

## CLOCKING THE PROGRESS IN TIME USE RESEARCH

Review of *Time Use—Research, Data and Policy*  
edited by Joachim Merz and Manfred Ehling (1999)

Time, like money, is a scarce resource. Unlike money, however, it is the one resource with which all individuals are equally endowed on any given day. Why then is there such wide variation in how each of us chooses to use our time? What roles do cultural, socio-demographic, and economic factors play in the choices individuals make about paid employment, unpaid work in the home, and leisure activities? How have work and leisure patterns changed historically as wages, income, technology, household composition, and social mores have changed?

For almost a century, social scientists have been interested in learning more about how individuals allocate their time and what forces shape time-use choices. In large part, research in this area has been motivated by the direct connections between time use and household economic well-being. Economists focused their early efforts on understanding the relationship between wage rates, time spent in market work, and the implications for household income. In contrast, home economists and family sociologists devoted their energy to describing the time spent in unpaid housework, who does it, and how this work affects quality of life. In the 1960s, these two rather separate research streams became intertwined when Gary Becker (1965) wedded firm production theory with the labor economists' labor-leisure model of time allocation. The result was his path-breaking theory of household production (later extended by Rubin Gronau, 1977).

Over the past couple of decades, empirical tests of the hypotheses generated using household production theory have appeared in the literature along with a number of critiques by feminist economists and family sociologists (see for example, Berk and Berk, 1983). While critics embrace the idea that a great deal of productive work is done outside of paid employment, they contest the household production model's simplistic notion of a single household utility function. Most recently, bargaining theory has been championed as an alternative organizing principle for household decision-making because it specifies individual rather than household utility functions. By doing so, bargaining models allow for negotiation and the resolution of conflicts between household members (Manser and Brown, 1980; McElroy and Horney, 1981; McElroy, 1990). In addition, these models highlight the potential importance of what Marjorie McElroy (1990) refers to as extra-household environmental parameters (e.g. tax policies, welfare policies, financial support from extended family members) in affecting threat points and ultimately the choices made about time use and goods purchased.

*Time Use—Research, Data and Policy* is an edited volume of papers that were presented at the International Conference on Time Use in Luneburg, Germany in 1998. It is a somewhat eclectic collection of conceptual, methodological, and

empirical pieces on time use. Like the larger field of time use research, some of the papers in this volume utilize the household production framework while others adopt the bargaining framework. The editors do not attempt to link the findings across the various chapters in order to build a more comprehensive picture of time use and/or the theories used to inform our understanding of time use. Instead, as is quite common with a conference volume, each chapter stands alone in its investigation of an empirical, conceptual, or methodological issue related to time allocation.<sup>1</sup>

The Merz and Ehling volume, like those that have preceded it (Richey and Lovingood, 1983; Juster and Stafford, 1985; Avery, 1996), adds to our understanding of specific aspects of time use (e.g. the inter-connections between husbands' and wives' labor supply, time spent searching for purchase information by internet and non-internet users). It also serves as an excellent reference for those who want to learn more about time use data collection issues and the data that have been gathered in various countries. But, if one steps back, and views these separate papers in the context of various economic theories of housework, then the papers presented in this volume also provide important direction for future time use research.

Two of the articles in the Merz and Ehling volume test hypotheses generated from household production theory against those generated by the rival bargaining theory. This has been rarely done historically in the context of examining non-market time use. Peter Kooreman and Simone Dobbelsteen illustrate how these two frameworks yield contrasting predictions regarding the role that wages play in couples' financial management time use decisions. Miriam Beblo compares and contrasts the predictions of the household production and bargaining models as they inform choices about intrafamily time allocation. In each case, the empirical work provides stronger support for the bargaining model than for household production theory—suggesting that the assumption of a single, household-level utility function may be too simplistic.

The Merz and Ehling volume also raises intriguing possibilities regarding how time use data from multiple countries could be used to test various aspects of the household production and bargaining theories. Historically, time use investigations have been largely confined to analyses of surveys from a single country. While such surveys may contain considerable variation in wage rates and other prices, often there is comparatively little within country variation in extrahousehold environmental parameters, household technology<sup>2</sup> and/or preferences.

