ESTIMATING THE VALUE OF FEDERAL HOUSING ASSISTANCE FOR THE SUPPLEMENTAL POVERTY MEASURE

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Introduction

In 2009 the Office of Management and Budget's Chief Statistician formed an Interagency Technical Working Group (ITWG) on Developing a Supplemental Poverty Measure. That group included representatives from the U.S. Census Bureau, Bureau of Labor Statistics, Economics and Statistics Administration, Council of Economic Advisers, U.S. Department of Health and Human Services, and Office of Management and Budget. In March 2010 the Interagency Working Group issued a series of suggestions to the Census Bureau and BLS on how to develop a new Supplemental Poverty Measure (Observations from the Interagency Technical Working Group on Developing a Supplemental Poverty Measure). Their suggestions drew on the recommendations of the 1995 report of National Academy of Sciences (NAS) Panel on Poverty and Family Assistance and the extensive research on poverty measurement conducted over the past 15 years, at the Census Bureau and elsewhere.

The 1995 National Academy of Science's Panel on Poverty and Family Assistance (NAS Panel) recommended that when measuring poverty, the definition of family resources for comparison with the appropriate poverty thresholds should be disposable money and near-money income. The NAS Panel specifically recommended that gross money income (the current income concept) be adjusted by adding the value of near-money nonmedical in-kind benefits and subtracting taxes, out-of-pocket medical care expenses, child care costs, work-related transportation and miscellaneous expenses and child support payments.

Since the early 1980s, the Census Bureau has used a model based on data from the 1985 American Housing Survey to estimate the value of housing subsidies. These estimates are included in the enhanced CPS ASEC file and were used in the Estimates of the Effect of Benefits and Taxes on Income and Poverty series (sometimes referred to as the R&D series). The 1995 NAS report was critical of this method. Specifically, the panel expressed concern with (1) the difference between the total outlays for housing assistance and the total subsidy amount estimated using the 1985 American Housing method, (2) the fact that the Census Bureau model differentiated the value of housing subsidies only by four broad regions and (3) the age of the AHS data used in the analysis.

In 1999 and in 2001, the Census Bureau released reports that presented a set of experimental poverty measures based on recommendations of the 1995 NAS panel report (Short et al. 1999, Short, 2001). The reports also examined the effects of each part of the recommendations, plus reasonable alternatives. These reports considered several alternative approaches for estimating the value of housing subsidies including a method using the U.S. Department of Housing and Urban Development (HUD) Fair Market Rents (FMRs). The FMR

approach has been used in the NAS-based poverty estimates available at http://www.census.gov/hhes/www/povmeas/tables.html.

Since 2010, the Census Bureau has produced estimates using the Supplemental Poverty Measure. This paper will describe the methodology currently used by the Census Bureau to estimate the value of housing assistance in order to add this value to the resource estimate used in the Supplemental Poverty Measure. The paper will then evaluate the elements of this approach by using an exact statistical match between the CPS ASEC and HUD administrative data. Unless noted elsewhere, this paper will use data from the 2013 CPS ASEC, that is data collected in February, March and April of 2013 with a reference period of calendar year 2012.

Housing Assistance: Federal Administrative Estimates vs. CPS ASEC

Households can receive housing assistance from a plethora of federal, state and local programs. Federal housing assistance consists of a number of programs administered primarily by the Department of Housing and Urban Development (HUD). These programs traditionally take the form of rental subsidies and mortgage-interest subsidies, targeted to very-low-income renters and are either project-based (public housing) or household-based subsidies. The programs generally reduce tenants' rent payments to a fixed percentage of their income after certain deductions, currently 30 percent.

For 2013, HUD's Picture of Subsidized Housing estimates the value of federal housing assistance benefits (exclusive of administrative and other costs) for the two major federal programs at $24.4 billion and the number of participant households at 3.3 million. According to this report, 2.2 million received rental assistance in the form of vouchers while 1.1 million lived in public housing. (Approximately 1.7 million households received other federal housing assistance.)[1] This is a conservative estimate since we do not have an estimate of the number of participants nor value of local and state housing assistance.

	Administrative	Survey Response – 2013 CPS ASEC	SPM after Cap
Number of Households with Assistance	5.0 million	5.4 million	4.5 million
Public Housing	1.1 million	3.8 million	3.1 million
Housing Choice	1.2 million	1.6 million	1.4 million
Other programs	1.7 million		
Number of Individuals		11.7 mllion	9.9 million
Total Housing	$35 billion	N/A	$21.6 billion

[1] http://www.huduser.org/portal/picture2008/form_7TOTB4.odb Previous work in this area has used data from the Ways and Means Green book which provides much larger estimates of total outlays and program participants. This data was from the U.S. House of Representatives, Ways and Means Committee, 2008 Greenbook, "Federal Housing Assistance Housing Assistance Programs", Tables 15-2 and 15-3, found at http://waysandmeans.house.gov/singlepages.aspx?NewsID=10490. The Greenbook estimates "Total Outlays" which include administrative costs at $33 billion and the number of recipients at 4.7 million.

