Complex Problems – Complex Data: Welfare Reform and the Survey of Program Dynamics

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Abstract - The Survey of Program Dynamics (SPD) is a longitudinal, demographic survey which grew out of the 1996 legislation reforming the national welfare system. That legislation directed the Census Bureau to collect data paying particular attention to issues of out-of-wedlock births, welfare dependency, spells of welfare and their causes, and the status of children. SPD data allows researchers to address these questions and many more. While providing unique opportunities to researchers, the SPD offers a significant number of challenges in the longitudinal use of the survey data, including those inherent with using three different collection vehicles over the life of the survey, the lack of continuous annual data over the ten year survey period, high levels of attrition, and the use of topical module data with core SPD data. This paper focuses on these challenges and offers suggestions on how they can be overcome. It also provides an introduction to the three contributed papers in this session which present examples of how to use SPD data.

Introduction

The Personal Responsibility and Work Opportunity Reconciliation Act of 1996 (Welfare Reform Act) transformed the role of federal and state governments in caring for low-income families. Among other things, it provided federal funds to states by means of block grants, instituted work and time limit requirements for program recipients, and gave states broad authority to design state welfare programs. It also directed the Census Bureau to continue to collect data from the 1992 and 1993 Survey of Income and Program Participation (SIPP) panels as necessary to evaluate the impact of welfare reform.

The result of this legislative direction was the Survey of Program Dynamics (SPD), a longitudinal, demographic survey designed to collect data on economic, household, and social characteristics of a nationally representative sample. The goals of welfare reform were to end welfare dependence by promoting job preparation and work, encouraging the formation and maintenance of two-parent families, and providing states increased flexibility to achieve these goals. States have moved away from a welfare system based on entitlement, towards one focused on assistance in finding employment and self-sufficiency.

Thus, the primary goal of the SPD is to track some of the long-lasting effects of the decentralization of the welfare system in the United States, and the social, demographic, and economic impact these changes have had over time. Specific goals are to provide information on spells of actual and potential program participation over a ten-year period, 1992 to 2001, and to examine the causes of program participation and its long-term effects on the well-being of recipients, their families, and their children. Welfare reform legislation specifically required the Census Bureau to pay particular attention to the issues of :

- Out-of-wedlock births
- Welfare dependency
- The beginning and end of welfare spells
- The causes of repeat welfare spells
- The status of children

This paper looks at the origins and purpose of the SPD, and provides information on the background, development, design, and content of the survey. It also sets the stage for the three contributed papers that will follow. Those papers are valuable for at least two reasons:

- Each looks at one or more issues related to welfare reform and use data from the SPD to try and provide some insight on those issues.

- Equally important, each paper looks at a number of the challenges that researchers are likely to encounter when using SPD longitudinal data.

History and Background of the SPD

A brief history and background of the SPD is instructive for understanding some of the complexities and limitations involved in using SPD data. The genesis of the SPD began long before the 1996 Welfare Reform Act became law. A small group of Census Bureau researchers in the early 1990s felt there was a need for a long-term survey to monitor social, demographic, and economic change in the U.S. population.

At about this same time, the Census Bureau was planning the redesign of the Survey of Income and Program Participation (SIPP), its principal survey for measuring longitudinal economic conditions. The Bureau had been taking the SIPP since 1984. Panels for the survey had generally lasted about 32 months each, with a new panel beginning at the start of each calendar year. Many researchers believed that the 32-month panel length was not long enough to fully measure the things the survey was supposed to focus on – job activities, spells of unemployment, and program participation.

With this in mind, the Bureau decided on a 4-year panel design beginning with the 1996 SIPP. Despite this change, many researchers felt that even a 4-year period was not enough to study many of the social and demographic changes that families and individuals experience over time.

In 1993, Census Bureau researchers began talking about an "extended" SIPP panel which would follow SIPP respondents for an additional period beyond 4 years. Other federal agencies became interested in this idea and provided small amounts of money (DHHS, USDA) to the Census Bureau to continue its research.

