ABSTRACT. Educational indicators are statistical time series that reflect the state of some element of the educational system. Most turning points in educational indicators are not cyclical, but respond to major societal events.

Three examples are presented:

The probability of a 10th grader continuing to the 11th grade has increased linearly for 60 years, being affected positively by unemployment and negatively by increase in GNP per capita and by military expansion.

Baccalaureate degrees per high school graduate four years earlier declined with the expansion of secondary education following the 1890's, rising after World War I, falling as the Depression approached. A major turning point occurred after World War II and the indicator peaked in 1950.

A current downward turning point in school enrollment rate of 18--19 year old males may have been prompted by a change in selective service policies granting exemptions to college enrollees.

Continuous monitorship of educational indicators would facilitate the development of policy and programs to adjust to dysfunctional educational trends.

I. INTRODUCTION

In 1965, when the 125th annual meeting of the American Statistical Association was held in Philadelphia, Moore and Sheldon presented a paper entitled Monitoring Social Change: A Conceptual and Programmatic Statement (1965). They called for contributions to understanding "large-scale structural change in American society" and the collection and analysis of new and better data. Their focus on social change, "large-scale structural transformations", was to monitor indicators of "structural alternations" so as to use "such information for entry into the system, to alter the magnitudes, speed, or even direction of change in terms of explicit, normative criteria" (p. 144). The scheme they presented at that meeting eventually grew into the volume, Indicators of Social Change (1968). Since then a kind of 'social indicators movement' has arisen. The program of the current meeting of the A.S.A. has scheduled at least five sessions explicitly on social indicators, and the National Science Founda-
tion program of research support for social indicators exceeds two million dollars (FY71).

I wish to point out the critical role played by turning points in the process of monitoring the social systems, with particular reference to education, and to illustrate some of the problems of interpreting current turning points and comment on the importance of the function of monitoring statistical times series.¹

II. THE MONITORSHIP FUNCTION

In the literature on social indicators (Agocs, 1970; Wilcox et al., 1972) insufficient attention is devoted to the monitorship function called for by Moore and Sheldon. There is concern with finding appropriate statistical indicators, with tracing the interrelationship of an indicator through a social system, with developing models that will help to predict the future, but insufficient attention is given to identifying critical turning points in available statistical indices and tracing the implications of such changes. Perhaps, in the field of education, what passes for monitorship comes with the announcement each year of the results of a new periodic survey, showing that the new data reveals a percentage increase or decrease over the previous year, with reference only to the evidence of the survey being reported. Monitorship should be more than this.

What is needed to monitor a social system? Statistical time series of characteristics of the system are the first requirement. For maximum clarity in interpretation, the time series should be the elements in a theoretical model that is capable of expressing cause-effect or, as a minimum, associated sequences of sufficient reliability to predict a future state of the system. The evidence of past trends in the major statistical elements of the system should be at hand. Predictions of trends in the major statistical elements, also, are quite useful, in that they serve to foretell possible turning points.

The turning point may be a distinct change in the direction of a statistical time series, or, it may be a change in the rate of change of a time series of interest. The problem always exists as to whether the first evidence of a turning point constitutes a genuine change in direction, a temporary change which will be recouped the following period, or a consequence of sampling error or other imperfec-