

Measurement Issues Associated with Using Survey Data Matched with Administrative Data from the Social Security Administration

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Abstract

Researchers using survey data matched with administrative data benefit from the rich demographic and economic detail available from survey data combined with detailed programmatic data from administrative records. The research benefits of using these matched data are too numerous to mention. But there are drawbacks as well, and those drawbacks have received less systematic attention from researchers. We focus on survey data matched with administrative data from the Social Security Administration and address the strengths and weaknesses of each in four specific areas: program participation and benefits, disability and health information, earnings, and deferred compensation. We discuss the implications of these strengths and weaknesses for decisions that researchers must make regarding the appropriate data source and definition for the concepts in question. From this discussion, we draw some general conclusions about measurement issues associated with using matched survey and administrative data for research, policy evaluation, and statistics.

Key Words: Survey data, administrative data, survey error, measurement error

1. Introduction

Researchers using survey data matched with administrative data benefit from the best of both worlds – the rich demographic and economic detail available from survey data combined with detailed programmatic data from administrative records. Indeed, researchers at the Social Security Administration (SSA) have been using matched survey and administrative data for years, addressing topics spanning policy evaluation, economic research, program statistics, and microsimulation modeling.

The original use of matched survey and administrative data has been to assess the accuracy of the survey data and use that information to adjust for error in statistics produced from survey data. SSA and the Census Bureau have a history of matching Census surveys with Social Security administrative data and limited tax return information from the Internal Revenue Service (IRS). The earliest matches with the decennial censuses in the 1940s to the 1960s and periodically with the March Current Population Survey (CPS) between 1964 and 1972 were limited in scope and sample size due to computing constraints. The earliest matched file still being used is the 1973 CPS/SSA/IRS Exact Match Study, which greatly expanded the sample being matched to SSA and IRS data compared with previous matched data sets (Aziz, Kilss, and Scheuren 1978). This file provides researchers with rich survey data matched with longitudinal earnings histories that were not available elsewhere, and thus greatly expanded the potential scope of research on many topics in labor economics and public policy. Since the 1973 match, these data also have been used as inputs to Social Security's simulation models (Scheuren and Herriot 1975).

Currently, researchers are using the Survey of Income and Program Participation¹ (SIPP, 1984, 1990-93, 1996, 2001, and 2004 panels) and the CPS² (most years from the 1990s and 2000s) matched to Social Security administrative data and limited IRS earnings data. The matched data are accessed on a restricted basis subject to the terms of interagency agreements between the Census Bureau and SSA, and of IRS laws and regulations. The use of matched administrative data as a tool to assess survey data is still a primary function, but other Census and IRS-approved uses of matched data

¹ See the SIPP home page for additional details (<http://www.census.gov/sipp/>).

² See the CPS home page for additional details (<http://www.census.gov/cps/>).

have evolved. Other surveys that have been matched to SSA administrative data include the University of Michigan's Health and Retirement Study (HRS),³ SSA's National Survey of SSI Children and Families (NSCF),⁴ and the National Center for Health Statistics' National Health Interview Survey (NHIS)⁵ and National Health and Nutrition Examination Survey (NHANES).⁶ SSA's data are incomplete with respect to demographics and non-program oriented measures of income and wealth. The survey data on these elements supplement the administrative data, enabling SSA to produce a wide variety of research and statistical products about the Old Age, Survivors, and Disability Insurance (OASDI, or Social Security) and Supplemental Security Income (SSI) programs. These products include detailed and complex microsimulation models that are used to assess the distributional implications of potential Social Security and SSI policy changes, basic economic research on Social Security and SSI beneficiaries, and statistics about Social Security and SSI beneficiaries.

The research benefits of using these matched data are too numerous to mention. But there are drawbacks as well, and those drawbacks have received less systematic attention from researchers. For example, in cases where disability diagnoses are available in both the survey and administrative data, which source is more accurate? In cases where program participation and benefit amounts are available in both the survey and administrative data, which source is correct? By and large, the answer to such questions is, "It depends." It depends on the research questions to be addressed. It depends on the data sources in question. It depends on the analytical techniques to be used. To complicate matters further, different administrative data sources can lead to different values for the same concept.