The chapter by Manfred Garhammer in the Merz and Ehling volume demonstrates that there is considerable variation in time use across countries. He compares and contrasts time use in four different European countries: Sweden, Germany, Spain, and the United Kingdom. He reports that the Swedes spend significantly less time in leisure and significantly more time in personal care and

<sup>1</sup>Chapters are grouped, however, around the following section headings: "International Time Use Statistics," "Time Use Research, Survey Methodology, Scientific and Public Use Files," "The Labour Market," "Household Production, Valueing Time Use, Extended Welfare Analysis," and "Market and Non-Market Activities."

<sup>2</sup>For example, data from the Association of Home Appliance Manufacturers reveal that in 2001 over 90 percent of U.S. households had some type of range, a microwave oven, a refrigerator, a clothes washer *and* a dryer (Association of Home Appliance Manufacturers, 2002).

housework than their counterparts in the other three countries. Could this difference be explained by technological or cultural (i.e. preferences) variations that exist across these countries? Or, are they a function of differences in the institutional arrangements of the labor markets and/or the social welfare systems (i.e. the extrahousehold environmental parameters)? We need more time use research that utilizes data from multiple countries. Such analyses are likely to provide important opportunities to test somewhat neglected aspects of the household production and bargaining models that relate to the effects of technology, preferences, and governments' social welfare programs on household time use.

The chapters in *Time Use—Research, Data and Policy* also suggest potentially fruitful areas for application for those who have access to data from only one country. They provide a rich research agenda for those interested in questions regarding the magnitude of time spent doing housework, the tradeoffs we make between housework and market work, and what it all means for the economic well-being of households and society. For instance, Hao Yan, Tony Hynes, and Maneerat Pinyopusarek use data from Australia to estimate the economic value of Australians' time spent formally volunteering with social service agencies and informally assisting people in need. They conclude that individuals contribute more hours to such activities than either the government or the non-profit sector contribute. This is a provocative result that certainly raises questions about the importance of community and social connectedness for family well-being. Why do some individuals volunteer large numbers of hours each year while others do not? Are the efforts of volunteers more or less effective in achieving familial and/or societal goals than the efforts of government or nonprofit institutions? Robert Putnam (2000) has argued that Americans have been investing less in their social capital (i.e. family, friends, community) over the past 25 years. Is this potentially disturbing trend also evident in other countries?

In another chapter, Joachim Merz and Dagmar Kirsten show that in Germany, poverty rates and income inequality are substantially reduced when the value of household production time is included in the income distribution calculations. They use data from the German Socio-Economic Panel where respondents were asked to report on the usual amount of time they spend in housework, shopping, child care, gardening, and repairs on weekdays and Sundays. Both replacement cost and self-evaluations of the savings realized by doing the housework are used to assign a monetary value to this productive time. Regardless of the valuation method used, their findings show that poorer Germans partially expand their relative access to goods and services by spending more time in housework than richer Germans. Is unpaid housework an income equalizing factor in other countries? How sensitive are the results to the choice of valuation used (i.e. replacement cost, self-evaluations of savings, and opportunity cost methods)?

Clearly, unpaid productive activities affect the overall well-being of families. But, we still have so much to learn. Research is needed on community volunteer time, parent-child time, human capital investment time, and social capital investment time. Moreover, we need to investigate (1) how household production and bargaining theories enhance our understanding of the determinants of such time

use, and (2) how time spent in these activities affects the well-being of families, communities and society.

Within the context of more traditionally defined housework, there is also the need for more research that better capitalizes on the detailed time-use information that is gathered in many surveys. For example, if we want an accurate accounting of the value of housework activities for the purposes of augmenting national income accounting systems, then we need to go beyond simply quantifying the time adults spend in household work. Margaret Grieco and Jeff Turner argue in their chapter that women are much more likely than men to utilize transportation in ways that link multiple productive activities (e.g. on their way home from work they stop to grocery shop, then they go to the bank, next they pick up dry cleaning, and finally they head home). This notion of “trip chaining” suggests that other important dimensions of housework (e.g. joint production) need to be evaluated if we are to assess the economic value of housework accurately.