Planning and development proceeded cautiously throughout 1993 and 1994 as there was no real sponsor, nor funding, for a full-fledged survey. Some thought that possible welfare reform legislation might be the vehicle that would create the funding for a longer SIPP and began meeting with Congressional staff during that period. With no legislation in sight, it was possible to prepare only contingency plans for the survey. Nonetheless, two primary design goals for the survey became clear:

- Providing information on actual and potential program participants over the ten-year period 1992 to 2001.

- Examining the consequences of program participation on the well-being of recipients, their families, and their children.

By the end of 1995, with no welfare reform legislation pending, and no sources of funding for a survey on the horizon, the SPD went into a hiatus. This hiatus lasted until the summer of 1996, when the Census Bureau received word that a new welfare reform bill had been introduced and planning resumed on the operational aspects of taking a survey. Welfare reform legislation was passed in August of 1996 directing the Census Bureau to continue to collect data on the 1992 and 1993 panels of SIPP. With passage of the law, the SPD moved from being just an idea to an authorized and funded program and the Census Bureau had to increase staffing immediately.

Design of the SPD Program

The continued use of the 1992 and 1993 SIPP panels meant that these two frames would provide the base for the SPD sample and that the program would have three design components. The data already collected in the two SIPP panels are component one. They provide extensive baseline (background) information from which to measure the effects of welfare reform. Because SIPP at the time was a longitudinal survey of households interviewed nine times over 36 months, the 1992 and 1993 panels serve to characterize the pre-welfare reform period of 1992 to 1995 quite well. The SIPP collects an enormous amount of detailed data on demographic, economic, and social characteristics of households and thus becomes an incredibly rich jumping off point for the SPD.

The Census Bureau's original plan was to launch the SPD with its own data collection instrument concurrently with welfare reform. Because of delays in the passage of the legislation, the Census Bureau received funding too late in 1996 to develop a full-scale instrument that could be brought to the field in early 1997 to collect data for 1996. However, it was critical that data be collected on income and program participation for this time period from as many

1992 and 1993 SIPP households as possible. Any significant delay would cause the Bureau to lose, or not find, many of these households and miss the opportunity to collect data for 1996.

Thus, the second component of the SPD design was developed - the 1997 "Bridge" Survey. It took its name from the fact that it was intended to bridge the data gap between the close of the 1992 and 1993 SIPP panels and the start of the core SPD. The Bridge Survey was in the field between April and June of 1997 collecting data for 1996. It used a modified version of the March 1997 Current Population Survey demographic supplement with a few questions added to get information on program participation in 1995 from the 1992 SIPP panel (last interviewed in January 1995). All persons involved in the first 1992 and 1993 SIPP panel interviews who were still being interviewed at the end of the panels were eligible for the Bridge Survey[1].

The final component of the SPD program is the 1998 to 2002 annual SPD. This is comprised of the core SPD questionnaire and topical modules that vary by year. Interviewing for each annual SPD takes place in May and June with a set of retrospective questions for the prior year asked for all people in a sample household 15 years old or older. When the three components of the SPD are taken together they result in a longitudinal database spanning a ten-year period which provides an incredibly rich set of data by which to assess the short-term and medium-term consequences and outcomes of welfare reform on families and individuals.

Content of the 1998 – 2002 SPD

The 1998 through 2002 SPD covers a wide variety of topics allowing researchers a unique opportunity to assess the effects of welfare reform legislation. A flavor for the topics covered in the SPD follows:

1. Basic demographic characteristics

    - Household composition and relationships within the household
    - Educational enrollment and work training
    - Functional limitations and disabilities
    - Substance abuse
    - Health care use and health insurance

2. Basic economic characteristics

    - Employment and earnings
    - Income sources and amounts
    - Assets, liabilities, and program eligibility
    - Food expenditures and food security

[1] A sample of SIPP households who did not complete the last SIPP interview was included in the SPD in 2001 when additional funding was received from DHHS.