Benefits			
Public Housing	6.6 billion		13.6 billion
Housing Choice	17.8 billion		7.9 billion
Other Programs	10.5 billion		
AVERAGE HOUSING BENEFITS			
Total	$637 per month		393 per month +4716/12
Public Housing	512 per month		362.67 per month +4352/12
Housing Choice	701 per month		459 per month +5508/12

Housing Assistance Questions in the CPS ASEC

The CPS ASEC asks the following questions about housing assistance:

Is this public housing, that is, is it owned by a local housing authority or other public agency? 1 Yes 2 No

Are you paying lower rent because the Federal, State, or local government is paying part of the cost? 1 Yes 2 No

Is this through Section 8 or through some other government program? 1 Section 8 2 Some other government program 3 Not sure

At first glance, housing assistance does not appear to be "underreported" on the CPS ASEC. The 2013 CPS ASEC estimated 5.4 million households with some kind of housing assistance while HUD reports 5 million receiving assistance in 2013. However, there is some evidence that respondents do not understand the distinction between living in public housing and having the Federal, State or local government pay part of the cost. While HUD administrative data estimates 1.1 million public housing units, 3.8 million households on the 2013 CPS ASEC reported living in public housing. While HUD administrative data estimates 2.2 million households receiving rental assistance, the 2013 CPS ASEC estimates only 1.6 million households.

One reason for the apparent lack of underreporting of housing assistance in the CPS ASEC is that in addition to the federal HUD programs, for which we have estimates of the number of participants, there are many state and local housing assistance programs. Therefore there may still be significant underreporting of overall housing assistance benefits. Unfortunately, this study has not been able to locate a reliable source of estimates of recipients of and total outlays for state and local housing assistance.

Assigning a Value to Housing Subsidies

In the CPS, respondents are asked only to report their current status as of the interview date concerning whether or not they live in public housing or receive help from the government with rent. They are not asked how long they received assistance and there is no further information collected that helps to determine a dollar amount to add to family income. There have been a number of different methods proposed to assign a value to these housing subsidies for the purposes of poverty determination. Each method has advantages and disadvantages and poverty rates vary based on the method chosen. As would be expected, the poverty rates of households reporting housing assistance are much more sensitive to the choice of valuation methodology than the overall poverty rates.

Each methodology explicitly or implicitly sets the value of the subsidy as the difference between the "market rent" for a given family/household and the actual rent that they are required to pay. The problem is that the CPS ASEC does not provide information on either the market rent or actual rent payments. The valuation approaches differ in the assumptions used to impute these two different amounts. For a summary of the methods that have been proposed, see Johnson, Renwick et.al (2010).

Housing subsidies help families pay their rent and as such are added to income for the SPM measure. However, there is general agreement that, while the value of a housing subsidy can free up a family's income to purchase food and other basic items, it will only do so to the extent that it meets the need for shelter. Thus, the values for housing subsidies included as income are limited to the proportion of the threshold that is allocated to housing costs.[2]

Since the CPS ASEC reports only current housing assistance status, assumptions must be made regarding the duration of receipt of subsidies. The Census Bureau has always assumed that a subsidy reported in the CPS ASEC was received for all 12 months of the previous calendar year.

<u>SPM Approach: Using HUD Administrative Data to Estimate Market Rent</u>

The "market rent" for the household is estimated using a statistical match with United States Housing and Urban Development (HUD) administrative data from the Public and Indian

[2] The NAS panel report did not discuss the issue of caps for subsidy amounts. The Census Bureau began capping the value of housing subsidies at the shelter portion of the threshold in its earliest work with the NAS-based measures.2 In part this was a response to the acknowledgement that the FMR-based method for evaluating housing subsidies might overestimate the value of these subsidies since the FMR was a ceiling not an average of the market rent of subsidized housing. The concept of capping housing subsidies was noted in the August 2, 2000 "Open Letter on Revising the Official Measure of Poverty." The letter, signed by numerous academic researchers, noted :

> "In general the market value of benefits should be used to establish their contribution to family resources. For housing benefits, however, the value imputed for these in-kind benefits should not exceed the housing budget share in the new poverty thresholds. The "excess" of in-kind housing subsidies over the housing budget share, which in some cases may be very large, cannot be used to pay a family's food and clothing requirements."

Housing Information Center (PIC) and the Tenant Rental Assistance Certification System (TRACS). For each household, an attempt was made to match on state, CBSA, and household size.[3]

Since the HUD administrative data only include estimates of gross or contract rent for tenant-based housing assistance programs, the contract rents assigned to CPS ASEC households living in public housing are adjusted by a factor of 767/971. This adjustment factor was originally derived from data published in the "Picture of Subsidized Households: 2008" which estimated the average tenant payment and the average subsidy by type of assistance. The average contract rent would be the sum of these two estimates, $324+647=971 for tenant-based and $255+512=767 for public housing. The factor is updated each year with the latest HUD estimates.

