The Role of Micro-level Panel Data in Policy Research

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Abstract

This paper focuses on the value of longitudinal micro-level data for policy centered research on behavioral and economic well-being. It provides examples of policy questions that can best be answered using such data and shows how they have been answered using data from four ongoing longitudinal panels – the BHPS (British Household Panel Study), the GSOEP (German Socio-Economic Panel), the HRS (Health and Retirement Study) and the PSID (Panel Study of Income Dynamics). Finally, it suggests a set of policy issues that can be considered using these data or from a national or a cross-national perspective.

Zusammenfassung

Dieser Beitrag untersucht den Wert der Aussagekraft von Mikro-Längsschnittdaten für politikrelevante Analysen zur Wohlfahrtsposition. Wir geben Beispiele politikrelevanter Fragen, die am besten unter Verwendung dieser Daten beantwortet werden können und wir zeigen anhand von vier laufenden Panel-Studien – der BHPS (British Household Panel Study), des SOEP (German Socio-Economic Panel), des HRS (Health and Retirement Study) und der PSID (Panel Study of Income Dynamics) – wie diese Fragen bisher beantwortet worden sind.

Außerdem benennen wir eine Reihe von politikrelevanten Fragestellungen, welche mit Hilfe von Mikro-Längschnittdaten auf nationaler Ebene oder länderübergreifend angegangen werden können.

JEL classification: G8, H0, I0, J0

1. Introduction

Policymakers have increasingly turned to the research community to track the consequences of government regulations and social programs on the marketplace outcomes and economic well-being of their constituencies. In response, researchers have turned to large representative cross-sectional samples of the policy relevant population in order to regularly take snapshots of the labor earnings, economic well-being, and work behavior of that population and of vulnerable subgroups within that population. Social success indicators derived from these data – e.g., average wage rate, average income, poverty rates, wage and income dispersion, and unemployment rates – provide quantitative evidence of economic and social policy outcomes. Microsimulation models using these data estimate the consequences of proposed policy changes on these indicators from both national and cross-national perspectives.

While cross-sectional data and the social indicators they generate are useful, they fail to capture the dynamic aspects of the policy concepts they measure. For instance, it is important to look at the wages of workers in a given period, but it is more important to know the shape of workers' lifetime earnings paths. The same is true for household income or poverty measures. A period of low income or even poverty is unfortunate, but a lifetime in such a state is far worse.

The development of life cycle modeling within a policy setting recognizes that the full impact of a policy unfolds over multiple periods. Furthermore, the behavioral development of dynamic programming and option value modeling provide more realism to life cycle models by allowing new information to affect behavior. Hence researchers who provide descriptive analyses of the labor earnings or economic well-being of persons subject to specific policies, as well as those who are testing behavioral models to predict or simulate economic behavior resulting from such policies, need a representative sample of the same persons over time.

2. A Brief History of Socio-Economically Focused
Micro Data Collection

Following a representative sample of the population over time is a defining characteristic of the modern socio-economic panel dataset. The first data collection task is to establish baseline measures of economic status (e.g., income, net worth), health status, and living arrangements for the relevant population. The income variables should include all public and private sources of income and capture all taxes paid. The health variables should capture health behavior, access to health care, and health care access. Liv-

ing arrangement variables should include the types of housing, as well as who is in the house and their relationships to one another. Ideally the questionnaire should be designed by *multidisciplinary* teams of researchers who know the policy questions that will need to be addressed *before* the survey goes into the field.

Because the composition of households can change over time, the unit followed must be the individual, even if income is shared across individuals in a household at any given time. Subsequent waves of data can then capture changes in the individual's baseline economic status, health status, and living arrangements even when the composition of his or her household unit changes. Researchers can then observe the way a given population changes and develop policy-relevant measures of these changes (e.g., poverty duration, income or earnings mobility, duration on transfer programs or in unemployment, etc.) Data modules on related policy-relevant topics (e.g., wealth, expectations and their formation, etc.) can then be added to these core data. As the survey matures, it will naturally capture important life history events: divorce, single parenthood, unemployment, retirement, and death of a spouse. It can then be used to predict the effects of policy changes on outcomes and behavior. To the extent that similar information from panel data in other nations is available, it can be used to observe the different ways in which countries react to the same life event.

Some panels are representative samples of an entire nation, such as the *British Household Panel Study* (BHPS), the *German Socio-Economic Panel* (GSOEP), or the United States *Panel Study of Income Dynamics* (PSID). As social issues begin to emerge that are related to a specific event, panels can focus on subgroups of national populations that experience the event. For instance, there are special panels that focus on retirement (the *Health and Retirement Study,* HRS; the *English Longitudinal Study of Aging,* ELSA), immigration (the PSID and GSOEP immigrant samples) and child development (*National Longitudinal Survey of Youth,* NLSY).

2.1 From Humble Beginnings to Rapid Development

Modern individual based socio-economic surveys were introduced at the beginning of the twentieth century. One of the most famous, fielded by Rowntree (1901), focused on economic well-being and poverty in local communities. Decades later, regular cross-sectional labor force and consumer expenditure surveys were conducted by government agencies to measure aggregate social indicators such as unemployment or consumer prices and how they changed. There were no microdata available to academic researchers at that time, and access to these surveys was limited to a few bureaucrats

and researchers with adding machines and the patience of accountants (e.g., Miller 1955; Morgan et al. 1962).

After World War II, income supplements were added to the United States *Current Population Survey* (CPS) and the British *Family Expenditure Survey* (FES). Using these data, researchers developed national measures of income distribution and poverty, and identified households with below average incomes. Health data were collected in separate surveys by different public agencies. Demographic data in these income-based surveys were of interest mainly to describe the income-sharing unit. Over time, as government tax and transfer programs grew, additional details were collected on the components of income, taxes, and transfers. Measures of health status were then added along with questions on access to health care and related measures of physical well-being.

These national cross-sectional datasets were neither integrated nor comparable across countries. Many nations had only consumption surveys, or income tax data, or limited and periodic income surveys. It was not until 1968 that the PSID, the first large-scale panel dataset, was started. Significantly, the PSID was funded by a government agency, the National Science Foundation, but was conducted by a university research center, the Institute for Social Research at the University of Michigan. This transformation from government- to university-administered surveys was noteworthy. It meant that researchers who would ultimately use the data began to invest time and energy in its collection. The *Level of Living Panel Survey,* launched in Sweden at roughly the same time, had a similar design and nongovernmental leadership.

2.2 Microsimulation

In the 1970s, United States-based research groups at universities like the University of Wisconsin and think tanks like Mathematica began to use these data to build and parameterize static cross-sectional microsimulation models that could be used to answer the "what happens if we follow one policy versus another?" questions. The use of static microsimulation models has since expanded to many nations (Orcutt, Merz, and Quinke 1996; Blackburn and Harding 1995; Immervoll, O'Donoghue, and Sutherland 1999).

In the 1980s, the Luxembourg Income Study (LIS) project began to harmonize cross-sectional household income survey data across several countries. Other groups shared questionnaires and began to build surveys that were comparable across nations (e.g., the International Social Survey Program). Also during the 1980s, the German National Service Foundation at the Institute for Economic Research (DIW-Berlin), the Economic Social Research Council (ESRC) at the University of Essex, the Dutch Statistical Bu-

reau (CBS), and groups in Sweden and Luxembourg began nationally representative household panels focusing on income, health status and living arrangements. Almost all of these efforts, like the PSID, were led by university-based researchers rather than government agencies.

In the 1990s, a group at Syracuse University and a parallel group in Luxembourg began to harmonize these household panel data and make them directly available to researchers (see www.lis.ceps.lu) At the same time, tax-benefit microsimulation models moved from a national base (e.g., POLIMOD in the United Kingdom) to a cross-national base (e.g., EUROMOD for the European Community) under the direction of a team of international scholars (Immervoll, O'Donoghue, and Sutherland 1999). Practical dynamic microsimulation models are just now emerging – for example, the U.S. Social Security Administration's Modeling Income in the Near Term (MINT) model (Iams and Butrica 1999).

By the middle of the 1990s, specialized cohort panel surveys such as the Health and Retirement Survey (HRS), designed by multidisciplinary teams of researchers and focusing on income, work, health, and living arrangement issues for the population 55 and over in the early 1990s, were also in place (see Juster and Suzman 1995). A similar effort, the English Longitudinal Study of Aging (ELSA) is just appearing in 2002 (see www.ifs.org.uk / elsa). Panels focusing on immigrants, children, and other specific policy-relevant groups are also beginning in other nations (e.g., the special immigrant subsample of GSOEP. See Burkhauser, Kreyenfeld, and Wagner 1997).

Data analysis and microsimulation using these data, both nationally and cross-nationally, can provide critical information for twenty-first century policymaking. With this brief history as background, we now provide examples of why investments in these panel datasets were necessary to answer specific policy questions.

3. Comparing Cross-Sectional and Longitudinal Measures of Economic Well-Being

In the ongoing debate over social security reform, it is inevitable that policymakers will want to know what impact different reform proposals will have on the economic well-being of older people. For instance, one could reduce the liability of the social security system by reducing benefits across-the-board or by targeting the reductions on newer aging cohorts. The answer to the question of who should bear the burden of benefit cuts is likely to be influenced by how well the older population has fared over time. Burkhauser, Cutts, and Lillard (1999) show how compositional

changes within the older population between two years of cross-sectional data yield a dramatically different view of how the average economic well-being of older people changed in the 1980s, compared to results obtained using longitudinal data to follow older individuals as they aged over the same time period.