In this paper, we do not attempt to provide definitive answers as to which sources are preferred in which situations. Rather, we attempt to draw together the available evidence on a number of important areas in which researchers using matched survey and administrative data must decide on the appropriate data source and definition for the concept in question. Specifically, in sections 2 through 5 of the paper we examine and discuss the available evidence in the following areas.

- OASDI and SSI participation and benefits
- Disability diagnosis, health, and functional limitations
- Earnings
- Deferred compensation

We then offer some concluding observations on these measurement issues and the importance of matched survey and administrative data for research, policy evaluation, and program statistics.

2. OASDI and SSI Participation and Benefits

The most basic area of comparison between survey and administrative data is program participation and benefit amounts. Several SSA researchers have addressed this issue using data from the SIPP and CPS matched with SSA administrative data on the receipt and amount of OASDI benefits and SSI payments. Survey data may differ from administrative records for three main reasons: survey error, administrative record error, or error in matching survey and administrative records (Huynh, Rupp, and Sears 2002). While SSA records on program participation and benefit amounts are generally regarded to be more reliable than survey reports, this is not always the case. Prior to the availability of the Payment History Update System (PHUS), the administrative records for OASDI came only from the Master Beneficiary Record (MBR), which reflected program eligibility, as opposed to the actual benefit amount that was paid in a given month.⁷ Since 2003, however, the match has included PHUS data with actual payment amounts

³ See the HRS home page for additional details (<http://hrsonline.isr.umich.edu/>).

⁴ See the NSCF home page for additional details (<http://www.socialsecurity.gov/disabilityresearch/nscf.htm>). See also Davies and Rupp (2005/2006) and Rupp et al (2005/2006).

⁵ See the NHIS home page for additional details (<http://www.cdc.gov/nchs/nhis.htm>).

⁶ See the NHANES home page for additional details (<http://www.cdc.gov/nchs/nhanes.htm>).

⁷ Sizeable differences between the MBR and PHUS would arise predominantly for Social Security Disability Insurance (DI) beneficiaries who went through the appeals process. Upon the award of the DI benefit, the MBR would be updated to reflect benefits paid retroactively to the date of application, whereas the PHUS would show one large lump sum payment for the month of award and zero payments prior to award.

from 1984 to the present, improving the accuracy of the matched administrative records.⁸ The Supplemental Security Record (SSR), which provides data on SSI applicants and recipients, has always captured data on both program eligibility and actual payment amounts.

Huynh, Rupp, and Sears (2002) assessed discrepancies in reports of benefit receipt and benefit amounts between Social Security's administrative records (MBR and SSR) and the 1993 and 1996 panels of SIPP. They found that there is confusion among survey respondents as to whether an OASDI benefit or SSI payment was received. Table 1 shows that for the sample months analyzed by Huynh, Rupp, and Sears (2002), a nontrivial proportion of SSI recipients (SSI only or concurrent with OASDI) in the sample reported receiving OASDI only; misreport of OASDI as SSI occurs, but much less frequently. The authors offer a number of explanations for this pattern: both OASDI and SSI payments are administered by SSA, the OASDI program has greater visibility, stigma may be attached to the receipt of SSI payments, and receipt of SSI for a few months often precedes the receipt of DI for working age individuals with disabilities. Huynh, Rupp, and Sears (2002) also found that accuracy of SSI reports improved between their observation points within the 1993 SIPP panel and the 1996 SIPP panel.

