Statistical Uses of Social Security Administrative Data

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Abstract

The Office of Research, Evaluation, and Statistics (ORES) of the Social Security Administration (SSA) employs administrative data to produce a wide range of statistical publications on the impact and workings of Social Security programs and on beneficiary populations. ORES creates restricted-use microdata files for external research studies and releases public-use data files based on administrative data and on survey data linked to administrative data. Through linkages of SSA administrative data to survey information, SSA produces demographic estimates of the current beneficiary population and develops models to project demographic and economic characteristics of the current working population into the future. Linked survey and administrative data are used to evaluate and enhance the quality of demographic survey data, to improve estimates from demographic surveys, and to augment information collected. This presentation provides detailed information about SSA statistical products, discusses linkages of administrative data to survey data, and describes benefits derived from linked files.

Key Words: Social Security Administration, Administrative Data

1. Introduction

Data and data access lie at the heart of social science and policy-related research. This paper investigates the administrative data sources at the Social Security Administration (SSA) and how they are utilized for statistical purposes. The Office of Policy produces analyses and research on policy initiatives for the Social Security Old-Age, Survivors, and Disability Insurance (OASDI) programs, the Supplemental Security Income (SSI) program, and on the earnings of the working and beneficiary populations. The Office of Research, Evaluation, and Statistics (ORES), which is in the Office of Policy, studies how these programs and potential changes to them affect individuals, the economy, and program solvency.

The rich system of SSA administrative data is collected and maintained primarily to administer SSA’s programs; however, they are also employed to compile descriptive program statistics, provide a source of information for research studies, and support policy evaluation. ORES develops and maintains a series of detailed statistical databases that are used to produce statistical publications, prepares limited-release and public-use microdata files, and provides information on current policy issues by special request.

This paper discusses linkages of administrative data to survey data, describes research studies using administrative information, and provides information about SSA statistical products that are based on administrative data. It also describes how administrative data linked to survey information can be used to evaluate and improve information in statistical surveys.

2. Linking Administrative Data to Survey Data

An ongoing objective of ORES is to take advantage of the analytic potential afforded by linking survey and administrative data. Through linkages of SSA administrative data to survey information, SSA produces demographic estimates of current beneficiary populations and develops models to project demographic and economic characteristics of the current working population into the future. Linked survey and administrative data are used to evaluate and enhance the quality of demographic survey data, to improve estimates from demographic surveys, and to augment the information collected.

SSA has a wide range of administrative data covering all program beneficiaries and program participants. These data are essential for administering federal social insurance programs and they serve as the basis for determining program eligibility and program benefit computation. Accordingly, they are of exceptionally high quality. Since these data are typically limited to information required for program administration, they are restricted in scope and do not include broader variables of interest to the research community. For example, they often lack economic and/or demographic variables that are critical to programmatic evaluations. In addition, administrative records alone cannot be used to address all analysis questions since they typically do not contain information about non-participants, who would potentially be affected by the policy change.

In contrast, surveys conducted by federal statistical agencies ask a broad range of questions on a wide variety of topics. They often include extensive demographic information and are typically representative of the civilian, noninstitutional population. However, survey data do not generally

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1 The views expressed in this paper are the authors’ and do not represent the official position of the Social Security Administration or any other federal agency.
contain program-related information necessary to examine detailed features of eligibility. Survey data are subject to various sampling and nonsampling errors – the latter often resulting in incomplete or inaccurate responses. Linking administrative data to survey information combines the completeness and accuracy of SSA administrative data with the range and scope of survey data – maximizing the strengths and minimizing the limitations associated with each of these two data sources.

Although an expanded dataset will allow for farther-reaching investigations than a dataset based only on a single data source, analysts must carefully note the limitations of their analyses. For example, the analysis should state how to interpret results based on the combination of two different universes. In addition, linking SSA administrative data to survey data presents its own set of issues. One basic issue is to decide how individual records will be linked. Does the linkage method depend on the presence of a respondent-provided social security number? Also, how are non-linked cases handled? Despite the limitations associated with linking survey and administrative data, the utility of the linked data is well worth the effort.

