

Rethinking the Child Care Sector

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This paper challenges traditional models of the child care industry by emphasizing the importance of unpaid family work. Time use surveys provide a means of integrating estimates of its market value into regional planning models. These studies suggest that parental “quality” time with children and paid child care are complements, rather than substitutes, for one another. Quantification of the important family work that parents do can strengthen the case for instituting policies that offer parents more support and flexibility, such as paid family leaves from work and publicly provided child care.

Keywords: social reproduction, family child care, family work, economic analysis of, family leaves, child care industry, child care sector, work-family balance, “quality time”

The child care sector crosses the boundaries of the paid economy, running the gamut from for-profit and non-profit center-based care to more informal family day care (all charging market prices) to non-market care provided by relatives and by parents themselves. Planners need to develop an economic analysis of the sector as a whole, rather than focusing narrowly on those services that extract a market price. Like the ecological services provided by watersheds and green spaces, unpaid family work provides invaluable support for the market economy. The quantitative dimensions of this support are documented in time use surveys that can be used to impute a dollar value to a non-market work.

At first glance, this economic approach might seem to go against the case for expanding public investment in child care. Parental care and paid child care are often seen as substitutes rather than as complements. But time use studies suggest that paid child care has only a small effect on the active care that parents provide because parents rearrange their schedules in ways that improve their overall productivity. What parents need most is the flexibility to choose the best combination of paid and unpaid care—a flexibility that often lies beyond their reach. This paper begins with a broad reconceptualization of the circular flow that takes place within modern economies, insisting on the importance of public goods and spillovers, as well as non-market work. Next, it describes the types of time-use data that can be used to fill in some of the missing pieces of this broader picture of the economy. It concludes with some thoughts on the implications of this analysis for economic models of the child care sector.

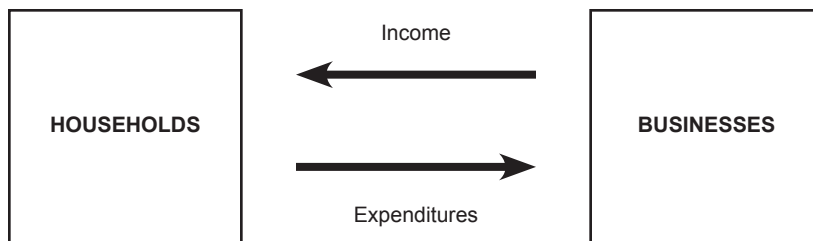
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CHILDREN AND THE CIRCULAR FLOW

Most economic theory describes the production of commodities as a circular flow. Purchased inputs, including labor, are combined to produce outputs that can be sold. Dollars go in and dollars come out. But not all the inputs and outputs come with price tags attached. Somewhere along the way, babies are conceived, nurtured, educated, and launched into adulthood in a process that requires considerable time and effort as well as money. The “production” of people, by means of people (and commodities), is signified of as a part of the circular flow sometimes called “social reproduction” (Elson, 1995). What we call it is less important than how we picture its relationship to the economy as a whole.

Introductory economics textbooks typically picture a circular flow of exchanges between households and businesses (See Figure 1). Households supply labor to firms and receive income in return. They use this income to buy the goods and services that businesses produce. This conventional diagram focuses attention on the arrows of market exchange, but it tells us little about the activities within households that ultimately provide the supply of labor. Yet, the diagram of circular flow, expanded to include greater attention to non-market activities, provides a useful tracing of the movement of economic resources among men and women in familial relationships to children and back again to adults.

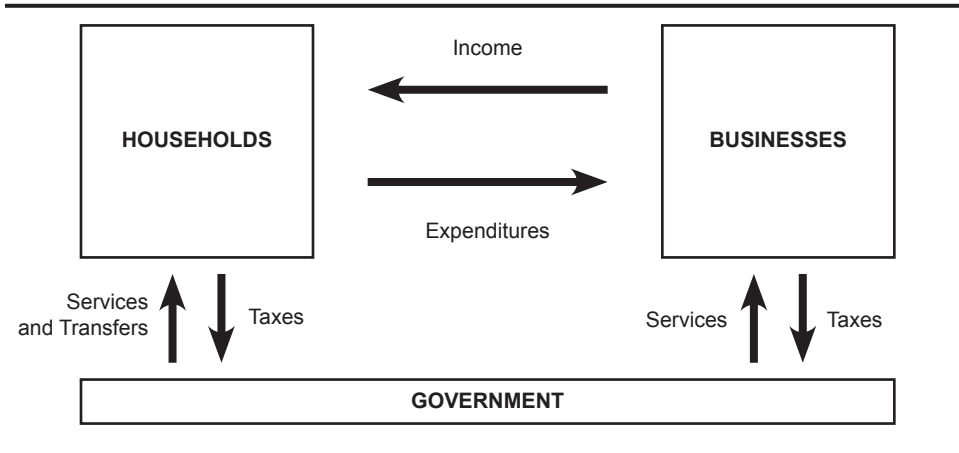
Figure 1. Conventional Model of Circular Flow



When households supply labor to firms and use their income to buy the goods and services that firms produce, the flow of income balances the flow of expenditures (See Figure 1). The expenditure arrow represents all the newly produced goods and services that are purchased. Businesses purchase inputs from other businesses, but since these are “intermediate” purchases, they are represented in the value of the goods and services sold to consumers. The purchased value of all goods and services produced within our national boundaries represents the Gross Domestic Product of the United States.

