**Accounting for outsourced childcare in the LIMTIP**

We express the weekly time balance of individual in household , , as:

|  |  |  |
| --- | --- | --- |
|  |  |  |

where is the number of hours in a week, the sum of personal care and nonsubstitutable household production requirements, the substitutable household production requirements of household , the share of individual in the household production requirements of their household, the dummy variable that takes a value of 1 if the person is employed and zero otherwise, the hours of employment, and, the hours of commuting.

We define as requirements associated with the reproduction of a household with income around the poverty-level and no fallback person. The requirements may reflect some extent of outsourcing of household responsibilities. Instances of outsourcing may include consumer purchases of substitutes that they can afford. For example, they may substitute some prepared meals (e.g., fried-chicken meal from a fast-food chain restaurant) for home-cooked meals. Similarly, may also reflect nonmarket assistance received from nonhousehold members (e.g., a neighbour providing care of a dependent adult) or free services provided by the government (e.g., center-based Head Start services available to prekindergarten children in families with income below the federal poverty line). Some families with children may also purchase childcare services either formally or informally. In effect, the impact of such outsourcing on reducing time requirements are already embodied in the hours allocated by individuals in the reference group to household production.

When we apply the household production requirements to households outside of the reference group, we are assuming the same degree of outsourcing for them too. More importantly, we are not considering the differences in the extent of outsourcing among families outside the reference group. Such differences matter for assessment of time and income poverty. Consider, for example, the case of two single mothers, identical in all respects, including the time deficit (i.e., a negative time balance, according to equation (1) above) they encounter. Suppose that one mother meets part of her childcare needs via market while the other doesn’t. To treat both of them as equally time-poor may be misleading. We can overcome this problem by adding purchased hours of childcare to the time balance equation:

|  |  |  |
| --- | --- | --- |
|  |  |  |

where is time balance that reflects purchased hours of childcare, represent the hours of childcare bought by household , and the share of purchased hours that goes toward relieving the childcare obligations of individual in household .

To assess the impact of time deficits on income poverty we have to construct the household-level total of time deficits because income poverty thresholds are, by design, at the level of the household. We assume that there is no automatic mechanism in the household that would offset the time deficit of some of its members with the time surplus of other members of the household. Thus, for the time deficits that prevail after accounting for purchased childcare, we can express the household-level time deficit, , as:

|  |  |  |
| --- | --- | --- |
|  |  |  |

where is the number of persons in household for whom time balances are defined (in general, working-age adults).

Our assumption is that time deficits represent a shortfall in the household production requirements needed for the household to reproduce itself as a unit. These requirements are not considered in the conventional assessment of income poverty. We argue that they should be considered. To do so, we should either adjust the income poverty line or the income measure that is compared against the poverty line using the monetized value of time deficits. The latter represents the notional cost of market replacements that would be required to make up for the shortfall in household production time requirements, . If we let represent the average unit price of the basket of market replacements, the monetized value of is simply .

To address the question of childcare expenditures, it is useful to define the household-level time deficit that would have existed in the absence of such expenditures. We denote this magnitude by and calculate in the same way as :

|  |  |  |
| --- | --- | --- |
|  |  |  |

However, a further adjustment is required for households that spent on childcare because the purchased childcare hours may have gone toward reducing or even eliminating the time deficit of at least some members of the household. In such instances, some of the childcare expenditures represent a reduction in the income available to meet the poverty-level expenditures on essentials such as food, shelter and clothing. How much of the expenditures should be taken as reducing income depends on the relationship between the time deficits that would have existed without accounting for purchased hours of childcare () and the hours of childcare purchased ( If the childcare hours purchased offset or more than offset , we should consider the cost of childcare hours required to offset the time deficit as the potential reduction in the income available to meet poverty-level expenditures. Alternatively, if the childcare hours purchased fell short of eliminating , we should consider the cost of purchased hours (i.e., the actual expenditures) as the potential reduction. Thus, if we denote represent the average unit price of purchased childcare, the amount of adjustment required in income-poverty evaluation is , where

|  |  |  |
| --- | --- | --- |
|  |  |  |

We mentioned above that the adjustment required in assessments of income poverty could be applied either to the income measure or the threshold because they produce the same result regarding the designation of the household as income-poor or income-nonpoor. Here, we choose to apply the adjustments to the income measure. Denoting the unadjusted and adjusted income measure as , and , we can describe their relationship as:

|  |  |  |
| --- | --- | --- |
|  |  |  |

Clearly, the first adjustment would apply to all households with a time deficit while the second would apply only to time-poor households that purchase childcare.

The approach taken in the SPM toward childcare expenditures is different. First, the SPM does not consider the household production requirements required to survive with a poverty-level of income. Second, childcare expenditures are treated as mandatory expenses required for adult family members to earn, i.e., work-related expenses, as was originally recommended in the 1995 report of the National Academy of Sciences (NAS) panel on poverty measurement (Citro and Michael 1995:204). Therefore, they represent a reduction in the income available to purchase the poverty-level basket of goods and services.

