PUZZLES AND FURTHER EXPLORATIONS IN THE
INTERRELATIONSHIPS OF SUCCESSIVE BIRTHS WITH
HUSBAND’S INCOME, SPOUSES’ EDUCATION AND RACE

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Abstract—When fertility is examined in the detail of individual parity progressions and birth-order transitions, important interactions between the effects of income and education are seen. Among the findings are: the negative effect of education on fertility is stronger at all parities for less educated compared to more highly educated women. Additional income has a more positive effect for more highly educated than for less educated women. For women with 0–8 years of education the effect of more income is positive when the family has no children but negative thereafter, but for college-educated women the effect of more income is positive. And additional income has a less positive (more negative) effect on fertility among nonwhites than among whites.

A companion article reports that higher income has a quite different effect upon the average family’s propensity to have more children when the family has few children than when it has many children. That is, if a family has one child, additional income is associated with a higher propensity to have another child. But if the family already has several (say four or five) children, additional income reduces the likelihood that the family will have an additional child (see Simon, 1975).

This provocative result, which is consistent with Bernhardt’s (1972) recent findings for Sweden (see also Namboodiri, 1974; Snyder, n.d.; Seiver, n.d.), may also be interpreted as a relationship between income and the variance in the family-size distribution, due to the effect of income on family-planning practice and/or through other more complex mechanisms. It casts light on the “convergence” in more developed countries to the 2–4 child family and also calls into question the findings of fertility studies that work with mean family size as the dependent variable.

This finding, obtained from a cross-sectional multivariate study of the 1960 U.S. Census, is consistent and strong, making it particularly welcome in an area in which many of the results about economic variables—especially about the effect of income—are mixed and controversial (for a summary of this literature, see Simon, 1974).

The present paper delves deeper into these data to learn about the interactions of income with education, and of income and education with race and women’s labor-force participation at various parities.

Some of the main findings are as follows: the negative effect of education on fertility is found to be stronger at all parities for less educated compared to more highly educated women. Additional
income has a more positive effect on fertility for more highly educated women than for less educated women. For women with 0–8 years of education, the effect of more income is positive when the family has no children but negative thereafter, but for college-educated women (with four or less children) the effect of more income is positive. And additional income has a less positive (more negative) effect on fertility among nonwhites than among whites. But both whites and nonwhites show the same pattern of a less positive (more negative) effect of income on fertility with successive births.

The paper also offers some new ways of delving into the effects of income and other variables upon transitions from one birth order to the next.

The Method

The general method is fine subclassification by various demographic characteristics of the 1/1000 1960 U.S. Census Public Use Sample. Discriminant analysis is then applied to the parity progressions or birth-order transitions within each subgroup cell. (Where the dependent variable is limited to two groups, discriminant analysis is equivalent to regression analysis, and the two terms will therefore be used interchangeably.)

The main method is described in detail in Simon (1975), but a few specifics are needed here. The units of observation are women aged 35–54, with husband present. In the central analyses the observations are then subclassified by race (white-nonwhite), degree of urbanization of residence place (urban with more than 50,000, urban with less than 50,000, rural nonfarm, rural farm), husband’s occupation (eight standard categories), wife’s education (8 or less, 9–12, 13 or more years), husband’s education (8 or less, 9–12, 13 or more years) and wife’s age (35–44, 45–54). None of these variables is itself a function of husband’s income. (If a fertility-related variable of classification or regression were to depend heavily upon husband’s income, it would distort the relationship between husband’s income and fertility, the relationship of primary interest here.) Nor do any of these variables depend heavily upon wife’s education—a variable of secondary interest in this paper—except for a few exploratory runs with women’s labor-force participation.

The dependent variable in each regression is a dichotomous yes-no variable. In the central mode of analysis the two categories in each birth-order variation are whether the wife has $n$ children or more than $n$ children. This is the traditional demographic parity-progression analysis. In this mode of analysis, in the first of the six birth-order variations the two categories contain wives with zero children and those with one or more children, respectively; this variation is designated as the $n = 0$ run. In the second ($n = 1$) variation the categories are one child and two or more children. There are six variations, the $n = 5$ variation having wives with five children in one category and those with six or more children in the other. The discriminant function finds those values of the independent variables that most effectively separate the observations into the two dependent-variable categories.

This “parity-progression” mode of analysis refers to the act of proceeding from $n$ children to more than $n$ children. The regression coefficient of income in that model refers to the effect of income on the probability of being in the class of $n$-child or $\geq (n + 1)$-child families.

In the secondary mode of analysis, called “birth-order transition” analysis here, the categories are $n$ and exactly $(n + 1)$ children, e.g. in the $n = 0$ birth-order variation the categories are zero children and one child and in the $n = 5$ variation the categories are five children and six children. To repeat, this secon-