This picture is often expanded to include another box for government or the public sector (See Figure 2). Households and businesses pay taxes and receive services and/or transfers in return. Those government activities that produce goods or services are counted as part of Gross Domestic Product; those that simply redistribute income are not counted. The activities that take place *within* the three sectors (households, businesses, and government) are *not* market transactions. Few households in the United States produce anything for sale. Indeed, it is illegal to sell one of their most important “products,” namely, children. In this respect, the household sector differs from government and business. But household members devote both money and time to one another and to their dependents. The transfers of money that take place within families—as when a parent shares income with a child or an elderly parent, are not included in national income accounts. If they were, according to one early estimate, they would account for more than one-third of the U.S. Gross Domestic Product (Morgan, 1978).

Figure 2. Conventional Model of Circular Flow with Government



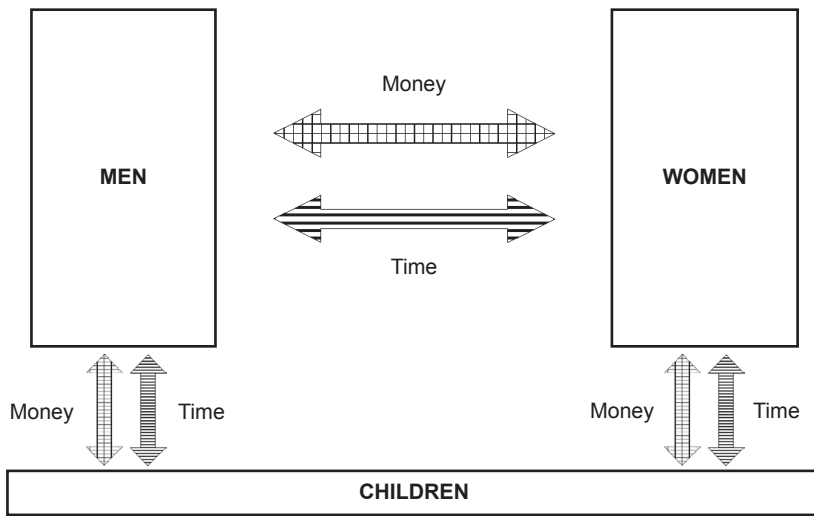
Over the last century, many of the transfers that once took place in the family economy moved into the market or the state economy. Individuals save money to hire others to help them out in old age. The growth of Social Security and Medicare, as well as educational spending, helps explain steep increases in government spending in the latter half of the twentieth century. The rise of the welfare state partly reflects the greater visibility of intra-family transfers that take place through the state. Individuals pay taxes to support programs that benefit the older generation and as a result, spend less of their earned income on elderly family members.

The time that family members devote to the care of dependents is rendered invisible by conventional accounting systems. Time devoted to cooking, cleaning, shopping, and other household activities, as well as time devoted to the direct care of children, the sick or disabled, and the elderly represents productive activity because it provides benefits to others, which, if withdrawn, would need to be purchased in the market economy. Even though families purchase many more services than they once did, including fast food, they still shoulder a considerable domestic burden.

A nationally representative sample of time budget diaries for U.S. residents shows that in 2003, individuals 15 years or older spent about the same amount of time in non-market work (household activities, purchasing goods and services, caring for and helping household and non-household members, and educational activities) as they did in market work—about 4 hours a day on average for each (*Bureau of Labor Statistics*, 2003). Estimates of the value of time devoted to non-market work within the household amount to between about one-third and one-half of measured Gross Domestic Product (Abraham & Mackie, 2005). These estimates represent a lower bound, because they assume that replacement time could be purchased at a relatively low wage rate.

Inside the Household Box

Economists have not traditionally paid much attention to what goes on inside the household box. Labor is considered one of the most important factors of production in a modern capitalist economy. But labor, like land, is generally treated as a “non-produced commodity.” When economists emphasize investments in human capital, they are usually referring to formal education, not the process that produces the little bodies and minds or takes care of them when they get home from school. Those few introductory textbooks that refer to childrearing treat it as a form of consumption rather than production. According to this approach, parents choose to rear children for the same reasons they decide to purchase household pets: they provide “pleasure.”

Figure 3. Circular Flow within Households

Yet childrearing, unlike pet care, involves a circular flow of resources. Most children grow up to become productive workers, taxpayers, and parents in their own right. Parents spend money to buy goods and services for their children; they make transfers and gifts, including bequests. They also devote considerable time to their children. Since there are only 24 hours in a day, time that any individual devotes to family members reduces the time they have available to meet their own needs for sleep, leisure, or work that could potentially earn a market income. Figure 3 pictures money flows within the household in checkered filler, to distinguish them from money flows through the market, which appear in previous figures in black. Flows of non-market work, denominated in hours, are pictured in horizontal lines to convey a sense of both similarity and difference with other types of flows. While these two-way arrows are all pictured here as similar, their relative size, as well as the direction of net transfers, has changed over time.