3. Information about children

    - School enrollment and enrichment activities
    - Disability
    - Health care use
    - Contact with absent parents
    - Mother's work schedule and child care arrangements
    - Child support and compliance

4. Two self-administered questionnaires

    - A questionnaire for adults focusing on marital relationships, conflict, and a depression scale measuring respondent's feelings about themselves and their lives.
    - A questionnaire for adolescents between 12 and 17 focusing on family conflict, vocational goals, educational aspirations, crime-related violence, substance abuse, and sexual activity (collected 1998 and 2001).

5. A children's residential history module

    A module that measures the residential histories of children 18 and younger focusing on the changes in the living arrangements of children (collected 2000).

6. An extended measures of child well-being module (collected 1999 and 2002)

Why the SPD?

Why is the SPD likely to be an invaluable database for measuring the effects of welfare reform? After all, there are many surveys such as the March Current Population Survey (CPS) and the SIPP, which collect some of the same information collected in the SPD. In particular, SIPP focuses a great deal of attention on the income and program participation of individuals. In addition, many agencies have substantial databases or have done research that address their specific program needs. Why do research using the SPD?

First, while surveys such as the CPS collect valuable information for many purposes, including an understanding of welfare reform, they are cross-sectional in nature – they allow comparisons of characteristics at two points in time (a comparison of two "snapshots"). Any evaluation of welfare reform that focuses on individual effects must include a longitudinal component allowing pre and post analysis of the same individuals.

Second, although SIPP is a longitudinal survey, it suffers from bad timing. The 1993 SIPP panel concluded interviewing in January 1996, and the 1996 panel began data collection in April 1996, while welfare reform took effect on October 1, 1996. Information from the earlier SIPP

(1993) does not have post-reform information, and the 1996 SIPP has only a few months of pre-reform information – limiting our ability to accurately measure initial conditions. Furthermore, data collection for the 1996 SIPP ended in March 2000, limiting the post-reform period to one shorter than SPD.

Finally, relying solely on the databases or research of agencies charged with specific program administration would inevitably result in a too focused evaluation with major gaps in information. Thus, a comprehensive data collection vehicle is needed to provide an overall evaluation of the effects of welfare reform. This requires a survey that not only collects the complex subject matter needed for a proper evaluation of welfare reform, but one that provides both enough pre-reform information for an adequate assessment of baseline circumstances, and post-reform information to adequately measure the effects of reform.

No one source of information will be able to provide a complete picture of the effects of welfare reform. Many sources of information, and research over many years, will be needed. However, the SPD, with its three component design should be a primary resource of basic data for researchers, policy makers, and others trying to understand and assess welfare reform.

Research Issues Addressed by the SPD

Researchers and analysts will be able to use the SPD longitudinal database to address and answer a significant number of research questions. Some of those questions are:

1. What types of jobs are former welfare recipients getting and what types of employers are hiring them? Do they stay at the first job they obtain after leaving welfare or move to another job? What benefits are provided by employers and how do these benefits compare to the benefits received while on welfare?

   The SPD questions on employment provide a detailed account of work-related activities for everyone in the household 15 years old and older that will help in addressing these issues. The SPD collects information on weeks worked, weeks on layoff, weeks spent looking for work, as well as detailed employment information for up to four jobs.

2. For welfare recipients having difficulties in transitioning to work, are there identifiable barriers preventing this transition?

   Information from the SPD on educational levels, vocational training, domestic violence, substance abuse, functional limitations and disabilities will help to determine if similar characteristics exist in those having difficulties moving from welfare to work.

3. Is the economic situation of former welfare recipients better or worse after welfare reform? Are the families leaving welfare attaining self-sufficiency?

The questions on income sources and income amounts as well as those on employment that identify the types of jobs being obtained by former recipients will be useful in answering these questions.

4. Just because people move from welfare to work does not mean they are no longer eligible for programs such as food stamps or medicaid. Are people who leave welfare not receiving benefits for which they are eligible?

   The series of questions on program eligibility and participation as well as those on sources of income address this question.

5. One of the primary concerns of welfare reform is on the status of children. What are the effects of welfare reform on children's well-being?

   The SPD has a series of questions regarding children. They include questions on school enrollment, school-related activities such as sports and clubs, community activities, children's disability, mother's work schedule and child care issues, child support agreements, and amount of contact with an absent parent. In addition, in 1999 and 2002 the SPD had a specific module dealing with measures of child well-being.

