SESSION II:

Kathleen Short: [revised by the author on December 8, 2003]

My name is Kathleen Short and I work at the U.S. Census Bureau. The title of my presentation is "Medical Out-of-Pocket (MOOP) Expenses in Experimental Poverty Measures". I noted when Dave Betson was speaking earlier that I should've called him and asked him what acronyms he was going to be using because, in truth, I'm going to be saying almost the same thing David said but you'll never know because my notation is going to be so different.

I'm going to be presenting results from poverty measurement work we've been doing at the Census Bureau and generally that work has been aimed at investigating measurement issues that relate to the recommendations from the National Academy of Science's panel that David spoke about. In that effort we're trying to present for discussion different approaches to calculating revised poverty measures. We've managed to develop three approaches to including medical out-of-pocket costs and the advantage of taking different approaches is that we can illustrate the effect that different measurement approaches have on who we think is poor and how poor we think they are.

So I want to present some general concepts, take a sort of heuristic approach to accounting for health care in a poverty measure. The current official poverty measure does not explicitly account for health care. Essentially that measure uses a before-tax money income measure, shown here as Y, compared to a measure of basic needs (T) and if your income is below that poverty threshold then you are determined to be in poverty. We can incorporate health care into this measure by adding all total health care needs into the threshold shown here as capital H. That could be broken down in two pieces because typically people have health insurance in the United States you can break that down into health care needs that are covered by health insurance, or B, and the remaining amount that people have to spend out of pocket for that health care, MOOP. Then, for consistency we want to add health insurance benefits to the income side because those are resources that families have to meet their needs.

By substitution, we have the expression on this slide and essentially the B is canceled out. So you have the National Academy of Sciences recommendation that we only need to be concerned about medical out-of-pocket expenses.

Now in our research we've presented three conceptually equivalent approaches to doing this. The National Academy of Sciences recommended that we should subtract MOOP from income. And so we have a measure that has that -- we call it MSI, MOOP subtracted from income. We have a measure that is like the expression we've derived which adds MOOP to the thresholds and we call that MIT, MOOP in the threshold. And then we have a third approach which is a little more complicated but essentially an equivalent approach and it combines the two approaches so we call it the CMB and I am going to explain that a little bit later.

So just to define what be mean by MOOP, typically people have health insurance, so the largest portion of medical out-of-pocket expenses in the US is health insurance premiums. Typically, even if you have health insurance you need to spend something when you visit the doctor or dentist, some co-payments; prescription over the counter drugs are not always covered by health insurance; there are other supplies that are not covered by health insurance, and if you don't have health insurance then you are not spending for health insurance premiums but you are spending a lot more for some of the other items.

The measures I'm going to show you will include many of many other changes besides taking account of health care expenses. The National Academy of Sciences' panel recommended a whole series of changes and they're described here. For the poverty threshold they recommended that we should use the Consumer Expenditure Survey to calculate poverty thresholds. We should do that by estimating the percent of median expenditure of a basic group of goods which included food, clothing, shelter and utilities so we call those the FCSU thresholds. We estimate that median spent for a reference family that consists of two adults and two children and then we apply an equivalence scales to adjust for other family sizes. We also adjust for differences in housing costs across geographic areas.

For family resources they recommended we add non cash benefits, benefits that help people meet their basic needs like food stamps, housing subsidies and then to subtract necessary expenses which included taxes as well as medical out-of-pocket expenses.

So that brings us to our first measure, MOOP subtracted from income measure, and essentially when we are doing these experimental measures we are using the current population survey (CPS) which does not directly collect information on medical expenses so we are using a two stage model that I wish David would've described. It essentially estimates the probability of incurring MOOP and then, if you are assigned that you have spent something for medical expenses, it models the amount that you've spent. That model is based mainly on age, race, income and health insurance coverage.

