

The Value of Unpaid Child Care in the U.S. in 2003

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Abstract

The value of unpaid child care in the U.S. has important implications for macroeconomics and public policy. But deciding exactly how to define child care—and how to assign market value to it—is no easy task. In this paper, we discuss the most important theoretical and empirical issues at stake, illustrating our approach with preliminary estimates based on the 2000 American Time Use Survey (ATUS). Rather than focusing merely on the amount of time adults devote to child care *activities* we specify a continuum of activities devoted to children, ranging from supervisory care to indirect care responsibilities such as housework to developmental care such as reading aloud. We apply quality-adjusted replacement wages to average quantities of time devoted to different types of care to arrive at estimates of the average value of care provided by individuals living in households with children age 12 or younger but no older children. By our calculations the replacement value of time that the average woman in such households devoted to child care in 2003 was more than twice as high as the value of her market work. The value of men's child care time was also substantial.

The Value of Unpaid Child Care in the U.S. in 2003

Economists have long recognized that non-market work, including time spent raising children, has economic value. The difficulties of measuring and assigning a monetary value to this time have discouraged efforts to include it within economic accounting frameworks. But many national statistical agencies are now collecting regular time-use diaries from representative samples of their populations. In 2003, the United States became a part of this trend, with completion of the first round of the American Time Use Survey (ATUS), which is now administered on an annual basis as part of the Current Population Survey. In 2004, the National Academy of Science (NAS) published the report of an expert committee considering methods of valuing non-market work (Abraham and Mackie, 2004). This report urged economists to develop the tools needed to produce a set of satellite accounts estimating the total value of non-market work.

The report raises a number of important conceptual issues, among them the need to move beyond valuation of housework toward a more detailed analysis of care devoted to children as an input into the “human capital” sector of the economy. Valuation of care is more difficult than valuation of housework for two reasons. First, it is more difficult to measure the amount of time devoted to it, which includes supervision and “on-call” time that may not involve direct interaction with a child (Budig and Folbre, 2004; Folbre et al, 2005). Second, it is difficult to specify a market substitute or replacement wage rate for such work.

In this paper, we use data from the ATUS to address these two issues. We build upon two recommendations made by the NAS study, that valuation for the purpose of national accounts be based on replacement cost (rather than opportunity cost) and that replacement cost be adjusted, where possible, for the quality of the services required. Because the ATUS is an adult-centric survey, we focus on the development of a measure of adult inputs into children.¹ We draw from a previous paper comparing three distinct

measures of child care in the 2003 ATUS for married or cohabiting persons living in a household with a child under the age of 6 but no child over the age of 12 (Folbre and Yoon, 2005).

The first section motivates the need to measure time devoted to children. The next section explains why time devoted to children cannot be defined simply as time engaged in primary child care activities. Rather than simply adding in estimates of child care activities conducted simultaneously with other activities (often described as “secondary” care), it develops a “care continuum” that includes supervisory care and housework and household management services attributable to children. Data from the 2003 ATUS demonstrate the relative importance of these different categories of care for the average person age 18 and over. The final section addresses valuation issues and applies different wage rates to the different categories of care on the continuum. We estimate that the average value of the time that adult women living in households with children 12 or under devoted to child care was more than twice as high as the value of their average market earnings.

Why Measure Time Devoted to Children?

Parents and other family members devote a substantial amount of time and energy to raising the next generation. This work is not motivated by a desire for pecuniary gain, but it has important pecuniary consequences for employers, citizens, and society as a whole. If parents did not raise and nurture children, schools would be unable to educate them, employers would be unable to hire them, and governments would be unable to tax their earnings as adults to help repay public debt (Lee and Miller, 1990; Folbre, 1994).

While parental labor does not come with a price tag attached, its long-run supply is affected by shifts in relative prices. Fertility has declined along with economic development in many parts of the world, and fertility rates well below replacement levels

in countries such as Italy, Spain, Japan, and South Korea have raised concerns about adverse macroeconomic consequences. Fertility rates in the U.S. remain close to replacement levels in part because Hispanic women have higher birth rates than other women (U.S. Census, 2005).

Neoclassical economists sometimes argue that children should be treated simply as consumption goods. Some adults choose to spend money and time on children; some adults choose to spend money and time on golden retrievers. If children represent discretionary consumption, then expenditures on them are irrelevant to adult standards of living (Ferreira et al, 1998). Even from this perspective, children's standard of living remains relevant (Bojer and Nelson, 1999). Potential parents may want to know more about the time that children will require, and policy makers may want to know what will happen to fertility if the cost of children increases faster than that of other consumptions goods.

From every theoretical perspective, the time that parents devote to children has monetary value. Following a recommendation made by Margaret Reid in 1934, most time-use researchers define work as an activity that someone else (a "third party") could be paid to perform. This definition departs from the neoclassical definition of work as an activity that generates no utility apart from the income or services that it may yield. Adults in general and parents in particular typically derive considerable satisfaction from child care. Yet they also derive considerable satisfaction from paid work. Time-diary studies that ask respondents to describe their affect and mood indicate that adults, on average, enjoy time with children only slightly more than paid employment. Housework is consistently ranked lower than either (Kahneman et al., 2004).