Table 1: SIPP report of OASDI and SSI benefit receipt by administrative record of receipt for adults with matched SIPP records

Year	Month	MBR and SSR receipt	SIPP report of receipt (%)				Total percent	N
			Both	Neither	SSI only	OASDI only		
1993	January	Both	76.08	3.49	5.91	14.52	100.00	372
1995	August		80.75	2.48	5.90	10.87	100.00	322
1996	March		74.71	4.89	7.99	12.40	99.99	613
1998	October		80.06	3.81	4.11	12.02	100.00	341
1993	January	Neither	0.06	98.32	0.37	1.25	100.00	25,704
1995	August		0.07	97.99	0.50	1.44	100.00	22,436
1996	March		0.04	98.81	0.17	0.97	99.99	33,545
1998	October		0.05	98.66	0.23	1.07	100.01	16,677
1993	January	SSI only	6.01	6.56	78.69	8.74	100.00	366
1995	August		3.60	9.14	81.16	6.09	99.99	361
1996	March		4.81	8.94	78.54	7.70	99.99	727
1998	October		3.02	9.32	79.85	7.81	100.00	397
1993	January	OASDI only	0.30	3.38	0.38	95.95	100.00	6,068
1995	August		0.37	4.35	0.55	94.73	100.00	5,632
1996	March		0.41	4.31	0.82	94.46	100.00	7,886
1998	October		0.65	3.77	0.81	94.78	100.01	4,328

Source: Huynh, Rupp, and Sears (2002, Table 2). Data are tabulated from the 1993 and 1996 panels of SIPP matched to the Social Security Administration's Master Beneficiary Record and Supplemental Security Record.

Huynh, Rupp, and Sears (2002) also evaluated the discrepancies between reported OASDI and SSI benefits and administrative amounts. They confirmed that after wave 1 of the 1993 SIPP, respondents were reporting their OASDI benefits net of the Medicare Part B premium, consistent with the revised questionnaire wording. The authors note that use of these reported benefit amounts without adjustment for the Part B premium could substantially bias estimates of

⁸ Sears and Rupp (2003) compared results using the MBR and PHUS with Huynh, Rupp, and Sears (2002) and found the differences to be negligible. They found that the percentage of March 1996 respondents who reported the exact amount of the administrative OASDI benefit improved to 51 percent with the PHUS compared with 46 percent in the earlier study using the MBR, but there was no corresponding improvement in the estimated mean error between the survey and administrative benefit amounts. This suggests that large lump sum payments to DI awardees occurred relatively rarely among SIPP respondents. However, Huynh, Rupp, and Sears (2002) did not disaggregate by age or type of OASDI benefit, so we can only speculate without further research.

total income and poverty status. Also, they conclude that self-reported SSI payments in the SIPP reflect the sum of federal and federally-administered state SSI payments, which are provided to recipients in a single payment (check or direct deposit). In addition, they found that reporting errors for SSI and OASDI differed dramatically by imputation status and that errors may be systematically related to sample attrition and interview status. Finally, Huynh, Rupp, and Sears (2002) found evidence of selectivity with respect to the survey respondents who were unable to be matched to administrative records.

Koenig (2003) follows a framework similar to that of Huynh, Rupp, and Sears (2002) by assessing the accuracy of self-reported OASDI and SSI data in the 1996 SIPP and the March 1997 Annual Demographic Supplement to the CPS. She compares the accuracy of reported OASDI and SSI receipt and benefit amounts in the two surveys relative to matched SSA administrative records and assesses the effect on poverty estimates when administrative benefit information is used with the survey data. She found that although both surveys reflected aggregate benefits well, the SIPP over-estimated and the CPS under-estimated the percentages of individuals who received Social Security and SSI. The SIPP was better able than the CPS to identify both Social Security beneficiaries (99 percent as opposed to 95 percent) and SSI recipients (93 percent as opposed to 69 percent). For the sample of respondents receiving OASDI and/or SSI in both the survey and administrative records, the SIPP-reported benefit amount was within \$100 of the benefit amount in the administrative records twice as often as the CPS-reported benefit amount for OASDI (47 percent versus 24 percent), but slightly less frequently than the CPS-benefit amount for SSI (47 percent versus 55 percent). The impact on total income and poverty estimates of using administrative data in place of survey self-reported data was largest for the group with imputed records (see Table 2). The overall poverty estimates were slightly lower in both surveys when administrative data were used in place of survey self-reported data; respondents in the CPS were more likely to exhibit a change in poverty status due to the use of administrative data.