But there are other researchers who believe that it is more appropriate to include medical out of pocket expenses in the threshold and so we developed a method for doing that as well. Essentially the way we do that is when we are using the CE to calculate median amount spent on food, clothing, shelter and utilities we just add medical expenses to that, so we have a new threshold which we call FCSUM which includes MOOP. Then we want to adjust the portion of the threshold that represents medical expenses for different risk factors. Essentially we want to calculate a medical equivalence scale to apply to that portion of the threshold, so we use the Medical Expenditure Panel survey based on various characteristics to develop a medical equivalence scale --Jessica Banthin did a lot of that work and she will be talking about it tomorrow.

In addition to that we've made an adjustment for people who had no health insurance because this medical out-of-pocket expense was in the thresholds it was expected to represent a level of need. And because there's evidence that people without insurance do not necessarily get the health care that they need, we have an adjustment for people who are uninsured.

This chart shows the calculation that we're making when we calculate these thresholds. We essentially take in the medical portion of the threshold and apply our medical risk factors or medical equivalence scale to that portion and then we apply our

usual equivalence scale to food, clothing, shelter and the utility portion and then we add these two pieces together to get this threshold.

While the three approaches I've mentioned are meant to be conceptually equivalent there are some important differences, and one way to characterize the differences is to point out what question the two measures are actually answering. There are essentially two separate questions and Dave talked about this a little bit earlier. When we are subtracting medical expenses from income we are basically asking the question, what was actually spent on MOOP last year by this family? And we know that in the population the distribution of MOOP is quite skewed so that you have most people spending very little for MOOP but a very few families are spending very large amounts and so that's a relatively skewed distribution. When we put MOOP in the threshold you are asking the question, how much is a family of this type expected to spend for MOOP? And so what you really want there is an expected value or you want to assign an expectation to families in relatively broad categories.

So this brings me to the explanation of our third approach. Basically what we are doing here is adding expected MOOP represented by M_i and to both sides, so that's an equivalent calculation, and we are subtracting actual MOOP from income. The interpretation of this measure is that if a family's actual expenditures are below their expected medical expenses then they are deemed to be better-off, and if their actual expenses are above their expected expenses then they are deemed to be worse-off. That's the interpretation of this measure. The advantage of doing this is that you're putting MOOP in the threshold --where some people believe it ought to be more appropriately, as a basic need; but you are subtracting it from income and therefore because you're subtracting actual expenses you're maintaining that skewed distribution that we find in the population for medical out-of-pocket expenses.

The disadvantage to this measure is that these are both pretty complicated things to do and if you are going to do this on an annual basis for an official measure that's complicated. But even more complicated is that you need to update these models and approaches on some regular basis. For example, we are still using 1996 data to do this now and it takes a lot of time to update this.

So let's look at some other results. The results I'm showing you are for 2000 and appear in the Monthly Labor Review article that's in your notebook. These are the thresholds that we've calculated. The first bar represents the current official poverty thresholds for a reference family of two adults and two children, $17,463 for 2000. The FCSU threshold that we estimated from the Consumer Expenditure survey is not that much different, about $ 400 higher, $17,884. When we include medical expenses in that same calculation the threshold goes up by quite a bit to $19, 549. So given these thresholds, these are the poverty rates that we've calculated for the year 2000; you'll know that the two experimental measures, actually three experimental measures are higher than the official measure which was 11.3% in the year 2000. The difference between the last two bars is only the difference in the approach that we've taken to value medical out-of-pocket expenses. So when we subtract MOOP from income we get a poverty rate of 12.2% and when we include MOOP in the threshold for either the MIT or the CMB measure we get a higher poverty rate of 12.7%.

So, why are they different? This chart shows the density functions of the two MOOP estimates that I'm making in the CPS. I'm just learning how to do kernel density function estimates, so ignore the Y axis, I'm not really sure what that means, but the shape of the distributions is what's interesting. Essentially along the X axis we have the value of medical out-of-pocket expenses going from zero to about $15,000. The very peaked line are the expected medical expenses that were assigning to the CPS and of course, we're assigning only a very small range of values to everybody so you get that small range of medical out-of-pocket expenses assigned everywhere and no other values are assigned. The flatter line represents actual medical out-of-pocket expenses and you see the skewness of that distribution and essentially the majority of people are spending relatively low amounts and there are very few people who are spending very large amounts. The maximum assigned value we have is about $14,800. So essentially what you see here is that when you are adding an expected value to the thresholds you are overestimating medical expenses for the vast majority of people but severely underestimating medical expenses for a very few.