The NAS panel proposed that “for families in which there is no nonworking parent, deduct actual child care costs, per week worked, not to exceed the earnings of the parent with the lower earnings or a cap that is adjusted annually for inflation.” (Citro and Michael 1995:209). There are two modifications to the NAS recommendation made in the SPM. First, instead of “parent”, the SPM refers to the earnings of the reference person or the spouse or unmarried partner of the reference person to set the cap on childcare expenditures. A second modification is that the childcare expenditures are combined with other work-related expenses in order to determine the cap. The NAS panel indicated that the logic behind the cap was to make sure that the deduction from income represented “a reasonable level of expenses necessary to hold a job, excluding additional expenses that parents may elect in order to provide enrichment for their children.” (Citro and Michael 1995: 242).

Why neglect other components of household production and consider only childcare? Low-income families with no nonemployed adults may have to substitute take-out meals for home-cooked meals. Those who are responsible for older adults or adults with disabilities may have to hire a home health aide if they decide to take up employment. Both types of expenditures can diminish the income available to meet poverty-level needs. It is arguable that the purchasing market substitutes for housework and in-person shopping are discretionary in the sense that people could perform the associated household production tasks themselves even though it may push them into time poverty.[[1]](#footnote-1) On the other hand, childcare or care of dependent adults will have to be performed while the person responsible for the care is at their job or at school as the case may be. The care responsibilities of the person must be delegated to someone else while they are at the job because performance of those responsibilities cannot be postponed to the time after or before the time at the job. Housework responsibilities are more temporally malleable than care. [[2]](#footnote-2) Hence, childcare expenditures are arguably more nondiscretionary than, say, expenditures on take-out meals.

From the perspective of accounting for the impact on time balance (equation (2) above), paid childcare is far easier to capture than the purchase of market substitutes for housework or in-person shopping. However, the information available in the ASEC pertains only to expenditures and not hours. The survey question is explicitly about childcare purchased for children under 15 years while at employment thus leaving out purchases of childcare services to engage in activities other than employment (e.g., education or socialization with friends).[[3]](#footnote-3) For each family that reported childcare expenditures, further questions are asked to facilitate the identification of household children that received paid childcare. But, the expenditures are not broken down by child in households with more than one child in paid childcare and only a combined annual amount is available for the household.

Translating these expenditures into hours of childcare purchased is possible by using an average hourly cost of childcare for children under 15. Geographically differentiated rates, say by division, may be used in this translation. Further, we could also account for the cost differential between children under 5 and older children (5-14) by forming a weighted average of the two rates where the weights are the number of children in the family in each age group. Since we have no information on the expenditures for individual children in households with multiple children in paid care, our procedure is bound to produce some unknown amount of error for such families.

A further factor to consider is the relatively high share of imputed values in the ASEC data. One study report that the share of imputed values in the responses to the question about using paid childcare average around 17 percent over the 2001-2021 period, with a rising trend: in 2021, the share of imputed values was about 27 percent. Expenditures are also imputed for families that are imputed to be using paid childcare services.[[4]](#footnote-4) The presence of imputed values will be another source of error that is bound to enter into the procedure described above for estimating hours of purchased childcare.

We should also note that we cannot ascertain the usage of paid childcare services in the ATUS. No questions are asked about this topic in the time-use survey. Hence, we cannot explicitly control for the use of childcare services in the matching procedure like we can control, for example, the sex or employment status of the individual. The ASEC family that reports purchasing paid childcare services need not be assigned hours of household production that reflects such usage.

In sum, the lack of information about the hours of purchased childcare in the ASEC, the relatively high share of imputed values in the ASEC, and the inability to assign those that use paid childcare in the ASEC, time-use profiles of similar individuals from the ATUS due to the lack of such information in the latter, suggests that we have only a weak empirical basis to account for the use of paid childcare services in the LIMTIP. As we saw before, the lack of adjustment will be reflected in the overstatement of the time deficits of those that use paid childcare services (equation (2)). However, we are adjusting their family income by childcare expenditures because we are using the SPM. Therefore, we are unlikely to understate the income-reducing impact of purchasing childcare services (equation (6)).

A further point to consider in the estimation of the LIMTIP is the provision of free childcare to families under the official (i.e., federal) poverty line via the Head Start program. The impact on time deficits for families that participate in the program can be measured using equation (2) by replacing the purchased hours of childcare with the free hours of childcare. No adjustment is, however, required in the income measure for the participants because the availability of free childcare does not enhance their current income beyond what they already receive.

Information regarding both types of childcare assistance is absent in the ASEC and ATUS.

1. Further, it could also be supposed that the consequences of not being able to cook nutritious meals or maintain a clean house are not relevant to income poverty. [↑](#footnote-ref-1)
2. Many employed mothers wake up early to prepare breakfast for their family, pack lunches for themselves, their partners and school-going children. However, e.g., if there is a preschool-age child at home they will have to arrange care for that child while the caregivers are at their job. [↑](#footnote-ref-2)
3. The question posed to the household respondent is the following: Did (you/ anyone in this household) PAY for the care of (your/their) (child/children) while you/they) worked in [year]? [↑](#footnote-ref-3)
4. *The Economic Role of Paid Child Care in the U.S. A Report Series — Part 4: Child Care Data in the Current Population Survey, A Primer*. June 2022. Available at: https://education.ced.org/paidchildcare [↑](#footnote-ref-4)