3.1 The Basic Problem

Table 1, derived from Burkhauser, Cutts, and Lillard (1999), uses cross-sectional data from the Panel Study of Income Dynamic (PSID) to compare the mean household size-adjusted income of older people in 1983 and again in 1989 in the United States. As can be seen in row 1, the mean household size-adjusted income of all people aged 65 and over in the United States was $18,462 (column 1) in 1983. This group can be divided into those who stayed in the sample through 1989 and had income of $ 19,623 (column 2) in 1983, and those who did not and had income of $16,159 (column 3). A cross-sectional based comparison of those aged 65 and over in 1983 (column 1) with those aged 65 and over in 1989 (column 4) shows that the older population in 1989 is substantially better off than the older population in 1983 – $ 19,231 in 1989 compared to $ 18,462 in 1983.

Table 1

Importance of Age Composition in Cross-Sectional Comparisons of the Economic Well-Being of Older Persons

	Mean Household Size-Adjusted Income[a]					
	1983			1989		
	Total (1)	Stayers (2)	Attritors (3)	Total (4)	Stayers (5)	New Entrants (6)
(1) All older people[b] (weighted sample share)	18,462 (100.00)	19,623 (66.47)	16,159 (33.53)	19,231 (100.00)	19,038 (97.02)	25,498 (2.98)
(3) Aged 59 to 64 in 1983 (weighted sample share)	23,244	23,236	23,295	–	–	–
(5) Aged 65 to 70 in 1989 (weighted sample share)				21,263 (31.99)	21,228 (31.24)	22,707 (0.75)
(7) Aged 71 and over in 1989 (weighted sample share)				18,275 (68.01)	17,988 (65.78)	26,443 (2.23)
Total Sample Size	1,356	855	501	1,566	1,460	116

[a] Post-tax post-transfer household size-adjusted income per individual in 1991 United States dollars based on cross-sectional and longitudinal data from the Panel Study of Income Dynamics (1984). Equivalence scale equals 0.5.

[b] Older persons are those persons aged 65 and over.

Source: Derived from Burkhauser, Cutts, and Lillard (1999), using data from the Panel Study on Income Dynamics.

However, using the longitudinal aspect of the panel to actually follow those people who were aged 65 and over in 1983 and compare their 1983 average income with their income in 1989 tells quite a different story. Those aged 65 and over in 1983 who stayed in the sample had income of $19,623 (column 2) in 1983. By 1989 those people were aged 71 and over (row 7) and they had income of only $17,988 (column 5).[1]

A look at column 5 reveals the primary cause of the differences between these two data-driven views of changes in economic well-being. Those aged 65 through 70 in 1989, who are in the older cross-sectional population in 1989 but were not in the older cross-sectional population in 1983, have a mean income of $21,228. This is far higher than the mean income of those aged 71 and over in 1989, who were old in 1983 and continued to be old in 1989. New entrants into survey households since 1983 had even higher mean income, which explains part of the difference between the cross-sectional and longitudinal results, but these new entrants are a very small part of the 1989 sample and hence have only a small impact on the overall difference.

It is the new cohort of older persons, those aged 65 through 70 in 1989 who are driving the difference between the cross-sectional and longitudinal comparisons. The entire older cross-sectional population in 1989 has a higher level of economic well-being than the entire older cross-sectional population in 1983 primarily because they were substantially better off than the older cross-sectional population in 1983, and continued to be so five years later. Cross-sectional comparisons miss the fact that the mean older person in 1983 who survived is worse off in 1989.[2]

These findings demonstrate the value of longitudinal data in providing evidence for public policy prescriptions. Cross-sectional estimates of economic well-being imply that across-the-board cuts in Social Security would not harm the average older person as much as they would have in previous decades, because their income has risen over time. But this obscures the critical point that, while the income of *new* cohorts of older persons rose, on average, during the 1980s, people who were *already* old in the trough years of the business cycle saw their income fall, despite overall gains in the entire population over the rest of the decade.

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[1] Column 4 of row 7 includes both people aged 65 and over in 1983 who stayed in the sample and people who were not in the PSID survey in 1983 but who were in the sample in 1989. Since we are interested in comparing people who were old in both periods, we compare row 1, column 2 with row 7, column 5. New entrants aged 71 and over in 1989 made up only 2.23 percent of the entire 1989 population. Alternatively, this comparison could have been made using repeated cross-sectional data and a synthetic cohort model.

[2] Burkhauser, Cutts, and Lillard (1999) also show that these results held for the median person and when the household head's age is used to disaggregate age.

While this example is focused on a cohort of older people, the problem is a generic one and applies to any attempt to use repeated cross-sectional data to make inferences about multiperiod outcomes of specific groups. Panel data provide more accurate information because they illustrate how one cohort's economic well-being changes over time compared to other cohorts.

3.2 Dynamic Analysis of Labor Income and Economic Well-Being

A more sophisticated use of repeated cross-sectional data through a synthetic cohort approach could more closely parallel the true dynamic outcomes measured by longitudinal data (e.g., Smeeding and Sullivan 1998; Osberg 1999). However, synthetic cohorts can be created only for characteristics that do not vary (e.g., year of birth), and this technique cannot be used to follow the outcome of any *specific* individual within an age cohort. Clearly, policymakers interested in both the dynamic aspects of labor market (or other) behavior and economic well-being will want to follow mobility at the individual level.

While cross-sectional data are useful for measuring economic inequality at a moment in time, they are unsuitable for analyzing movements in an individual's earning or income over time. Such movements are of interest because a given pattern of cross-sectional inequality may be consistent with a wide variety of mobility patterns. For instance, greater cross-sectional inequality may be caused by an increase in the spread of a static distribution, or by an increase in the variability of income received by individuals who are perfectly mobile within the distribution. Thus, observed changes in the cross-sectional distribution may be the consequence of changes in the relative income of individuals, or the result of changes in the pattern of income mobility for individuals, or some combination of both. Of course, the lifetime welfare of each individual is determined both by his/her mobility among income levels and by the income levels themselves. Hence, in the same way that inequality alone cannot serve as a sufficient basis for welfare judgments, neither can a study of mobility alone settle issues of economic well-being.

Burkhauser, Holtz-Eakin, and Rhody (1997, 1998), for instance, used longitudinal data drawn from the PSID and the GSOEP to look at mobility by following the relative fortunes of working-age individuals over time, across the labor earnings distribution, and across the before- and after-government income distributions. Like others, they found cross-sectional inequality was substantially greater in the United States than in Germany in the 1980s regardless of whether the unit measure was labor earnings, before-government income, or after-government income. Inequality in labor earnings grew mod-

estly in both countries over the period, with a slightly greater increase in Germany. Despite this similarity, inequality in both before- and after-government income grew faster in the United States than in Germany.

But when they took full advantage of the longitudinal data they found remarkable similarities in mobility patterns for the two countries. To the extent that these patterns differed, they found evidence suggesting that the probability of changing quintiles in the labor earnings distributions is slightly greater in Germany than in the United States, but the probability of change in before- and after-government income quintiles is slightly larger in the United States than in Germany. This implies that it was the spread in the relative economic well-being of quintiles in the United States, rather than differences in the individual dynamics of their members, that was responsible for the relative increases in inequality between the United States and Germany over the latter years of the 1980s. Most recently, building on this work, Burkhauser, Butler, and Houtenville (1999), using a "Shorrocks R" (Shorrocks 1978, 1981) measure of income stability, together with updated data from the PSID and GSOEP data through the mid-1990s, found that not only was inequality in both labor earnings and in post-government income on the rise in the western states of Germany since reunification but that the share of permanent (vs. transitory) inequality was increasing to levels similar to those in the United States.

Figure 1 from Burkhauser, Butler, and Houtenville (1999) shows the Shorrocks R for post-government income inequality for overlapping six-year periods between 1979 and 1996 for the United States and between 1983 and 1996 for the western states of Germany. In this case, the Shorrocks R is measuring the permanent component of inequality in the cross-sectional Theil measure of inequality. While it is well known that overall inequality is substantially higher in the United States than in Germany, Figure 1 shows that the permanent component of inequality is not only significantly different but also substantially higher in Germany in recent years. This finding is similar to that of Burkhauser and Poupore (1997) for the sample period 1983 through 1988. However, the difference in the size of the permanent component of income inequality has narrowed in the 1990s, and the two countries have actually reversed ranking on this basis (Figure 1).