However work is defined, it seems inconsistent to measure the amount of money that adults spend on children and to ignore the value of the time devoted to them. Estimates of money expenditures are regularly provided by the U.S. government. Since 1960, the U.S. Department of Agriculture (USDA) has provided estimates of average expenditures on children from birth through age 17. A recent USDA report estimates that a middle-income, husband-wife family with two children spends about \$8,915 per year to raise one child to age 18 (Lino 2001a). The report calls attention to the omission of any estimate of the value of parental time from this calculation.

Foster-care reimbursement rates, child-support awards of non-custodial parents, and standards of public assistance for poor families are often judged by comparison with estimates of average money expenditures on children (Lino, 2001b; Folbre, 2005). They ignore the cost of the time that must be devoted to children's care, and foster parents, custodial parents, and children may be economically penalized as a result. Estimates based on the Child Development Survey of the Panel Study of Income Dynamics (CDS-PSID), a nationally representative survey of the time use of children ages 12 and under living in families with one sibling, show that a lower-bound replacement-cost estimate of the value of parental time is higher than the value of cash expenditures on children, amounting to about \$14,338 per child per year (Folbre, 2005). That is, direct money expenditures represent substantially less than half of the total cost.

Substantial public subsidies for parents are embedded in the U.S. federal income tax code. Indeed, in 2000, the combined value of tax exemptions and credits available to many parents was higher than the Swedish family allowance per child.² Unlike the family allowances provided by most other affluent countries, however, the U.S. tax code

benefits affluent families the most. Families in the middle of the income distribution receive the lowest level of support (Battle and Mendelson, 2001; Folbre, 2005). U.S. subsidies amounted to between 10% and 26% of average annual parental expenditures on a child under 18 in middle-income, two-parent families (Folbre, 2005, Chapter 7). But once the lower-bound replacement value of parental time is taken into account, the public contribution appears much smaller, amounting to between only 4% and 9% of average costs.

Unlike most other affluent countries, the U.S. fails to provide paid parental leaves from work or universal child care. These policies have a direct impact on parental time allocation, making it more difficult for families to balance paid work and family work. Levels of “outsourcing” and shift work are almost certainly higher as a result (Freeman and Schettkat, 200; Presser 1994, 1995). It is also worth noting that U.S. measures of poverty are biased downward by their failure to account for the value of parental time. Increases in mothers’ earnings are counted, but neither the out-of-pocket costs of purchased child-care nor the imputed value of lost hours of leisure or household production are subtracted from their family income (Folbre, 2005).

How Should Time Devoted to Children Be Defined?

The ATUS provides an opportunity to provide detailed estimates of the time that adults devote to children. But the measurement of child care inputs is more difficult than it may initially seem. Primary child care activities represent only a portion of the temporal burden that children impose. The ATUS asked respondents to record time that children were “in their care,” which amounts to a much larger quantity of time than care *activities* such as feeding, bathing, or talking to children. But how, exactly, should such

time be counted? Even the sum total of primary child care activities and “in your care” time omits some important categories of supervisory time and elides important differences in the intensity and complexity of care needs.

Beyond Activities

Most time-use surveys are categorized in terms of activities. But child care is more than a mere activity. It is also a responsibility. As Margaret Reid explained in 1934, “Even though she [the household worker] may not be on active duty, evidence of her labor is about her; she is continually on call. Much so-called leisure has a “string attached” (Reid, 1934:319). Supervisory responsibilities are the string that constrains both maternal labor force participation and leisure time.

Primary activities are those designated in response to a question such as “What were you doing during this time period?” The recent Australian and United Kingdom surveys designated secondary activities in response to questions such as “Were you doing anything else at the time?” Extensive analysis of the Australian data reveals the tremendous significance of child care as a secondary activity (Ironmonger, 1996, 2004). Unfortunately, measures of secondary activities are highly sensitive to definition and survey design: the ratio of child care as a secondary activity to care as a primary activity is much higher in the 1997 Australian survey than in the 2001 UK survey (Folbre and Yoon, 2005).

The ATUS did not ask respondents to report secondary time use. Rather, the U.S. Bureau of Labor Statistics decided to follow the example of Canada, which administers a regular time use survey asking respondents to specify the amount of time they spend “looking after children.” The U.S. Bureau of Labor Statistics devoted considerable

attention to cognitive studies of the impact of alternative wording, and recommended a different phrase, asking respondents to specify the amount of time that children were “in your care” (Schwartz 2001). This question was asked of respondents living in households with children age 12 or under, but applied only to the period of time between when the first child in the household woke up and when the last child in the household went to bed. As might be expected from the broader, less activity-based wording, the ATUS measure yields significantly higher estimates of parental time commitment than the Canadian survey of 2001, even though estimates of time devoted to primary child care activities are quite similar (Folbre and Yoon, 2005).

