Evaluating the Use of the New Current Population Survey's Annual Social and Economic Supplement Questions in the Census Bureau Tax Model

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As a part of developing a Supplemental Poverty Measure (SPM), several questions were added to the Current Population Survey's (CPS) Annual Social and Economic (ASEC) supplement. Some of these new questions allowed for some changes to the CPS ASEC tax model; improving how children are assigned to head of household tax units by using pointers to each parent and using new variables to assign childcare costs, presence of mortgage, and medical out of pocket expenses (MOOP). These new questions could now be used to replace the less timely imputed data. All of these changes are explored individually and then collectively in a new tax model for potential use in the Supplemental Poverty Measure. The tables in each of the following sections are based on weighted counts. The tables show how the use of the new CPS ASEC information will affect national estimates of the tax variables. Subsetting the data may have a differential effect on tax estimates for some demographic groups.

Using Two Pointers for Parents of Children in the CPS ASEC Tax Model

The current CPS ASEC tax model uses a single parent pointer to assign children as dependents to their parents' tax forms. By incorporating pointers to both the father and the mother (created in 2007), children can now be assigned as dependents more in line with Internal Revenue Service's (IRS) rules. The new pointers have no effect on single tax unit households and married filing jointly tax unit households. However, in cases of head of household tax unit households, where both unmarried parents are in the household, filing as separate tax units, the use of two parent pointers could change which parent the child is assigned to as a dependent. The IRS rules stipulate that the parent who has the highest Adjusted Gross Income (AGI) should claim the child as a dependent. Since tax units are created before estimating AGI, the new tax model uses the CPS ASEC total money income as a proxy to assign child dependents.

Results of switching to two parent pointers in the tax model are shown in Table 1[1]. The percentage of tax units who are expected to file a return[2] is not statistically different[3]. For nonzero AGI,

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[1] All margins of error and all differences in this report were calculated using replicate weights.

[2] Here and in several other places throughout the text, "expected to file a return" refers to the FILESTAT variable created in the CPS ASEC tax model. This variable is the result of an analysis of a potential filing unit's tax obligations and financial status to determine if they would be required to file taxes, or if they could file a tax return in order to claim refundable credits. If they fall into either category, they are considered "expected to file a return" for this report, while the remainder of potential filing units would be considered "non-filers".

the mean AGI is also not statistically different. For nonzero taxable incomes, the mean taxable income increases. The percentage of tax units that are eligible for the Child Tax Credit (CTC) and the percentage eligible for the Earned Income Tax Credit (EITC) dropped. The mean credit amounts for both of these credits drop as well. These are all consequences of assigning children to parents with higher incomes. These drops result in an increase in mean federal taxes after credits. Further research is necessary before implementing this change.

Table 1: Tax Model Summary Measures Based on One and Two Parent Pointers (Universe: Tax Units. For information on confidentiality protection, sampling error, nonsampling error, and definitions, see www.census.gov/apsd/techdoc/cps/cpsmar10.pdf)				
	2009 Tax Model Using One Parent Pointer (published)		2009 Tax Model Using Two Parent Pointers	
	Estimate	Margin of Error	Estimate	Margin of Error
Percent of tax units who are expected to file a return	79.3	±.341	79.3	±.339
Mean AGI	55688	±673	55674	±672
Mean taxable income	49571	±752	*50240	±755
Percentage of filing units receiving CTC	14.1	±.203	*9.9	±.173
Mean CTC received	1354	±15	*879	±15
Percentage of filing units receiving EITC	12.7	±.221	*11.6	±.224
Mean EITC received	1953	±36	*1557	±32
Mean federal tax after credits	7396	±188	*7702	±189

Source: U.S. Census Bureau, 2010 Current Population Survey Annual Social and Economic Supplement.
* - Indicates statistically different from published (old tax model) estimate at the 95% confidence level.