So you've seen that poverty rates can be different across the different measures overall but they are also going to be different for subgroups of the population because of the different approaches that we're using for assigning medical out-of-pocket expenses

to people differently. This chart shows the medical out-of-pocket expenses we are assigning to elderly people; the first four bars represent elderly people who have not just Medicare coverage but some private coverage. So you see that their expected MOOP values are higher than the people that only have public insurance because they are also paying insurance premiums; but overall what you see are that the actual medical out-of-pocket expenses are higher than the expected for the elderly.

This is a chart that shows mean medical out-of-pocket expenses that we are assigning to the uninsured and as you recall we're making an adjustment to expected MOOP for the uninsured. So what we see for this group is that the actual MOOP expenses are lower than the expected MOOP expenses and so this assignment is going to affect groups that typically are without insurance, for example, Hispanics.

Here we have poverty rates for people by age group. You can see the difference in poverty rates that we get with the two methods of assigning MOOP expenses. For non elderly adults you've a similar relationship between the measures that we saw for the overall population. Basically the official poverty rate is lower and the experimental rates are higher for non elderly adults the measures that include actual MOOP are below the ones that include expected MOOP. For children we see a slightly different result; the experimental measures are below the official measure, we typically see that because of all the other changes that we're making to the experimental measures but again you see the measure that includes actual MOOP is below the measure that includes expected MOOP. For the elderly we have quite a different result; the experimental measures are slightly much higher for the elderly than the official measure. But for them, the measure that includes actual MOOP expenses is much higher than the measure that includes expected MOOP.

Besides looking at poverty rates we can also look at poverty gaps, which is essentially for the poor the difference between their income and the poverty thresholds. So it's one way to measure how poor people are. And again we see differences between the two approaches to valuing MOOP expenses. The first few bars, are what you typically see when you look at poverty gaps with these measures -- they are lower using the experimental measures than the official measure and that's because we are taking account of non cash benefits for people at the very bottom of the income distribution. But

you see that generally the poverty gaps are lower for the measure where we take account of the actual medical expenses rather than expected medical expenses; except for the elderly where you have the opposite result. The measure with expected MOOP is larger than the poverty gap when you use actual MOOP.

Finally I just want to show a slide that we have on how our models are working because we do have a survey where we collect MOOP, the Survey of Income and Program Participation (SIPP). This chart shows some of the same calculations in both of the surveys. The blue bars represent estimates from the SIPP and the red bars are from the CPS. This chart shows the percent with MOOP in the two surveys. The first two bars are the application of our model in the two surveys so you see a similar percentage in both surveys are assigned MOOP with the model, but the actual reported data, which is represented by the middle bar, suggests a slightly lower percentage of people that are actually reporting MOOP in the SIPP. The MOOP in the threshold method, by design, assigns an expected value to everybody. Then for people that are assigned MOOP this chart shows the mean amount that each method is assigning to them. The first bar shows the MOOP model assigning a slightly higher average amount in the SIPP than the CPS. I suspect that this has something to do with the composition of people in the sample. But the modeled amount is very similar to the reported amount that we are getting in the SIPP. On the other hand the MOOP in the threshold method is assigning much lower values to everyone. Now, actually of course the reported MOOP numbers in the SIPP are actual expenditures so they should look more like the model than they would look like expected values.

To conclude, there are different ways of incorporating health care costs in the poverty measure. You want to think carefully about what question it is that you are trying to answer with your different measurement methods because measurement choices matter, they matter in who is determined to be poor and how poor those people are determined to be. Thank you.