The money and time that household and family members devote to one another are obviously a source of satisfaction to them. In this sense, they resemble consumption: people spend money in order to purchase goods and services that they believe will make them happy. They spend time for similar motives. But the care of family members—especially children—also represents a form of production because it creates something of value to others. Their motive is less important here than the end-result. Parents do not invest in children in order to make money from them. Yet, their expenditures of time and money create the next generation of workers and taxpayers. Clearly, what goes on in the household box has important implications for the other boxes in the picture.

The relative size of the flows of money and time represented by checkered and horizontally-lined arrows affects the quantity and quality of labor that households will later supply to businesses, as well as the potential contribution of future citizens and taxpayers. Likewise, changes that take place within businesses and government affect the resources that are devoted to children.

Inside the Government Box

Economists usually explain the growth of government spending as a response to problems in the market economy. Governments produce goods and services that the market cannot provide, such as legal services, national defense, and regulation. The so-called

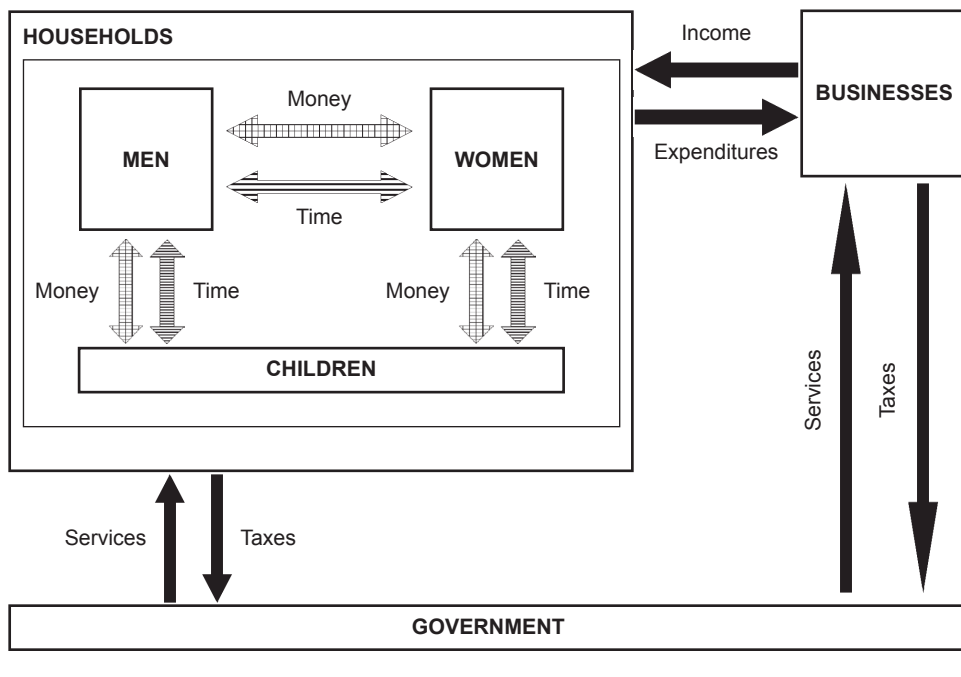
welfare state compensates for market-related problems such as unemployment or poverty. But most transfers that take place through the welfare state, particularly education for the young and pensions for the elderly, are substitutes for transfers that once took place within households. The relative size of government increases when it “socializes” flows that once took place within households.

Flows of money and services through the black arrows connecting governments with households increase because flows of money and labor time through the checkered and horizontally-lined arrows within the household decline. When the government provides pension and medical benefits for the elderly, the working-age population is relieved of some responsibility for care of aging parents. When the government subsidizes child care or education, parents can spend less money and time on their own children.

Employers and workers pay taxes to help finance public education and other programs that benefit children. Children grow up, become employers and workers, and pay taxes themselves. Whether they simply repay what was spent on them or pay more or less than that depends on the structure of taxes and transfers as well as the relative size of different age cohorts. Both our Social Security system and our method of financing national debt establish public claims on the income of future adult citizens (Lee & Miller, 1990; Folbre 1994a). Although economists disagree over exactly how these intergenerational transfers should be measured, most agree that the current generation of working adults has an economic stake in the productive capabilities of the younger generation (Congressional Budget Office, 1995).

Intergenerational transfers represent a circular flow that connects specific components of the Household and Government boxes (See Figure 4). The black arrows connecting these boxes both affect and are affected by the checkered and horizontally-lined arrows connecting men, women, and children. No simple diagram can signify the complexity of these interactions. The intergenerational transfers that take place through government are less likely than those within the household to be connected to the actual process of childrearing. Such government transfers are not related to bonds of kinship or marriage. Few elderly

Figure 4. Connected Circular Flows



people receive personal transfers from children who are not family members. But beneficiaries of Social Security receive transfers from the younger generation whether or not such beneficiaries put any time and effort into raising that generation. Parents subsidize the benefits that non-parents receive.