Several other recent papers compare income and earnings mobility in Sweden, Finland, Denmark, Italy, France, the United Kingdom, and other nations (e.g., Bigard et al. 1995; Aaberge et al. 1999; Jarvis and Jenkins 1998; Fritzell 1990). Longer panels such as the PSID allow researchers to study *changes* in earnings and income mobility over time, and to study the determinants of those changes (e.g., Gottschalk and Danziger 1997; Gittleman and Joyce 1999; Duncan, Smeeding, and Rodgers 1994; Duncan, Boisjoly, and Smeeding 1996).
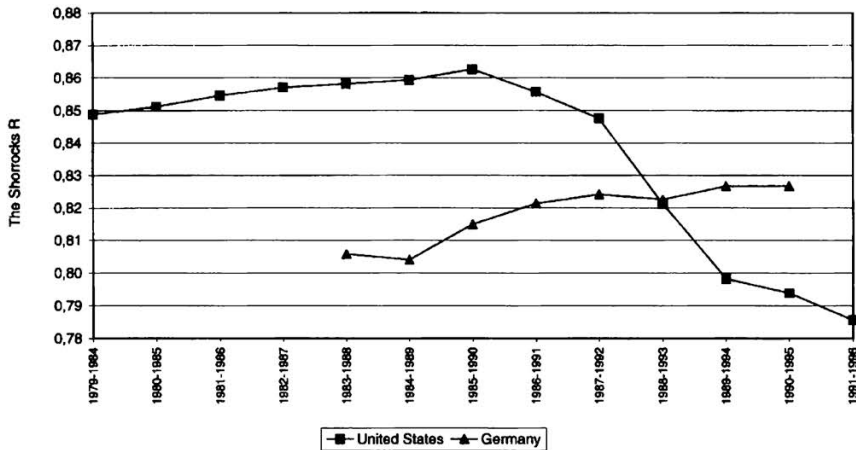
Figure 1. The Shorrocks R Measure of Post-Government Income Stability
for Overlapping Six-Year Periods

In 1999, OECD published the first comparative study of the income, household sized-adjusted income, and poverty of its member countries (Oxley et al. 1999). This study made use of the new generation of panel datasets that have been created in western industrialized countries over the last two decades. Clearly, mobility indices based on panel data will be an important social indicator in future policy debates about the economic social systems in these countries. Most recently, the *2001 OECD Economic Outlook* used data from the Cross-National Equivalent File to compare child poverty dynamics in the United States, Great Britain, and Germany (Vallenta 2001).[3]

3.3 Poverty, Welfare, and Income Dynamics

Longitudinal data also allow a more dynamic measure of hardship to complement measures of the prevalence of poverty in a given period and measures of changes in gross poverty population using repeated cross-sections of data. In the last decade, poverty research has focused much more on those factors that precipitate a drop into poverty or an exit from poverty, and on the duration of poverty spells, once they begin (see Bane and Ellwood 1986 for the first serious attempt at this type of analysis).

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[3] This dataset merges public use equivalent panel data from the British Household Panel Study, the Canadian Survey of Labor and Income Dynamics, the Germany Socio-Economic Panel, and the United States Panel Study of Income Dynamics. See Burkhauser et al. 2001.

Following Bane and Ellwood (1986), dozens of studies of poverty duration appeared in the United States, almost all of them using the PSID or a comparable panel dataset. See Burkhauser (2001) for a discussion of this literature. Duration studies of welfare spells paralleled this literature. Similar studies have been undertaken in European countries. Jarvis and Jenkins (1996, 1997) completed the first studies using the BHPS in Great Britain. Fritzell (1990) looked at welfare spells in Sweden, Deleeck et al. (1992) did so in Belgium, and Voges and Duncan (1995) did so for the United States and Germany. The first multi-country studies appeared in the mid-1990s with papers based on poverty dynamics from eight countries (Duncan et al. 1993), four countries (Goodwin et al. 1997), and Canada, Germany, the Great Britain, and the United States (Antolin, Dang, and Oxley 1999). Most recently, Bradbury, Jenkins, and Micklewright (2001) look at child poverty dynamics across several nations. Jenkins (2000) provides a useful overview of the European literature on income dynamics.

These papers have reached several important policy-relevant conclusions, including:

• Mobility in and out of poverty is high in every nation.

• The population share of those staying poor for a long time is small, but poverty touches many more people over a longer period than is apparent from a one-year snapshot.

• Analyses of transitions into and out of poverty and of completed spells of poverty have provided policymakers with insights concerning who is most likely to have a long versus a short poverty spell, and therefore which individuals are most in need of assistance.

• Reasons for exit from and entry into spells of poverty differ widely by age group (e.g., children vs. older people) and somewhat by country. Employment status appears to be the main factor affecting transitions into and out of poverty as well as the duration of poverty.

With data and analyses such as these, policymakers are able to better pinpoint poverty problems and to design effective and well-targeted interventions. In fact, the 1988 United States Family Support Act explicitly targeted active labor market policies on those who were likely to spend the longest time on welfare without such help. A similar interest in active labor market policy and behavioral changes as measured by panel data now exists in the United Kingdom (e.g., Leisering and Walker 1994).

4. The Influence of Policy on Individuals

Willis (1999) argues that the major advantage of longitudinal panel data like the HRS over repeated cross-sectional samples like the CPS is their ability to improve our understanding of the effects of period changes as well as to analyze life cycle dynamics. The new wave of panel studies that have spread throughout western industrialized countries will prove their worth by allowing researchers to develop and test models to both predict and simulate the consequences of future government policy (see also Leisering and Walker 1998; Ashworth and Walker 1994).

An emerging area of research where such techniques will become increasingly important with respect to both economic well-being and behavior is the transition of workers out of the labor force. The answer emerging from the long debate in the literature as to whether economic incentives or health changes primarily cause job exit is even more policy relevant as the labor force ages.[4] The social security retirement and disability programs will be most clearly scrutinized in this regard, although in the United States, employee pension plans and how they are regulated are also likely to come under increased scrutiny as the baby boom population ages.

4.1 Dynamic Measure of Poverty in Old Age

The discrepancy between the economic well-being of older and younger people in the United States captured in the cross-sectional data of the 1960s and 1970s was, in part, responsible for providing policymakers with the information necessary to make the case for major increases in transfers to the older population through enhanced Social Security and private pension benefits. Today in the United States and in many other western industrialized countries, cross-sectional data show that while the mean income of older people is still lower than the mean income of younger people, the poverty rate of older people has fallen dramatically and is lower than the poverty rate of younger people.[5]

More recently, researchers have focused on how the transition into retirement or widowhood affects economic well-being. More generally, dynamic analysis permits one to separate out those older persons who are poor be-

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[4] See for instance, Quinn and Burkhauser (1994) and Lumsdaine and Mitchell (1999), for reviews of this debate in the context of the old age retirement literature. Also see Bound and Burkhauser (1999) for a review of this debate in the context of the disability literature.

[5] See Quinn and Smeeding (1993) for a review of this cross-sectional evidence in the United States. See Smeeding (1997b, 1998) for a review of old age poverty in western industrialized countries.

cause they were young and poor and have simply became older, from those who drop into poverty following specific events.

Burkhauser and Duncan (1991) focused on possible economically threatening events – retirement, unemployment, disability, death of a spouse, divorce – using PSID data and found that for older women, only divorce and the death of a spouse substantially increased entry into poverty. Burkhauser, Butler, and Holden (1991), using hazard model analysis, found that there was no significant increase in the risk of poverty for married couples as the husband transitioned into retirement, but the death of a male spouse significantly increased the risk of poverty for his widow. Oxley et al. (1999) recently expanded this research in a dynamic comparative study, finding that the long-term elderly poor in each of the four nations studied (the United States, the United Kingdom, Canada, and Germany) are concentrated among older single persons, mainly women.

4.2 Behavioral Models of Retirement

Prior to 1990, most retirement models implicitly assumed a world of certainty in which people based decisions on their current situation and their best estimates of the future. In fact, however, there are probability distributions around these best estimates, and these distributions change over time. Health can vary and layoffs can occur. Labor market conditions can improve or deteriorate. Retirement benefits can differ from expectations, either because individuals did not understand the details initially or because the rules changed after their initial expectations were formed.

Around 1990 a new generation of adaptive life cycle models was developed (e.g., Rust 1989; Stock and Wise 1990; Berkovec and Stern 1991) in which individuals recalculate their optimal behavior in each time period, using new information about their present status and their current best predictions about the future. The computational requirements of many of these models are extreme, so they are usually simplified in other ways. For example, in Rust's stochastic dynamic programming model, which allows individuals to optimize over age of retirement and future consumption simultaneously, he has no pension plan incentives and assumes that unobserved individual factors, such as health and work-leisure preferences, are uncorrelated over time – an unlikely prospect.

What makes these models interesting is that they do not assume that workers know their future wage rates and retirement benefits with certainty, and they allow comparisons of current retirement with retirement at all future dates. In the Stock and Wise (1990) model, for example, the worker decides whether to retire from the firm today by forecasting future wages

and retirement benefits, and then estimating the present discounted value of total compensation (earnings plus pension and Social Security accruals) associated with each potential departure date in the future. If any future date looks better, given his labor-leisure preferences, he continues to work; he retains the option of leaving later, at a more advantageous age. This is the "option value" of work. Empirically testing this type of model requires detailed information about an employer's pension plan and a worker's past work history.

After another year on the job, the worker has more information about the future, based on any other relevant knowledge he has acquired. He must then make another retirement decision, again comparing immediate retirement with retirement in subsequent years. The forecasts of future conditions will be different from what they were a year ago, because of new information. Critical to these models are assumptions about how expectations are formed and how sensitive they are to new information, both of which are difficult to model.

Lumsdaine and Mitchell (1999) focus on this modern literature on retirement behavior. All of the models they investigate flow from these types of dynamic models and have been tested using sophisticated longitudinal datasets that contain detailed information on lifetime earnings, Social Security and employer pension plans, and health. As this literature has developed, the models have become more inclusive and the policy predictors more robust, and better data have become available to more precisely model these changes. Surely one of the most promising avenues of research using panel data is through these types of sophisticated studies of retirement. It is likely that such models will also be adapted to other work-related changes such as short- and long-term unemployment and disability.