6. Another objective of welfare reform is to encourage marital and family stability. To what extent has this objective been realized?

   Answers to the SPD questions on these topics provide indicators of marital happiness and of overall stress that can contribute to marital and family harmony or instability. In addition, changes in program participation, employment, and income measured in the SPD can have large and immediate consequences for marital and family stability.

7. Some of the other important questions that can be addressed using SPD data:

   - How long do people go without health insurance and what are the effects of these lapses in coverage?
   - What are the effects of welfare reform measures on people with disabilities?
   - What is the relationship between work training, education, employment, and earnings?

Complex Data

Although the SPD provides unique opportunities to researchers, it also offers them a significant number of technical challenges in the longitudinal use of the survey data. Researchers should

become as familiar as possible with the content, formats, and caveats associated with using the SPD longitudinal files. A good place to start is the SPD web site, at www.sipp.census.gov/spd/ where there is information on all aspects of the SPD. Researchers should become familiar with the SPD Users' Guide and technical documentation which provide a basic understanding of the survey and the products that are becoming available.

Following are some of the technical issues that researchers may encounter when using the SPD longitudinal files. Where possible, examples from research by Census Bureau analysts is noted to show how they have dealt with these issues.

1. **Missing data points -** Interviewing for the 1992 SIPP panel concluded in May 1995, resulting in limited data being collected for 1995 for the 1992 SIPP sample. The 1993 SIPP panel concluded interviewing in January 1996, resulting in less than a year of 1995 data for most of the 1993 sample. Because there was limited information for half the sample cases, the SPD longitudinal files do not contain information for 1995 for sample individuals. This presents a problem for researchers looking at year-to-year change.

   Researchers can simply ignore the fact that there is no data for 1995. However, one of the benefits of the SPD longitudinal database is the opportunity to study changes over time in things such as program participation and employment/unemployment for the same group of individuals. Not having 1995 data limits the number of data points over which changes can be measured, particularly when using the first SPD longitudinal file.

   John Hisnanick, in his paper, *A First Look at the Survey of Program Dynamics Longitudinal Data: Participation in Public Assistance Programs*, has addressed this issue. He matches the data on the first SPD longitudinal file to the 1995 data from the 1993 SIPP. This reduces the sample size on which he can do his analysis by about half, since it eliminates the 1992 SIPP portion of the SPD sample. Hisnanick has decided that having additional data points on which to base his analysis of changes in program participation outweighs the negative effects on reliability that a reduction in sample size entails. His paper provides greater detail on his use of the 1995 SIPP data with the first SPD longitudinal file and compares findings based on an analysis of two points in time (1993 and 1997) with one based on a full five years worth of data (1993 through 1997).

2. **Different collection vehicles** – The SPD can be thought of as a combination of three surveys in that three completely different collection vehicles are used to capture data from the survey's respondents. While this allows researchers to have the benefit of ten years worth of data for their analysis, caution is needed when doing longitudinal analysis.

   - The data from 1992 through 1994 are based on the SIPP, which is the most detailed of the three collection instruments. Annual estimates of program participation from SIPP are generated by interviews taken every 4 months at which

time respondents are asked about their participation and amounts received for every month in the 4-month reference period.

- The 1996 data come from the 1997 SPD "Bridge" Survey which used a slightly modified version of the March CPS Income Supplement as its collection vehicle. Generally, this provides much less detail than the SIPP. For example, program participation data from the Bridge Survey are based on one set of retrospective questions that ask summary information about participation and amounts received in the previous year. Unlike the SIPP, very little information is collected about which months benefits were received.

- The 1997 and subsequent data are based on the core SPD questionnaire, which is less detailed than SIPP, but more detailed than the March CPS Supplement. For example, while questions on program participation are, like the CPS, annual retrospective questions, in general the questions cover more detail and determine which months in the previous year benefits were received.