Outside the Boxes

Not all flows of money and time are captured by arrows connecting distinct groups within distinct boxes. Household activities can spill over into other sectors in both direct and indirect ways. Increased population (or indeed, any population greater than the sustainable carrying capacity of an ecosystem) can lead to environmental degradation, a negative spillover. On the other hand, increased population can contribute to technological innovation, a positive spillover (Simon, 1998).

Economists often term such spillovers, “externalities,” because they are external to individual transactions. This term is misleading, because it suggests that spillovers are also external to the economy as a whole, when they fall into a field in which it is hard to measure or lay claim to their specific effects. No one “owns” the ocean, and nations have a hard time regulating pollution and overexploitation of it. Yet, the ocean is an integral part of our larger economic system. Likewise, no one owns a community, and community members often find it difficult to control what happens on the streets, the level of noise, or the general level of trust. Yet communities are part of our economic system, and residents in particular communities have a stake in the larger economy.

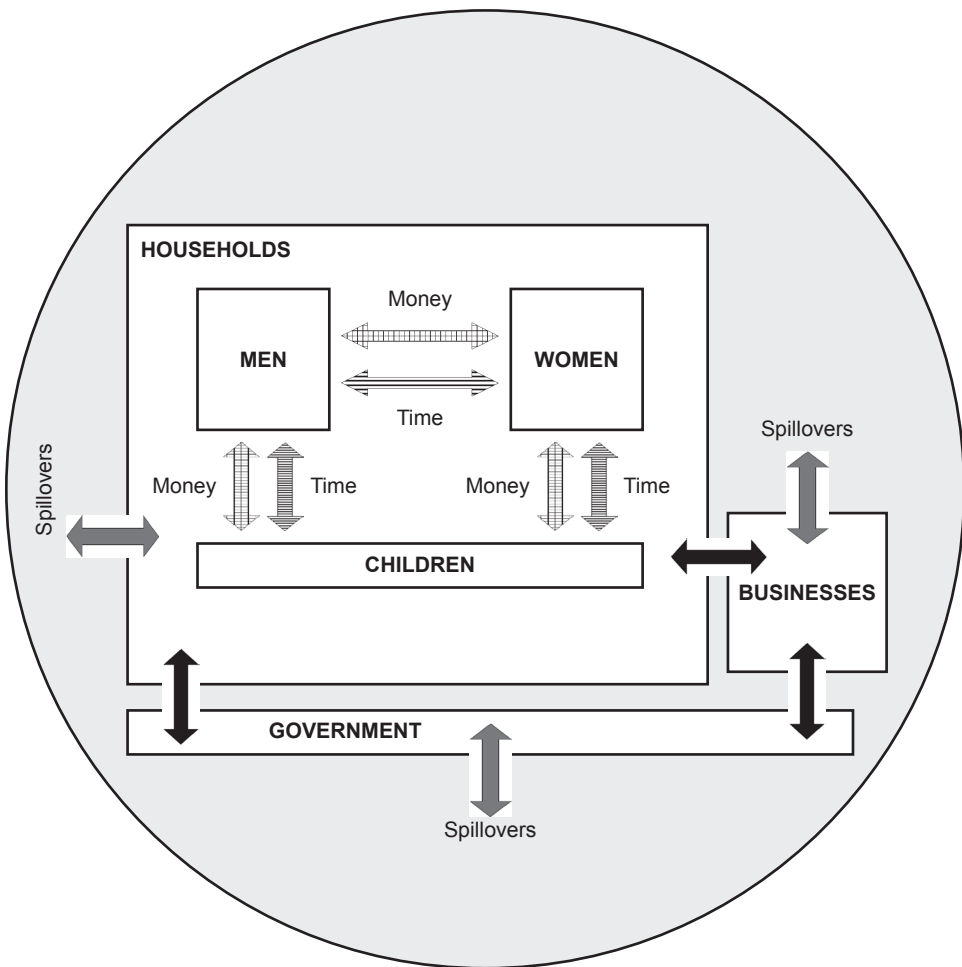
One way to include consideration of such spillovers within the circular flow is to imagine the boxes representing different sectors of the economy as square islands floating in an ocean of “commons” that represents a stock of physical and social resources to which no individual or group can lay specific claim. In Figure 5, this commons is represented by the light grey background of the larger circle, connected by smudged grey flows that represent spillovers from each of the three sectors: household, businesses, and government. These arrows, like the others, flow both ways—resources are drawn in from the commons as well as spilling over. The checkered and horizontally-lined arrows within the household sector are like rivers on an island. The black arrows connecting islands are like pipes whose flow is metered, directly measured in monetary units.

