ABSTRACT. Macrodynanmic structural-equation models are presented that show how changes in annual levels of aggregate indexes of several morbidity and disability conditions for the United States over the years 1958 to 1977 affect each other and are affected by other aggregate demographic and socioeconomic changes. After reviewing the record of annual changes in these indexes based on data from the National Health Interview Survey, patterns of temporal covariation in the time series are discussed and some tentative structural-equation models are constructed to account for their behavior. Statistically, the analyses reveal considerable variation in levels of year-to-year variance explained for these indexes—from 35 percent explained for days of school loss to 97 percent for all acute conditions. Substantive findings imply that a decreasing proportion of preschool children in the population contributes to a decline in the incidence of infective and parasitic diseases, and an increasing proportion of the population at the older ages results in increases in the prevalence of chronic conditions, days of bed disability, and days of restricted activity. Further, increases in economic prosperity lead to an increase in the incidence of injuries and a decrease in the incidence of viral conditions, while higher levels of unemployment produce more injuries and restricted activity days. These inferences corroborate, for the most part, results of prior studies that have been restricted to cross-sectional analyses. In addition, however, they provide a basis for making explicit quantitative projections of future levels of morbidity and disability in the American population on the basis of exogenous demographic and socioeconomic conditions.

The general 'social indicators movement' of the past decade and a half has been characterized by a dual emphasis on (1) the development of noneconomic (i.e., nonmarket or nonmonetary) indexes of conditions of social life in contemporary societies and (2) the analysis of changes in such indexes over time and social space. This demand for nonmarket indicators has spawned a large conceptual and research literature on the development of health status indexes (see, for example, Berg, 1973; Elinson, 1974; Twaddle, 1974; Balinsky and Bergner, 1975; Bergner, et al., 1976; Bice, 1976; Given, et al., 1977). The related emphasis on the analysis of changes in these indexes over time and social space has highlighted the strategic role of morbidity and disability statistics based on data from the National Health Interview Survey (NHIS) (see, for example, Charts 5/10 through 5/19 of Chapter 5 on health and nutrition in Social Indicators: 1976 published by the United States Department
of Commerce, 1977; and the related discussion in Wilson et al., 1978, pp. 146–147). As a source of data for the study of sociodemographic changes, the NHIS currently provides two full decades of annual observations for a variety of indexes of morbidity and disability.

Despite this, little systematic analysis has been made of the National Health Interview Survey data as trends over time. In particular, little is known about the extent of temporal covariation of morbidity and disability indexes with each other and with changes in other American demographic and socioeconomic conditions. However, this is not to say that the NHIS data have gone unanalyzed; in fact, there is a long tradition of research on cross-sectional aspects of morbidity and disability (Gleeson, 1959; Cole, 1974; Ortmeyer, 1974; Wilder, 1974; Wilson and White, 1977), as well as research on age, race and sex differentials in health status (Namey and Wilson, 1972; Sauer, 1974; Verbrugge, 1976). While this research tradition has provided useful information concerning the variation of NHIS data on morbidity and disability by various aspects of social space at one or two points in time, there has been a limited number of temporal analyses of these data (see, for example, the modest longitudinal analyses in Cole, 1974; Verbrugge, 1976). In consequence, little is known about the extent to which relationships found in cross-sectional analyses apply in an over-time context.

The objective of this paper is to begin to fill this gap in the demographic literature by studying temporal trends in NHIS measures of morbidity and disability in the context of the macrodynamic model building paradigm described by Land and Felson (1976) and Land (1979) for the analysis of social indicator time series. The paradigm embeds social indicators, measured as demographic rates, in a system of demographic accounts. The latter are used, in turn, to guide the construction of parametric (causal) models for tracking changes in the social indicators. Applying this perspective herein, we (1) review the record of annual changes in several measures of illness and disability from the National Health Interview Survey for the twenty years, 1958–77, (2) discuss patterns of temporal covariation of these measures with each other over this time period, and (3) describe some tentative structural equation models accounting for substantial proportions of the temporal changes in these measures in terms of other demographic and socioeconomic changes during the time period covered by the available data.