Note that all linkages discussed in this paper are exact linkages. Administrative information corresponding to the survey record is identified and appended to the survey data record. This process yields an enhanced record for that individual, consisting of both survey and administrative information. It is important to note that linked administrative and Census Bureau survey data are accessible only by sworn Title 13 staff.

3. SIPP and CPS Linked to SSA Administrative Data

a. Background

SSA first entered into a Memorandum of Agreement with the Census Bureau in 1967 regarding linkages of Census Bureau surveys with SSA administrative data. The two most important Census Bureau surveys linked to SSA administrative data are the Current Population Survey (CPS) and the Survey of Income and Program Participation (SIPP). These linkages allow Social Security’s earnings and benefit data to be utilized with the demographic information from these two survey instruments.

The Current Population Survey is the primary source of information on labor force characteristics of the civilian non-institutional population. The CPS is a monthly survey of 50,000 households. It collects data on employment, unemployment, earnings, and hours of work and reports them for a variety of demographic characteristics including age, sex, race, marital status, and education. The March supplement of the CPS is the official source of unemployment and poverty statistics. Respondents interviewed in March are asked detailed questions on labor force participation and annual income for the previous calendar year. March CPS data are processed and released in approximately six months.

The Survey of Income and Program Participation focuses on income rather than labor force participation. The SIPP design has a core interview plus various topical modules. SIPP collects detailed information on all sources of money and non-money income, including public assistance programs and employer-provided benefits, and on financial assets as well as information on family characteristics such as size, composition, and income and education of household members. SIPP is a panel survey with respondents being interviewed every four months. Respondents are asked about income in the previous four months, thus the recall period is shorter than that for the CPS. Over time, respondents often drop out of the survey, resulting in attrition bias. The length of SIPP panels ranges from 32 to 48 months. Due to its complexity, and the fact that SIPP is a panel survey, it takes a much longer time to process and release SIPP survey estimates than CPS estimates.

Historically, the Census Bureau has asked respondents of these demographic surveys for their Social Security Number (SSN) so the collected survey data could be linked with administrative records for statistical research purposes. If a survey respondent provides an SSN to either of these two surveys, their survey data are linked to SSA administrative data through the following process. First, the Census Bureau sends the SSN for each of these respondents to the Social Security Administration, where they are validated through the agency’s Enumeration Verification System. For verified SSNs, SSA extracts the appropriate data from its administrative data files. The data extracts are then sent to the Census Bureau for linkage with its corresponding survey record. Linkage between survey and administrative data can be performed using the SSN itself or a protected identification key. SSNs are removed from the linked data.

If SIPP or CPS respondents refuse to provide SSNs, their data are removed from the pool of records available for linkage. Census Bureau efforts to obtain SSNs have become increasingly difficult over
the past several years. According to Bates (2005), SSN refusal rates in the Survey of Income and Program Participation increased from 12 percent to 35 percent between the 1996 and 2004 panels, respectively. The percent refusing to provide SSNs in the Current Population Survey increased from approximately 10 percent in 1994 to almost 23 percent by 2003. Declining response rates threaten the utility of linked survey and administrative data because of the potential bias in the estimates obtained from them.

The following sections include examples of successful linking operations and indicate how the linked files have been employed. In addition, new work is described that utilizes linked data to improve the underlying SIPP data and its resulting estimates. Newly available public-use microdata files are also discussed.

b. Modeling the OASDI Program

Policymakers rely on statistical information linked to administrative data to understand the broad impact and distributional effects of current regulations and reform proposals. To address this need, ORES developed microsimulation models to estimate the consequences of proposed changes to the OASDI program on current and future beneficiaries. The most prominent model used to analyze the OASDI program is the Modeling of Income in the Near Term, or MINT, model.