The visual representation in Figure 5 is more revealing than the simple Circular Flow depicted in Figure 1, but requires more effort to develop. Many of the arrows represent flows that we have not yet learned to measure accurately, much less learned to convert to a common denominator such as dollars. Often prices can be assigned to spillovers only by posing a specific counterfactual condition: If bees disappear, how much will the next best method of pollination cost? If wild fish populations decline below harvestable levels, how much would it cost to raise them in captivity? Similarly, we can ask how much it would cost to replace the money and time that parents provide their children.

Implications for the Child Care Sector

Because most economic models focus on the market economy, they provide an incomplete picture of the flow of resources to (and from) children. Eagerness to emphasize the important contribution of early childhood education has often led to a tendency to oversimplify the models. A typical claim takes the form, “an additional \$x invested in child care yield a future return of \$y.” Such claims seldom provide any accurate measure of non-market inputs into children or the non-market outputs that result from the development of their capabilities. Unless we assume that these two components of the “non-market equation” are equal, we cannot make accurate inferences. Furthermore, simplistic cost-benefit approaches ignore the distributional implications: who, exactly, is paying the costs of market-based child care, and who, exactly, is reaping the benefits?

Figure 5. Circular Flows within a Larger Environment with Spillovers



Appreciation of the role of government borrowing highlights the temporal dimension of the circular flow. If children who benefit from early childhood education grow up to pay higher taxes that effectively repay the loans incurred to finance that education, as adults they are financing the development of their own capabilities. Most advocates of intergenerational accounting entirely ignore non-market work and transfers, even though these are obviously crucial to the creation of the next tax-paying generation. The intergenerational incidence of taxation matters—and it matters especially clearly for analysis of the influence of expenditures on children. Flows of money and time among adults and children, men and women, and parents and non-parents are difficult to measure. However, the growing availability of time-diary data provides a good starting point for the development of a broader accounting framework.

INPUTS OF FAMILY TIME INTO CHILDREN

Family time is harder to account for than family spending. Quantification is one way of making family time visible. Time, like money, can be denominated in standardized units and tallied in spreadsheets. But an hour of time is not nearly as homogeneous as a unit of money, and many family activities are conceptually difficult to measure. Social scientists have less experience accounting for time than accounting for money. Measuring the amount of time devoted to housework is relatively straightforward. Measuring the amount of time

devoted to the care of others is far more difficult because care is an emotionally laden, complex interaction that is often better described as a responsibility than as a specific activity (Budig & Folbre, 2004).

Most empirical time use surveys tally time that parents devote to activities with children under the age of 18. The conventional wisdom based on these studies suggests that parenting is not very demanding. Mothers in the United States seem to devote, on average, less than two hours a day, and fathers less than an hour a day to activities with children under the age of 18 (Bryant & Zick, 1996; Robinson & Godbey, 1997; Bianchi, 2000). But these studies understate the temporal demands that children impose. Ask the mother of a young son about her schedule and she may well say, “my time is his” (Walzer, 1998, p. 23). Even when parents are not engaging in activities with their children, parents’ time is often constrained. Equating time spent in activities with children with child care time is a bit like equating money spent on child-specific goods such as diapers and toys with expenditures on children. Just as children have a significant effect on the consumption of shared household goods such as rent, utilities, and transportation, they influence the larger allocation of family time.

Responsibility for children reduces the amount of time women can devote to paid employment. But the trade-off between time devoted to paid employment and child care is not as steep as once supposed. An additional hour of time devoted to paid employment reduces time spent in activities with children by far less than one hour. Likewise, use of formal childcare often leads to a redistribution of the time that parents spend in activities with children to evenings and weekends, rather than a large reduction. Supervisory time tends to be reduced far more than what might be termed “developmental” care, activities such as reading to and talking with children (Bittman, Craig, & Folbre, 2004).

Physical care and supervisory care necessarily take place on a daily basis and cannot be postponed. But they tend to be fairly brief (e.g., time taken to change a diaper) or not very intense (e.g., being available in the next room while children play or nap). When these activities take place within a private home, their economic effect is largely determined by what else a caregiver can be doing at the same time. Today, many of the services that homemakers once provided, such as meal preparation, can be purchased relatively inexpensively in the market. Most women can earn more in paid employment than the value of what they produce in the home, with the exception of what they often term “quality time” with family members. Women who work for pay tend to reduce hours devoted to housework, leisure, and sleep—more sharply than hours they devote to the care of children (Bianchi, 2000).

Family Work

The vocabulary of modern economics calls attention to the distinction between market and non-market work, making the market an arbiter of value. But most productive activities that take place outside of the realm of market exchange today involve the provisioning and care of family members. Not all of these activities have market substitutes, and many of them have distinctive characteristics. It seems accurate and appropriate to refer to them as what they are, rather than what they are not, as “family work” rather than “non-market work.”

A large and growing literature examines the time spent in housework and the ways it is divided between men and women (Berk, 1985; Bittman & Pixley, 1997; Bianchi, Milkie, Sayer, & Robinson, 2000). Still, this research is in its infancy. Although at least twenty studies of parental time-use have been conducted over the past twenty-five years, they often categorize child care in different ways and rely on small samples (Budig & Folbre, 2004). Most studies survey individual adults but fail to specify the age or number of children being cared for. Child-centered surveys, such as the Panel Survey of Income Dynamics Child Development Survey (PSID-CD), provide a more accurate picture of the adult time children receive, but focus entirely on children’s activities, ignoring adults’ supervisory and on-call responsibilities.