4.3 Dynamic Issues of Disability

Bound and Burkhauser (1999) have recently reviewed the literature on programs targeted on people with disabilities. Like the retirement literature, the empirical literature on disability began from a cross-sectional perspective in which the population with disabilities in a given period was compared to the population without disabilities. Repeated cross-sections then were used to show how the relative economic well-being and labor force behavior of people with a disability changed over time (see, for example, Haveman and Wolfe 1990; Burkhauser, Haveman, and Wolfe 1993). These studies show substantial differences between the labor earnings and economic well-being of working-age people with and without disabilities.

However, such cross-sectional analysis may not accurately portray a disability's effects on individuals over time.

Cross-sectional analysis cannot distinguish between differences caused by the onset of work-limiting health conditions and differences that may have existed prior to onset. From the perspective of policymakers, this distinction is important. Economic disparities that exist prior to the onset of a disability may not be eliminated by disability-based programs. In addition, cross-sectional snapshots of the population with disabilities reveal little about the transition to disability, the opportunities for intervention, or the time frame during which individual economic well-being declines. Finally, as Bane and Ellwood (1986) have shown, cross-sectional data oversample "long-stayers." Thus, any cross-section of people with disabilities will have a disproportionate percentage of individuals whose disability occurred long ago. If work and economic well-being deteriorate as a spell of disability lengthens, then cross-sectional samples may overstate the impact that disability initially has on economic well-being.

Burkhauser and Daly (1996, 1998) try to address these points by providing a multiperiod view of disability using longitudinal data from two countries – the United States and Germany. Table 2, from Burkhauser and Daly (1998), uses 1983 through 1989 waves of PSID and GSOEP data to follow the life course of men who experience the onset of disability between ages

Table 2

Short-Run Economic Consequences of a Disability among Working-Age Men in the United States and Germany

	Disability Event				
	Two Years Prior	One Year Prior	Year of Disability Event	One Year After	Two Years After
United States Equivalent Mean 1991 Dollars					
Percent Employed	95.6	96.7	89.5	80.1	78.0
Mean Labor Earnings	28,428	29,300	27,636	24,663	23,777
Before-Government Income	26,128	28,147	27,853	28,073	27,916
After-Government Income	22,196	24,066	24,191	25,028	25,273
German Equivalent Mean 1991 DM					
Percent Employed	96.3	96.3	95.4	89.9	83.3
Mean Labor Earnings	52,765	47,553	47,644	39,794	47,680
Before-Government Income	45,862	43,735	45,861	43,911	49,727
After-Government Income	34,733	33,739	34,867	35,014	39,464

Source: Burkhauser and Daly (1998), using the 1989 Response-Nonresponse File of the Panel Study on Income Dynamics and the Syracuse University Public Use File of the German Socio-Economic Panel.

25 and 59. The first row of each panel of Table 2 shows that prior to the on-set of their health-related work limitation, about 96 percent of both United States and Germany males this age worked. In subsequent rows we see that after the onset of a disability, work declines in both countries, but more so in the United States. Labor earnings are most seriously affected in the United States. Mean labor earnings fall from just over $29,000 the year before onset to about $24,000 two years following onset. In Germany there is virtually no change over this period. While the drop in labor earnings in the United States was greater than in Germany, it was still much smaller than might be inferred from cross-sectional differences in labor earnings reported in the cross-sectional data based literature.

This same pattern is found with respect to economic well-being. Mean real household size-adjusted income is not adversely affected in either country following the onset of a disability. This is true for both before-government income and after-government income. In fact, after-government income increases in both countries. These findings provide further evidence that inferences from cross-sectional data exaggerate the initial change in both labor earnings and economic well-being associated with disability. Such evidence can only be gained from longitudinal data.

4.4 Behavioral Models of Disability and Work

This descriptive evidence from both the United States and Germany suggests that while the onset of a health condition that affects work reduces the labor force participation and labor earnings of such workers, the effect is neither immediate nor complete. The vast majority of men in both countries continue in the workforce following the onset of a disability. This suggests that policy variables may be as important as health status in explaining who continues in the labor force following the onset of a disability. Longitudinal data are ideal for capturing changes in socio-economic variables and how these changes affect economic behavior. But until recently, multiperiod data with sufficient institutional information to track the consequences of changes in health and labor market outcomes have not been available.

Burkhauser et al. (1999) use retrospective data from both the 1978 Survey of Disability and Work (SDW) and the 1992 Health and Retirement Study (HRS) to follow the consequences of the onset of a health condition that affects work on the speed to application for Social Security disability insurance. Table 3, from Burkhauser et al. (1999), reports Kaplin-Meier estimates of the time to application for disability benefits following the onset of disability. The SDW combines a random sample of the population with a choice-based sample of Social Security disability applicants to make up a

Table 3: **Kaplan-Meier Estimates of the Time to Application for Social Security Disability Insurance for Men, with and without the Manski-Lerman Correction**[a]

	Unweighted 1978 SDW Sample			Weighted 1978 SDW Sample			Unweighted 1992 HRS Sample		
	Number of	Probabilities		Number of	Probabilities		Number of	Probabilities	
Year	Applications per Year	Application Rate	Cumulative Survival Rate[b]	Applications per Year	Application Rate	Cumulative Survival Rate	Applications per Year	Application Rate	Cumulative Survival Rate[b]
1	464	0.376	0.624	138.0	0.116	0.884	127	0.171	0.829
2	246	0.324	0.422	96.2	0.105	0.791	98	0.165	0.692
3	108	0.219	0.330	37.6	0.055	0.748	53	0.112	0.615
4	74	0.202	0.263	67.1	0.120	0.658	21	0.052	0.583
5	50	0.182	0.215	15.3	0.037	0.634	22	0.061	0.547
6	41	0.199	0.173	26.5	0.081	0.582	19	0.060	0.515
7	24	0.156	0.145	19.9	0.082	0.534	16	0.058	0.485
8	25	0.201	0.116	10.5	0.053	0.506	13	0.053	0.459
9	9	0.094	0.105	3.0	0.017	0.497	11	0.051	0.436
10	15	0.183	0.086	3.7	0.025	0.485	7	0.037	0.420
11	9	0.136	0.074	3.5	0.026	0.472	5	0.030	0.407
12	8	0.151	0.063	2.6	0.022	0.462	4	0.027	0.396
13	8	0.191	0.051	18.5	0.190	0.374	2	0.025	0.390
14	9	0.295	0.036	3.0	0.046	0.357	2	0.016	0.384
15	2	0.111	0.032	0.3	0.005	0.355	4	0.036	0.371
16	3	0.214	0.025	2.7	0.055	0.335	2	0.020	0.363
17	1	0.125	0.022	0.2	0.004	0.334	3	0.034	0.351
Total[c]	1,096			448.6			426		

[a] These estimates assume censoring is distributed uniformly within a year and allocates half of the number censored in each year to the sample available for application in each year. The initial size of the 1978 SDW sample is 1,240. The initial size of the HRS sample is 750.

[b] Surviving into the next period without applying for Social Security Disability Insurance.

[c] Years where the unweighted sample size is 50 or less are not shown but are included in the total.

Source: Burkhauser et al. (1999) using data from 1978 Survey of Disability and Work and 1992 Health and Retirement Study.

special population panel. The choice-based sample was collected because an application for disability benefits is a relatively rare occurrence in the working-age population in the United States. Hence, the oversample of people who have applied for disability benefits is useful as a special panel for disability program evaluation purposes.

The first column of Table 3 reports the speed to application for the combined sample. Entry onto the disability rolls is quite rapid. However, this is to some degree an artifact of the data. By definition, a choice-based sample of disability applicants will undersample long-stayers in the market – that is, people who postpone application following the onset of a disability. In the extreme, such a sample will never capture those who never apply. Hence, a choice-based sample must be weighted to accurately represent the full population who experience the onset of a disability.

When this is done, the weighted sample of the SDW yields application rates that are remarkably similar to the 1992 unweighted random sample in the HRS. Less than 20 percent of workers who experience the onset of a disability apply for Social Security disability benefits within the first year following the onset of a disability. Over 50 percent are still non-appliers five years after onset, and over 40 percent are non-appliers after ten years.

Burkhauser et al. (1999) then employ a hazard model to control for heterogeneity with the population to determine which factors delay application for benefits. The linkage of Social Security administrative records to both of these datasets enables these data to be used to test the importance of policy variables. For instance, accommodation by an employer following onset and the size of potential Social Security benefits both importantly affect speed to application.

Benitez-Silva et al. (1999) and Bound et al. (1999) use the first three waves of the HRS data to look at the importance of policy variables and health on labor force withdrawal and the Social Security disability application, award, and appeals process. These are the first published papers to make use of the HRS contemporary data on health in this manner. Benitez-Silva et al. (1999) focus on the award and appeals process of Social Security Disability Insurance, while Bound et al. (1999) focus on the interplay between health and labor supply behavior following a health shock. As more waves of HRS data become available it will be possible to track the behavior of individuals following a change in their health. Benitez-Silva et al. (1999) find that an individual's self-assessed disability status is one of the most powerful predictors of application, appeal, and award decisions. Bound et al. (1999) find that even when controlling for lagged values of heath, poor current health is strongly associated with labor force exit in general and with application for disability insurance in particular. Both papers conclude that

modeling health in a dynamic, longitudinal framework offers new insights into the effect of poor health on the labor supply behavior of older workers.