The MINT model is a microsimulation dataset that utilizes household data from the 1990's panels of SIPP linked to Social Security administrative records to obtain information on earnings, benefit receipt, and date of death. MINT contains information on individuals born between 1926 and 1970, with the core population consisting of individuals born between 1931 and 1965. The most recent MINT dataset contains more than 185,000 observations.

Through statistical adjustments and forecasts of SIPP and administrative data, the MINT dataset is used to study a variety of research hypotheses. The MINT model measures the experiences of survey respondents and statistically projects their income and characteristics into the future, adjusting for expected demographic and socioeconomic changes. Accordingly, MINT projects the major pillars of retirement income: Social Security benefits, pension benefits, income from assets, the earnings of working Social Security beneficiaries, and Supplemental Security Income (SSI). In addition, MINT predicts the year of death, marital histories, and the characteristics of former, current, and future spouses as well as the age of first benefit receipt.

Because many of the parameters in the MINT data system can be altered, the MINT model has numerous potential uses in policy evaluation. For example, the MINT model has been used to examine cohort differences in the sources of retirement income and assess the impact of Social Security benefit reforms on the level of benefits, expected retirement income, and expected poverty level of future retirees. With its detailed demographic information, the MINT model is also being used to examine economic well-being in retirement by gender, race, education, marital status, and birth cohort.

The Brookings Institution, the RAND Corporation, and the Urban Institute contributed to the initial development of MINT. The Urban Institute continues to be involved in the maintenance, execution, and use of MINT for research and data analysis. A comprehensive description of the MINT model is provided by Toder et al. (2002). See www.urban.org/url.cfm?ID=410609 for further details. Butrica et al. (2001) describe the methodology for modeling income in the near term.

c. Modeling Eligibility and Participation in the Supplemental Security Income (SSI) Program

The SSI program serves as an income source of last resort for individuals who are elderly or severely disabled. SSI eligibility is restricted to individuals with limited resources, and the benefit amount is reduced as the recipient’s income rises. Data from SIPP matched to SSA administrative data are used to model SSI eligibility and participation. SIPP collects detailed information on sources and amounts of income as well as assets, which are vital in determining eligibility under SSI program rules. The fact that SIPP asks respondents about program participation and provides income data on a monthly basis is also critical to modeling SSI eligibility which can vary from month to month.

The core SIPP demographic characteristics (such as age and marital status) as well as household composition are important factors in determining SSI eligibility. Other characteristics such as race, sex, ethnicity, educational attainment, and health insurance coverage are not directly used in SSI eligibility determination, but are important descriptors that can be used in the SSI participation model. Information on disability and work limitations can be used to estimate whether an
individual meets the disability criteria for SSI eligibility while data on assets can be used to estimate resource eligibility for SSI. Current estimates reflect the elderly population.

The Financial Eligibility Model, which was developed in ORES, simulates the effects of potential changes to SSI eligibility criteria on the number of eligible individuals, the number of participants, the distribution of SSI benefits among participants, and the poverty status under various policy regimes. Davies et al. (2001/2002) presents the financial eligibility model and utilizes it to simulate eligibility for federal SSI benefits. Program rules are applied to various subgroups of individuals and couples based on the rich array of demographic and socioeconomic data in SIPP, particularly the comprehensive information on assets and monthly income.

d. Evaluating and Improving Survey Responses and Estimates

As noted earlier, the strengths of administrative data include its completeness and accuracy while its weakness is that it typically contains only information necessary for program administration. One of the strengths of survey data is that a wide range of variables are collected. However, reported survey data are often incomplete and inaccurate. The strengths of both systems can be maximized by linking administrative data to surveys.

SIPP and CPS reporting problems can be detected by comparing linked survey and administrative data. Survey respondents misreport which Social Security program they are paid benefits from as well as their benefit amount(s). Misreported values can be corrected to yield accurate underlying data and improve estimates. It is particularly critical to use the correct program participation information and benefit amounts in the financial eligibility model since these values are used to estimate model parameters.