Table 1. Survey Form, Panel Study of Income Dynamics, Child Development Supplement

	Do not answer if sleeping or personal care									
	A	B	C	D	E	F	G	H	I	
TIME	What did your child do?	Time Began	Time End	IF WATCHING TV, was that a video tape or TV program?	IF TV, VIDEO, COMPUTER GAMES, what was the name of the (program/video/game) child was (watching/playing)?	Where was child?	Who was doing the activity with the child?	Who (else) was there but not directly involved in the activity?	What else was child doing at the same time?	
1 PM	Eating Sandwich	1 PM	1:20			Kitchen	Mother	Sister		
	Watching TV	1:20	2:30	Video	101 Dalmatians	Living Room		Sister	Playing with toys	
	Napping	2:30	3:45			Bedroom				

The flow of time can be measured objectively, but it is experienced subjectively. Furthermore, it is often remembered poorly. Asking a stylized question such as, “How much time did you spend in child care last week?” often yields only an inexact answer. The reports that family members give are not always consistent. For instance, husbands typically report doing more housework than their wives report them doing, and vice versa (Kamo, 2000). Survey responses are also subject to “social desirability” bias. Respondents eager to give a good impression are likely to exaggerate time spent in activities considered praiseworthy (such as childcare) and to underreport time spent in activities considered unproductive (such as watching television).

No survey method can guarantee an accurate report, but the problems described above are minimized when respondents are asked to fill out a time diary describing activities during the previous day. Table 1 reproduces the survey administered to participants in the Panel Study of Income Dynamics Child Development Supplement, which was designed with special attention to activities that involved television, videos, and computer games. Some illustrative responses to the survey are shown in script. Such responses are typically standardized when the survey is coded for analysis. For instance, activities such as “eating sandwich” or “drinking juice” would both be coded as “eating.” Some national surveys include only a few categories of childcare activities; others go into considerable detail, distinguishing among developmental activities (such as reading aloud to a child), high contact activities (such as feeding or bathing) and low contact activities (such as monitoring children or making arrangements on their behalf) (Bittman, Craig, & Folbre, 2004; Fuligni, 2000).

Primary and Secondary Time

People tend to do more than one thing at a time, or to alternate between activities so rapidly that they seem to be doing many things at once. One can feed a baby a bottle while watching television, or talk to a toddler while cooking dinner. Some time diary surveys try to capture this complexity by distinguishing between a primary and a secondary activity. For instance, the PSID-CD question, “What did your child do?” yields a primary activity and, “What else was the child doing at the same time?” yields a secondary activity (See Table 1).

Similar questions are often asked of adults in time-use surveys. But the distinction between primary and secondary activities varies considerably, and it is sensitive to the wording of survey questions. Parents are almost always organizing their time in response to their responsibilities for children. In other words, child care, defined broadly, is almost always in the background. Data from Australia suggest that as much as three-quarters of all time spent in childcare may be “secondary” (Australian Bureau of Statistics, 1994). Canadian time-use data suggest more like two-thirds (Gauthier, Smeeding, & Furstenberg, 2004). Most U.S. time use surveys find that secondary time represents a much smaller percentage of the total, in part because questions are not as carefully designed to uncover it.¹

Both primary and secondary activities are typically reported from the adult’s point of view. But the total time that one adult spends in such activities may overlap to varying degrees with other adults. For instance, if both mother and father simply report spending ten hours in activities with children, this may represent ten hours of care time with two parents, or twenty hours of care time with one parent. Time that a child spends with two parents may be of higher “quality” than time with one parent; it is certainly more costly.

A related issue concerns the number of children being cared for at one time. If a parent devotes ten hours to activities with children, this may represent care for one child, or for four. It is difficult, a priori, to determine whether a higher ratio of children to adults leads to greater efficiency, or simply to dilution of the quality of care. However,

the increase in care time associated with the addition of a child tends to go down with number of children (Turchi, 1975; Lindert, 1978; Robinson, 1987). The density of care has obvious implications for its cost and quality (Folbre, Yoon, Finnoff, & Fuligni, 2005). No adult-centered, diary-based time use surveys of the United States shed any light on overlaps. The child-centered PSID-CDS provides at least some insights. On the other hand, precisely because it is child-based, the PSID-CDS leaves out explicit consideration of adult supervisory and “on call” time.

Supervision, Responsibility, and “On Call” Time

As Margaret Reid pointed out long ago, time spent in *activities* with children represents a subset of all time that should be described as child care (Reid, 1934, p. 319).² Leaving a child under the age of 13 unsupervised for any significant length of time can be legally considered a form of child neglect. Even though legal standards vary, and many so-called latchkey children spend time at home alone, most parents devote considerable time and effort to meeting “on call” as well as supervisory responsibilities. Young children spend a large percentage of their time sleeping, often in a room separate from a parent. School-age children often spend time playing on their own, with siblings, or with friends in a room separate from a parent. Under these circumstances, parents are unlikely to report that they are “engaged in an activity” with children (Budig & Folbre 2004).

