



LINKING ECONOMIC DEVELOPMENT AND CHILD CARE RESEARCH PROJECT
CORNELL COOPERATIVE EXTENSION
DEPT. OF CITY AND REGIONAL PLANNING
W. SIBLEY HALL CORNELL UNIVERSITY ITHACA, NY 14853-6701
EMAIL: childcare_econ@cornell.edu
WEBSITE: <http://economicdevelopment.cce.cornell.edu>

Valuing Nonmarket Family Care Time

Using National Income Accounts and the American Time Use Survey

By James E. Pratt, PhD, 2009

Introduction

Since its establishment in 1934, our system of national accounting has omitted any consideration of values for nonmarket activities in the determination of our level of national output. We only count those activities that have observed, monetarily denominated, market transactions associated with them. Everyone knows that our nonmarket activities definitely contribute value to our lives. The omission is more than just a benign oversight. National economic policies that ignore these valuable activities can have detrimental impacts on public policy. (Warner, 2009) The advent of the ongoing American Time Use Survey (ATUS) in 2003 holds the promise that we will finally be able to value these important nonmarket family care activities. Below, I outline the components and procedures for a method of valuing the family care aspects of our nonmarket lives in national income accounts.

Gross Domestic Product and National Accounts

Before your eyes glaze over at the mention of Gross Domestic Product (GDP) and national income accounting and you recall that excruciating freshman or sophomore economics course, let's look at a little history. In response to the uncertainty precipitated by the stock market crash of 1929 and the beginnings of the Great Depression, the U.S. Congress commissioned Professor Simon Kuznets of Columbia University to construct guidelines and procedures for measuring aggregate economic activity in the U.S. Up to that point in time, there were no consistent or timely accounts to describe the condition of our national economy. In other words, no one knew for sure the values of our economic vital signs. In his transmittal letter to the Senate, Kuznets (1934) outlined the procedures for constructing National Income and Product Accounts (NIPAs). These became the foundation for today's well-known measure of GDP. Kuznets' procedures continue to be used today and

are codified into the widely accepted United Nations System of National Accounts (SNA), which is used by over 160 of the world's countries to do national accounting. The U.S. Bureau of Economic Analysis (BEA) computes GDP as the **total market value of all final goods and services produced in a given period of time**. For 2007, it can be mathematically represented as:

$$\text{Consumption} + \text{Investment} + \text{Government Spending} = \text{Spending Trillion}$$

In this accounting framework, however, the value of unpaid activities, including household production activities, is excluded. Only 'economic' activities, those that are accompanied by monetary compensation, are included in the NIPAs.

"It may be doubted that the productive activities of housewives and other members of the family, rendered within the family circle, can be characterized as economic processes whose net product should be evaluated and included in national income." (Kuznets, 1941)



These omitted 'nonmarket' household production activities include such things as in-home meal preparation, laundry, house care and cleaning, and family care.

The US Bureau of Economic Analysis has estimated (using a replacement wage approach) that if unpaid household labor were included, it would increase US GDP by 24% for 1997 (Landefeld and McCulla 2000) Nonmarket activities are substantial. We all know that. However, transactions-based arguments against counting the economic contributions of nonmarket household labor are deeply rooted in NIPAs. This particular problem did not go unnoticed or

unchallenged by household economists of the time, Margaret Reid being most notable (Reid, 1934). Kuznets was undoubtedly a skilled and dedicated professional. He moved the world forward in understanding and managing national economies. In 1971 he received a Nobel Prize in economics, substantially for his work on national accounting. Today, we need to move beyond the thinking of 1934 to devise a system of economic vital signs that is reflective of modern economic realities.

The Iceberg

When we measure the child care sector, it is a bit like looking at an iceberg, where most of it lies, unseen, below the water line. The tip, which is visible above the water line, is the paid market care sector. It represents employees captured by Bureau of Labor Statistics (BLS) establishment reports, estimated to be 800,000 in 2002. The Current Population Survey (CPS) captures another 900,000 paid market workers in the sector, for a total of about 1.7 million visible workers including family home providers who are self employed. Just below the waterline begins the informal child care market. Burton et al (2002) found another 800,000 of these paid childcare workers who are not visible to either BLS or the CPS. Further below the surface begins unpaid care – the social foundation that supports the market economy. Burton et al estimated another 2.4 million care workers in this section, mostly (93%) unpaid relatives. Furthest down in the depths lays the least visible and largest part of the iceberg, unpaid parental care. Preliminary indications are that the total U.S. hours of unpaid parental child care may be as large in size as 12 percent of the total U.S. paid work time. That so much of the sector is invisible or below the water line reflects the lack of attention accorded the sector in national economic accounts. We ignore these parts of the iceberg at some peril.