There are a variety of reasons for misreporting program participation and benefit amounts in statistical surveys. For Social Security beneficiaries, one must consider issues of stability of life patterns, use of proxy respondents, presence of representative payees, cognitive abilities and health of beneficiaries, transitions between programs, timing of Cost-of-Living Adjustments, and other related issues. As expected, when data are imputed instead of reported, differences between survey data and actual participation and payment amounts are even greater.

One common example of misreporting occurs for Medicare Part B premium payments. For many OASDI beneficiaries, Social Security pays Medicare Part B premium amounts directly to Medicare. Beneficiaries do not receive that amount themselves and, hence, do not typically include that dollar amount when reporting their benefits. The Medicare Part B premium for individuals in 2005 is $78.20 per month, or $938.40 per year. For married couples, this value comes to $1876.80 per year. These dollar amounts are significant when computing poverty rates among the elderly.

Koenig (2003) assesses the SIPP and CPS using survey data linked to Social Security administrative data from both the OASDI and SSI programs. For individuals with an administrative match, the receipt and annual amount OASDI and SSI reported in the surveys is compared to the administrative benefit information. The paper addresses the reporting of program participation and accuracy of reported benefit amounts. The analysis concludes that CPS underestimates and SIPP overestimates the number of people receiving Social Security benefits as well as the number receiving federally-administered SSI benefits.

In addition, Koenig (2003) addresses poverty measurement of the elderly and studies the number and percentage of persons whose poverty status changes when administrative data are substituted for survey data. Using administrative data instead of the reported SIPP or CPS data yields slightly reduced poverty rate measures. It is important to note that these results are based on SSA beneficiaries 65 and older who can be matched using their reported SSN. As a result, the conclusions drawn may not be applicable to the entire population. Further, the potential gains from using administrative data will as the match rate decreases.

Koenig (2003) employs administrative data from the Master Beneficiary Record (MBR). One shortcoming of these data in measuring monthly benefits is that the MBR data reflect “payment eligibility” rather than actual payments – although the two are identical in the vast majority of cases. Beginning in 2003, actual payment data for OASDI beneficiaries were made available for research purposes. The Payment History Update System (PHUS) file, which contains actual payment data, can be used to improve the accuracy of linked data sets.
Sears and Rupp (2003) analyze PHUS and SIPP matched data for elderly and working-age beneficiaries to identify factors causing survey misreporting. The paper identifies the effects of misreporting on benefit receipt status and the magnitude of error in the benefit amounts conditional on receipt. Their findings are comparable to those reported by Koenig (2003).

Staff in ORES are working closely with the Census Bureau to utilize SSA administrative data in SIPP. The Census Bureau conducted studies similar to the ones reported above and found comparable improvements in data and estimates. See Scoon-Rogers (forthcoming) for details. Using SSA administrative information in SIPP will improve the underlying data used by researchers and estimates based on that data.

e. Public-Use Microdata File Based on Linked Survey and Administrative Data

In a joint Census/SSA/IRS/CBO research project conducted primarily by Census Bureau staff, a linked file has been created using SSA benefit and longitudinal earnings information and SIPP survey data. Using this linked file, a research program has been established to produce synthetic data that integrates these three major data sources. This synthetic file may be released as a public-use microdata file. To prevent disclosure of the identity of individuals, especially through linkages of previously released SIPP public-use files, the data to be released will be synthetically generated based on models prepared using the actual underlying data sets. Two criteria must be satisfied before this proposed file can be released: the confidentiality of the data is protected and the synthetic file has analytic validity. Background information on the generation of synthetic public-use data files is contained in Abowd and Woodcock (2001).

4. Linking Administrative Data to the American Community Survey

As noted earlier, administrative data usually contain only information necessary for program administration. Although race is not needed for Social Security program distribution, race has traditionally been collected when a person is issued a Social Security card. Typically, there is a considerable time lag between the collection of that information and the time when a person begins to draw Social Security benefits. Over that period of time, prevailing race categorizations may have changed several times. Since most Social Security beneficiaries have race indicated as White, Black, or Other, SSA is not able to produce statistics by race conforming to the most recent OMB guidelines. SSA is pursuing a strategy for obtaining race data in the same time period in which it will be published.