The ATUS “in your care” measure is often referred to as a secondary activity. Indeed, the ATUS itself refers to “secondary care” in its published tables. But this term is misleading, since “in your care” does not designate an activity, but a responsibility. The term “passive” care is also inappropriate. Many of the most important primary child care activities are in fact rather “passive”—such as watching television with a child, or driving a child to school. The ATUS “in your care” measure is best described as a measure of responsibility for children, an indicator of supervisory constraints. Some might view this as a flaw in the ATUS, since it limits comparability with other surveys. But it is also a great strength, because tells us far more than other surveys about the larger temporal demands that children impose.

The ATUS collected additional detailed information from respondents on who else was present. When the activity was taking place in the home, the question specified “who else was present in the same room?” Our analysis of this data clearly demonstrates that adults could and did describe children as “in your care” even when children were not

in the same room. Among married or cohabiting adults living in a household with a child under the age of 6 but no child over the age of 12, a child is listed as present for only 68% of all “in your care” time (Folbre and Yoon, 2005). It is also important to note, however—and probably surprising to most time-use researchers—that children are frequently absent during some primary child care activities. This is especially true of the managerial/logistical activities coded in the ATUS, such as “organizing and planning for household children” (children present only 62% of the time) or care-related travel for household child (children present only 74% of the time (Folbre and Yoon, 2005).

How Should “In Your Care” Be Counted?

The difference between the amounts of time devoted to child care activities and supervisory time looms quite large. Even for those who might be expected to spend large amounts of time in primary child care activities, such as married or cohabiting women without paid employment living in a household with a child under the age of 6, child care activities average only 3.2 hours per day. Time during which a child was “in your care” averages an additional 9.5 hours per day for this group (Folbre and Yoon, 2005).³ In other words, the average amount of “in your care” time is about three times higher than the average amount of primary care activity time.

The ratio of care activity time to “in your care” time is about the same for the broader category of all women age 18 or older living in a household with at least one child aged 12 or under but no child over that age.⁴ Their time in child care activities averages 2.4 hours per day compared to 7 hours per day with children in their care. For men in this category, however, “in your care” time is more than five times greater. Their

care activities average only .92 hours per day compared to 4.4 hours with children “in their care.”

A significant portion of “in your care” time overlaps with other non-market work activities such as house work (women age 18 or older in a household with at least one child aged 12 or under but no child over that age average about 2.1 hours per day of such overlapped time; their male counterparts, about .5 hours per day). The remainder of “in your care” time overlaps with activities that are not designated as non-market work, such as socializing with friends or engaging in leisure. Yet the use of this time is constrained by child care responsibilities. As several studies show, women’s leisure is structured differently than men’s for precisely this reason (Bittman and Wajcman, 2004; Mattingly and Bianchi, 2003).

The conceptual dilemma is painful: leaving “in your care” time out is misleading, but adding it all can lead to double-counting of unpaid work, since considerable housework is performed simultaneously with it. In a recent estimate of the total value of non-market work based on the 2003 ATUS Frazis and Stewart (2004) offer a reasonable compromise. They tally only the hours of “in your care” time that did not overlap with other non-market work activities. Even restricted in this way, “in your care” time is substantial, amounting to about one quarter of all non-market work.

We modify this approach somewhat, making use of the information available in the ATUS on the range of different care activities and on the presence of other adults or children. We describe “in your care” time as simple supervisory time only if it did not take place while also performing non-market work (as do Stewart and Frazis). However, we distinguish between housework and household management activities that were

performed while children were “in your care” and those that were not, assigning a higher value to the former. We also argue that a portion of the housework and household management that adults living with children perform represents an indirect form of child care. Children’s clothes need to be washed, their toys need to be picked up, and their meals need to be prepared. Estimates of money expenditures on children do not merely count child-specific expenditures; they also estimate the impact of children on rent, utilities, or grocery bills. Similarly, estimates of time expenditures on children should estimate their impact on housework and household management.

Indeed, the ATUS codes seem inconsistent in their effort to measure to time spent organizing, planning and traveling on children’s behalf while ignoring time spent cooking or cleaning on children’s behalf. This inconsistency could even introduce a class bias, since educated affluent parents are likely to devote more time to such managerial care—and less time to domestic work—than less-educated low-income parents (Lareau, 2003). Even a rough estimate of the proportion of housework and household management attributable to children is preferable to completely ignoring such indirect care.

It is also important to note those limitations of the ATUS that cannot be corrected by additional data analysis. The “in your care” measure excludes time that children are asleep during the night, which represents a substantial portion of supervisory time. Children under the age of 3 spend about half their time asleep; the percentage of time they spend awake increases steadily with age (Folbre et al., 2005). Exclusion of a large portion of sleep time gives the misleading impression that young children require less care than older ones. This is not true, because young children’s sleep is often fitful and

periodic. They tend to wake at regular intervals and demand brief, but highly inconvenient attention.

The teenagers that are omitted from consideration by the “in your care” measure impose rather different demands. They require less direct supervision than children ages 12 or under. Yet precisely because parents spend less time in care activities with teenagers, the amount of time that they are “on call” or “available” may have an important impact on their children’s health and education outcomes. Certainly many parents feel constrained by the need to keep an eye on their teenagers.