5. Other Policy Relevant Areas

The dynamic studies of disability and retirement discussed in detail above rely on sophisticated multinational panel data. They have their counterparts in the empirical literature focusing on other areas with social policy relevance. Briefly, some of these include:

1. Intergenerational studies of mobility.

Longer panels and panels with retrospective questions permit analyses of intergenerational income mobility. Recent studies in the United States (e.g., Solon 1992; Zimmerman 1992) have been followed up with Swedish and other replications, e.g., Björklund and Jäntti (1997). These papers link economic mobility to family background and find relatively high (0.3 to 0.5) correlations between the earnings of fathers and sons. A separate literature traces the effects of the intergenerational transmission of parental welfare dependency (e.g., Maynard 1997; Gottschalk, McLanahan, and Sandefur 1994).

2. Wealth dynamics and wealth transfers.

As world capital markets continue to generate financial wealth, both wealth dynamics and intergenerational patterns of wealth transfer (*inter vivos* or at death) become increasingly important topics for public policy. The PSID includes a detailed wealth sample every five years, thus permitting studies of wealth mobility (e.g., Hurst, Luoh, and Stafford 1998). Because wealth transfer is still a fairly rare event, specialized panels such as the HRS or panels of long duration such as the PSID are the most important loci for such studies (e.g., Juster, Smith, and Stafford 1997; Juster and Smith 1997). Recently, Charles and Hurst (2001) examined intergenerational wealth transfers using the PSID.

3. Dynamics of schooling decisions.

Investment decisions regarding human capital are likely to be more important to long-term economic well-being than are wealth transfers. Recent work with the BHPS (Francesconi and Ermisch 1997) has just begun to explore this important policy area. Haveman and Wolfe (1995) review similar studies in the United States.

4. Child poverty, child achievement, and parenting behavior.

Closely related to the dynamics of schooling decisions is the literature on the effects of parental income, parental background, and environmental conditions on children's achievements or status of child poverty. While much of this work was pioneered using United States panel datasets (e.g., Haveman and Wolfe 1995; Duncan et al. 1998), similar studies have begun in the United Kingdom (e.g., Francesconi and

Ermisch 1997, 1998a, 1998b). To more fully explore these effects, panels need to add to their measures of child outcomes, parental behavior, and environmental factors (home and community).

5. Household formation and dissolution.

Panel datasets provide an important source of data on the determinants of household formation at younger ages. Decisions to leave home, have a child, cohabit, marry, or divorce are all tied to changes in household formation or dissolution. Housing conditions and policy, and social policy more generally may have a strong effect on these outcomes. In the area of household formation, British researchers seem to have taken the lead. (e.g., see Buck and Scott 1993; Ermisch 1999; Ermisch and Di Salvo 1997; Francesconi and Ermisch 1998b; Iacovou and Gershuny 1998; Jarvis and Jenkins 1998). While American researchers have concentrated on household dissolution. (e.g., Gottschalk, McLanahan, and Sandefur 1994)

6. Applications of Panel Data to Future Policy Concerns

Socio-economic panels will play an important role in future policy debates. To maximize their impact in this regard, managers of the BHPS, GSOEP, PSID and other "living" panels must both ensure the continued representiveness of their core data and use modules to capture the specific data future policy researchers will require. Every panel cannot be supplemented to address every type of policy issue. However, the longer a panel's life, the more valuable are special one-time supplements, links to administrative data, retrospective questions, and experimental modules that can be linked to the panel's core questions. For instance, the PSID, with over 30 years of data, has matured from a dataset that focused on short-term income and poverty dynamics into a survey that can be used to measure much longer-term dynamic issues (e.g., intergenerational income and poverty mobility, wealth accumulation over the life cycle). The long family histories now available in the core data also make it possible to measure detailed current health outcomes via a new health module and link these outcomes to events captured earlier in the data. Below we suggest some potential topics that could be added to current panels that would make them more relevant in twenty-first century policymaking.

6.1 Population Aging

In nearly every western industrialized country, the average age of the populations growing, the older age share of the population is rising, and these trends are straining the financial viability of the social security system (OECD 1996). At the same time, Gruber and Wise (1999) find that, despite

improvements in both mortality and morbidity, workers in most western industrialized countries are leaving the labor force at a much younger age than they did two decades ago.

Gruber and Wise (1999) make an important addition to the new pension literature discussed in the last section. By focusing on the anti-work incentives in the social security systems of western industrialized countries, the authors show how these policies reduce the incentives to work past some age. Gruber and Wise (1999) and their colleagues in eight nations provide evidence that spikes in the incidence of labor market exit in each of these countries parallel the ages at which each country's social security benefits are first offered. They argue that in most countries, workers face a substantially higher implicit tax penalty on their wage earnings after they reach the age of social security eligibility than at younger ages. As the debate focuses on how to solve the coming crises in social security in each of these countries, policymakers will need to know how potential changes in their tax incentives will affect both the behavior and economic well-being of future cohorts of older workers.

Several studies in the new dynamic literature on retirement, discussed in the previous section, used the first wave or two of the HRS to focus on the behavior of workers who, for the most part, were not yet at early retirement age in the United States. But by 2002, five waves of HRS data are becoming available and most of the HRS cohort has reached age 62, the earliest age for Social Security retirement in the United States. In addition, a new wave of data is being made available every two years into the future. These new HRS data on the health, wealth, and work behavior of the cohort of older workers entering their retirement years makes it the richest existing longitudinal dataset for exploring the labor market exit behavior of older workers. But even more important for this purpose, the HRS can be linked to individual records from the Social Security Administration and to detailed information on respondents' fringe benefit packages, including health insurance and pension rules.

Since employers provide a major component of workers' health and pension insurance in the United States, these data are critical for United States-based studies. Currently among European countries only The Netherlands has produced a major cohort study similar to the HRS (see Kerkhofs, Lindeboom and Theeuwes 1999 for a fuller discussion). However, the United Kingdom will soon begin their English Longitudinal Study of Aging (ELSA 2001) and other countries are now developing plans for such studies.

Moreover, panel studies could greatly enhance their ability to provide information on labor market exits by increasing the information they provide on retirement saving, health, and wealth changes at older ages, and by link-

ing their data on work, income, and family characteristics to social security administrative records (e.g., lifetime earnings, pension contributions, and pension benefits).

With the explicit consent of the respondent and under strict guidelines for access to such data in secured locations for pre-screened applicants only, such linkages are available in the United States. The BHPS should explore such linkages in the United Kingdom, and the GSOEP in Germany. The availability of linked long-term earnings histories would also permit sophisticated studies of lifetime earnings trajectories (and their variance) for specific cohorts and would permit researchers to separate the permanent and transitory components of earnings. See Gottschalk and Moffitt 1994 for a United States attempt at this separation.

6.2 Social Exclusion, Neighborhoods and Geography

There is a growing interest in measuring the extent of social exclusion in Europe in general (e.g., Berghmans 1995) and in specific countries (e.g., Howarth and Kenway 1998 for Great Britain). A similar concept in the United States is that of a permanent "underclass" that does not actively participate in the mainstream economy or in mainstream civic, social, or political activities. While the concept needs further refinement, it includes those who have experienced long-term dependency on social assistance, economic immobility, long-term joblessness, and attachment to the informal (and sometime illegal) economy. As these experiences are better conceptualized, panel datasets can be used to measure them.

One element of exclusion is geographic concentration. Social exclusion is likely to be concentrated in specific neighborhoods or areas. By linking census and other "block" or "small area" data to individual records, the PSID now permits researchers to disentangle the effect of "place" on individual outcomes that vary from criminal behavior to income mobility. For example, see Massey 1997; Brooks-Gunn, Duncan, and Aber 1997; Duncan and Brooks-Gunn 1997; Duncan and Raudenbush 1999; Burkhauser, Butrica, and Wasylenko 1995; and Jargowsky 1997. Comparisons of people living in the eastern and western states of Germany might yield similar geographic based results and studies of this type are just now beginning, using the GSOEP. But more detailed geographic information for the GSOEP would greatly enhance the richness of these data.

6.3 Interhousehold and Intrahousehold Resource Allocation

Two relatively unexplored policy issues that lend themselves to panel data are intrahousehold resource allocation and interhousehold resource transfer. In Great Britain, Jenkins (1994), Jenkins and O'Leary (1995), and Sutherland (1997) have begun to address the question of intrahousehold resource allocation and use. Lundberg, Pollak, and Wales (1997) show how intrahoushold resource allocations (e.g., child-related purchases) changed after child allowance payments in Great Britain were made to the mother rather than to the father.

To properly measure intrahousehold resource allocation requires data on both time and money allocations. Gershuny (1997), Gershuny and Sullivan (1998), Vickery (1997), Michael (1996), Gauthier and Smeeding (2001), and Smeeding (1997a) focus on the value of time-use questions linked to panel data to answer such household allocation questions. New developments in the household bargaining literature (e.g., Lundberg and Pollak 1994, 1996) offer a framework for such questions, and this literature could be extended to answer policy questions related to caregiving and other time-intensive services that affect intrahousehold resource allocation (e.g., Wolf, Freedman, and Soldo 1997; Folbre 1994).