The total tenant payment is estimated using the total income reported by the household on the CPS ASEC and HUD program rules. Generally, participants in either public housing or tenant-based subsidy programs administered by HUD are expected to contribute towards housing costs the greater of one third of their "adjusted" income or 10 percent of their gross income. HUD regulations define "adjusted household income" as cash income excluding income from certain sources minus numerous deductions. Some of the income exclusions can be identified from the CPS ASEC, such as income from employment of children, student financial assistance, earnings in excess of $480 for each full-time student 18 years or older. HUD also allows for a number of deductions which can be modeled from the CPS ASEC: $480 for each dependent, $400 for any family with a head or spouse who is elderly or disabled, child care and medical expenses. The dependent deduction is for each family member who is either under 18 years of age, a person with disabilities or a full-time student. An elderly or disabled family is any family in which the head or spouse (or the sole member) is at least 62 years of age or a person with disabilities. Child care expenses for any children, age 12 and younger, necessary to enable a family to work, look for work, or further his/her education are subtracted from income. The medical expense deduction is permitted only for households in which the head or spouse is at least 62 or disabled. The allowable medical expense is that portion of total medical expenses that exceeds three percent of annual income.[4]

The subsidy is calculated as the difference between the market rent and the expected out-of-pocket payment for housing. If the expected out-of-pocket payment for housing exceeds to the market rent, the subsidy is set to zero. The value of subsidies is capped at the housing portion of the threshold for renters minus the household's out-of-pocket housing expenditures. If the household's out-of-pocket housing expenditures exceed the housing portion of the threshold, the subsidy is also set to zero. For households with the capped subsidy, the value of the subsidy will be set at the housing portion of the threshold MINUS the out-of-pocket housing expenditures.

Subsidies are calculated at the household level. If there are two or more SPM resource units in a single household, the value of the subsidy is prorated to the unit based on the number of persons in each unit relative to the number of persons in the household.

[3] http://www.huduser.org/portal/picture2008/index.html

[4] While the enhanced CPS ASEC file does not include estimates of child care and medical out-of-pocket expenses, these items are estimated in the process of estimating the NAS-based experimental measures.

Considering Out-of-Pocket Housing Costs in Setting the Cap on the Value of Housing Assistance

Let's assume the following facts: adjusted family income of $20,000; market rent equal to $2,000 per month or $24,000 per year; poverty threshold equal to $30,000 of which $15,000 (50 percent) represents the housing portion of the threshold; and the family pays 30 percent of its adjusted income or $6,000 for rent. The housing subsidy value would then be calculated as $24,000 minus $6,000 or $18,000. Should the cap be $15,000 (the housing portion of the threshold) or $9,000 ($15,000 minus the $6,000 out of pocket housing costs)?

For determining the poverty status of this family, if the $15,000 were added to the $20,000 cash income for a total of $35,000 the family would not be considered in poverty. But this would be erroneous because our threshold establishes that this family needs $15,000 ($30,000 minus $15,000) to cover non-housing necessities and after paying its share of rent. The family has only $14,000 ($20,000 minus $6,000) available to cover these necessities and therefore should be considered in poverty. The cap should be set at the housing portion of the threshold MINUS the out-of-pocket housing expenditures of the family.

Critiques of the SPM Approach to Valuing Housing Subsidies

Numerous concerns have arisen regarding the methodology used by the Census Bureau to assign values to housing subsidies. These concerns point to the discrepancy between the administrative estimates of expenditures on housing assistance and the total value of housing subsidies assigned to SPM resource units. These comparisons suggest that SPM estimates may be underestimating the value of housing assistance and the number of people receiving this assistance. Some of the concerns relate to the limitations of the existing CPS ASEC questions on housing assistance. Other concerns focus on the methodology used to assign a market rent, the public housing adjustment and the expected household out-of-pocket expenditure for housing.

Using Administrative Data to Evaluate the Housing Subsidy Calculation

In order to evaluate the SPM housing subsidy approach, we have been able to match the 2013 CPS ASEC to the HUD administrative data for Federal Fiscal Year 2013 and Federal Fiscal Year 2012. Individuals in the CPS ASEC and the HUD administrative data are uniquely identified by a Protected Identification Key (PIK) assigned by Census. The PIK is a confidentiality-protected version of the Social Security Number (SSN). The Census Bureau's Center for Administrative Records Research and Applications (CARRA) matches the HUD files to the CPS ASEC. Since neither the CPS nor the HUD files include a SSN, CARRA uses its own record linkage software system, the Person Validation System, to assign a SSN. This assignment relies on a probabilistic matching model based on name, address, date of birth, and gender. The SSN is then converted to a PIK. The CPS ASEC and HUD files are matched based on the PIK and do not contain SSN.

We are only able to match person records to which a PIK has been assigned. This eliminates approximately 11 percent of the person records for persons ages 18 and older on the CPS ASEC file (16,499 of 145,765). In order to maintain as many records as possible, the analysis keeps any record within a SPM resource unit that has at least one record with a PIK. . Of the 78,290 SPM resource units (unweighted) approximately 91 percent included at least one person with a PIK. This enables us to keep 93 percent of person records, eliminating only 10,826 adult records from the analysis. We then match the person records with the SPM unit identification keys to determine whether anyone in a SPM resource unit is matched to the HUD administrative data.

SPM Units Reporting Housing Assistance Status

The first question we are able to address is what percentage of the SPM resource units with a PIK and reporting housing assistance in the CPS ASEC are included in the HUD administrative records. Five of the factors that can explain this mismatch would be:

(1) Misreporting
(2) Incorrect imputation of housing assistance status
(3) Receipt of state, local or non-HUD federal housing assistance
(4)Discrepancy between the tenant of record on HUD database and actual the residents of the unit
(5)Households with housing assistance in the previous calendar year that are not included in the current year's HUD database.

