

start, these experiences do not support any general supposition that panel data are more difficult to collect in LDCs, because households are "hard to find" or because of attrition in general.

Unlike cross-sections, panel surveys yield data on *changes* for individuals or individual households. Individual changes are of interest in their own right; we want to know how individual living standards change during the development process, the "who is benefiting from development" question, and we want to know whether poverty and deprivation are transitory or long-lived, the income dynamics question. Even beyond the individual, a panel design will allow more precise measurement of *aggregate* changes if the variable being measured is positively autocorrelated in the individual data, [see for example Hansen, Hurwitz, and Madow (1953, pp. 268-272) and Ashenfelter, Deaton, and Solon (1986, pp. 44-51)]<sup>1</sup> for formulae. These results suggest that, even for general purpose surveys, and even when we are interested in levels as well as changes, it will generally be undesirable to replace *all* households from one survey to the next.

Changes over time in the behavior of individuals can also reveal regularities that may be obscured by individual heterogeneity in the cross-section. For example, the cross-section relationship between age and wages usually has a humped shape, with wages rising early in the life cycle, and falling later. However, older workers may be systematically different from younger workers; they may be less educated or have less experience in working with modern techniques, and their wages may have been lower throughout their lives. If so, the cross-section age-wage profile will be quite different from the profile that would result from following an individual or a cohort of individuals through time, something that is possible with panel data. By making comparisons for individuals with their own earlier behavior, each individual is effectively acting as his or her own control. There exists an extensive econometric literature that exploits this insight using panel data, and the techniques are frequently used in work on economic development. I shall return to the topic in Sections 2.1 and 2.2 below.

### *1.2.2. The Living Standards Surveys*

The general usefulness of panel data in LDCs is an issue that is unlikely to be decided for some time, but our knowledge has recently been much expanded by the experience of the World Bank's Living Standards Surveys. These surveys have sometimes been independent cross-sections, but rotating panel data have been collected in Cote d'Ivoire, from 1985 through 1988, and in Ghana, from 1987 on a continuing basis. The LSS was originally seen as a device for monitoring poverty and inequality, and the project was begun in the Bank in response to the then (as now) extremely unsatisfactory situation in