Table 2: Percentage of persons aged 65 or older with poverty status change after substitution of administrative benefits, by imputation status, weighted

	CPS		SIPP	
	Imputed benefits	No imputed benefits	Imputed benefits	No imputed benefits
Poverty status does not change	89.9	95.8	95.7	98.1
Change from in poverty to not in poverty	5.7	2.2	2.5	1.1
Change from not in poverty to in poverty	4.4	2.0	1.8	0.8
Unweighted N	2,097	8,956	2,322	6,513

Source: Koenig (2003, Table 9). Data are tabulated from the 1996 SIPP and March 1997 CPS matched to the Social Security Administration's Master Beneficiary Record and Supplemental Security Record.

Nicholas and Wiseman (2008) developed a detailed method for replacing self-reported survey data from the March 2003 Annual Social and Economic Supplement to the CPS with administrative data on SSI payments, OASDI benefits, and earnings. They also implemented a propensity scoring routine to reweight CPS families in the matched CPS-SSA sample to reflect the U.S. population as a whole. Using a "high" and a "low" version of their matching and data replacement routine, Nicholas and Wiseman (2008) then examined the implications of using the matched administrative data for measuring poverty among the general population and among SSI recipients. Their findings for absolute poverty are quite dramatic, especially among SSI recipients, as illustrated in Table 3. Based on public use CPS data, 44.3 percent of all SSI recipients were in poverty in 2002. Depending on the exact definitions utilized, the poverty rate is reduced to between 38 percent and 40.9 percent when SSA administrative data on benefits and earnings are used in place of CPS self-reported data. The effects are the strongest for elderly SSI recipients, whose "official" poverty rate derived from public use CPS data falls from 48.0 percent to between 38.6 percent and 40.6 percent based on CPS-SSA matched data. The effects are much more modest for the U.S. population in general, which confirms the authors' finding that SSI participation and benefits are substantially underreported in the CPS relative to SSA administrative data.

Huynh, Rupp, and Sears (2002) and Koenig (2003), among others, questioned the extent to which selectivity in the ability to match administrative records to SIPP and CPS survey records resulted in a match bias. Attrition bias in the SIPP was another prominent concern. To address these issues, SSA awarded a contract to Mathematica Policy Research, Inc. to determine the extent to which attrition and match selectivity influence estimates of income receipt and

amounts. After calibrating their sample from the 2001 SIPP to Census demographic controls, Czajka, Mabli, and Cody (2008) found little evidence of bias in estimates of a wide range of characteristics. They also found that although the proportion of SIPP respondents who could be matched with administrative records dropped substantially between the 1996 and 2001 panels of SIPP, bias in the matched sample did not appear to have increased. Their more limited evaluation of match bias in the CPS focused on retired workers, with results similar to those for SIPP. Personal, family, and household demographics among the matched sample mirrored the full CPS sample, although matched cases had slightly more income and were slightly less reliant on Social Security benefits.

Table 3: Poverty rates for the U.S. population and SSI recipients, by age group, source of data, and income-adjustment method, 2002

	Public use CPS data	CPS income adjusted based on SSA data, matched plus unmatched individuals		CPS income adjusted based on SSA data, matched individuals only	
		"Lower" income adjustment	"Higher" income adjustment	"Lower" income adjustment	"Higher" income adjustment
U.S. population					
0-17	16.7	16.4	13.3	16.3	13.0
18-64	10.6	10.5	8.4	10.5	7.9
65+	10.4	9.1	8.9	8.4	8.1
Total	12.1	11.8	9.7	11.8	9.3
SSI recipients					
0-17	36.2	26.5	21.8	26.5	21.8
18-64	43.9	42.3	40.9	44.6	43.0
65+	48.0	40.6	39.4	39.9	38.6
Total	44.3	39.8	38.0	40.9	39.0

Source: Derived by authors from Nicholas and Wiseman (2008, Table 6). Data are from the 2003 CPS Annual Social and Economic Supplement and matched SSA administrative records.