Overall match rate

Of the 71,272 SPM resource units with a PIK[5], there were 3,527 units that matched to either the 2012 or the 2013 HUD administrative records. Approximately 65 percent of the SPM resource units reporting housing assistance had a record in either the PICS or the TRAC database --- 2,260 out of 3,506. The share of matched households was similar for those reporting public housing (65%) and those reporting help with the rent (64%).

Using two years of HUD records (2012 AND 2013) for the match resulted in 117 more matches than when the match was done with a single year of HUD data.

Match rate for units with positive subsidy vs match rate with subsidy set at $0

Some households that report housing assistance in the CPS ASEC are assigned a zero subsidy value in the SPM estimates. This happens when their estimated family contribution to housing costs exceeds the estimated market value of their rent or the housing portion of the SPM threshold.

- Approximately 70 percent of SPM resources assigned a positive rent subsidy with a PIK had a record in either the PICS of the TRAC database.

[5] There is no evidence that SPM resource units reporting housing assistance were less likely to be assigned a PIK. More than 90 percent of the SPM resource units reporting housing assistance had at least one person with a PIK (92 percent). A similar percent of the households without housing assistance had a PIK (91 percent).

- Of the 611 SPM units that reported housing assistance but had their subsidy set to $0 in the SPM program, only 39 percent were matched to administrative records. This would imply that some of the "zeros" may be correcting for misreporting. Households with a positive assigned subsidy were more likely to be found in the administrative data.

- There were, however, 238 cases with positive matches that had their housing subsidies set to zero. These may be cases in which the SPM estimates are incorrectly setting the subsidy values to zero.

Evidence that mismatches due to state and local housing assistance programs

In order to examine whether or not the mismatches are driven by state and local housing programs not included in the HUD administrative data, one can look at these estimates at the state and metropolitan statistical area (MSA) level. The percent of households reporting housing assistance with a match to the administrative records ranged (unweighted) 12 percent in Idaho to 88 percent in Rhode Island. Notably, the percentages for states like New York (70 percent), California (62 percent) and Illinois (74 percent) that are known for having more extensive state and local housing assistance programs were not below the national average of 61 percent. If the mismatch were due to participation in state and local programs rather than HUD programs we would have expected the match rates for these states to be considerably lower. However, since we do not have a reliable source of data on the extent of local and state housing programs it is impossible to draw any inferences from this.

Examining these rates at the MSA level, we would expect a low match rate for New York City, a place where there are extensive local and state housing assistance programs. The match rate for New York City was 66 percent. For Chicago the match rate was 68 percent. For Washington D.C. MSA the match rate was 69 percent. Again, no clear evidence that mismatches are driven by the existence of state and local housing programs.

Do imputations drive the mismatches?

How many of these "mismatches" can be explained by imputations of housing assistance status rather than misreports? About 12.5 percent of SPM units had their housing assistance status imputed. Of the SPM units with PIKS who reported housing assistance, approximately 68 percent matched a record in the HUD database. For units with imputed housing assistance, the match was 40 percent.

Do households confuse public housing with voucher programs?

We can compare the type of assistance reported with the type of assistance noted in the HUD database for SPM units that have a PIK and match to the PIC data set. The TRACS data set does not have a comparable variable for type of assistance.

There were 1,483 SPM units with records that matched to the PICS data base, that reported housing assistance and had a valid entry for type of assistance. Of these, 554 are listed as living in public housing while 856 are listed as having a housing voucher.

Of the 1,000 SPM units in this subsample that reported living in public housing, 376 were listed as public housing in the data base. There were 624 that were listed as receiving a voucher. This would indicate a significant amount of confusion in the CPS ASEC reports. Less than half of those reporting living in public housing actually appeared in the HUD administrative records with that type of assistance.

Of the 483 cases that reported voucher assistance there were 284 listed in the HUD records as having voucher assistance and 199 that were listed as living in public housing. The confusion seems to go in both directions.

Of the 1,483 SPM units with matches to the PIC data, 660 or 45 percent also matched the assistance type. This clear evidence that about half of the respondents misreport their type of assistance should be sufficient to strongly consider the elimination of the public housing adjustment.

It is also interesting that of the households that matched to both the 2012 and 2013 HUD databases, many had different reports for the type of assistance. For example, there were 1,080 units listed as receiving voucher assistance in the 2012 database. Of these, 387 were listed as living in public housing in the 2013 data base. Of the 605 units in public housing in the 2012 database, 347 were listed as receiving vouchers in the 2013 data base.

Eliminating the Public Housing Discount

Since there seems to be some evidence of misreporting of public housing vs. voucher recipiency, the first exercise in this study is to look at the impact of removing the public housing adjustment. For 2012, the elimination of the adjustment would reduce the overall SPM rate from 16.0 percent to 15.8 percent. For households reporting receipt of housing assistance (8,423 person records), the SPM rate would be reduced from 34.7 percent to 30.1 percent. The impact of housing assistance on poverty rates for this group increases from 24.0 percentage points with the current approach to 28.6 percentage points.