Interhousehold resource allocation decisions are also important. Over the past decade, financial wealth accumulation has increased throughout the western industrialized countries. This growing pool of wealth is likely to increase the frequency and value of both *inter vivos* gifts (e.g., transfers to children for a down payment on a first house or college tuition) and bequests (e.g., Charles and Hurst 2001). Continued policy emphasis on "self-protection" as opposed to social protection will also require better information on wealth accumulation. While large bequests and *inter vivos* gifts may be rare on an annual basis, they are less so over a 10- to 20-year period. Using panel data to measure household savings might also allow us to indirectly observe consumption as the difference between income and change in net worth (Holtz-Eakin and Smeeding 1994).

Another interhousehold resource allocation issue of growing importance is child support and alimony. Over 20 percent of British children live in single mother households (LIS data, 1999) and the fraction is growing. While fathers are expected to provide financial support to their noncustodial children in Great Britain and the United States, policymakers do not fully know the extent to which these payments are made. Panel data focusing on the economic circumstances to both the donor and recipient households of child support can answer this question. Most surveys collect data on payments received but not on payments made. The BHPS, which collects data on both,

is a notable exception. Data on both child support payments made and received (Jarvis and Jenkins 1996) should be more frequent, focused, and tied to policy.

6.4 Immigration

One of the strongest criticisms of longitudinal panel data, especially older panel data sets such as the PSID, is their exclusion of immigrants. In nations with substantial populations of recent immigrants, such as Canada, Germany and the United States, living panels must assimilate new immigrant populations both to maintain a representative sample of the national population over time and to track the economic well-being of the immigrant population. The GSOEP has taken the lead among current living panels in this regard by integrating a new sample of 1,000 new immigrants. Ongoing general population panels in other nations should follow this lead.

7. Proposals for the Future

Databases, particularly longitudinal databases, are the policy researcher's equivalent of the astronomer's telescope. To inform policy, researchers require a focused and relevant lens through which to observe the world in which policy operates and the behavior that it influences. Several nations now have ongoing longitudinal datasets that contain rich information on the income, health, and living arrangements of their populations. These data are being used by researchers in both national and cross-national contexts, although cross-national comparisons are more difficult to achieve because of comparability issues. The European Community Household Panel (ECHP) has begun to collect unified data on Europe and panel data comparability projects are flourishing. It is important for panel data sponsors to recognize these efforts and to include international comparability as one criterion by which to judge the appropriateness of specific questions or panel data supplements.

It is also important to maintain a clear lens. Policy can be accurately informed only to the degree that the view of the world provided by data is accurate and the ratio of signal (real change) to noise (spurious correlation, sampling and nonsampling errors) is high. Panel administrators must conduct frequent studies of attrition, selectivity, and other related issues that may compromise quality. In this regard, the BHPS and the GSOEP should follow the lead of the PSID and NLS (Gottschalk, Fitzgerald, and Moffitt 1998a, 1998b).

Panel administrators can learn from the experience of others engaged in similar enterprises on a methodological level as well. For instance, the "unfolding brackets" methodology for collecting asset data has vastly improved the quality and quantity of asset data in the United States (Juster and Smith 1997). Similarly, asking questions about asset income (flow) in the same sequence as one asks about asset amount (stock) improves the quality of both types of data. Survey research administrators can learn much more about survey design, sample retention, and the accuracy of the data they collect by talking to each other and adopting proven techniques developed by one another.

National and international bodies should sponsor comparative cross-national research projects and gatherings to help researchers improve comparability and to foster joint studies. The International Genome Project sponsored by science foundations from many nations is one such example from the biological sciences. The U.S. National Institute on Aging is a consistent sponsor of such activities, as are the European Community and the U.S. National Science Foundation. More projects of this sort will produce greater comparability of cross-national panel data. The seeds of such projects focusing on household income distribution comparisons have been planted by the recent "Canberra Project" sponsored by several national statistics agencies and the Luxemburg Income Study (see Canberra 2001 and the LIS website at http://www.lisproject.org).

Finally, it is important that panel data administrators actively market their findings to policymakers in an accurate, timely, and appropriate form. Scientific journal articles need to be transformed into shorter and more focused "policy briefs" and distributed to the media as well as to policy staff at all levels of government. Even shorter one-to-two page "policy bites" can pique interest in longer and more thorough scientific articles. Because panel data require an ongoing commitment of public funds, it is inevitable that the policy uses to which panel data will be put will ultimately determine their funded life. The case must be made that panel data helps better inform public policy in general, and social policy in particular. If such a case cannot be made, the collection of panel datasets is not likely to prosper.

References

Aaberge, Rolf / *Björklund,* Anders / *Jäntti,* Markus / *Palme,* Mårten / *Pedersen,* Peder J., *Smith,* Nina / *Wennemo,* Tom. 1999. "Income Inequality and Income Mobility in the Scandinavian Countries Compared to the United States" unpublished manuscript. Turku, Finland: Åbo Akademi University. April.

Antolin, Pablo / *Dang,* Thai-Thanh / *Oxley,* Howard. 1999. "Poverty Dynamics in Four OECD Countries." Economics Department Working Papers No. 212. Paris: Organization for Economic Cooperation and Development.

Ashworth, Karl / *Hill,* M. / *Walker,* Robert. 1994. "Patterns of Childhood Poverty." Journal of Policy Analysis and Management 13(4): 658 – 80.

Bane, Mary J. / *Ellwood,* David. 1986. "Slipping Into and Out of Poverty: The Dynamics of Spells." Journal of Human Resources 21:1 – 23.

Benitez-Silva, Hugo / *Buchinsky,* Moshe / *Chan,* Hiu Man / *Rust,* John / *Sheidvasser,* Sofia. 1999. "An Empirical Analysis of the Social Security Disability Application, Appeal, and Award Process." Labour Economics 6(2): 147 – 178.

Berghmans, J. S. 1995. "Social Exclusion in Europe: Policy Context and Analytic Framework." In G. Room (ed.), Beyond the Threshold. Bristol, UK: The Policy Press, pp. 10 – 28.

Berkovec, John / *Stern,* Stephen. 1991. "Job Exit Behavior of Older Men." Econometrica 59: 189 – 210.

Bigard, Alain / *Guillotin,* Yves / *Lucifora,* Claudio / *Rappelli,* Federico. 1995. "An International Comparison of Earnings Mobility: The Case of Italy and France." Paper presented at Seventh European Association of Labour Economists (EALE) Conference, Lyon, September 7 – 10.

Björklund, Anders / *Jäntti,* Markus. 1997. "Intergenerational Income Mobility in Sweden Compared to the United States." American Economic Review 87(5) (December): 1009 – 1018.

Blackburn, Keith / *Harding,* Ann. 1995. Proceedings of the 1993 Microsimulation Conference. NABEM, Canberra, Australia.

Bound, John / *Burkhauser,* Richard V. 1999. "Economic Analysis of Transfer Programs Targeted on People with Disabilities." In O. Ashenfelter and D. Card (eds.), Handbook of Labor Economics, Vol. 3. Amsterdam: Elsevier Science, pp. 3417 – 3528.

Bound, John / *Schoenbaum,* Michael / *Stinebrickner,* Todd R. / *Waidmann,* Timothy. 1999. "The Dynamic Effects of Health on the Labor Force Transitions of Older Workers." Labour Economic, 6(2): 179 – 202.

Bradbury, Bruce / *Jenkins,* Stephen P. / *Micklewright,* John. 2001. Falling in, Climbing Out: The Dynamics of Child Poverty in Industrialized Countries. Cambridge, UK: Cambridge University Press, in press.

Brooks-Gunn, Jeanne / *Duncan,* Greg J. / *Aber,* J. Lawrence (eds.). 1997. Neighborhood Poverty: Context and Consequences for Children, Volume 1. New York: The Russell Sage Foundation, October.

Buck, Nicholas / *Scott,* J.. 1993. "She's Leaving Home, But Why? An Analysis of Young People Leaving the Parental Home." Journal of Marriage and the Family 55: 863 – 874.

Burkhauser, Richard V. 2001. "What Policymakers Need to know about Poverty Dynamics," Journal of Policy Analysis and Management 20 (4): 757 – 760.

Burkhauser, Richard V. / *Butler,* J. S. / *Houtenville,* Andrew J. 1999. "Changes in Permanent Income Inequality in the United States and Germany in the 1990s." In T. A. Dunn, J. R. Frick, and J. C. Witte (eds.), Proceedings of the 1998 Third International Conference of German Socio-Economic Panel Study Users. Vierteljahrsheft Zur Wirtschaftsforschung 2: 286–289.

Burkhauser, Richard V. / *Butler,* J. S. / *Holden,* Karen C. 1991. "How the Death of a Spouse Affects Economic Well-Being After Retirement: A Hazard Model Approach." Social Science Quarterly 72(3): 504–519.

Burkhauser, Richard V. / *Butler,* J. S. / *Kim,* Yang-Woo / *Weathers,* Robert. 1999. "The Importance of Accommodation on the Timing of Male Disability Insurance Application: Results from the Survey of Disability and Work and the Health and Retirement Study." Journal of Human Resources 34(3): 589–611.