As a result of using three distinct and different collection instruments, researchers face the challenge of determining whether observed changes over time are actual changes, or whether they reflect the fact that different survey instruments can produce different results. Researchers should exercise caution when using the SPD longitudinal files, and learn as much as they can about the differences in how the questions were asked and the possible questionnaire effects before making conclusions based on these data. In the Publications and Analysis section of the Census Bureau's SPD web site (www.sipp.census.gov/spd/) there is a paper titled, "Measuring Welfare Reform: Questions from Four Census Bureau Surveys". This paper explains the differences in questions related to welfare reform between the SIPP (although the questions are from the 2000 SIPP panel, they reflect how these questions were asked in earlier SIPP panels), CPS March Supplement (Bridge Survey), and core SPD. Researchers should also refer to the User Notes, which accompany the file and document some of the inconsistencies across survey instruments for specific variables.

3. **Incorporating topical modules, core files, and experimental files -** The first SPD longitudinal file is a fully edited file that provides data for the calendar years 1992 through 1997 (except for 1995). Researchers can use this file alone or in combination with the 1992 and 1993 SIPP longitudinal files, core wave files, and topical module files, as well as with experimental calendar year files from the 1997 bridge survey and 1998 SPD.

Using the SPD longitudinal file with other files requires file linking. The SPD identification scheme uses "match key" variables designed to uniquely identify individuals and provide means of linking data for the same individuals across files, and for grouping individuals into households and families across files. Researchers should refer to the

SIPP and SPD Users' Guides for both surveys as well as the User Notes that accompany the files for tips and cautions concerning linking. For example, the match key variables for the SPD have different field lengths than similar variables in the 1992 and 1993 SIPP longitudinal, core, and topical module files. This must be accounted for to correctly match the SPD longitudinal file to the other files.

Two of the authors in the SPD session matched the first SPD longitudinal file to other files. As mentioned earlier, Hisnanick linked the SPD to the 1993 SIPP to extract data for 1995. Arthur Jones Jr.,in his paper, *How Are They Doing, An Analysis of Former Welfare Recipients and their Earnings*, links the first SPD longitudinal file to the 1998 SPD unedited experimental file. He does this to obtain more detailed information on work training and earnings which is the focus of his paper. Each of their papers provides insight into the linking of SPD files with other files.

4. **Attrition** – Researchers who want to use the SPD to examine longitudinal issues or changes over time should be aware that since its inception many of the original sample households have dropped out of the survey. This is an issue that confronts any long-term panel survey. Loss of sample households, or attrition, results when respondents refuse to continue to participate or the household moves and cannot be located. The SPD inherited SIPP panels with an attrition rate of about 27 percent by the end of those panels. By the 2000 SPD, that sample loss rate had increased to 50 percent. Since then, the Census Bureau has taken steps to bring households back into the survey. As a result, the latest (2001) cumulative sample loss rate is about 34 percent.

   While the recent improvement in the attrition rate is welcomed, researchers should still recognize that the SPD sample has gone through substantial attrition, particularly those using the first SPD longitudinal file when attrition was high. There is a significant amount of research that shows that those who drop out of surveys are different in terms of their characteristics than those who stay in. Weighting the data can address some of the negative effects of attrition, but it cannot address all problems. Therefore, researchers should not take for granted that the SPD is representative of the U.S. population as it existed at the time of the interview, nor should they assume that a particular cohort of individuals followed over time using the SPD is representative of the actual cohort[2]. They should consider the population they are studying and the representativeness of the SPD and make appropriate allowances when making conclusions. The SPD User's Guide has a discussion of attrition as well as attrition rates for the SPD.

5. **Different reference periods for the same topics –** Because the SPD program consists of three separate data collection vehicles, not only are there differences in how

[2] The SPD also lacks representativeness because of the design of the survey. The SPD is based on the population that existed at the beginning of the respective SIPP panels. As a result, it is not fully representative of the population existing subsequent to those points in time.

questions were asked for the same topics, there are differences in reference periods for most of the questions. For example, the 1992 and 1993 SIPP asked for monthly income for the four months preceding the interview. The 1997 Bridge Survey component and the subsequent SPDs asked for yearly income for the previous year.