Households <u>not</u> reporting assistance on the CPS ASEC with positive matches to HUD administrative data

The next set of questions related to SPM resource units with a PIK <u>NOT</u> reporting housing assistance in the CPS ASEC but appearing on a HUD administrative record? Mismatches could be the result of several factors:

(1) Not being asked the housing assistance question due to the income screener
(2) Misreporting
(3) Poor quality imputations
(4) Timing – may not be living in assistance at the time of the survey but had assistance at some point in the fiscal year

For the 2013 CPS ASEC there was an income screener on the automated instrument that prevented household for which the family income was reported to be greater than $75,000 from receiving the housing assistance questions. If a respondent refused to answer the income screener question, the household received the housing assistance questions. (This income

screener was eliminated with the 2014 redesign of the income questions.) The units that did not report housing assistance but appear in the HUD database may have been screened "out" of the assistance questions. For the matched subsample, there were 1,211 SPM units in the HUD data base who did not report receiving assistance. Only 56 or 4.4 percent of these units had income above the income screener. This does not seem to be a major driver of the "false positives".

The second factor that could explain these results would be underreporting of housing assistance by CPS ASEC respondents. This would be consistent with the underreporting that has been identified for many low-income programs and income sources.

Since many of the CPS ASEC respondents do not answer these questions, some of these "false positives" may be the result of the imputation process. Of the 1,211 SPM units in the universe for the housing assistance question who did not report assistance but appeared in the HUD databases, 29 percent were imputed. This is more than double the imputation rate for the households in universe that reported assistance (8 percent).

Some of these respondents may not have been receiving housing assistance at the time of the interview but may have received assistance in the previous calendar year. They would therefore appear in the HUD database but would have correctly given their housing assistance status at the time of the interview. One could look at the carry-over CPS ASEC sample from the previous year to see if the responses of these households changed from the previous year. We have not done this at this time.

What is the difference between the market rent assigned in the statistical match and the reported market rent?

Unweighted results

There are 1,193 SPM resource units with an exact match to the PICS/TRAC data that includes an administrative report for gross rent. The number of units in this subsample is reduced because generally the HUD databases do not include an estimate for rent for those reporting public housing as their type of assistance.

For these 1,193 resource units, the mean administrative report of gross rent is higher than the rent assigned by the statistical match: $12,941 as compared to $10,469. If we eliminate the public housing adjustment, the mean rent from the statistical match is $12,391, still approximately $550 lower than the gross rent from the exact match.

The higher estimate of market rent results in a higher mean subsidy before capping. The mean subsidy for these cases with the current method is $6,548 while the mean subsidy without the public housing adjustment is $8,364. The mean subsidy with the exact match is $8,956. However, many of these higher subsidies were capped in the SPM estimate. Using the current method 57 percent of these units had their housing subsidy capped. Eliminating the public housing adjustment increases the percentage with a cap to 80 percent. Using the administrative report for contract rent results in 71 percent of the cases being capped.

As a consequence of these high percentage with capped subsidies, the capped subsidy amounts were closer in magnitude across the three approaches. The mean subsidy using the current method was $4,932. The mean subsidy removing the public housing adjustment was $5,463 and the mean subsidy using the contract rent from the HUD database was $4,831.

The alternative methods do seem to reduce slightly the percent of the SPM units who report housing assistance whose subsidies are set to zero because their contract rents exceed their expected housing out-of-pocket outlays. Using the current method 7 percent of these cases have a zero subsidy. Eliminating the public housing adjustment this falls to 4 percent. Using the administrative reported contract rent results in 5 percent of the cases with zero subsidies.

Finally, we can examine the poverty rates for this subsample using the three different approaches. Using the current method the SPM rate for these 1,193 cases was 33 percent. Eliminating the public housing adjustment results in a SPM rate of 29 percent. The SPM rate using the administrative reported contract rent for this group was 33 percent.

Since all of these estimates are unweighted, we are unable to test the statistical significance of these differences.

How do the SPM estimates of expected out-of-pocket housing outlays compare the tenant contributions reported in the HUD databases?

There were 2,225 cases with a match with an administrative report for the tenant contribution. The mean tenant contribution using the existing methodology was $4,061. The mean tenant contribution in the administrative records was $3,673. Before capping this increased the mean subsidy from $6,086 to $6,509. After capping the mean subsidy increased from $4,505 to $4,931.

The differences in the expected out-of-pocket housing costs for these 2,225 cases ranged from a positive $28,229 to negative $31,340. The median difference was $254.40. The mean difference was about $400.

The SPM rate for this group increased from 33 percent to 37 percent. There were changes in both directions. There were 188 units who were not classified as poor using the existing method whose classification changed to poor when the administrative estimate of total tenant payments was used in the subsidy formula. There were 92 units whose poverty status changed from poor to not poor with the new method.

The percent capped with this method was 57 percent as compared to 58 percent for this group with the current method. The percent with zero subsidy increased from 7 percent to 8 percent.

Using Administrative Rent and Tenant Payment in the Subsidy Calculation

The number of units with administrative data on <u>both</u> rent and tenant payments was 1,181. Using this method mean subsidies before capping increased from $6,496 to 8,931. This increase appears to be driven by the higher administrative rents (12,915 vs 10,423). However, with this method the percent capped increases to 71 percent. After capping the mean subsidy using this method is $4,935 as compared to $4,895 with the current method. The SPM rate

using this method is 39 percent as compared to 33 percent with the current method. Again, despite higher mean subsidies, the poverty rate increases. There were 137 cases whose poverty status changed from not poor to poor with 62 cases moving in the other direction, from poor to not poor.