Burkhauser, Richard V. / *Butrica,* Barbara A. / *Daly,* Mary C. / *Lillard,* Dean R. 2001. "The Cross-National Equivalent File: A Product of Cross-National Research." Department of Policy Analysis and Management Working Paper. Ithaca, NY: Cornell University.

Burkhauser, Richard V. / *Butrica,* Barbara A. / *Wasylenko,* Michael J. 1995. "Mobility Patterns of Older Homeowners: Are Older Homeowners Trapped in Distressed Neighborhoods." Research on Aging (December): 363–384.

Burkhauser, Richard V. / *Cutts,* Amy Crews / *Lillard,* Dean. 1999. "How Older People in the United States and Germany Fared in the Growth Years of the 1980s: A Cross-Sectional versus a Longitudinal View." Journal of Gerontology: Social Science 54B(5): S279-S290.

Burkhauser, Richard V. / *Daly,* Mary C. 1998. "Disability and Work: The Experiences of American and German Men." Federal Reserve Bank of San Francisco Economic Review 2: 17–29.

– 1996. "Employment and Economic Well-Being Following the Onset of a Disability: The Role for Public Policy." In Jerry Mashaw, Virginia Reno, Richard V. Burkhauser, and Monroe Berkowitz (eds.), Disability, Work, and Cash Benefits. Kalamazoo, MI: W.E. Upjohn Institute for Employment Research, pp. 59–102.

Burkhauser, Richard V. / *Duncan,* Greg J. 1991. "United States Public Policy and the Elderly: The Disproportionate Risk to the Well-Being of Women." Journal of Population Economics, 4: 217–231.

Burkhauser, Richard V. / *Haveman,* Robert H. / *Wolfe,* Barbara L. 1993. "How People with Disabilities Fare When Public Policies Change." Journal of Policy Analysis and Management 12(2): 251–269.

Burkhauser, Richard V. / *Holtz-Eakin,* Douglas / *Rhody,* Stephen. 1998. "Labor Earnings Mobility and Inequality in the United States and Germany during the 1980s." International Economic Review, 38(4): 775–794.

– 1997. "Mobility and Inequality in the 1980s: A Cross-National Comparison of the United States and Germany." In Stephen Jenkins, Arie Kapteyn, and Bernard van Praag (eds.), The Distribution of Welfare and Household Production: International Perspectives. Cambridge, UK: Cambridge University Press, pp. 111–175.

Burkhauser, Richard V. / *Kreyenfeld,* Michaela / *Wagner,* Gert G. 1997. "The German Socio-Economic Panel: A Representative Sample of Reunited Germany and Its Parts." Vierteljahrshefte Zur Wirtschaftsforschung 1: 7–16.

Burkhauser, Richard V. / *Poupore*, John G. 1997. "A Cross-National Comparison of Permanent Inequality in the United States and Germany." Review of Economics and Statistics 79(1): 10 – 17.

Canberra Group on Household Income Statistics. 2001. "Expert Group on Household Income Statistics: Final Report and Recommendations." ISBN 0-9688524-0-8. Ottawa, Canada.

Charles, Kerwin Kofi / *Hurst*, Erik. 2001. "The Correlation of Wealth Across Generations." unpublished manuscript. June 22.

Deleeck, H. / *Cantillon*, B. / *Meulemans*, B. / *Van den Bosch*, K. 1992. "Some Longitudinal Results of the Belgian Socio-Economic Panel." Journal of Income Distribution 2(2) (Winter): 211 – 231.

Duncan, Greg J. / *Boisjoly*, J. / *Smeeding*, Timothy M. 1996. "Economic Mobility of Young Workers in the 1970s and 1980s." Demography 33(4) (November): 457 – 709.

Duncan, Greg J. / *Brooks-Gunn*, Jeanne. 1997. The Consequences of Growing Up Poor. New York: Russell Sage Foundation.

Duncan, Greg J. / *Gustafsson*, Bjorn / *Hauser*, Richard / *Schmauss*, Gunther / *Messinger*, Hans / *Muffels*, Ruud / *Nolan*, Brian / *Ray*, Jean-Claude. 1993. "Poverty Dynamics in Eight Countries." Journal of Population Economics 6: 215 – 234.

Duncan, Greg J. / *Raudenbush*, Stephen. 1999. "Assessing the Effects of Context in Studies of Child and Youth Development." Educational Psychologist 34(1): 29 – 41.

Duncan, Greg J. / *Smeeding*, Timothy M. / *Rodgers*, W. 1994. "W(h)ither the Middle Class? A Dynamic View." In D. Papadimitriou and E. Wolff (eds.), Economic Inequality at the Close of the 20th Century. New York: MacMillan, pp. 240 – 271.

Duncan, Greg J. / *Yeung,*, Wei-Jun J. / *Brooks-Gunn*, Jeanne / *Smith*, Judith. 1998. "How Much Does Childhood Poverty Affect the Life Chances of Children?" American Sociological Review 63(3) (June): 406 – 423.

English Longitudinal Study of Aging (ELSA). 2001. (http://www.ifs.org.uk / elsa).

Ermisch, John. 1999. "Prices, Parents and Young People's Household Formation." Journal of Urban Economics 45: 47 – 41.

Ermisch, John / *Di Salvo*, Pamela. 1997. "The Economic Determinants of Young People's Household Formation." Economica 64 (November): 627 – 644.

Folbre, Nancy. 1994. Who Pays for the Kids? Gender and the Structures of Constraint. New York: Routledge.

Francesconi, Marco / *Ermisch*, John. 1998a. "Mother's Behaviour and Children's Achievements," ESRC Research Centre on Micro-social Change Working Paper No. 98 – 3. Colchester, UK: University of Essex.

Francesconi, Marco / *Ermisch*, John. 1998b. "Cohabitation in Great Britain: Not for Long, but Here to Stay," ESRC Research Centre on Micro-social Change Working Paper No. 98 – 1. Colchester, UK: University of Essex.

– 1997. "Educational Choice, Families and Young People's Earnings," Institute for Labour Research Working Paper No. 97 – 11. Colchester, UK: University of Essex.

Fritzell, Johan. 1990. "The Dynamics of Income Distribution: Economic Mobility in Sweden in Comparison with the United States." Social Science Research 19: 17 – 46.

Gauthier, Anne / *Smeeding,* Timothy M. 2001. "Time Use At Older Ages; Crossnational Differences." unpublished manuscript. Center for Policy Research, The Maxwell School. Syracuse, NY: Syracuse University, August.

Gershuny, Jonathan. 1997. "Sexual Divisions and the Distribution of Work in the Household." In Geoff Dench (ed.), Rewriting the Sexual Contract. London, UK: Institute of Community Studies, pp. 141–152.

Gershuny, Jonathan / *Sullivan,* Oriel . 1998. "The Sociological Uses of Time-Use Diary Analysis," Sociological Review, 14(1): 69–85.

Gittleman, Maury / *Joyce,* Mary. 1999. "How Family Income Mobility Patterns Changed?" unpublished manuscript. Washington, DC: Bureau of Labor Statistics, August.

Goodwin, Robert / *Headey,* Bruce / *Muffels,* Ruud / *Dirven,* Henk-Jan. 1997. "Poverty, Inequality and Income Redistribution by Governments." In Proceedings of the Second International Conference of the German Socio-Economic Panel Study Users, Vierteljahrsheft Zur Wirtschaftsforschung, 1: 92–101. [Also in The Three Worlds of Welfare Capitalism: Panel Results for U.S.A., Germany, and The Netherlands 1985–89.]

Gottschalk, Peter / *Danziger,* Sheldon. 1997. "Family Income Mobility–How Much is There and Has it Changed?" unpublished manuscript. Boston, MA: Boston College, July.

Gottschalk, Peter / Fitzgerald, John / *Moffitt,* Robert. 1998a. "An Analysis of Sample Attrition in Panel Data: the Michigan Panel of Income Dynamics." Journal of Human Resources 33(2) (Spring): 251–299.

Gottschalk, Peter / Fitzgerald, John / *Moffitt,* Robert. 1998b. "An Analysis of the Impact of Sample Attrition on the Second Generation of Respondents in the Michigan Panel of Income Dynamics." Journal of Human Resources 33(2) (Spring): 300–344.

Gottschalk, Peter / *McLanahan,* Sara / *Sandefur,* Gary. 1994. "The Dynamics and Intergenerational Transmission of Poverty, and Welfare Participation." In S. Danziger, G. Sandefur, and G. Weinberg (eds.), Confronting Poverty. Cambridge, MA: Harvard University Press, pp. 85–108.

Gottschalk, Peter / *Moffitt,* Robert. 1994. "The Growth of Earnings Instability in the U.S. Labor Market." Brookings Papers on Economic Activity 2: 217–272.

Gruber, Jonathan / *Wise,* David A. 1999. Social Security and Retirement around the World. Chicago: National Bureau of Economic Research.

Haveman, Robert H. / *Wolfe,* Barbara. 1995. "The Determinants of Children's Attainments: A Review of Methods and Findings." Journal of Economic Literature 33(4) (December): 1829–1878.

Haveman, Robert H. / *Wolfe,* Barbara. 1990. "The Economic Well-Being of the Disabled, 1962–1984." Journal of Human Resources 25(1): 32–55.

Holtz-Eakin, Douglas / *Smeeding,* Timothy. 1994. "Income, Wealth, and Intergenerational Economic Relations." In L. Martin and S. Preston (eds.), Demography of Aging. Washington, DC: National Academy of Sciences Press, pp. 102–145.