The diffuse character of parental responsibilities explains why answers to stylized questions such as, “How much time did you spend providing care for your children last week?” typically yield much larger estimates than time diary questions about activities with children (Schwartz, 2002; Juster 1999). The 1997 Australian Time Use Survey seeks to capture supervisory time with a category called “Minding Children,” defined as, “caring for children without the active involvement shown in the codes above. Includes monitoring children playing outside or sleeping, preserving a safe environment, being an adult presence for children to turn to in need, supervising games or swimming activities including swimming lessons. Passive child care” (*Time Use Survey*, 1997).

After extensive field testing of various measures for the American Time Use Survey (ATUS), a new adult-centric survey recently added to the Current Population Survey. The Bureau of Labor Statistics decided to measure passive child care in the following way: after the respondent completes the 24-hour time diary activity report, the interviewer asks if, at any time during those activities, a child was “in your care.” If respondents are unclear about what “in your care” means, the interviewer specifies, “By ‘in your care’ I mean that you were generally aware of what your child was doing, and you were near enough that you could provide immediate assistance, if necessary” (Schwartz, 2002).

The Australian and ATUS approaches represent an improvement over activity-based measures and provide a clear picture of what might be termed “passive care.” However, they conceal an important distinction between supervision and being “on-call” and give short shrift to the latter. For instance, the ATUS excludes time that children are asleep during the evening or night, or time that parents are asleep. Yet babysitters are often hired to be on call for young children who are fast asleep in the evening. And parents are often economically constrained by the requirement that they sleep in proximity to their children. Most measures of “passive care” also ignore the additional burdens of housework that children impose.

Consider the analogies with a firefighter’s job, which includes at least three different aspects. The “active” aspect is the actual fighting of fires. The “supervisory” aspect includes monitoring phones, radios, and other electronic media and ensuring that equipment is maintained and ready. The “on-call” aspect requires being available to respond to an alarm during long periods of time that may include eating, playing cards, and napping. For both firefighters and parents, on-call time is less demanding than activities or supervision, but it is nonetheless significant. Developmental psychologists

testify to the importance of invisible forms of social support, the knowledge that a loved one is available nearby (Taylor, 2002).

In sum, studies that focus entirely on time parents and children spend engaging in primary activities together understate the temporal demands of parenting. Adult child care time falls into a number of different conceptual categories: participation with a child in primary activities, participation in secondary activities, supervisory responsibilities, being “on call,” and tasks that indirectly benefit the child (such as cooking, cleaning, washing clothes, or making appointments and arrangements for special activities). Increased utilization of child care reduces the time that parents are “on call” much more than their “quality time” with children.

The Potential Value of Time-Use Research

Data from the Consumer Expenditure Survey have long been used to estimate average parental spending on children up to age 18. Potential parents interpret these data as indicators of the costs they will incur, and policy makers apply them to the design of rules for foster care, child support enforcement, and social safety nets. Yet, money expenditures are misleading in several respects. They are too low because they omit any consideration of the value of parental time. They lead to inaccurate comparisons of economic well-being across households. They also distort perceptions of the relative costs of children of different ages. Young children need less food and clothing than older children. But young children need far more direct care. The PSID-CDS, described briefly above, makes it possible to construct parallel estimates of the average amount of parental time devoted to the care of children. These estimates do not include indirect time demands such as housework. However, they do include consideration of supervisory and on-call time, overlaps among care providers and recipients, and economies of scale within the household. They also take advantage of the child-centric structure of the data by offering estimates of time that non-custodial parents devote to activities with children (Folbre, Yoon, Finnoff, & Fuligni, 2005).

Future surveys could build upon the American Time Use Survey, now administered on an annual basis, to provide accurate and consistent estimates of the magnitude of non-market care time. Although the monetary value of this time cannot be precisely estimated, even an approximate value would provide a complete picture of the value of transfers within the household “box.”

ECONOMIC MODELS OF THE CHILD CARE SECTOR

What are the implications of this macroeconomic analysis for economic models of the child care sector? Microeconomists, take heed: the complexity of intergenerational flows of time and money challenges the assumption that parents always make efficient decisions. Stylized neoclassical models take parental preferences as a given, and assume perfect information. Parents probably are struggling to maximize something like family happiness, but their ability to do so is constrained by the decisions that other parents make and the difficulties of organizing effective collective action. Spillovers and coordination problems help explain why public debates over both child care and paid family leaves have intensified in recent years.

Particularly relevant to macroeconomists and regional planners are the limitations of market income as a measure of standards of living. These limitations are, of course, widely acknowledged. But they bear particularly heavily on the child care sector because its most important inputs and outputs are not easily assigned a market value. Although the growth of paid child care makes spending on child care more visible, estimates of its value-added typically ignore non-market family care (Warner, 2006). They introduce what could be termed a “pro-commodification” bias into policy debates that can have a polarizing effect. More generous provision of public child care services would obviously benefit many

families, but so too would paid family leaves and reduction of the penalties imposed on part-time work, as argued by Meyers and Jordan and Stoney et al. in this volume.