Conclusions and Recommendations

Using the matched data set confirms the hypothesis that there is some confusion by respondents regarding the type of housing assistance received. Given this confusion, it seems reasonable to eliminate the public housing adjustment in the SPM estimates. This would slightly decrease SPM rates. For 2012, the overall SPM rate would fall from 16.0 percent to 15.8 percent. For units reporting housing assistance, the change in the SPM rate would be greater, from 34.7 percent to 30.1 percent.

One goal of this analysis was to assess the quality of the statistical match between the CPS ASEC and HUD administrative records as a source of market rent estimates. Looking at the subsample of SPM units that matched to the HUD administrative records and included an administrative report of gross rent, we found that the mean market rent estimates were relatively close: $12,941 vs. $12,391 if we eliminate the public housing adjustment. But there were many cases in which the differences in the mean rents were very substantial. Compared to the current method without the public housing adjustment, substituting the rents from the direct match resulted in changes in poverty status for six percent of the subsample (68 of 1193 cases).

A second objective of this study was to assess the SPM calculation of expected tenant contribution to housing costs. There were 2,225 cases for which we could compare calculated tenant payments to HUD administrative records of tenant payments. The current method had a mean payment of $4,061 for these cases while the administrative records show a mean of $3,673. The change in the poverty rate for this group was from 33 percent with the current method to 37 percent when the reported payment is used in the subsidy calculation. Approximately 13 percent of the cases changed poverty status across the two methods.

Finally, this matched data set can help evaluate the effectiveness of the CPS ASEC questions on housing assistance. Examining percentage of cases matching to the HUD databases at the state and MSA levels did not support the hypothesis that misreporting was greater in places with strong state and local housing assistance programs.

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Table 1: Summary Statistics on Participants and Expenditures on Housing Assistance

	Administrative	Survey Response – 2013 CPS ASEC	Supplemental Poverty Measure after Cap
PARTICIPANTS			
Number of Households with Assistance	5.0 million	5.4 million	4.5 million
Public Housing	1.1 million	3.8 million	3.1 million
Housing Choice	2.2 million	1.6 million	1.4 million
Other programs	1.7 million		
Number of Individuals		11.7 million	9.9 million
EXPENDITURES			
Total from Public Housing and Housing Choice	$24.4 billion	N/A	$21.6 billion
Public Housing	6.6 billion		13.6 billion
Housing Choice	17.8 billion		7.9 billion
Other Programs	10.5 billion		
AVERAGE BENEFITS			
Total	$637 per month	N/A	$393 per month
Public Housing	$512 per month		$363 per month
Housing Choice	$701 per month		$459 per month

Sources: U.S. Department of Housing and Urban Development, "A Picture of Subsidized Housing" and the Current Population Survey Annual Social and Economic Supplement, 2013.

Table 2: Match rates

Match rates for respondents

CPS Households	N	In PIC 2012	In TRACS 2012	In HUD 2012	In PIC 2013	In TRACS 2013	In HUD 2013	In HUD 2012 or 2013
Public Housing	2,321	34.6%	22.0%	56.1%	39.8%	23.2%	62.7%	65.9%
Rental Assistance	962	41.5%	15.7%	56.3%	46.3%	14.5%	60.4%	64.1%
No Housing Assistance	60,705	1.0%	0.3%	1.2%	1.0%	0.2%	1.2%	1.4%
All	63,988	2.8%	1.3%	4.1%	3.1%	1.3%	4.3%	4.7%

Match rates for any household member

CPS Households	N	In PIC 2012	In TRACS 2012	In HUD 2012	In PIC 2013	In TRACS 2013	In HUD 2013	In HUD 2012 or 2013
Public Housing	2,321	35.2%	22.3%	57.0%	40.5%	23.5%	63.6%	66.7%
Rental Assistance	962	42.4%	15.9%	57.5%	46.7%	14.6%	60.8%	64.8%
No Housing Assistance	60,705	1.2%	0.4%	1.5%	1.1%	0.3%	1.4%	1.7%
All	63,988	3.0%	1.4%	4.4%	3.2%	1.4%	4.6%	5.0%