Fisher (2005 and 2008) examined the impact of survey choice and the use of administrative data in place of survey data on estimates of the importance of Social Security relative to total income for the elderly. In particular, she examined the proportion of the elderly receiving all of their income from Social Security. Using the 1996 SIPP and March 1997 CPS, Fisher (2005) estimated that in 1996, 19.4 percent of the elderly in the CPS and 9.4 percent of the elderly in the SIPP received all of their income from Social Security. She found that among those receiving all income from Social Security benefits, either in reported or administrative data, the SIPP had a lower rate of beneficiary misclassification than the CPS, as shown in Table 4. In particular, respondents in the CPS were more likely to omit SSI; respondents in CPS were also five times as likely to report having no income at all, despite being OASDI beneficiaries. The substitution of administrative data for reported data had a negligible effect on the estimates, however, because receipt of sources of income other than Social Security is what is essentially being measured.

Fisher (2008) found that the large differences in estimates of the elderly receiving all of their income from Social Security in the CPS and SIPP for 1996 is most likely due to under-reporting of receipt of asset income in the CPS, although most sources of income are significantly more likely to be reported in the SIPP than the CPS. To determine the extent to which these sources of income are under-reported in the CPS, particularly asset income and pensions, SSA, Census, and IRS entered into an agreement to match a limited set of variables from individual income tax returns (Form 1040) and informational returns (Form 1099-R) to the March 2007 CPS. Research using these data will begin soon.

These papers and others in this same line of research suggest that self-reported data in the SIPP are more likely to slightly over-report receipt of Social Security and SSI, while self-reported data in the CPS are likely to slightly under-report Social Security and significantly under-report SSI. Estimates from both surveys indicate some confusion among respondents between the two sources of income. Misreporting of income is unlikely to be limited to the Social Security

and SSI programs; other sources of income should be assessed in a similar fashion. Confusion between Social Security benefits and SSI, which are administered by the same agency, is probably not unique; reported data on other programs that are administered by the same agency, such as Medicare and Medicaid, may also benefit from examination using administrative data. Additional research in these areas should lead to improvements in survey measurement of program participation and benefits, which in turn should lead to more accurate estimates of total income, poverty status, and well being.

Table 4: Misclassification of beneficiary status of person observations 65 or older with an administrative match

	SIPP		CPS	
	Number	Percent	Number	Percent
Number of persons showing all income from Social Security benefits	902	100	2,169	100
No beneficiary misclassification	827	91.7	1,813	83.6
100 percent reliance in self report, but not administrative records	52	5.8	196	9.0
Self report omitted SSI income	29	3.2	138	6.4
Not a Social Security beneficiary	38	4.2	106	4.9
Both reasons above	15	1.7	48	2.2
100 percent reliance in administrative records, but not self report	23	2.5	160	7.4
Self report included SSI income not on administrative records	15	1.7	41	1.9
Social Security beneficiary by administrative records, not self report	11	1.2	128	5.9
Both reasons above	3	0.3	9	0.4

Source: Fisher (2005, Table 5). Data are tabulated from the 1996 SIPP and March 1997 CPS matched to the Social Security Administration's Payment History Update System and Supplemental Security Record.

3. Disability Diagnosis, Health, and Functional Limitations

Although similar labels often are applied to the disability and health information available from surveys and administrative data sources, the concepts being measured may be fundamentally different. The SIPP, HRS, NSCF, NHIS, and NHANES contain detailed data on disabling conditions, health status, and functional impairments. These data reflect the respondent's (or the respondent's proxy) subjective perceptions of his or her health and disability status at the time the survey was administered.⁹ The data reported by the respondent typically are recoded in various ways by the survey administrator before being released to researchers. SSA administrative records contain data on primary and secondary impairments for disability beneficiaries, which reflect the medical conditions considered in the medical decision about disability or blindness (initial application or continuing disability review). SSA administrative records do not contain data on the general health status of disability beneficiaries, their functional limitations, or the severity of their disabling condition(s). For denied disability applicants, SSA's administrative records systems generally do not contain impairment codes. Moreover, SSA disability data document the condition that supports the medical decision regarding eligibility for disability benefits, which is not necessarily the same as the condition that is most disabling from the individual's perspective.