The Care Continuum

As a first step toward exploiting the full potential of the ATUS, we move beyond the simple dichotomy between child care activities and “in your care” by describing a continuum based on the intensity of effort and potential impact of parental educational and skill. This continuum ranges from supervision (which may impinge to varying degree on adult activities) to housework and household management services to direct care activities.⁵

Each of these forms of care can be subdivided in a similar gradation (See Table 1). Supervision may take place while both child and adult are asleep, while a child is asleep but adult is awake, or while both child and adult are awake. Housework involves somewhat routine activities such as food preparation and laundry, while household management services such as negotiation with teachers and doctors can require more effort and skill. Direct care ranges from physical care (such as feeding or dressing a child) to developmental care with a high level of social interaction (such as talking to,

instructing, playing with, or reading aloud). In future efforts we may disaggregate further.

We use ATUS activity codes, information regarding presence of children, and estimates of the housework demands of children to provide an empirical picture of this care continuum. Most, but not all, of the primary activities coded by the ATUS fall into the third category of Table 1. Some of these seem out of place to us. For instance, both ATUS activity codes “looking after children” and “caring for or helping children not elsewhere classified” seem designed to capture passive care that is largely supervisory. They consume relatively little time (less than 6 minutes a day, on average, even among married or cohabiting individuals living with at least one child under 6 but none over 12) but for the sake of consistency, we allocate these codes to category 1c of “supervisory” care along with measures of “in your care.”

Another reallocation concerns ATUS primary activity codes are “Organization and Planning for Children,” Activities Related to Children’s Health, and Activities Relating to Children’s Education, and Travel. These activities add up to a larger amount of time, almost 20 minutes per day on average. In our view, if children are not present, these should not be considered primary care activities, and we reallocate these segments of time in which no child is present (about 20% of the total) to child-related household management

Estimation of the amount of time devoted to housework and household management on behalf of children is less straightforward. To some extent, these activities provide a household public good. All household residents presumably benefit from vacuuming the living room, cleaning the toilets, or preparing common meals. Other

activities, such as doing children's laundry or picking up their toys, are child-specific, but the survey does not record "for whom" the activities were performed. Multivariate analysis can be used to estimate the impact of children on the amount of time devoted to housework (Craig, 2004) and we plan to explore this approach at a later date.

However, parents may reallocate their housework and household management time to meet the needs of children rather than adults. Even if they spend the same amount of time as non-parents in these activities, their individual standard of living may suffer as a result. For instance, parents may prepare peanut butter sandwiches instead of adult meals, or may pick up toys rather than vacuuming their own bedroom.

One simple approach, mimicking the approach the Department of Agriculture takes with money expenditures (Lino, 2001a) is to allocate housework and household management time on a per capita basis. The total amount of time devoted to these activities, divided by the number of household members, times the number of children, could be construed as the amount of indirect care time devoted to children. Since children represent about half of all household members in households in which adults are living with at least one child under the age of 12, we assign 50% of housework and household management activities to children. Our estimates show that about 30% of this time is combined with children "in your care," which is tabulated separately.

Table 2 shows amounts of time devoted to different categories in the care continuum for adults (individuals over 18) in three different types of households, those with at least one child age 12 or younger, those with children ages 13-18, and those with no children. Not surprisingly, adults in the first category spend more on child care than other adults. The conventional measure of time devoted to child care activities suggests

only a modest time commitment: less than an hour a day for men and about 2.3 hours a day for women. Indirect care time in the form of housework and household management services on behalf of children is slightly smaller for both men and women, at .6 and 1.5 hours per day. Supervisory time is much greater in magnitude: small amounts are provided by households with older children because younger children are present; even adults living in households without children provide some supervisory care.

Taking all three large categories of care into account offers a somewhat different picture of the gender division of labor. Men's contributions to household management and supervisory care partially countervail their relatively small contributions to direct care. In households with young children, women spend about 2.5 times as much as men in direct care activities. Inclusion of less intensive forms of care yields a lower gender inequality ratio of 1.6.

A closer look at variations in the care continuum by other dimensions of household structure (such as marital vs. non-marital, single vs. two-parent) could yield further insights. We do not disaggregate further here because our purpose here is primarily to illustrate this methodological approach and to provide an aggregate estimate of the value of time devoted to unpaid child care.

Estimating the Market Value of Child Care Time

The care continuum is well-suited to the application of a range of wages reflecting the replacement cost of different types of care. Supervisory care, often combined with other activities, is less demanding than indirect care, which in turn is less demanding than direct care. However, the choice of specific wage rates to value inputs of care time is, at

best, a rather crude exercise, one that can offer only a lower-bound estimate of the value of family time. A number of caveats deserve careful consideration.

Care Provided vs. Care Received

Valuing time devoted to care is not the same as valuing actual inputs of care. Apart from the obvious point that quality of care may differ by individuals and circumstances, differences in the density of care are relevant. An adult who reports spending an hour of time engaged in child care may be the only person in charge of three children, or may be assisted by two other adults in caring for one child. An adult-centric survey that simply tallies hours supplied will show the same result: one hour of care time. However, a child-centric survey will show that three hours of child care are consumed in the first case, but only one in the second case.