“Work-family balance” is more than just a slogan for employed mothers. It should also be a goal for social planners. One potential tool for analyzing activities and behavior is the social accounting matrix or SAM that tracks the flow of money, time, and physical units through different institutions (Stahmer, 2002). Useful SAMs would require careful attention to three factors: 1) the temporal dimension of transfers to children through both the family and the state, 2) diffuse inputs and spillovers, and 3) the importance of supervisory and on-call time. Time-use surveys will need to move beyond categorization of activities to include more attention to responsibilities and constraints, asking both who provides care time and who receives it.

More detailed analysis of the relationship between “on call” time and “quality time,” including a precise definition of “quality time” could lead to more efficient time allocation. It could also build a stronger alliance between those who advocate more support for parents at home (in the form of paid parental leaves from work) and those who advocate more publicly provided child care. These two types of policies are complementary because they offer parents the flexibility they need to make good choices.

The specific categories of time use that need closer analysis are managerial and logistical activities such as transporting children, waiting to pick them up, and making arrangements on their behalf. The recent American Time Use Survey indicates that adults living in a household with a child under the age of 6 but none over the age of 12 spend, on average, thirty minutes a day on these tasks, and it is not clear that much quality interaction time is involved (Folbre & Yoon, 2005). Even if a parent spends the fifteen minutes required to drive a child to a swimming class in animated conversation, the fifteen minutes returning home in an empty car is not benefiting the child or the physical environment.

Current school schedules have been criticized on a number of grounds. U.S. children spend fewer days in school than their counterparts in Europe and Asia, and the long summer vacation may make it difficult for them to retain what they have learned in the preceding year. School schedules should be evaluated not merely for their effects on children, but also for their effects on the temporal organization of family and work as a whole (For more discussion see American Psychological Association, 2003). Schools that let children out before 3 p.m. without providing after-school programs impose costly constraints on parents who must often pay a large penalty in wages and benefits for the prerogative of leaving their paid employment before 5 p.m.

Employment schedules should also come under scrutiny. While highly educated mothers can often bargain for flextime, less educated mothers, African-Americans in particular, are less likely to enjoy flextime (McCrate, 2002). The availability of non-standard split-shift jobs in the United States helps many parents tag-team childcare (Presser, 2003). But Northwest European countries do a much better job providing a combination of paid child care and paid family leaves from work. Part-time employment in those countries imposes smaller penalties in part because health and retirement benefits tend to be universal rather than linked to full-time employment (Gornick & Meyers, 2003).

Improved efforts to account for the contributions of unpaid family work represent an important first step toward a complete picture of child care. But researchers will need to continue analysis beyond the toddler stage. Both time and money are important “inputs,” into children, and time and money are not perfect substitutes for each other. No linear input-output model will fully capture the complexities of child care (Pratt & Kay, 2006). We should try to develop a better understanding of the nonlinearities, discontinuities, and surprises that are inherent in the production of human capabilities.

NOTES

¹ John Robinson and Geoffrey Godbey found that adding secondary-activity child care time increased the total amount of time devoted to child care by 50%, implying that it represented about a third of the total.

Similarly, in their analysis of the 11-State Survey of two-parent, two-child families, Keith Bryant and Kathleen Zick found that secondary child care time accounted to about 44% of primary child care time. On the other hand, Suzanne Bianchi found that total time spent with children was about three times the amount of time spent in direct care, similar to the results Gauthier et al. reported for Canada. See John Robinson, and Geoffrey Godbey, *Time for Life. The Surprising Ways Americans Use Their Time* (University Park: Pennsylvania State University, 1997), p. 107; Keith W. Bryant and Cathleen D. Zick, "An Examination of Parent-Child Shared Time," *Journal of Marriage and the Family*, 58 (1996) 227-237. See also their "Are We Investing Less in the Next Generation? Historical Trends in Time Spent Caring for Children," *Journal of Family and Economic Issues*, 17:3/4 (1996): 385-392; Suzanne Bianchi, "Maternal Employment and Time with Children: Dramatic Change or Surprising Continuity?" *Demography* 37:401-14. The relative proportion of primary and secondary time devoted to children varies considerably with the age of the child, but most U.S. studies are based on small sample sizes that make this difficult to disaggregate. For a detailed consideration of this issue in the Australian context, see Duncan Ironmonger, "Bringing Up Bobby and Betty: The Inputs and Outputs of Child Care Time," in Nancy Folbre and Michael Bittman, Eds., *Family Time: The Social Organization of Care* (New York: Routledge, 2004).

2 "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.' In a study of the time spent in the care of 24 infants, one year and under, it was found that the mother averaged 41 minutes per day away from the baby and thus entirely freed from the responsibility of his care." Reid, *Economics of Household Production*, p. 319.

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