings on education and fertility, Dr. Costello has lost sight of the fact that although the relation between education and fertility is not always inverse, the former (education) does not affect fertility directly but acts through many variables that in turn determine fertility. Fertility is determined by these factors:

the biological supply of children;  
the demand for children; and  
the regulation of fertility.

Thus, the effect of education on fertility depends on how education tends to reduce the demand for children as measured by desired family size, by reducing preferences for and perceived benefits of children. Education also tends to increase the perceived ability to afford children. This tendency counters the negative effects to some extent but does not outweigh them, since desired family size is generally negatively related to fertility. Education also reduces the number of births needed to achieve a particular desired family size by lowering infant and child mortality. The evidence is also very strong that education increases contraceptive use by improving attitudes toward, and knowledge of, contraception.

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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

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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