Sources: 2013 CPS ASEC and HUDS PIC/TRACS Data

Table 3: Mean Characteristics by Match Group

	CPS Housing, HUD Match	CPS Housing, No HUD Match	No CPS Housing, HUD Match	No CPS Housing, No HUD Match
CPS Public Housing	0.72	0.68	0.00	0.00
CPS Rental Assistance	0.28	0.32	0.00	0.00
Household Income	$14,678	$21,594	$28,849	$75,872
Poverty	0.61	0.43	0.44	0.10
Age 65+	0.27	0.21	0.18	0.24
Age	51.03	46.99	46.26	51.48
White non-Hisp.	0.39	0.49	0.36	0.73
Black non-Hisp.	0.39	0.24	0.43	0.10
Asian	0.03	0.06	0.03	0.04
Hispanic	0.16	0.17	0.16	0.10
Married	0.11	0.21	0.18	0.53
# in hhld	2.11	2.15	2.70	2.46
# children in hhld	0.79	0.74	1.00	0.57
Any children in hhld	0.37	0.37	0.47	0.31
Female	0.75	0.65	0.71	0.48
Native	0.85	0.83	0.87	0.88
Foreign citizen	0.10	0.08	0.08	0.07
Foreign non-citizen	0.05	0.09	0.04	0.05
NE	0.31	0.25	0.22	0.18
MW	0.22	0.22	0.21	0.23
South	0.30	0.29	0.39	0.38
West	0.17	0.24	0.18	0.21
MSA Principal City	0.54	0.42	0.51	0.31
MSA Outside City	0.33	0.35	0.35	0.53
No MSA	0.13	0.23	0.13	0.16
HS Dropout	0.33	0.25	0.22	0.09
HS Graduate	0.34	0.37	0.37	0.27
Some College	0.26	0.28	0.32	0.29
BA	0.05	0.08	0.06	0.22
Advanced Degree	0.01	0.02	0.02	0.13
Disabled	0.35	0.24	0.19	0.09
Any work	0.41	0.59	0.63	0.82
FTFY work	0.14	0.32	0.36	0.63
N (rows 3-29)	2,172	1,111	1,056	59,649
N (rows 30-34)	2,023	989	953	57,559
N (rows 35-37)	1,615	887	876	47,318
Sources: 2013 CPS ASEC and HUDS PIC/TRACS Data				

Table 4: Assessment of the Quality of the Match					
Relationship Agreement					
	PIC 2012	**TRACS 2012**		**PIC 2013**	**TRACS 2013**
CPS Respondent is HUD Head	0.90	0.93		0.92	0.95
(conditional on respondent match to HUD data)					
State Agreement					
	HUD 2012			**HUD 2013**	
	Respondent State Match	Anyone in HHLD State Match		Respondent State Match	Anyone in HHLD State Match
CPS Housing Assistance and HUD M	0.98	0.99		0.99	0.99
No CPS Housing Assistance, HUD M	0.77	0.90		0.82	0.94
Total	0.91	0.96		0.94	0.98
HH Size Agreement (HUD LESS CPS HHSIZE)					
	PIC 2012			**TRACS 2012**	
	Number of Households	Percent		Number of Households	Percent
-2 or fewer	54	0.03		22	0.0267
-1	181	0.1007		54	0.0655
0	**1,338**	**0.7446**		**684**	**0.8291**
1	149	0.0829		56	0.0679
2 or more	75	0.0417		9	0.0109
	PIC 2013			**TRACS 2013**	
	Number of Households	Percent		Number of Households	Percent
-2 or fewer	39	0.02			0.0157
-1	156	0.0796			0.0484
0	**1,613**	**0.823**			**0.8923**
1	104	0.0531			0.0375
2 or more	48	0.0244			0.01
Sources: 2013 CPS ASEC and HUDS PIC/TRACS Data					

Table 5 - Summary Statistics for SPM Resource Units: Match Rates										
	Total SPM Units		SPM Units Reporting Housing Assistance		SPM Units Reporting Public Housing		SPM Reporting Voucher Program		SPM units NOT reporting Housing Assistance	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total	78,290	100%	3,798	100%	2,683		1,115		74,492	100%
With a PIK	71,272	91%	3,506	92%	2,480	92%	1,026	92%	67,766	91%
Matched to the HUD data	3,527	5%	2,260	64%	1,604	65%	656	64%	1,267	2%
Not matched to HUD data	67,745	95%	1,246	36%	876	35%	370	36%	66,499	98%
Mismatches			1,246		876		370		1,267	
In Universe for the Housing Assistance Questions (Passed Income Screener)										
Total with a PIK	53,282	75%							49,776	73%
Matched to HUD Data	3,471	98%							1,211	96%
Imputations										
Housing Assistance NOT imputed	62,918		3,069		2,185		884		59,849	
Matched to the HUD data	2,999	5%	2,084	68%	1,475	68%	609	69%	915	2%
Not matched to HUD data	59,919	95%	985	32%	710	32%	275	31%	58,934	98%
Housing assistance imputed	8,354		437		295		142		7,917	
Matched to the HUD data	528	6%	176	40%	129	44%	47	33%	352	4%
Not matched to HUD data	7,826	94%	261	60%	166	56%	95	67%	7,565	96%
Mismatch Attributable to Imputations			261	26%	166	23%	95	35%	7,565	28%
Sources: 2013 CPS ASEC and HUDS PIC/TRACS Data										

Table 6 : Match Rates by State and Metropolitan Statistical Area

(Universe: CPS PIK Respondents who report housing assistance. Estimates not weighted)