As a first step in capturing other dimensions of housework, time use researchers should begin to assess the intensity and continuity of housework activities. One way of measuring the level of effort involved in housework would be to examine the mix of primary and secondary housework time. To date, all estimates of housework focus exclusively on the former (i.e. time where one’s attention is primarily or exclusively focused on housework), although a number of time diary surveys gather information on secondary activities. People often engage in two different household tasks simultaneously (e.g. ironing clothes while simultaneously talking to one’s spouse about the need to revise the monthly budget because of unanticipated expenses), or their primary attention may be focused on a leisure activity while their secondary activity is some type of housework (e.g. watching television while folding clothes). We have virtually no knowledge of what the mix of primary and secondary housework is and what it implies for the total value of this work.<sup>3</sup>

We also have very little knowledge of the timing of housework, spell lengths, and the number of disruptions experienced while doing housework. For example, attempts to prepare a meal while simultaneously supervising a toddler can be challenging. One father may report a ten-minute segment of meal preparation followed by a ten-minute segment of child care and this pattern may repeat itself for an entire hour. Another father may report a 30-minute segment of meal preparation, followed by a 10-minute segment of child care, followed by a 20-minute segment of of meal preparation. Both fathers have spent an hour doing housework. But the first dad, who had to deal with the repeated interruptions of a child, may have had more trouble concentrating on his cooking tasks than did the second dad. As another example, the woman who must rise at 6 am to do household chores before leaving for her paid employment may find the housework more mentally and physically taxing than the woman who is able to wait until 9 am to begin these tasks.

<sup>3</sup>Zick and Bryant (1996) examined the mix of primary and secondary time spent by parents in child care and found that between 30 and 34 percent of all parental child care is done as a secondary activity. If the same is true of housework, estimates that ignore secondary time may be seriously undercounting total housework.

Analyses of household work spells and the mix of primary and secondary housework could set the stage for much-needed research on the relationship between household production inputs (e.g. time, skills, and technology) and production outputs (e.g. happy, healthy family members). This type of research has been quite rare. Indeed, although many of the chapters in *Time Use—Research, Data and Policy* use the household production framework to guide their research, none of them actually estimate a household production function. Nevertheless, if we are to understand what role unpaid housework time plays in the overall well-being of families, and if we are to someday routinely include household production in national income accounts, then we need to understand the relationship between housework time inputs and production outputs.

A firmer understanding of housework and other unpaid productive activities can help answer many important policy questions. For example, how do public policies (e.g. tax policies, family leave policies, welfare policies) change the mix of market, housework, and leisure time? How would the national income accounts change if we included the value of citizens' unpaid productive activities? To what extent are gross domestic product growth rates biased because they exclude the home productivity losses that typically occur when someone enters the labor market?<sup>4</sup>

But, to answer questions like those above, one needs valid and reliable time-use data. Implicit in virtually all of the conceptual pieces in *Time Use—Research, Data, and Policy* is the agreement that time diaries provide the most cost effective way of gathering valid and reliable time-use information.<sup>5</sup> In time diary surveys, respondents are asked to record sequentially how they spend their time (primary and sometimes secondary and tertiary) over a 24-hour period, who they were with, and where activities were done. Ideally, information from at least two 24-hour periods are gathered for each respondent—one from a week day and another from a weekend day. Interviews must also be spaced over the year in order to capture any possible seasonal variations in time use. All of which means that undertaking a time diary survey is a very expensive and time-intensive proposition. As a consequence, time diary data have been infrequently gathered and researchers have often been forced to test their time-use hypotheses with less valid and reliable (but also less costly) stylized survey questions that ask respondents about usual or typical time spent in various activities. In particular, economists investigating labor supply issues often use data gathered on usual or typical hours of market work.