Given this limited background information, consider the data in Table 5 on the disabling conditions of children receiving SSI, which are derived from the NSCF and SSA administrative records and are reproduced from Rupp et al

⁹ Beginning in 2006, the HRS also collects detailed data on physical performance measures, biomarkers, and psychological topics through enhanced face-to-face interviews with selected respondents. These data are not addressed in this paper.

(2005/2006). The distribution of disability types differs greatly between NSCF data reported by the respondent and SSA administrative data (left-hand-portion of table). Nearly 44 percent of NSCF respondents report a physical disability, compared with 25.4 percent in SSA administrative data. Only 8 percent of NSCF respondents report mental retardation, compared with 32.5 percent in SSA administrative data. However, if individuals identified by SSA administrative data as mentally retarded are removed from the sample, the distribution of disabilities in the NSCF more closely matches the distribution of disabilities in SSA administrative data (right-hand-portion of table). This supports the hypothesis that some respondents are reluctant to report that their child is mentally retarded or that they did not consider mental retardation to be a health condition.

Table 5: Type of disability among children receiving SSI, by source of disability data

Type of disability	All children receiving SSI		Children receiving SSI who are not identified as mentally retarded in SSA records	
	NSCF*	SSA records	NSCF*	SSA records
Physical	43.5	25.4	52.0	37.7
Mental	50.4	61.8	42.3	43.3
Mental retardation	7.9	32.5	3.9	---
Other mental	44.2	29.2	39.2	43.3
Other	14.8	7.7	14.3	11.5
None reported	0.4	---	0.3	---
Missing	2.8	5.1	2.6	7.6

Source: Rupp et al (2005/2006, Table 3 and footnote 15) and unpublished tabulations of NSCF data and SSA administrative data.

NSCF interviews were conducted between July 2001 and June 2002.

* Up to three health problems or conditions were coded in the NSCF. Because sample members can have more than one health problem or condition, the disability categories and subcategories are not mutually exclusive. Therefore, the percentages do not add to 100.

We conclude that the choice to use self-reported survey data on disabilities and health conditions or administrative disability data should depend on the specific application of the data. For studies that seek to understand the relationship between individual behavior and disabilities, self-reported survey data on disabilities may be more appropriate, whereas administrative disability data may be the better choice for programmatic studies or tabulations of disability beneficiaries. Both survey and administrative measures of disability and health are very complex. Survey data reflect the respondent's perception of his or her disability status and also may be influenced by proxy respondents, coding choices by survey administrators, social norms, and the quality of training provided to survey interviewers. Administrative data tend to be driven by programmatic requirements and complexities. Self-reported disability measures have been criticized in the literature as subjective, inconsistent, and endogenous (Sickles and Taubman 1997, Bound and Waidmann 1992, Kreider 1999). However, it is important to note that survey respondents may have much more detailed information about their own health and functional status than other more objective sources based on limited information. In addition, research has shown that self-reported disability measures at the time of the survey interview are highly correlated with long-term measures of mortality and disability program participation, even after controlling for a variety of demographic and economic characteristics (Rupp and Davies 2004).

4. Earnings

The earliest benefit of administrative earnings records matched with survey data was to expand the scope and quality of research in labor economics and public policy. Earnings records derived from IRS W-2 forms also are used to evaluate the accuracy of survey data, particularly the SIPP. Gottschalk and Huynh (2005) used the Social Security Administration's Detailed Earnings Record (DER) file matched to the 1996 SIPP to determine the effect of measurement error on the mean and dispersion of the distributions of earnings for people of different ages and on the correlation in earnings across years.¹⁰ Individual earnings reported in the SIPP may differ from those in the DER for

¹⁰ Bridges, Del Bene, and Leonesio (2002) evaluate the accuracy of SIPP earnings in the 1992 and 1993 SIPP panels using administrative data.

reasons other than error: respondents may report on a maximum of 2 jobs in the survey, while the administrative records report all jobs; administrative records exclude pre-tax health care premiums paid by the employee or contributions to 401(k) plans out of earnings that may be accurately reported in the survey as pre-deduction earnings.¹¹