Care has many of the features of a household public good. It is not perfectly rivalrous in consumption. When one adult cares for two children, the care each receives is surely more than half what they would receive if cared for alone. Yet there is almost certainly some dilution, especially as the ratio of children to adults increases. Economies of scale in the provision of care are not infinite. Many time-use surveys, including the ATUS and the CDS-PSID, include questions about who else was present that make it possible to calculate the density of care, or the ratio of adults to children (Folbre et al., 2005).

A non-linear transformation of the density of care, such as the square root of the ratio, could provide a reasonable way of weighting inputs of time, paralleling the economies-of-scale parameters applied in household equivalence scales. But the relationship between density and care inputs probably varies with social context and age

of children. Because of our uncertainty about this issue, we have postponed analysis of it until we have experimented with the effects of different categorizations of care.

Market Substitutes?

The economic logic of the “third-person principle” is easily misapplied. Families are often willing to purchase child care as a substitute for their own time, but only up to a certain point. Developmental psychologists emphasize infants’ needs to form attachments with primary caregivers. Some studies of the impact of long hours of institutional care on infants care suggest that it can have adverse implications on children’s abilities for self-regulation (Brooks-Gunn et al., 2002). While these studies are limited by the difficulty of controlling for the quality of either parental or institutional care, most researchers (and surely most parents) would agree that there is a level of institutional care that is “too high.” Care is an input not only into the capabilities of a child, but into the quality of an adult’s relationship with that child.

The person-specific nature of many care tasks means that no market replacement is a perfect substitute. The hypothetical exercise nonetheless demands consideration of the quality of replacement time. Most estimates of the time cost of parenting—unlike most estimates of the value of housework—rely on opportunity cost—the value of the time that parents reallocate from paid employment in order to care for children, normally proxied by their actual or estimated wage rate (Calhoun and Espenshade, 1988; Robinson, 1987). Recent estimates focus on the impact of maternal reductions in labor supply not merely on current but on lifetime wages (Joshi, 1990; Waldfogel, 1997; Budig and England, 2001).

Calculation of opportunity cost of time withdrawn from paid employment is an interesting and important exercise. But it is typically used only to capture an estimate of foregone earnings, with no consideration of foregone leisure or household production time diverted from adult consumption. It also provides a better estimate of the value that individual parents place on their own time with children than its social value. In more technical terms, it includes the value of utility a parent derives from a child, a consumers' surplus. National income accounting is based on market prices, not "willingness to pay." (For more discussion of this point, see Abraham and Mackie, 2004).

One way to motivate calculation of the "social," rather than the "individual" value of family care time is to consider the metaphor of a family strike. If parents, grandparents and other family members decided to withhold their care services from children for one day, what would it cost to provide replacement services of comparable quality?

Comparable Quality

Three factors are particularly relevant to the specification of "comparable quality": density of care, skills of caregivers (partly a function of education and experience), and emotional attachment (partly a function of length and continuity of the care relationship). Comparable density implies care services at approximately the same level of density currently provided. That is, children could not simply be moved into institutional facilities with a low ratio of adults to children. This condition is easily satisfied by calculation of existing inputs of adult care time.

Comparable skills imply that where skill is likely to make a difference to child outcomes, as in the provision of developmental care, the replacement wage should be calibrated to represent services of similar quality. Parental education has a positive and

significant impact on outcomes for children (Leibowitz, 1973; Grossman 2003). Parental education does not, however, operate in isolation. Comparable attachment implies that wages should be sufficiently high to elicit a long-term commitment with low turn-over rates. High turnover rates of employees in paid child care facilities are generally considered an indicator of low quality (Whitebook, 1999)

Neither of these conditions of comparable skill and comparable attachment is easily satisfied. While it is clear that parental education benefits children, matching the educational level of parent and parent-replacement for a subset of care tasks offers only illusory precision. As a result, we settle for estimates of replacement cost that do not fully meet the comparable quality criterion, simply assigning different values to forms of care that are in different places on the care continuum.

Table 3 lists the wage rates that we assign to different types of care, along with a brief description of the rationale behind them. These are cautious estimates, ranging from a low of \$5.15 per hour (the federal minimum wage) for supervisory care to about \$25.00 for developmental care. These wage rates are low compared to the average for all paid work in 2003 of \$17.41 per hour.

The Value of Child Care Services

We focus on the valuation of time provided by individuals living in households with at least one child 12 or under, since measures for other categories are even more incomplete. Application of the average hourly wage rates in Table 3 to the average daily amounts of different types of care provided by men and women provided in Table 2 are multiplied by 365 to yield annual estimates. The value of the child care time that women in these households provide comes to about \$33,026 per year; the value that men provide

to about \$17,126 per year (See Figure 1). Since women in these households tend to perform more intensive forms of child care, the average hourly value of their care services is higher than that of men: \$10.27 per hour compared to \$8.61.