State	Percent Matched to Administrative Records		State	Percent Matched to Administrative Records
Overall	64.5%		MISSOURI	57.4%
ALABAMA	60.0%		MONTANA	40.5%
ALASKA	33.3%		NEBRASKA	57.4%
ARIZONA	41.2%		NEVADA	56.8%
ARKANSAS	75.6%		NEW HAMPSHIRE	78.0%
CALIFORNIA	61.9%		NEW JERSEY	67.1%
COLORADO	59.6%		NEW MEXICO	43.3%
CONNECTICUT	74.0%		NEW YORK	69.5%
DELAWARE	71.9%		NORTH CAROLINA	58.0%
DISTRICT OF COLUMBIA	69.7%		NORTH DAKOTA	48.9%
FLORIDA	68.1%		OHIO	76.3%
GEORGIA	84.4%		OKLAHOMA	74.4%
HAWAII	56.8%		OREGON	85.3%
IDAHO	11.5%		PENNSYLVANIA	70.3%
ILLINOIS	73.6%		RHODE ISLAND	87.7%
INDIANA	76.5%		SOUTH CAROLINA	55.2%
IOWA	51.1%		SOUTH DAKOTA	40.0%
KANSAS	62.7%		TENNESSEE	82.1%
KENTUCKY	51.4%		TEXAS	68.8%
LOUISIANA	75.0%		UTAH	47.1%
MAINE	65.3%		VERMONT	77.6%
MARYLAND	57.5%		VIRGINIA	65.3%
MASSACHUSETTS	69.2%		WASHINGTON	51.8%
MICHIGAN	63.3%		WEST VIRGINIA	61.8%
MINNESOTA	67.5%		WISCONSIN	59.7%
MISSISSIPPI	47.6%		WYOMING	37.3%
Metropolitan Statsitical Area				
Chicago	68.6%			
Los Angeles	63.5%			
New York City	66.6%			
Washington, DC	69.2%			

Source: 2013 CPS ASEC and HUDS PIC/TRACS Data

Table 7 - Summary Statistics for SPM Resource Units: Type of Assistance

	SPM Units Reporting Housing Assistance		SPM Units Reporting Public Housing		SPM Reporting Voucher Program	
	Number	Percent	Number	Percent	Number	Percent
Type of Assistance						
With entry for type of assistance	1,483		1,000		483	
Admin record for public housing	554	37%	376	38%	199	41%
Admin record for voucher	856	58%	624	62%	284	59%
Correctly matched assistance type	660	45%	376	38%	284	59%
SPM Subsidies Set to Zero						
Total	611	16%	480	18%	131	12%
Matched	238	39%	192	40%	46	35%
Not matched	373	61%	288	60%	85	65%
Mismatches "corrected" in subsidy calculation	373	30%	288	33%	85	23%
Nonimputed Records with Positive Subsidies						
Total	2582		1786		796	
Matched	1873	73%	1303	73%	570	72%
Not matched	709	27%	483	27%	226	28%
Mismatches Set to Zero or From Imputations	537	43%	393	45%	144	39%
Sources: 2013 CPS ASEC and HUDS PIC/TRACS Data						

Table 8: Summary Statistics for Alternative Housing Subsidy Methodologies												
	Overall SPM Rate		**Mean Subsidy**		**SPM Rate for Resource Units with Assistance**		**Percent with Zero Subsidy**		**Percent Capped**		**Aggregate Subsidies**	
	Percent	SE	$$$	SE	Percent	SE	Percent	SE	Percent	SE	Billions	SE
Current Method	16.0	0.2	4,716	93	34.7	1.1	17.6	0.8	50.5	1.1	21.6	0.8
Removing Public Housing Adjustment	15.8	0.2	5,189	105	30.1	1.1	15.5	0.8	70.0	1.0	24.3	0.9
Using Housing Portion of Threshold as Market Rent	15.8	0.2	5,421	116	28.7	1.1	16.0	0.8	na	na	25.2	0.9
Changing the Percent of Threshold Assigned to Housing	15.9	0.2	5,438	89	31.8	1.1	13.6	0.7	29.9	1.1	26.0	0.9
Sources: 2013 CPS ASEC and HUDS PIC/TRACS Data												

Table 9: Comparisons of Statistical Match to Exact Match

Subsample		Sample with Contract/Gross Rent		Sample with Tenant Payment		Sample with Tenant Payment and Gross Rent	
		Estimate	SE	Estimate	SE	Estimate	SE
	Unweighted Count	1,616		2,206		1,587	
Mean Annual	Statistical Match without Public Housing Adjustment	$ 11,703	168	11,860	147	11,676	170
Rent	Exact Match	$ 11,638	97	N/A	-	11,663	173
Mean Annual	Statistical Match without Public Housing Adjustment	3,989	97	4,189	89	3,989	99
Tenant Payment	Exact Match	N/A	-	3,508	74	3,283	72
Mean Subsidy	Statistical Match without Public Housing Adjustment	5,252	156	5,285	134	5,241	159
	Exact Match	5,202	156	4,836	104	5,272	142
SPM Rate	Statistical Match without Public Housing Adjustment	30.2	1.7	29.4	1.5	30.2	1.8
	Exact Match	30.7	0.5	33.3	1.5	31.0	1.7
Percent with Zero	Statistical Match without Public Housing Adjustment	3.2	0.5	3.8	0.5	3.3	0.6
Subsidy	Exact Match	3.4	1.3	3.7	0.6	0.0	0.0
Percent Capped	Statistical Match without Public Housing Adjustment	78.5	1.3	77.3	1.2	78.3	1.3
	Exact Match	78.4	1.3	59.4	1.5	83.3	1.2
			97.5				

Sources: 2013 CPS ASEC and HUDS PIC/TRACS Data