Luxembourg Consumption Study Workshop
Note by Mark Bils

I have used CE data in projects aimed at understanding business cycle fluctuations, measuring quality growth and inflation bias, measuring consumption inequality, measuring how individuals allocate their spending and leisure to various activities, and judging how a household's spending is related to their income, net assets, and liquidity. I respond to the proposed questions (1) and (3) in connection to that work. In the course of discussing measuring consumption, income, and savings, I discuss issues (7-8) and (12-13) outlined in the paper "Building a Comparable Measure of Consumption: Concepts and Measurement Challenges Faced by Emerging and Advanced Economies (henceforth *Building*." At the end, after briefly discussing cross-country comparability, I discuss price deflators, and categorizing health and education spending. These are issues (7), (15), and (16) in *Building*.

1) In several projects we used the CE to estimate Engel curves for spending by category of good. In this work, we have disaggregated to about 60 categories. We constructed these by aggregating spending by UCC codes from the MTAB files. That provided data sufficiently detailed for our purposes in estimating Engel curves.

What limitations would you have liked to address?
One limitation, as flagged in Section 1 of the LCS note, is measurement of consumption (i.e., service flow) of durables. For this reason, in some exercises we excluded durable categories for robustness, but that is not typically possible.

What variable would you like to see added/refined?
A virtue of the CE is its inclusion of implicit rental rate as a measure of consumption for owner-occupied housing, as well as the owner's estimate of their home's value. I believe it would be useful to have a household's estimate of the market value of its vehicles and perhaps other major durables. This would provide an alternative to surveying houses on past durable purchases. If both are collected that would provide two sets of measures of durable stocks with measurement error that are largely orthogonal. Having two noisy measures of difficult-to-measure variables is helpful in applications.

Related Issues in "Building"

I strongly endorse Choice 7 in "*Building,"* that flow of shelter services be included in consumption, with self-assessed rental equivalence the first choice.

The treatment of Issue 12 (Should maintenance and repairs of dwellings be included in consumption?) hinges on how respondents interpret rental equivalence. If the household views the rent as reflecting that the "implicit landlord" is making those maintenance and repairs spending, then these should not be included in consumption as that would be double counting. I see this as the simplest, arguably most natural assumption. Instead these expenses would be netted from income, as it is a cost of generating the implicit income from the rental equivalence.

For the same reason, I agree with Choice 12 to exclude major repairs from consumption. The treatment of major spending on one's home in terms of constructing household income and investments seems particularly tricky. I return to than in Part (4) below on constructing household income.

Issue 8 from *Building* asks: "How should durable goods be treated in the consumption aggregate?"

As discussed above, I believe the respondent's estimate of the rental value of their vehicles should be reflected in a consumption aggregate. As a practical matter this might be better achieved by getting the household's estimate of the market value of its vehicles, then imputing an implicit rental value. That implicit rental value for vehicles should then be included in measuring household income. Similarly to housing repairs, I would then not include vehicle repairs as a component of consumption. Instead, I would net these expenses from household income, as it is a cost of generating the implicit rental value of its vehicles.

Issue 13 from *Building* asks: "Should insurance premiums be included in consumption and if so how?

I view insurance premiums as an investment to avoid future expenditures. So in theory they do not belong in consumption. They would go into active savings and their value ideally in net worth, though that would be difficult to ascertain. As an example, by spending on car insurance, a later claim would reduce the expenditure for repair, reducing the amount to be subtracted from income (assuming vehicle expenses were treated as I described above as coming out of income).

Medical insurance is more complicated, as the CE treats health spending as consumption. That perhaps suggests treating health insurance as consumption (as well as foregone earnings from employer provided health care as both consumption and additional income). Ideally one could treat health as a durable good. But I do not see a practical way to implement that approach.

2) In one project we used the spending entries on the MTAB files to estimate "quality Engel curves," that is, the slope of unit prices, *conditional on a purchase* (e.g., buying a car) by total household income or expenditure.

What limitations would you have liked to address?
A difficulty here is the lack of clearly distinct MTAB entries by purchase. For instance, if a household purchased two cars in a given time period, it is difficult to know if that would be listed as two distinct entries, or only one entry, in the MTAB. For this reason, we restricted attention to durable goods that were quite infrequently purchased.

What variable would you like to see added/refined?
The LCS notes broach the idea of expanding the survey to collect unit prices. I am not sure this is plausible without significantly increasing the burden on survey respondents. But it would have been beneficial for our estimating of quality Engel curves.

3) In all projects we attempted to construct measures of total household consumption.

What limitations would you have liked to address?
One limitation is the distinction between spending and consumption of durables discussed under part 1. A major concern is understatement of expenditures and how that may differ across goods, households, and time. Obviously the BLS has focused a great deal of attention on this problem.

What variable would you like to see added/refined?
Our CE total spending variables are built up from the respondent's answers on individual items. I believe it would be helpful to complement this with a "top-down" alternative on total spending. For instance, the respondent could be asked to list their estimate on total expenditures via debit/credit cards, via checks, via cash/cash-like transactions for the period. The period could be for the last quarter, or last month if that reduces respondent burden. While this measure of total expenditure will have its own measurement issues, it would provide a check on the "bottom-up" measure. And, as I argued above, a second noisy measure of a difficult-to-measure variable is helpful in applications.