This estimate of the value of child care services provided by adults living in households with at least one child 12 or under is higher than the estimates from the CDS-PSID which averaged \$28,676 in two-parent, two-child families (Folbre, 2005). But those estimates explicitly ignored overlapping inputs of parental time (if two parents were present, only the time of one parent was assigned a value) and also used lower wage rates.

Another way to assess the validity of these ATUS estimates is to compare them with the market value of the closest approximation of the entire package of child care services, a nanny. The Bureau of Labor Statistics does not collect information for this occupational category, but a survey conducted by the International Nanny Association in 2003-2004 collected 671 responses.⁶ Since respondents were largely self-selected the results were probably biased upward. Nonetheless, it is interesting to note that the average annual pay reported for nannies that did not “live in” and receive part of their pay in the form of rent was \$30,680 per year. Considering that employers, for the most part offered Social Security benefits in addition to wages, and that parents continue to spend considerable time with children even with a nanny on the job, this estimate seems reasonably close to the estimate above of the value of women’s unpaid child care services.

The range of activities that nannies reported among their “duties and responsibilities” also seems consistent with the range included in estimates here: child

care (99%), driving (78%), organization of children's toys, clothing and other belongings (77%), taking children to play dates (75%), laundry (70%), meal preparation (64%). The survey also indicates the relevance of a form of supervisory time omitted by the ATUS: 85% of surveyed nannies who "lived out" reported that they were paid extra if they were required to stay overnight.

Most women living in households with children ages 12 and younger combine their care work with paid employment, but are working for pay, on average only 2.7 hours per day (compared to 5.2 hours a day for men). At an average pay of about \$15.03 per hour, they earn, on average \$14, 977 per year. The value of their child care services is more than twice as high. The combined value of their paid work and unpaid care services comes to \$48,003. Adding in the value of their non-child-related housework and household management at the wage rates indicated in Table 3 yields an additional value of about \$5,312 per year--far less than the value of the child care they provide. The total average value of work they perform comes to about \$53,315 per year. The total value of men's work comes to \$57,297 (See Figure2).

Men living in households with children under 12 work fewer hours overall than women, but the market value of their work is higher. This difference partly reflects a circular causality, in which women's non-market work lowers the value of their market work which in turn lowers the replacement value of their non-market work. The time that women take out of paid employment in order to provide family care lowers their wages relative to those of men (Waldfogel, 1997). Commitments to marriage and family life may also lead women to choose lower-paying occupations (Badgett and Folbre, 2003). All else equal, if women reduced their supply of labor to unpaid work and to paid jobs

that mimic their traditional family responsibilities, the market value of their paid and unpaid time would increase.

The measurement strategy used in this paper understates the relative value of unpaid child care by ignoring the distinctive child-specific skills that it often entails. It also ignores some aspects of supervisory care. On the other hand, supervisory time is valued at a relatively high wage rate compared to physical care, which may overstate total value as well as the value of men's relative contribution. Analysis based on the CD-PSID show that fathers tend to spend time with children when mothers are also present; they are far less likely than mothers to spend time alone with children (Folbre et al., 2005). If the value of men's supervisory time were adjusted to account for differences in density, the relative value of men's supervisory child care would likely fall.

Directions for Further Research

The concept of a "care continuum" provides a better way of measuring and valuing child care than a simple distinction between primary and secondary care. The ATUS provides an invaluable tool for exploring supervisory and indirect as well as direct activities of care. But this tool needs to be carefully sharpened before moving toward efforts to assign a value to unpaid child care as a whole. We believe that the highest priority for further research is analysis of density of care (ratio of adults to children) and its implications for care quality. Other determinants of quality also require concerted interdisciplinary attention.

The most important message of this paper is that efforts to assign a market value to non-market work in the U.S. should not rely simply on measures of time devoted to activities of housework, household management, and child care. Supervisory child care is

quantitatively and qualitatively significant, and the constraints that it imposes are crucial to any analysis of the interaction between market and non-market work.

Table 1. The Child Care Continuum

(data availability in ATUS in parentheses; for detailed codes see Appendix A)

1. Supervisory Care

- 1a. Children asleep, adult “on call” but asleep (*not measured in ATUS*)
- 1b. Children asleep, adult “on call” but awake (*measured in the ATUS only if children are asleep during the day, in which case it is covered by the “in your care” question*)
- 1c. Children awake, adult “on call” but awake (*measured in the ATUS for children ages 12 and under by the “in your care” question. Also measured by ATUS primary activity code “looking after household children.”*)

2. Indirect Care

- 2a. Housework on behalf of children (*not distinguished from other housework in the ATUS*)
- 2b. Household management on behalf of children (*not distinguished from other logistical and managerial work in the ATUS, although some child-specific categories are included*).

3. Direct Care

- 3a. Physical care such feeding, bathing, and dressing (*measured in the ATUS by primary activity codes*)
- 3b. Developmental/educational care such as talking with, instructing, reading aloud, or playing with child (*measured in the ATUS by primary activity codes*).

