

1.

The Strenio-Bryk-Weisberg paper presents an individual growth model for evaluating programs, designed particularly for the Head Start program for children 4 to 6 years of age. The paper develops and assesses the traditional analysis of covariance approach, which compares change in treatment and nontreatment groups, and a value-added approach wherein the individual's growth is projected by regression, obtained from the initial cross-sectional data, and this projection of growth then is compared with the obtained growth at time  $t_2$ . The paper deals with four problems

in the development of models for this problem: errors of measurement, the assignment of subjects to groups, the problem of individual growth, and the treatment effects. My comment concerns only one aspect of the problem of individual growth which the authors recognize in their paper.

The authors suggest that the assumption that "the cross-sectional data mirrors the longitudinal data may be wrong." This is critical to the use of the value-added procedure.

There are two aspects of this assumption that may not hold.

The Head Start program attempts to compensate for the variation in the early learning experiences of the child. Even among low-income families considerable variation exists in the attention and stimulation children receive, resulting in different developmental rates. The problem is whether a growth curve based upon such heterogeneity is an adequate basis for predicting the expected development of the individual child. It would seem desirable to seek some basis for controlling on prior learning environments and experiences.

A second problem is whether growth is linear with age. Studies by Gesell, Breckenridge and Vincent and others have shown that, while growth is continuous, it is not observably smooth and uniform over time in its many facets. "...what happens at one stage carries over into and influences the next and ensuing stages." All aspects of growth do not "develop at the same rate at the same time. . ."<sup>1</sup> Gesell singled out two-and-one-half years and three-and-one-half years for special consideration because they were particularly significant in the growth of the third and fourth years.<sup>2</sup>

The authors' future plans to develop individual growth curves by obtaining longitudinal observations on each child would appear to be a satisfactory approach to these problems.

With biological, social and cultural influences affecting the rate of growth of an individual, it is not surprising that a complicated design is required to tease out the effects of a Head Start program. The authors have approached this difficult problem on a sound basis.

2.

Professor Katz's analysis of the "sheepskin effect" also uses a regression technique. He tests the hypothesis that high school or college graduation (with the sheepskin) produces significantly higher income (and prestige) in later career than does the all-but-diploma earner. The technique predicts earnings (or prestige) by regression of earnings (or prestige) for the three years prior to the normal graduation year. If the predicted is less than the earnings actually obtained by those who attained the extra year of schooling, the difference is attributed to the "sheepskin effect." His analysis is by sex for three career groups, using educational attainment at both the 12th and 16th educational years to represent graduation.

It is a study of the marginal, incremental value of an additional year of schooling. The assumption that the sheepskin made the difference is questionable, because the data actually do not answer to the question, "Did you graduate?" Having attained 12 years or 16 years of schooling is not precisely synonymous with graduation. Indeed, in the past, some school systems have granted diplomas after 11 years of schooling. During World War II, a graduation date likely to affect high school graduation among Katz's group 15-29 years since leaving school, accelerated programs enabled early high school graduation, that is, with less than 12 years of schooling. During that period there were cases of college graduation at ages 18 or 19. Finally, the recent study of the High School class of 1972, while not falling within the time-frame of the Katz study, shows that only 75.4% of the graduating class were 18 years of age in spring of graduation year.

Suppose Katz had predicted the earnings for those with 11 years of schooling, or those with 15 years of schooling, upon the basis of the previous three years experience, would the results have demonstrated a "11th grade effect" or a "college junior effect"? In short, I would feel more confident of these results if the actual determination of graduation or non-graduation were the basis for the classification.

For the college-level data for women the results were contrary to the hypothesized result for the early and middle career women. I suggest that the reason for this inconsistent result is that the basis for classifying career level for women is less reliable than for men, since women typically have less continuous work histories than men, the years since leaving school containing fewer working years among women than men.

Small increments in education may make larger differences in earnings early in one's career but the advantage of the sheepskin might be expected to decrease as additional years of experience become more influential in determining earning power. Katz's data on earnings generally show an increasing value of the sheepskin effect with increasing experience, rather than less

effect. This is another of the "anomalous results" for Professor Katz to worry about.

3.  
The Morgan-Cohn paper presents a model for allocating resources within secondary schools that uses specifically defined goals. They give an overview of a much more extensive Pennsylvania study. My comment concerns only one small aspect of their work.

Morgan and Cohn reduced 14 socio-economic and demographic in-put variables to four socio-economic factors and discovered, after regression equations were computed, that these non-manipulable variables "exert a minimal contribution to the predicted outputs of the" school system. The measurable outputs are the goals of quality education, listed in Table 1 of their paper. The authors do not describe in this paper their method of measuring these characteristics, but this result is contrary to many studies. Verbal and math skills, commonly measured with some uniformity in different studies, are found to be highly associated with demographic and socio-economic factors, e.g., sex, socio-economic status of the family as measured by income, education of head of household, and occupation of head of household. That the Morgan-Cohn study did not find verbal and math skills to be associated with socio-economic factors requires further exploration or explanation. In a recently reported follow-up Longitudinal Study of the High School Class of 1972, socio-economic status is associated with each of the items entering

the measurement of self-concept.<sup>3</sup> However, other studies have found a low association between self esteem and SES among low income families, but the relationship usually is found when SES covers a wide range.<sup>4</sup> Could their sample of schools have come from a strata with low SES variance?

#### References

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2. Gesell, Arnold, Frances L. ilg, Louis Bates Ames, and Janet Learned Rodell, Infant and Child in the Culture of Today, (Rev. Ed.), New York: Harper & Row, Pub., 1974, p. 19.
3. Jay Levinson, Louis Lewis, John A. Riccobono, R. Paul Moore, National Longitudinal Study of the High School Class of 1972: Base Year, First and Second Follow-up Data File Users Manual, Research Triangle Park, N.C.: Center for Educational Research and Evaluation, 1976.
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