For the sake of consistency, data for 1992 through 1994 have been converted from a monthly accounting period (as collected in SIPP) to an annual accounting period (as collected in the Bridge Survey and the SPD). The Urban Institute, under contract to the Social Security Administration, carried out this conversion. This conversion was examined and further edited by the Census Bureau.

Despite converting data to the same accounting period, the fact remains that the data were collected using different accounting periods. Researchers face similar challenges in interpreting changes over time as they do when considering different question wording. They should use caution when interpreting the data and learn as much as they can about the effects of different reference periods before making conclusions based on the data. Once again, the SPD User's Guide is an excellent place to find information on this topic. It has a detailed table showing differences in reference periods for the variables in the three collection instruments.

6. **Other issues** – There are other challenges facing researchers in using the SPD longitudinal files. Rose Kreider, in her paper, *Parental Coresidence Transitions for Children in the Years Surrounding Welfare Reform: Evidence from the Survey of Program Dynamics*, deals with two that are unique to her work, but which should be of interest to other researchers interested in innovative approaches to using the SPD longitudinal data.

   First, her interest in looking at changes in the number of coresident parents requires the identification of each parent living in the household for each child in the household. Because the 1992 and 1993 SIPP have parent pointers for only one parent, the longitudinal SPD file also has only one parent pointer. The designated parent pointer in the SPD will usually point to the child's mother if she is present in the household. In order to determine how many parents reside with a child at different points in time, Kreider has developed a method for assigning parents to children. Her paper on parental coresidence discusses the details of and reasoning behind her method.

   Second, Kreider deals with the issue of the statistical measures that are part of the standard statistical software packages most researchers use for data analysis. When running multivariate analysis the standard software will result in underestimates of standard errors because the software does not consider the design effect of the SPD. The design effect adjusts the variance of estimates to account for sample attrition and the fact that the SPD longitudinal sample is not random as you follow it over time.

Kreider adjusts standard errors for the design effect and uses them to calculate the significance level of her estimates.

Conclusion

The SPD has evolved from the original idea of a long-term survey to monitor social, demographic, and economic change conceived by a group of Census Bureau researchers in the early 1990s. It became a viable program with the passage of welfare reform legislation in 1996, and it stands now as an important and unique source of national data on the impact of that reform. This paper highlights some of the reasons why it is such a valuable resource and suggests several of the research issues that can be addressed by the SPD.

However, like with any database developed from a large and complex data collection effort, there are challenges involved with understanding and using the data from the survey. This paper provides a history and background to the SPD so that some of these issues can be better understood. In addition to addressing important research issues, the other papers in the SPD session provide practical examples of how these challenges can be overcome.

References

Hisnanick, John, *A First Look at the Survey of Program Dynamics Longitudinal Data: Participation in Public Assistance Programs*, paper to be presented at the American Statistical Association Annual Meetings, New York, 2002.

Jones Jr., Arthur, *Earnings and the Survey of Program Dynamics: An Analysis of Welfare and Non-Welfare Recipients*, paper to be presented at the American Statistical Association Annual Meetings, New York , 2002.

Kominski, Robert A. and Daniel H. Weinberg, *Tracking Devolution: The Survey of Program Dynamics*, presented at the Population Association of America Annual Meeting, Washington, DC, 1997.

Kreider, Rose, *Parental Coresidence Transitions for Children in the Years Surrounding Welfare Reform: Evidence from the Survey of Program Dynamics*, New York, 2002.

Weinberg, Daniel H., Vicki Huggins, Robert A. Kominski, and Charles T. Nelson, *A Survey of Program Dynamics for Evaluating Welfare Reform*, paper prepared for Statistics Symposium XIV, 1997.

Weinberg, Daniel H., Pat Doyle, Arthur Jones Jr., and Stephanie Shipp, *Measuring the Impact of Welfare Reform With The Survey of Program Dynamics*, Washington, DC, 1998.

U. S. Census Bureau, *Survey of Program Dynamics Users' Guide*, Washington, DC, 2001.

U.S. Census Bureau, *Survey of Income and Program Participation Users' Guide, Third Edition*, Washington, DC, 2001.