4) In all projects, we have constructed a measure of household income to be consistent with the definition of consumption (for instance, treating the implicit rental rate on owner-occupied housing as a component of income).

What limitations would you have liked to address?
An issue we have faced is that reported taxes (income, payroll, property) appear, by our judgement, to be unreasonably low. For this reason, we explored robustness to estimating some taxes by the NBER's TAXSIM program. A second issue we faced was cleanly separating household payments of interest on debts (a negative component in income) from payments of principal.

What variable would you like to see added/refined?
Ideally, the survey might push households clearer on reporting taxes. Short of that, it might make sense to impute TAXSIM variables into the data. Separate variables for all payments of interest versus principle would be helpful.

On a somewhat related note, for various projects we would have liked to estimate how spending responds to changes in income. While the CE is a panel with records on spending for up to four consecutive quarters, it is awkward to map expenditure changes across these quarters to income changes as the questions on income, in the first and fourth surveys, pertain to the prior year. So, if practical, it would be helpful if the first and fourth surveys asked questions on income for just the prior quarter. This would be helpful even if limited to earnings/pension income. Related, it would helpful to have questions for the prior quarter (or even just the prior month) on employment status, weeks worked, and usual hours worked.

Related Issues in "Building"

Issue 12 asks, "Should maintenance and repairs of dwellings be included in consumption?" As discussed above, I definitely support measuring housing consumption for owners by the owner's assessment of rental equivalence. To be consistent, spending on the housing should be deducted

from income or treated as active investment if it is an improvement. Therefore, I would subtract minor maintenance and repairs of the dwelling from income, not include in consumption.

For major projects, ideally one could distinguish major repairs from capital improvements to the home. I would subtract the former from income, while treating the latter as an asset form---that is, the project represents a shift from one asset class (e.g., bonds) to another in the value of one's home. One could view the owner's estimate of the home's value as inclusive of the capital improvements—therefore, there would be no need to additionally account for the capital improvements in estimating a household's home equity and net worth. Absent more survey information, that is the tact I would take—i.e., treat the major household building expenses as capital improvements captured by the household's estimate of the value of the home. This is consistent with the choice in Building of excluding these expenses from consumption.

Repeating from above, I see it as an excellent step to be able to impute a household's implicit rental value from vehicles. In our projects, we would then add that implicit rental value to household income. Similarly to housing repairs, then we would not include vehicle repairs as consumption, but instead net these expenses from income as a cost of generating the implicit rental value of vehicles.

5. For a couple of projects we have constructed measures of either active savings (savings and borrowing flows during the period) or measures of net wealth or net liquid wealth.

What limitations would you have liked to address?
I view active savings as reasonably well measured in the CE. But, as mentioned above, it would be helpful if the survey consistently drew a clear distinction on payment on debts for interest versus principal. We also found that, when households initiated new mortgages we often could not trace the mortgages to a new home purchase or paying down an existing mortgage. Thus they implied implausibly high "cash-out" rates. We found it more difficult to construct measures of household net worth from the CE. We were able to construct levels of liquid assets and debts. But we were not able to measure illiquid wealth, particularly the value of pensions and equity in housing and other real assets.

What variable would you like to see added/refined?
Repeating from above, I would like to see variables that distinguish payments for interest versus principle on debts. I would like to see a question eliciting to what extent a new mortgage was cashed out versus used to pay down existing mortgages or other debts. I believe there is a high payoff to researchers being able to construct measures of household net worth, including illiquid wealth. That would imply having questions on the current levels of borrowing (e.g. mortgages) and the current value of all pensions.

6) Turning briefly to cross-country comparability, I would stress first of all that I am no authority on the topic. My one concern is that striving for international comparability might lengthen the survey if it called for greater detail. I see the survey as maybe too detailed now in some respects (e.g.,

asking about five separate apparel categories for each of women and men) given the need to reduce the burden on respondents.

7) Issue 6 in *Building* asks: *"How should users adjust for price differences over time and space?"*

Users will no doubt deflate for a price index over time. Many users now use a general PCE or CPI deflation. In principle, the CE could build an index in for one or more of its choices of consumption aggregators. Of course, researchers always have an option to build their own from disaggregates. Spatial deflating is more debatable. Spatial heterogeneity often reflects differences in quality of goods or services. The most common deflator employed spatially is for housing costs. But whether this is an improvement is also unclear, as differences in housing costs often stand in for amenities (school quality, et cetera.)

8) Issues 15 and 16 of *Building* ask, respectively, whether health goods/services and education goods/services should be included in the consumption aggregate.

In theory, I believe the answers are no. Both health and education are durable goods. So ideally, and I stress the word ideally, expenditures on these goods would be treated like that on owned housing or vehicles. For example, health expenses "for repair" would be subtracted from income while those that improve health would be treated as active savings that increase the stock of health. But I presume there is no practical way to survey houses on the implicit rental value of their health or education.

More generally, I do not see a way to address these issues without taking a stand on whether health and education serve to produce a consumption flow or an income flow. Obviously both are true for health. Education is most obviously an input for producing income; so I see treating it as consumption, rather than as an investment as particularly problematic. My recommendation would be to include neither in a base consumption aggregate, but instead as a component to be added as chosen by researchers in practice.