In January 2003, the BLS initiated the ATUS. ATUS uses the CPS, a rich, continuous survey of households covering 300 variables, as the sampling frame. One randomly chosen adult (15 or older) in each CPS household is asked to complete a detailed time diary for his/her activities over the previous 24 hours. Weights associated with the ATUS participants are structured to produce nationally representative

estimates. In the period of 2003-2007, there have been nearly 73,000 respondents. These respondents belong to households representing over 390,000 individuals. The information available in the ATUS enables a giant step forward in measuring and valuing nonmarket activities.

A New Method to Value Family Time

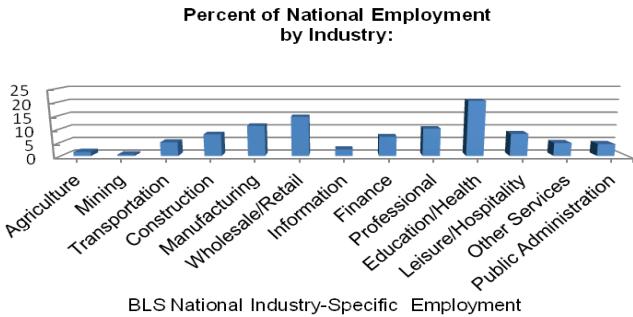
I propose a method for valuing non-market household activities in a comprehensive economic framework which uses the value data from the NIPAs combined with time-use data from the ongoing ATUS. Based on methods from economics, engineering, and mathematics, it is possible to relate the valuation information from the NIPAs with the time allocation information from the ATUS, to determine market values for time used in nonmarket activities. Think of this as building a bridge that spans the gap between the market economy, as measured by dollars in the NIPAs, and the nonmarket economy, as measured by our use of time in nonmarket activities.

The Market Economy

Let's consider the market economy in terms of industries that buy each others' products and services and occupations of individuals who supply these industries with the time necessary to produce these products and services. These industry/industry and industry/occupation interactions involve all the transactions-based activities included in the NIPAs.



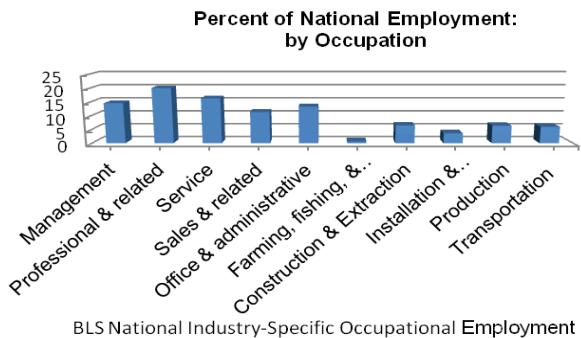
While there are hundreds of industries and occupations, I have conducted an analysis that aggregates these into 13 industry classifications and 10 occupations (Pratt 2009) and uses the BLS Occupation Employment Statistics (BLS) from the May, 2006 National Occupational Employment and Wage Estimates.



For the thirteen industries, Education and Health Services, at 20% of national employment, and the Wholesale and Retail services industry, at nearly 15%, are the two largest sectors, measured by employment. Mining and Agriculture are the smallest (BLS 2006).

Each of these industries uses time directly, in varying degrees, from each of the ten occupations in order to produce its output. Agriculture needs not only the time of farmers, but also the time of sales representatives, truck drivers, and agricultural scientists.

Manufacturing needs the time of production workers, but also managers and office administrators. Health and education needs not only the time of doctors and teachers, but of maintenance workers too.



Among the ten occupation categories, Professional employment at 20% and Service employment at 15%, are the largest categories, while Farming and Installation and Maintenance have the fewest employees (BLS 2006). There is a very rich mosaic of these industry-occupation relationships which is captured in the NIPAs.