Using the new CPS ASEC Childcare Information in the CPS ASEC Tax Model

The current CPS ASEC tax model uses a statistical match to IRS data to impute childcare costs. Beginning with the 2010 CPS ASEC, questions were added on childcare expenses, and used in the CPS ASEC tax model – these questions are included in Appendix A. Results of switching to CPS ASEC childcare cost information in the tax model are shown in Table 2. The percentage of tax units who are expected to file taxes is not statistically different. For nonzero AGI, the mean AGI is increased, and for nonzero taxable incomes, the mean taxable income is higher than the published model as well. Both the percentage of units that are eligible for the Child Tax Credit and percentage of units that are eligible for

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[3] The 95 percent confidence interval includes zero. The Census Bureau does not have sufficient statistical evidence to conclude that the actual change is different from zero.

the Earned Income Tax Credit are both slightly increased[4]. The mean credit amount for the Child Tax Credit is slightly increased, while the mean credit amount for the Earned Income Tax Credit is not significantly different. Finally, the mean federal tax after credits is slightly increased. These results show that the use of the new CPS ASEC childcare expense variables will only slightly impact the tax model. However, further research will be needed before making this change to the tax model.

Table 2: Tax Model Summary Measures Based on Alternate Sources of Childcare Costs (Universe: Tax Units. For information on confidentiality protection, sampling error, nonsampling error, and definitions, see www.census.gov/apsd/techdoc/cps/cpsmar10.pdf)				
	2009 Tax Model Using Imputed IRS Childcare Costs (published)		2009 Tax Model Using New CPS ASEC Childcare Costs Data	
	Estimate	Margin of Error	Estimate	Margin of Error
Percent of tax units who are expected to file a return	79.3	±.341	79.4	±.341
Mean AGI	55688	±673	*55829	±672
Mean taxable income	49571	±752	*49713	±749
Percentage of filing units receiving CTC	14.1	±.203	*14.2	±.206
Mean CTC received	1354	±15	*1359	±15
Percentage of filing units receiving EITC	12.7	±.221	*12.7	±.221
Mean EITC received	1953	±36	1954	±36
Mean federal tax after credits	7396	±188	*7427	±188

Source: U.S. Census Bureau, 2010 Current Population Survey Annual Social and Economic Supplement.
* - Indicates statistically different from published (old tax model) estimate at the 95% confidence level.

Using the new CPS ASEC Mortgage Information in the CPS ASEC Tax Model

The current tax model uses a statistical match to IRS data to impute data for mortgage interest information. Beginning with the 2010 CPS ASEC, questions were added on the presence of a mortgage[5] and used in the CPS ASEC tax model – these questions are included in Appendix A. Results of switching to CPS ASEC mortgage information in the tax model are shown in Table 3. The weighted percentage of tax units who are expected to file taxes is slightly lower[3]. For nonzero AGI, the mean AGI was not significantly different, while the mean taxable income decreased, for nonzero taxable incomes. The

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[4] Unrounded estimates result in statistical differences at the 95% confidence level due to the high correlation between estimates. Differences that would otherwise appear to not be statistically significant are statistical differences.

[5] "Presence of a mortgage" in this paper indicates an affirmative response to either question listed in Appendix A, as the IRS rules allow the deduction of mortgage interest for home mortgages, second mortgages and home equity loans. More details are available on the IRS website.

percentage of units that are eligible for the Child Tax Credit is slightly increased, while the percentage of units that are eligible for the Earned Income Tax Credit is not statistically different. The mean credit amount for the Child Tax Credit increased slightly, while the mean credit amount for the Earned Income Tax Credit is not statistically different. Finally, the mean federal tax after credits decreased slightly when the new mortgage data was used. These results show that the use of the new CPS ASEC presence of mortgage variable will only slightly impact the tax model data. However, these results will need to be benchmarked to administrative date before implementing these changes.