SSA has been working collaboratively with the Census Bureau to link Social Security program participants to the American Community Survey (ACS). ACS respondents who are SSA beneficiaries can be viewed as a representative sample of beneficiaries. Using this very large sample, SSA hopes to publish beneficiary information by race as well as marital status, family structure, and other demographics of interest. A primary issue faced by the two agencies is the completeness and accuracy of linking ACS responses to SSA administrative information. Obenski and Prevost (2004) provide details on this and other joint work.

The authors note that administrative records have long been considered a potential means for reducing cost and respondent burden while improving data quality. One objective of this current effort is to keep cost and burden to SSA beneficiaries low while producing demographic information about the beneficiary population using data collected in a large-scale, national survey. This imaginative and unanticipated use of the ACS is very valuable to SSA and represents a progressive, cooperative effort between these two federal agencies.

5. Public-Use Microdata Files Based on Administrative Data

a. 2001 OASDI and SSI Files

Public-use microdata files are beneficial for conducting statistical analyses and research studies that could otherwise not be performed using aggregate information. In 2003, the Social Security Administration released two public-use microdata files drawn from Social Security program files. One file is based on the OASDI program, consisting of approximately 460,000 records - a 1 percent sample of the MBR. This file can be used to study the beneficiary population and the effects of current and proposed legislative and program provisions. Because of its size, it can be used to study relatively small subpopulations. This file contains no state information since the OASDI program is strictly a national program. The second released file, based on the SSI program, consists of a 5 percent sample of the SSR. It includes approximately 320,000 records and provides a number of programmatic variables concerning the SSI population. Since states may
supplement federal SSI payments, it was vital to include the recipient’s state of residence on the file.

Greenberg et al. (2003) provides details on how these public-use files were created, the disclosure avoidance practices employed, how to access them, and their content. These two files are available on the Office of Policy website (www.ssa.gov/policy) and via the Census Bureau’s public-use microdata access system (http://dataferrett.census.gov).

b. 2004 Benefits and Earnings Public-Use File

The 2004 OASDI public-use microdata file consists of a 1 percent random, representative sample of approximately 470,000 records. These records are representative of OASDI beneficiaries who were entitled to receive Social Security benefits for December 2004. This file consists of two separate but linkable subfiles – one with benefit information and the other with longitudinal earnings information. Individual records have a unique identifier, thereby allowing earnings records to be linked to their corresponding benefit record. This public-use file is significant since it is the first public release of longitudinal earnings records drawn as a representative sample of the beneficiary population. Because of the importance of earnings histories for calculating benefits, this file is expected to have broad appeal to outside researchers studying Social Security-related issues. It is available on the Office of Policy website (www.ssa.gov/policy) and via the Census Bureau’s public-use microdata access system FERRETT (http://dataferrett.census.gov).

6. Publications and Related Products

The Office of Policy conducts research in support of policy analysis. As a result, the office provides statistics on the effect and operations of the OASDI and SSI programs and on the earnings of the working and beneficiary populations. In addition, the Office of Policy develops and maintains a series of detailed statistical databases, prepares a broad range of statistical tables, produces statistical compilations and publications both in print and on the Internet, and develops information for special requests on current policy issues.

Following is a brief description of the Office of Policy’s publications and related products, most of which can be found at www.ssa.gov/policy. The publications produced by the Office of Policy can be categorized as follows: Research and Analysis Publications; Statistical Publications and Chartbooks; Old-Age, Survivors, and Disability Insurance Publications; Supplemental Security Income Publications; Publications on the Income of the Aged; and Other Publications. This article highlights some of the major publications in each category.