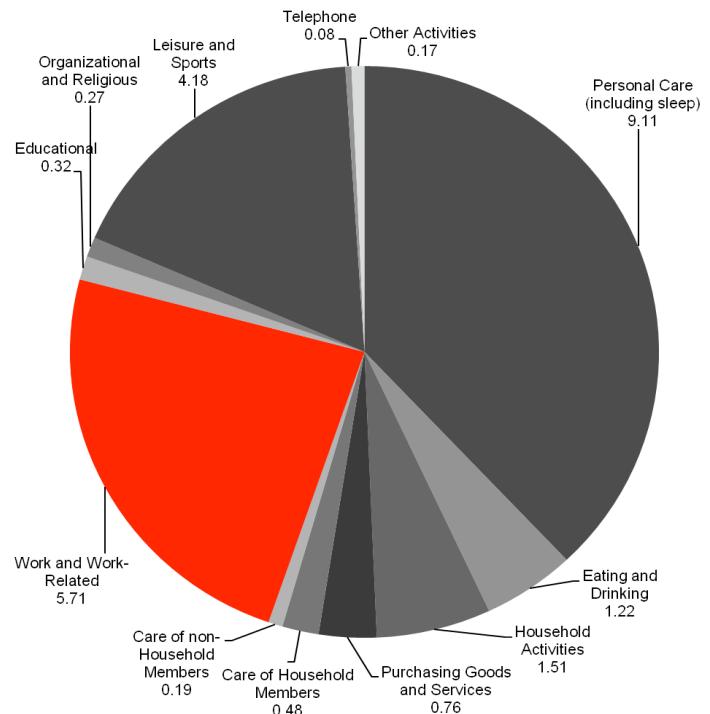
The Nonmarket Economy

Let's consider the nonmarket part of our lives in terms of all those unpaid activities in which we spend time. These range from eating and drinking, sleeping, and shopping, to exercise, school attendance, and family care.



If, in addition to the nonmarket uses of time (in black), we include the work and work-related use of time (in red), we have accounted for all 24 hours of our available daily time. This constraint of a fixed amount of available time is key in allowing us to build the bridge between market values for time and nonmarket uses of time.

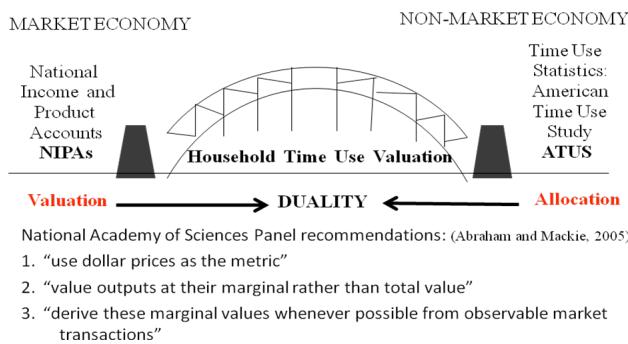
Average Hours per Day (7 Days) for Employed ATUS Respondents, 2006



Based on the more than eight thousand employed respondents to the 2006 ATUS, the largest daily use of time is personal care at 9.11 hours per day. Work and work-related time, at 5.71 hours per day, or 40 hours per week, is the next largest use of time. Leisure and Sports is third at 4.18 hours per day. Care of household and non-household members is .67 hours per day, or 4.7 hours per week. For these employed persons, the total time not devoted to work or personal

care, at 9.18 hours per day, is larger than either work or personal care time. While household and non-household member care time is small relative to work and work-related time, using statistical methods, I determined that care time devoted to household members has a strong negative association with work and work-related time among the employed ATUS respondents in 2006. **The more time that is devoted to care, the less time devoted to work.** This relationship, however, is not 1 to 1, such that other time using activities must also compensate for changes in care time. Personal time and leisure are often cited as the most likely candidates.

The Bridge



Using the principle of 'duality', which is important both in economics and engineering, we can mathematically relate the *allocation* of our daily use of time, which is revealed to us by the ATUS survey, to the *valuation* of transactions, revealed to us in the NIPAs, and obtain a national valuation for both market and nonmarket time use. (Pratt, 2007)

Value to Whom?

Nancy Folbre (2008), a well-known child care economist, points-out the importance of the question; "Value to whom?", when considering the value of nonmarket child care activities. As its name suggests (National Income and Product Accounts), the valuation, or NIPA, end of the bridge brings a 'national' perspective to the computation. The values obtained by using the 'duality' bridge must be interpreted from this national perspective. They are economy-wide values which take into account all the interconnectivity of the nation's industries. They ARE NOT individual wage estimates or wage proxies, they represent the value to the nation, not to the individual, of allocating time to market and nonmarket activities. For example, I find (Pratt 2009) that the **economy-wide value of an additional hour of nonmarket family care time ranges from \$51 for Professional Services to \$506 for Installation and Maintenance occupations.** Our current accounts treat these values as zero!

CONCLUSION

Recent debates and discussions about the merits of large industry bailouts and national stimulus programs, (the American Recovery and Reinvestment Act of 2009, aka ARRA) rested very firmly on the notion of economic linkages. Events, either positive or negative, in one economic sector are magnified as they work their way through our national economy; the 'multiplier' effect. This same mechanism is at work in the way time is allocated in the economy, between work and work-related activities and all those other nonmarket activities that require time. We all know that time is ultimately one of our most limiting resources. Yet, our evaluation of our national economic health is based solely on activities that have explicit monetary transactions. As a result, most national economic policies completely ignore the nonmarket aspects of our lives, e.g., Social Security does not give credit for household care. The procedure discussed above gives us a way to bring the nonmarket activities of individuals into a national accounting framework for the purpose of valuing our nonmarket time.

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