Table 3: Tax Model Summary Measures Based on Alternate Sources of Mortgage Data (Universe: Tax Units. For information on confidentiality protection, sampling error, nonsampling error, and definitions, see www.census.gov/apsd/techdoc/cps/cpsmar10.pdf)				
	2009 Tax Model Using Imputed IRS Mortgage Data (published)		2009 Tax Model Using New CPS ASEC Mortgage Data	
	Estimate	Margin of Error	Estimate	Margin of Error
Percent of tax units who are expected to file a return	79.3	±.341	*79.3	±.341
Mean AGI	55688	±673	55659	±674
Mean taxable income	49571	±752	*49421	±744
Percentage of filing units receiving CTC	14.1	±.203	*14.2	±.205
Mean CTC received	1354	±15	*1360	±15
Percentage of filing units receiving EITC	12.7	±.221	12.7	±.219
Mean EITC received	1953	±36	1954	±36
Mean federal tax after credits	7396	±188	*7340	±188

Source: U.S. Census Bureau, 2010 Current Population Survey Annual Social and Economic Supplement.
* - Indicates statistically different from published (old tax model) estimate at the 95% confidence level.

Using the new CPS ASEC MOOP Variable to Update the CPS ASEC Tax Model

The current CPS ASEC tax model uses a statistical match to IRS data to impute MOOP expenses. Beginning with the 2010 CPS ASEC, questions were added on MOOP expenses, and used in the CPS ASEC tax model – these questions are included in Appendix A. Results of switching to CPS ASEC MOOP information in the tax model are shown in Table 4. The weighted percentage of tax units who are expected to file taxes is slightly higher. For nonzero AGI, the mean AGI decreases, as does, for nonzero taxable incomes, the mean taxable income. Both the percentage of units that are eligible for the Child Tax Credit and percentage of units that are eligible for the Earned Income Tax Credit are not statistically different, as is the mean credit amount for the Earned Income Tax Credit.   The mean credit for the Child Tax Credit decreases slightly. The decrease in taxable income causes a decrease in the mean federal taxes after credits are taken into account. These results show that the use of the new CPS ASEC MOOP expense variables will result in slightly lower federal tax estimates, however these results will need to be further investigated before implementing the changes.

Table 4: Tax Model Summary Measures Based on Alternate Sources of MOOP Expenses (Universe: Tax Units. For information on confidentiality protection, sampling error, nonsampling error, and definitions, see www.census.gov/apsd/techdoc/cps/cpsmar10.pdf)

	2009 Tax Model Using Matched IRS MOOP Data (published)		2009 Tax Model Using New CPS ASEC MOOP Data	
	Estimate	Margin of Error	Estimate	Margin of Error
Percent of tax units who are expected to file a return	79.3	±.341	*79.4	±.343
Mean AGI	55688	±673	*55563	±669
Mean taxable income	49571	±752	*48453	±730
Percentage of filing units receiving CTC	14.1	±.203	14.1	±.208
Mean CTC received	1354	±15	*1349	±15
Percentage of filing units receiving EITC	12.7	±.221	12.7	±.218
Mean EITC received	1953	±36	1954	±36
Mean federal tax after credits	7396	±188	*7157	±182

Source: U.S. Census Bureau, 2010 Current Population Survey Annual Social and Economic Supplement.
* - Indicates statistically different from published (old tax model) estimate at the 95% confidence level.

Combined Effect of Implementing CPS ASEC Two Parent Pointers, Childcare Costs, Mortgage Information and MOOP Expenses in the CPS ASEC Tax Model

The previous sections discussed the individual effects of the proposed changes to the CPS ASEC tax model. This section examines the combined effect of implementing all four of the discussed changes into the tax model. Results of using the two parent pointers and the new CPS ASEC information in the CPS ASEC tax model are shown in Table 5. The weighted percentage of tax units who are expected to file taxes is decreased slightly[3]. For nonzero AGI, the mean AGI increases, as does the mean taxable income for nonzero taxable incomes. Both the percentage of units that are eligible for the Child Tax Credit and percentage of units that are eligible for the Earned Income Tax Credit decreased, along with their mean credit amounts. The decrease in these credits results in an increase in mean federal taxes after credits are taken into account. These results show that the use of the new CPS ASEC information in the tax model would result in slightly higher federal tax estimates.