a. Research and Analysis Publications

- The Social Security Bulletin is the Social Security Administration’s quarterly research journal. Articles focus on the Social Security (retirement, survivors, and disability) and Supplemental Security Income programs, the income of the aged, private pension coverage, the poverty status of various groups (such as women and children), and other timely subjects. Each issue also includes statistics about the Social Security and SSI programs – the number of beneficiaries, the type of benefit they receive, and the average monthly benefit.
- Issue Papers present policy analysis and research on topics relating to the Social Security and Supplemental Security Income programs. The subjects they address have direct policy relevance and are treated in depth.
- Policy Briefs present two kinds of information: summaries of complex research topics with implications for policies governing the Social Security and Supplemental Security Income programs; and original analyses that are relevant to existing or proposed policies for those programs.
- ORES Working Papers are research and statistical papers prepared by staff in the Office of Policy’s Office of Research, Evaluation, and Statistics. These technical research papers utilize Social Security administrative data.

b. Statistical Publications and Chartbooks

- The Annual Statistical Supplement to the Social Security Bulletin includes more than 250 statistical tables that provide comprehensive data on Social Security and Supplemental Security Income, and data on social insurance and welfare programs. Most of the data are derived from SSA’s administrative records while narrative sections describe the legislative history and rules of the individual programs.
- Fast Facts & Figures About Social Security is an annual chartbook that highlights data on the people served and benefits provided by the Social Security and Supplemental Security Income programs.
c. Old-Age, Survivors, and Disability Insurance Publications

- OASDI Beneficiaries by State and County provides annual data on the Social Security population at the local level. It presents basic program data by type of benefit (retirement, survivors, and disability) and category of beneficiary (retired and disabled workers, spouses, widow(er)s, and children).
- Income of Disabled-Worker Beneficiaries. This chartbook, released in 2001, presents tabulations of individual and family income of Social Security disabled-worker beneficiaries. The data are from records in the Survey of Income and Program Participation that were linked to SSA administrative records to identify survey respondents who receive disabled-worker benefits.

d. Supplemental Security Income Publications

- SSI Annual Statistical Report. This report describes the Supplemental Security Income program and its beneficiaries. Tables present data on recipient characteristics, state-administered supplements, disability and work incentives, applications, awards, and denials.
- SSI Recipients by State and County. This annual report provides local area data for aged, blind, and disabled recipients of SSI. It presents data for federal SSI payments as well as federally-administered state supplements.
- State Assistance Programs for SSI Recipients. This annual publication presents data on selected characteristics of mandatory and optional state assistance programs for SSI recipients. It focuses on eligibility provisions and the basic levels of assistance for individuals and couples who receive supplementary payments.
- Children Receiving SSI. This report provides a snapshot of selected program and demographic characteristics of children who receive SSI payments.
- SSI Disabled Recipients Who Work. This publication presents data on all SSI recipients who work, are section 1619 participants, and who benefit from other work incentive programs.

e. Publications on the Income of the Aged

- Income of the Population 55 or Older. This biennial report presents data on the major sources and amounts of income for people aged 55 or older. Special attention is given to the total income and poverty status of people aged 65 or older.
- Income of the Aged Chartbook. This is a companion publication to the Income of the Population 55 or Older. Selected data are highlighted in charts and tables, illustrating Social Security’s pivotal role in the economic security of the aged.

f. Other Publications

The Social Security Administration’s Office of Policy produces a handful of other statistical publications.

- Earnings and Employment Data for Workers Covered Under Social Security and Medicare, by State and County. This annual report presents wages and self-employment data by sex, age, and race for people in jobs covered under Social Security or Medicare.
- The Monthly Statistical Snapshot provides basic information on the OASDI and SSI programs.
- State Statistics fact sheets are produced annually for the 50 states, the District of Columbia, Puerto Rico, and the U.S. Virgin Islands.
- The Congressional Statistics fact sheets provide Social Security and SSI program data annually for each congressional district.

7. Acknowledgments

The authors wish to thank Paul Davies, Susan Grad, Howard Iams, Barbara Lingg, Carolyn Puckett, and Mikki Waid for their constructive comments on this paper.
8. References