Gottschalk and Huynh (2005) found that the DER had consistently higher employment rates than in SIPP. Respondents with missing SIPP data on earnings tend to have lower earnings in the DER than respondents with observed earnings in both data sets. Compared to the group with missing SIPP data on earnings, a smaller number of respondents had positive SIPP earnings and no DER earnings. The latter group also had lower earnings than respondents with observed earnings in both data sets, possibly reflecting informal work arrangements. Gottschalk and Huynh (2005) also found that lifetime earnings patterns were similar in the two data sources. Males age 25-59 had higher earnings in the DER than in SIPP, but there were no systematic differences in earnings between the two data sources for older males or for females. Finally, correlations between SIPP and DER non-imputed earnings are approximately 0.75 for males and females age 25-59 and for males and females 65 and older.

This is an important and complex area for future research. Survey data on earnings are reported for different time periods (weekly, monthly, annual), different concepts (gross or net of income taxes), and different sources (primary job, secondary job, wage and salary income, self-employment income). Likewise, administrative earnings records may record different concepts depending on the programmatic purpose for which they are collected. Comparisons of survey data on earnings and matched administrative data on earnings may lead to improvements in survey imputations of missing earnings data, more accurate analyses of individual well-being, and improved policy estimates of the distributional effects of Social Security and SSI reform proposals.

5. Deferred Compensation

Many researchers have documented the dramatic shift in the employer-provided pension environment from defined benefit pensions to defined contribution pensions (Munnell and Sunden 2004, Costo 2006, Buessing and Soto 2006, Poterba et al 2006, Dushi and Iams 2007). Traditional defined benefit pensions are funded by the employer and provide retirement benefits based on a formula that usually considers final salary, years of service, and age. All employees typically are included in the plan. Upon retirement, monthly benefits are generally paid in the form of a life annuity. Defined contribution plans (e.g., 401(k) and 403(b) plans), on the other hand, place more risks and responsibilities on employees. Enrollment often is not automatic. After enrolling, employees must make decisions about contribution amounts and investment allocations. Employee contributions to defined contribution pension plans are treated as deferred compensation, meaning that contributions are made on a pre-tax basis. Taxes are usually paid when funds are withdrawn. Upon retirement, employees face many options for withdrawing their defined contribution account balances, including lump-sum withdrawals, the purchase of whole- or partial-life annuities, and roll-over of funds into a tax-preferred individual retirement account from which withdrawals may be made.

The HRS has become a premier source of data for studying changes in the pension environment, pension plan participation by employees, and pension income among retirees, among other important topics related to retirement and older Americans. Importantly, on a restricted basis, researchers can access HRS data matched to Social Security administrative data on benefits and earnings. The earnings records are derived from IRS W-2 records submitted by employers on behalf of their employees. These records provide data on annual tax-deferred contributions by employees to defined contribution pension accounts. Honig and Dushi (2008) compare the deferred compensation data from IRS W-2 tax records with the self-reported pension type and pension contributions of HRS respondents to determine the accuracy of the self-reports and to assess employee understanding of the mechanics of defined benefit and defined contribution pension plans.

Table 6 provides some early estimates from Honig and Dushi (2008) on the accuracy of self-reported defined benefit and defined contribution pension plan participation among HRS respondents born between 1931 and 1941 (aged 51-61 in 1992). Thirty-one percent of individuals who report having a defined benefit-only pension plan have positive contributions to a defined contribution pension plan on their W-2 record, which suggests that these individuals misreported their pension plan type in the HRS. Thirty-nine percent of individuals who report having a defined contribution-only pension plan have zero contributions to a defined contribution pension plan on their W-2 record.

¹¹ Abowd and Stinson (2004) developed a procedure that allows for potential measurement error in both data sources.