In his paper, Anders Klevmarken describes the problems encountered when using stylized questions rather than time diary questions to measure market work time. Using Swedish data, he finds significant differences in the estimated changes in work hours depending on whether the data are taken from time diaries or survey questions that ask about typical employment time. Robinson and Bostrum

<sup>4</sup>To date, Canadian policymakers and academic researchers have probably done the most work on these “big picture” questions. The Canadians incorporated time use questions in to their General Social Survey program in 1986. Since then, they have published a number of studies on Canadian time use. See, for example, Harvey, Marshall, and Frederick (1991) and Statistics Canada (1995).

<sup>5</sup>Confirmation of this can be found in the work of Robinson (1985) and in the chapter by F. Thomas Juster in the current volume.

(1994) and Juster and Stafford (1991) find that respondents report spending more time in market work when they answer stylized questions compared to when they fill out time diaries. Robinson and Bostrum's (1994) multivariate analysis shows that the error is higher for women than men and higher for those who work more hours compared to those who work fewer hours. Reporting error from stylized questions is not limited to market work either. Juster and Stafford (1991) find substantial amounts of over-reporting of housework (for women only) and child care time (for both men and women). Bryant, Chan, Kang, and Zick (2002) also find considerable over-reporting of housework time and their statistical analysis reveals that the over-reports are significantly related to age, education, number of children, and the wife's employment status. Thus, the few time-use reporting error studies that have been done to date suggest that data taken from stylized questions may be systematically less accurate than time-diary data and this reporting error may be related to individual and/or household characteristics that are often used as covariates in time use analyses.

The good news is that government officials in a number of countries have been convinced of the value of gathering high quality time diary data in recent years because these diaries yield highly reliable and valid data on a wide range of activities that are of interest to policymakers (e.g. market work, housework, parent-child time, volunteer time). For instance, the Australian government undertook national time diary surveys in 1992 and 1997, and the Canadian government gathered time diary data in 1986, 1992, and 1998 as part of their annual General Social Survey. Many members of the European Union have also begun to regularly gather time diary data. In his chapter in *Time Use—Research, Data and Policy*, Klas Rydenstam describes the very ambitious Eurostat time diary project that focuses on harmonizing the collection of time diary data and the reporting of associated statistics among member countries. Such data harmonization efforts are particularly exciting in light of the need to undertake cross-national time-use research.

The United States has been noticeably absent from time diary data gathering efforts. But that is about to change. In January 2003, the U.S. Bureau of Labor Statistics will undertake a national time diary survey with a subset of households participating in the Current Population Survey (U.S. Bureau of Labor Statistics, 2001). This new data collection effort, taken in combination with the increasing harmonization of the diary surveys being done in many European countries as well as in Australia and Canada, suggests that researchers are beginning to gain access to a wealth of valid and reliable measures of time use.

As researchers and government officials prepare to put new surveys in the field, the research presented in *Time Use—Research, Data and Policy* provides important insights about what types of data, in addition to time diaries, should be collected. If we are to understand the forces that influence time use, then questions on prices, income, household technology, extra-household environmental parameters, and characteristics related to underlying preferences must be included in these surveys. If we want to learn how time use affects family, community, and societal well-being, then questions about the policy-relevant outputs must also be included. For example, in the case of children, the output measures might include school performance, behavioral problems, and age-appropriate

developmental milestones. Alternatively, in the case of adults, the output measures might include scales that measure mental health (e.g. stress, anxiety), physical health, marital satisfaction, and adults' subjective assessments of their overall quality of life.

Scholars must be poised to make the most of these new data sets. What should the research priorities be? The chapters in *Time Use—Research, Data and Policy* suggest that we should have four priorities: (1) enhance the theoretical models so as to allow for the complexities of family decision making; (2) capitalize on cross-national data harmonization efforts to test some of the household production and bargaining hypotheses that generally cannot be examined with data from a single country; (3) estimate the input demand functions for key categories of productive time spent outside of the labor market (e.g. household work, community volunteering, time spent with children); and (4) link these time inputs to policy-relevant outputs (e.g. the impact of housework on income distributions, the effect of volunteer time on community cohesion, the relationship between parent-child time and children's success in school). Research in these four areas will serve to enhance our understanding of the determinants of family well-being significantly. It is time to get to work!

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