Howarth, Charles / *Kenway,* Peter. 1998. Monitoring Poverty and Social Exclusion: Why Britain Needs a Key Indicators Report. London, UK: New Policy Institute.

Hurst, Eric / *Luoh,* Ming Ching / *Stafford,* Frank P. 1998. "Wealth Dynamics of American Families, 1984 – 94." Brookings Papers on Economic Activity 0(1): 267 – 329.

Iacovou, Maria / *Gershuny,* Jonathan. 1998. "Young People in Europe: Two Models of Household Formation." ESRC Research Centre on Micro-social Change Working Paper No. 98 – 13. Colchester, UK: University of Essex.

Iams, Howard / *Butrica,* Barbara. 1999. "The MINT Model." unpublished manuscript. Washington, DC: Social Security Administration, April.

Immervoll, Herwig / *O'Donoghue,* Cathal / *Sutherland,* Holly. 1999. "In Introduction to EUROMOD." EUROMOD Working Paper No. EMO / 99. Cambridge, UK: Department of Applied Economics, University of Cambridge. http://www.econ.cam. ac.uk / dae / mu / emwp0.pdf

Jargowsky, Paul A. 1997. Poverty and Place: Ghettos, Barrios, and the American City. New York: Russell Sage Foundation.

Jarvis, Sarah / *Jenkins,* Stephen P. 1998. "Marital Dissolution and Income Change: Evidence for Britain." In J. Millar and R. Ford (eds.), Private Lives and Public Responses. London, UK: PSI Press, Chapter 6, pp. 104 – 117.

– 1997. "Low Income Dynamics in 1990s Britain," Fiscal Studies, 18(2): 123 – 142.

– 1996. "Changing Places: Income Mobility and Poverty Dynamics in Britain," ESRC Research Centre on Micro-Social Change Working Paper No. 96 – 19. Colchester, UK: University of Essex.

Jenkins, Stephen P. 1994. "The Within-Household Distribution and Why it Matters: An Economist's Perspective." In C. Badelt (ed.), Familien zwischen gerechtigkeitsidealen und benachteiligungen. Vienna: Bohlau-Verlag, chapter 4, pp. 74 – 98.

– 2000. "Modeling Household Income Dynamics," Journal of Population Economics, 13: 529 – 567.

Jenkins, Stephen / *O'Leary,* Nigel. 1995. "Modeling Domestic Work Time," Journal of Population Economics, 8: 265 – 279.

Juster, F. Thomas / *Smith,* James P. 1997. "Improving the Quality of Economic Data: Lessons from the HRS and AHEAD." Journal of the American Statistical Association 92(444) (December): 1268 – 1278.

Juster, F. Thomas / *Smith,* James P / *Stafford,*. Frank. 1997. "Savings Wealth and Income: Then and Now." Paper presented at the Economics of Aging International Health and Retirement Surveys Conference, Amsterdam, The Netherlands, August.

Juster, F. Thomas / *Suzman,* Richard. 1995. "An Overview of the Health and Retirement Study." Journal of Human Resources XXX(Special Issue): S7-S56.

Kerkhofs, Marcel / *Lindeboom,* Maarten / *Theeuwes,* Jules. 1999. "Retirement, Financial Incentives and Health." Labour Economics 6(2): 203 – 228.

Leisering, Lutz / *Walker,* Robert. 1998. The Dynamics of Modern Society: Poverty, Policy and Welfare. Bristol, United Kingdom: The Policy Press.

Lumsdaine, Robin L. / *Mitchell,* Olivia S. 1999. "New Developments in the Economic Analysis of Retirement," Handbook of Labor Economics. Amsterdam: Elsevier Science: Vol. 3.

Lundberg, Shelly / *Pollak,* Robert. 1996. "Bargaining and Distribution in Marriage." Journal of Economic Perspectives 10(4): 139 – 158.

– 1994. "Noncooperative Bargaining Models of Marriage." American Economic Review 84(2): 132–37.

Lundberg, Shelly / *Pollak,* Robert A. / *Wales,* Terence J. 1997. "Do Husbands and Wives Pool Their Resources? Evidence from the United Kingdom Child Benefit." Journal of Human Resources 32(3) (Summer): 463–480.

Massey, Douglas. 1997. "The Age of Extremes: Concentrated Affluence and Poverty in the 21st Century." Demography 33(4) (November): 395–412.

Maynard, Rebecca A. 1997. Kids Having Kids: Economic Costs and Social Consequences of Teen Pregnancy. Washington, DC: The Urban Institute Press.

Michael, Robert. 1996. "Money Illusion: The Importance of Household Time Use in Social Policy Making." Journal of Family and Economic Issues 17: 245–260.

Miller, Herman. 1955. Income of the American People. New York: John Wiley and Sons.

Morgan, James / *David,* Martin / *Cohen,* Wilbur / *Brazer,* Harvey. 1962. Income and Welfare in the United States. New York: McGraw-Hill.

Organization for Economic Cooperation and Development. 1996. "Aging in OECD Countries: A Critical Policy Challenge." Social Policy Studies Paper No. 20. Paris: Organization for Economic Cooperation and Development.

Orcutt, Guy H. / *Merz,* Joachim / *Quinke,* Hermann (eds.) 1996. Microanalytic Simulation Models to Support Financial and Social Policy. Amsterdam and New York: Elsevier Science.

Osberg, Lars. 1999. "Long Run Trends in Economic Inequality in Five Countries–A Birth Cohort View." unpublished manuscript. Halifax, NS, Canada: Dalhousie University.

Oxley, Howard / *Dang,* Thai-Thanh / *Forster,* Michael / *Pillizari,* Michele. 1999. "Income Inequalities and Determinants." unpublished manuscript, Social Affairs Directorate. Paris: OECD, September.

Quinn, Joseph F. / *Burkhauser,* Richard V. 1994. "Retirement and Labor Force Behavior of the Elderly." In Linda Martin and Samuel Preston (eds.), Demography of Aging. Washington, DC: National Academy of Science, pp. 50–101.

Quinn, Joseph F. / *Smeeding,* Timothy M. 1993. "The Present and Future Economic Well-Being of the Aged." In Richard V. Burkhauser and Dallas L. Salisbury (eds.), Pensions in a Changing Economy. Washington, DC: NAA / EBRI, pp. 5–18.

Rowntree, Seebohm. 1901. Poverty: A Study of Town Life. London, UK: Longman.

Rust, John P. 1989. "A Dynamic Programming Model of Retirement Behavior." In David Wise (ed.), The Economics of Aging. Chicago: University of Chicago Press, pp. 359–398.

Shorrocks, Anthony F. 1978. "Income Inequality and Income Mobility." Journal of Economic Theory 19: 376–393.

– 1981. "Income Stability in the United States." In N. Anders Klevmarken and Johan A. Lybeck (eds.), The Statics and Dynamics of Income. Clarendon, UK: Ticto, Ltd., pp. 174–194.

Smeeding, Timothy. 1998. "Reshuffling Responsibilities in Old Age: The United States in a Comparative Perspective." In J. Gonyea (ed.), Re-Securing Social Secur-

ity and Medicare: Understanding Privatization and Risk. Washington, DC: Gerontological Society of America, pp. 24–36.

– 1997a. "Time Use and Public Policy." Paper presented at MacArthur-BLS Conference on Time Use, Washington, DC, November. Syracuse, NY: Syracuse University.

– 1997b. "Financial Poverty in Developed Countries: The Evidence from the Luxembourg Income Study." Human Development Papers, New York: United Nations Human Development Report Office, pp. 195–240.

Smeeding, Timothy M. / *Sullivan,* Dennis. 1998. "Generations and the Distribution of Economic Well-Being: A Cross-National View." American Economic Review, Papers and Proceedings 88(2) (May): 254–258.

Solon, Gary. 1992. "Intergenerational Income Mobility in the United States." American Review 82: 393–408.

Stock, John H. / *Wise,* David A. 1990. "Pensions, the Option Value of Work, and Retirement." Econometrica 58: 1151–1180.

Sutherland, Holly. 1997. "Households, Individuals and the Redistribution of Income." Economic Policy 22 (January): 117–143.

Vallenta, Rob. 2001. "When Money is Tight: Poverty Dynamics in OECD Countries." 2001 Economic Outlook, Paris: Organization for Economic Cooperation and Development.

Vickery, Clair. 1997. "The Time Poor: A New Look at Poverty." Journal of Human Resources 12(1): 27–48.

Voges, Wolfgang / *Duncan,* Greg J. 1995. "Do Generous Social-Assistance Programs Lead to Dependence? A Comparative Study of Lone Parent Families in Germany and the United States," Center for Demography and Economics of Aging Seminar Series, The Maxwell School. Syracuse, NY: Syracuse University.

Willis, Robert J. 1999. "Theory Confronts Data: How the HRS is Shaped by the Economics of Aging and How the Economics of Aging Will be Shaped by the HRS." Labour Economics 6(2): 119–146.

Wolf, Douglas A. / *Freedman,* Vicki / *Soldo,* Beth J. 1997. "The Division of Family Labor: Care for Elderly Parents." The Journals of Gerontology: Series B: Psychological and Social Sciences 52B: 102–109.

Zimmerman, David J. 1992. "Regression toward Mediocrity in Economic Stature." The American Economic Review 82: 409–429.