This may reflect misreporting of defined benefit pension plans as defined contribution pension plans, or it may reflect actual lack of contributions to the defined contribution plan during the year in question. Finally, 7 percent of individuals who reported that they were not included in a pension plan had positive contributions to a defined contribution pension plan on their W-2 record, again suggesting a nontrivial amount of misreporting of pension plan type in the HRS. This is clearly an important area for future research

Table 6: Mismatch between self-reported pension type in the HRS and pension contributions from matched W-2 data among the HRS cohort aged 51-61 in 1992

Self-reported pension type in the HRS	Amount of contribution to DC pension from W-2			
	Zero	Greater than zero	Total	N
DB only (%)	69	31	100	1084
DC only (%)	39	61	100	1406
Both DB and DC (%)	43	57	100	85
Not included in a pension plan (%)	93	7	100	1333

Source: Honig and Dushi (2008).

Notes: Percentages are weighted. Sample counts (N) are unweighted. Forty-two HRS observations with a missing pension plan type were excluded from the table.

6. Concluding Observations

The ability to use survey data matched with administrative data is tremendously beneficial for a wide variety of research applications, from policy evaluation to economic research and program statistics to microsimulation modeling. A fundamental use of matched survey and administrative data by researchers at the Social Security Administration has been to assess the accuracy of the survey data and to adjust for error in research and statistics produced from survey data. The primary surveys used in this type of analyses are the SIPP, CPS, and HRS, which may be accessed only on a restricted basis, subject to the terms and conditions specified by their parent entities and the agencies with authority over the matched administrative data files. This paper reports on some important findings from these surveys with respect to survey measurement in the areas of Social Security and SSI participation and benefit amounts, disability diagnosis, earnings, and deferred compensation. The general findings regarding Social Security and SSI participation and benefit amounts appear to be quite robust across data sources and in terms of their implications for analyses of beneficiary well-being and poverty status. Research on measurement of disability diagnosis, earnings, and deferred compensation using matched survey and administrative is in its infancy. We summarize the key findings as follows.

Self-reported data on Social Security and SSI tend to over-report receipt in the SIPP but under-report receipt in the CPS. Receipt of SSI is significantly under-reported in the CPS. Estimates from both surveys indicate some confusion among respondents between the two sources of income. When administrative data are used in place of self-reported survey data, estimated poverty rates fall, especially among SSI recipients.

For disability research, both survey and administrative data have appreciable strengths depending on the specific application of the data. Survey data are likely to better reflect the perspective of the individual and often contain measures of functional limitations and severity that are not available from administrative records. The disability information in matched administrative records may better reflect the concepts of interest for more programmatically oriented studies.

There appears to be substantial misreporting of pension type based on comparisons between self-reported pension type and administrative data on annual contributions to defined contribution pension accounts. Matched administrative data from IRS W-2 records and other sources hold great promise for improving the measurement of pension plan participation and contribution amounts.

One area that is ripe for future research is the extent to which self-reported earnings in the SIPP, CPS, and HRS agree with earnings captured in SSA's administrative records systems. This is an important measurement issue, especially for the working age population. It is also a complex measurement issue. Survey data on earnings are captured in many

forms (weekly, monthly, annual; gross or net of income taxes) and for different sources (primary job, secondary job; wage and salary income; self-employment income). In SSA's administrative records systems, earnings may be recorded differently in different administrative data systems depending on whether they are counted when earned or when received, or whether they are actual or countable, estimated or verified, monthly or annual. A systematic comparison of survey-based earnings measures and matched administrative data on earnings may lead to improvements in survey imputations of missing earnings data and more accurate analyses of individual well-being and the distributional implications of Social Security and SSI policies.

Finally, while they were not addressed in this paper, some studies on mortality also have used SSA administrative records matched to survey data. Age-specific death rates typically are constructed by combining vital statistics on the number of deaths (numerator) with Census data on the size of the at-risk population (denominator). Administrative records provide these data from a single source (see Lauderdale and Kestenbaum 2002), but do not necessarily contain the socio-economic variables needed to compute age-, gender-, or race-specific death rates. Survey data matched with administrative data provide a fuller picture of the population; however, very few surveys were conducted long enough ago and have a sufficiently high match rate to administrative data to support detailed analyses.

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