Table 2. Average Adult Time Devoted to Children in the U.S. in 2003
(hours per day)

	in households with at least one child 12 or under but none older		in households with child >12		in households with no children	
	Men	Women	Men	Women	Men	Women
Supervisory Care (partial measure)*	4.0	5.1	.5	.8	.2	.3
Indirect Care	.6	1.5	.5	1.3	-	-
Child-related housework (no supervisory care)	.2	1.1	-	-	-	-
Child-related housework combined with supervisory care	.1	.3	-	-	-	-
Child-related household management (no supervisory care)	.2	.3	-	-	-	-
Child-related household management combined with supervisory care	.1	.1	-	-	-	-
Direct Care	.9	2.3	.2	.4	0	0
Physical Care	.4	1.3	.1	.2	0	0
Developmental Care	.5	1.0	.1	.2	0	.1
Average Total Time Devoted to Child Care	5.5	8.8	1.1	2.5	.2	.5

* based on category 1c in Table 1

Table 3. Hourly Replacement Wage Rates for Different Categories of Care (matched with similar occupations; pay estimates from Bureau of Labor Statistics for 2003)

Supervisory Care		
Supervisory Care	\$5.15	Federal minimum wage
Indirect Care		
Housework (not combined with supervisory care)	\$8.00	Average wage of maids and janitors: \$7.98
Housework combined with supervisory care	\$12.00	Average wage of maids and janitors plus 50% additional.
Household management (not combined with supervisory care)	\$15.00	Average wage of manager in social and community service minus 30%.
Household management combined with supervisory care	\$20.00	Average wage of manager in social and community service: \$23.77
Direct Care		
Physical Care	\$10.00	Average wage of child care workers: \$8.00
Developmental Care	\$25.00	Average wage of kindergarten teachers: \$24.78
Average Hourly Pay in Paid Work	\$17.41	

Figure 1.

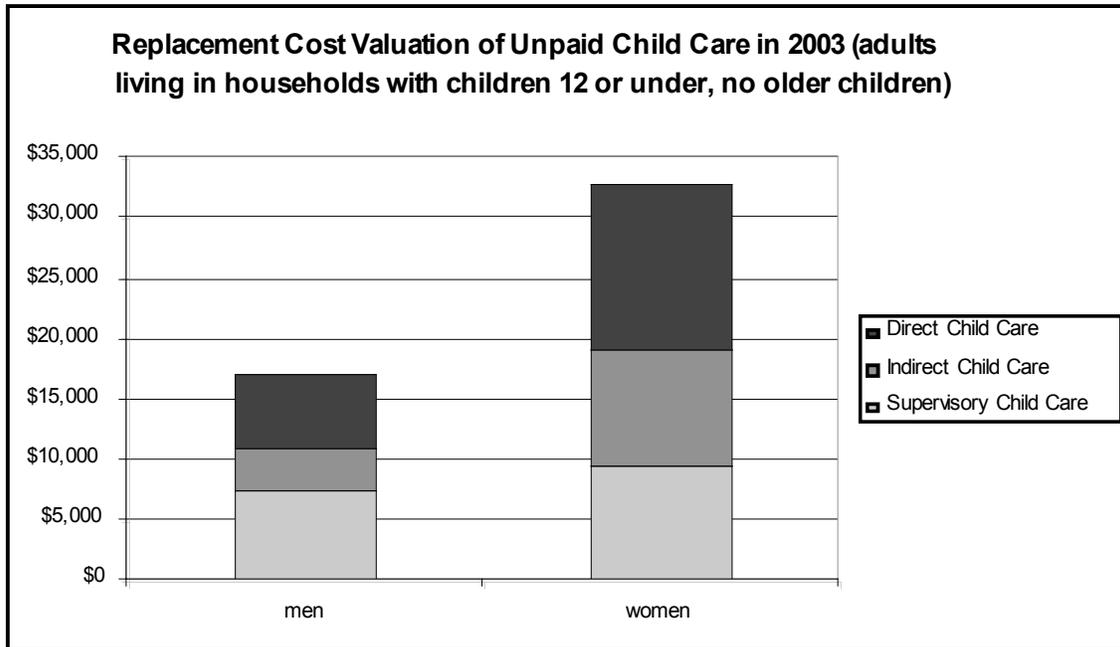
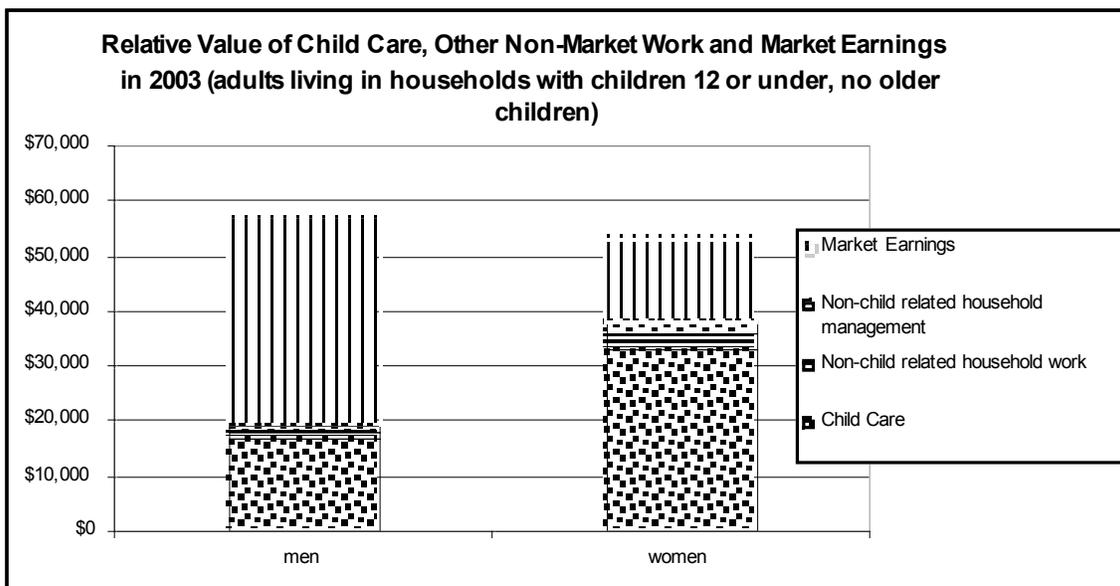