Table 5: Tax Model Summary Measures Before and After Implementing All SPM Changes (Universe: Tax Units. For information on confidentiality protection, sampling error, nonsampling error, and definitions, see www.census.gov/apsd/techdoc/cps/cpsmar10.pdf)

	2009 Tax Model Using One Parent Pointer and Imputed IRS data (published)		2009 Tax Model Using Two Parent Pointers and CPS ASEC Childcare Costs, Mortgage and MOOP Data	
	Estimate	Margin of Error	Estimate	Margin of Error
Percent of tax units who are expected to file a return	79.3	±.341	*79.3	±.340
Mean AGI	55688	±673	*55857	±675
Mean taxable income	49571	±752	*49740	±740
Percentage of filing units receiving CTC	14.1	±.203	*10.0	±.174
Mean CTC received	1354	±15	*882	±15
Percentage of filing units receiving EITC	12.7	±.221	*11.6	±.222
Mean EITC received	1953	±36	*1557	±32
Mean federal tax after credits	7396	±188	*7554	±185

Source: U.S. Census Bureau, 2010 Current Population Survey Annual Social and Economic Supplement.
* - Indicates statistically different from published (old tax model) estimate at the 95% confidence level.

It appears that the main factor in all of the differences between the old and new tax model is driven by the potential use of the two parent pointers. The decreases in mean taxable income and mean federal tax after credits caused by the use of the new MOOP variables are cancelled out by the increases caused by the two parent pointers. The use of new MOOP variables and the remaining two changes (childcare and mortgage) involved replacing imputed data to conceptually consistent data from the CPS ASEC. There will need to be further research into the best way to implement these changes, because of their impact on the tax model and a need to benchmark these changes against administrative data. We plan to perform this additional research before implementing these changes in the CPS ASEC tax model.

Appendix A

2010 CPS ASEC Childcare Cost Questions:

1) Did (you/ anyone in this household) PAY for the care of (your/their) (child/children) while (you/they) worked in 2009?

Include: All child care expenses including preschool and nursery school expenses, before and after school care, and summer care.

Do not include: cost of kindergarten or grade/elementary school.

2) Which children needed care while their parents worked?

3) What is the easiest way for you to tell us how much (you/you and others in this household) paid for child care while (you/they) worked in 2009: weekly, every other week, twice a month, monthly, or yearly?

(If the answer to question 3 is yearly, question 4 is asked, otherwise questions 5 through 7 are asked .)

4) How much did (you/they) pay for child care?

Include child care payments made for all children in the household.

For example, if there are two adults in the household with childcare expenses use the total paid by both adults. Do not try to separate the payments. Record one total for the entire household.

5) How many (weekly/every other week/twice a month/monthly) payments did (you/they) make during 2009?

6) Then (you/they) paid (total dollar amount) altogether in child care while (you/they) worked during 2009. Does that sound about right?

7) What is your best estimate of the correct amount (you/they) paid for child care while (you/they) worked in 2009?

2010 CPS ASEC Mortgage Questions:

1) Do you or any other member of this household have a mortgage, deed of trust, contract to purchase, or similar debt on THIS property?

2) Do you or any member of this household have a second mortgage or a home equity loan on THIS property?

2010 CPS ASEC MOOP Questions:

1) During 2009, about how much did (name/you) pay for health insurance premiums for yourself/himself/herself?

2) During 2009, about how much was paid for (name's/your) own medical care, including payments for hospital visits, medical providers, dentist, medicine, or medical supplies?

3) Just to be sure -were these amounts for medical care and health insurance the total cost or did (name/you) get reimbursed by some outside source?

4) How much of these expenses were reimbursed?