Figure 2.



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Appendix A. Detailed ATUS Codes Corresponding to Table 2.

1. Supervisory Care

The total amount of in-your-care minus the time overlapped with the following activities:

0201 housework
0202 food and drink preparation,
0209 household management
07 consumer purchases
0801 childcare services
0901 household services (not done for self)
160103 telephone calls to/from education services providers
160107 telephone calls to/from paid child or adult care providers
030109 looking after household children
030199 caring for and helping household children, n.e.c
These are duplicated for non-household children.

2. Housework and Household Management Related to Children

2a. Housework

0201 housework
0202 food and drink preparation, presentation, and clean-up

2b. Household Management

0209 household management
 07 consumer purchases
 0801 childcare services
 0901 household services (not done for self)
 The following activities if child is not present

030110 attending household children's event
030202 meeting and school conference
030203 home schooling of household children
030204 waiting associated with household children's education
030299 activities related to household child's education, n.e.c.
030301 providing medical care to household children
030302 obtaining medical care for household children
030303 waiting associated with household children's health
030399 activities related to household child's health, n.e.c.
030108 organizing and planning for household children
030111 waiting for/with household children

030112 picking up/dropping off household children
170301 care-related travel for household child

These are duplicated for non-household children)

160103 telephone calls to/from education services providers
160107 telephone calls to/from paid child or adult care providers

3. Direct Care

3a. Physical Care

030101 physical care for household children
040101 physical care for non-household children

The following activities if child is present
(030301 providing medical care to household children
030302 obtaining medical care for household children
030303 waiting associated with household children's health
030399 activities related to household child's health, n.e.c.
030111 waiting for/with household children
030112 picking up/dropping off household children
170301 care-related travel for household child

These are duplicated for non-household children.

3b. Developmental Care

030201 homework
030102 reading to/with household children
030103 playing with household children, not sports
030104 arts and crafts with household children
030105 playing sports with household children
030106 talking with/listening to household children
030107 helping/teaching household children (not related to education)

These are duplicated for non-household children.

The following activities if child is present:

030108 organizing and planning for household children
030110 attending household children's event
030202 meeting and school conference

030203 home schooling of household children
030204 waiting associated with household children's education
030299 activities related to household child's education, n.e.c.

These are duplicated for non-household children

Notes

¹ An example of a child-centric survey is the Child Development Supplement of the Panel Study of Income Dynamics (CDS-PSID) analyzed in Folbre, et al. Some estimates of the value of adult time received by children are provided in Folbre, 2005.

² The Swedish per child family allowance, according to laws implemented in 1999, came to 950 Kronor per child per month. At the exchange rate of \$1 = 7.31 kronor, this comes to \$1,559.50 per year per child. See U.S. Social Security Administration, *Social Security Programs Through the World: Europe, 2004*, available at www.ssa.gov/policy/docs/progdesc/ssptw/2004-2005/europe/sweden.html. The exchange rate above is suggested by this source. For level of U.S. tax benefits see later discussion, especially Table 1.

³ This represents a weighted average of weekdays, Saturdays, and Sundays. Note also that “in your care” time, as defined by the ATUS, excludes time that an adult was engaged in an activity of child care. The two categories are non-overlapping.

⁴ Adults living in households with children over the age of 12 are excluded because primary activities of child care could be devoted to these children but “in your care” could not be.

⁵ In a previous presentation at the American Time Use Early Results Conference in Bethesda, Maryland, in December 2005, we provided a somewhat different characterization of the care continuum, dividing it into two parts, direct and indirect care. Our thinking about this is still very much “in process.”

⁶ International Nanny Association, INA Nanny Salary and Benefits Survey, available on line at http://www.nanny.org/INA_Salary_Survey2.pdf, accessed December 30, 2005.