

A REVIEW OF THE ECONOMICS OF FAMILY TIME USE

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I. INTRODUCTION

Time is a limited resource. Yet, it is also the one resource with which all individuals are equally endowed on any given day. Why then is there such wide variation in how each of us chooses to use that time? What factors guide our decisions about time spent working versus time spent with family and friends? Why is it that activity patterns vary by gender, education level, and life cycle stage? In this essay, we review the economic model of household production that has been applied to investigations of family time use and summarize the insights that have been gained from the empirical tests of this model. In addition, we discuss the model's strengths and shortcomings, and we recommend where family scholars should devote their future energies if we are to make further strides in understanding why time use varies so across families.¹

II. HISTORICAL BACKGROUND

There is a long tradition of studying time use within economics. Scholarly interest in this topic dates back to work done by home economists and labor economists early in this century. One hundred years ago, work days were typically quite long for both men and women and much of the work that was done required considerable physical effort. As a consequence, scholars working in this field generally wanted to find ways to shorten work hours and reduce work-related drudgery. Labor economists focused their efforts on understanding the relationship between men's wages and their time spent in market work.² In contrast, home economists' energies were devoted to describing the time women spent in household

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¹It should be noted that the time-use literature focuses almost exclusively on the determinants of adults' time. Very few articles examine the correlates of children's time use. Thus, when we refer to research on "family" time use in this paper, we are really talking about research on the time use of adult family members.

²See JULIET B. SCHOR, *THE OVERWORKED AMERICAN—THE UNEXPECTED DECLINE OF LEISURE* 59–68 (1991) (describing upward pressures on time spent in market work by mechanization, piece work, and fringe benefits).

activities³ and what impact, if any, innovations in household technology had on housework time.⁴

Until the early 1960s, labor economists made almost no attempt to link hours of market work to familial factors. Standard models assumed a world where an individual chose between only two types of time: "labor" and "leisure," where leisure was defined as a residual category (i.e., it included all time that was not spent working for pay).⁵ An individual's choice regarding time spent in the paid labor force was typically hypothesized to be a function of the wage the individual could command, his or her education, the local labor market conditions, and, in some instances, his or her marital status and/or number of dependents.⁶ The inclusion of variables like marital status or number of dependents was typically justified by noting that these measures were proxies for individual variations in work-leisure preferences.⁷ Yet, neither marital status nor number of dependents begins to capture all of the dimensions of family beliefs or preferences that potentially influence an individual's decisions regarding time use.

In contrast to the labor economists, home economists spent much of their energy gathering time diary data that were then used to describe family time use. These efforts resulted in rich, detailed pictures of daily life in the home.⁸ Home economists also developed elaborate theories of the decision-making processes within families.⁹ The basic premise of the majority of these theories was that productive activities occur in the household as well as in the labor market.¹⁰ These home production activities are guided by the family's goals, values, and standards (i.e., preferences), and they make use of the family's scarce time and money resources as inputs and generate goods (e.g., meals) and services (e.g., care of small children) as outputs that

³See, e.g., KATHRYN E. WALKER & MARGARET E. WOODS, *TIME USE: A MEASURE OF HOUSEHOLD PRODUCTION OF FAMILY GOODS AND SERVICES* 4 (1976) (reviewing previous studies of time use in households).

⁴See, e.g., W. Keith Bryant, *Technical Change and the Family*, in *HUM. RESOURCE RESEARCH, 1887-1987, PROCEEDINGS* 117, 117 (Ruth Deacon & Wallace Huffman eds., 1986) (noting paradox that technology has not significantly decreased time spent in household work as reflected in titles of two recent monographs: RUTH S. COWAN, *MORE WORK FOR MOTHER: THE IRONIES OF HOUSEHOLD WORK FROM THE OPEN HEARTH TO THE MICROWAVE* (1963) and SUSAN STRASSER, *NEVER DONE: A HISTORY OF AMERICAN HOUSEWORK* (1982)).

⁵See John Pencavel, *Labor Supply of Men: A Survey*, in *HANDBOOK OF LABOR ECONOMICS* 3, 3-7 (Orley Ashenfelter & Richard Layard eds., 1986) (reviewing early labor economists' research).

⁶See *id.* at 7-26.

⁷See *id.* at 26.

⁸See, e.g., WALKER & WOODS, *supra* note 3, at 4 (describing previous studies of time used for household work).

⁹See, e.g., ELLA CUSHMAN, *MANAGEMENT IN HOMES* 202-07 (1945) (generalizing steps that households apply to management from case studies on several families); IRMA H. GROSS & ELIZABETH W. CRANDALL, *MANAGEMENT FOR MODERN FAMILIES* 63-88 (1963) (describing role and methods of decision making in home management).

¹⁰See, e.g., WALKER & WOODS, *supra* note 3, at 1-4 (comparing household work to service sector of economy).

are consumed by the family.¹¹ Unfortunately, these home management theories were often so complicated and unwieldy that they were impossible to test rigorously.

In the early 1960s, things began to change. Economists started to apply insights about firms' investment and resource allocation decisions to models of the family and their work gradually became known as the "the new home economics."¹² Major contributions to the new home economics were made by the economist and Nobel laureate Gary Becker.¹³ Becker wedded firm production theory with the labor economists' labor-leisure model of time allocation. The result was his path-breaking Theory of Household Production.¹⁴ Becker's theory formalized many of the ideas contained within both the labor economists' and the home economists' earlier works. As a consequence, Becker's work was crucial to expanding economists' understanding of the behavioral mechanisms that underlie family time use.

III. BECKER'S HOUSEHOLD PRODUCTION THEORY

If a monetary return was expected for the time spent in an activity, Becker considered it to be market work.¹⁵ If there was no monetary return expected, then the time was classified by Becker as household production time.¹⁶ In either case, it was productive time.¹⁷ In this context, Becker's theoretical work forced labor economists to pay attention to the home economists' long-standing claim that valuable, productive activities occur within the confines of the family as well as within the marketplace.

In Becker's framework, the household is viewed as a group of people who use their resources to engage in a set of productive activities for the purposes of furthering the group's joint goals.¹⁸ For analytic purposes, economists collapse these goals into a single, global goal variously termed utility, satisfaction, or well-being.¹⁹ Families are seen as behaving so as to maximize their well-being subject to the technical, financial, and time constraints they face.²⁰ That is, they continuously strive to further their goals, which are assumed to be determined by family preferences in some unknown way with the resources they have at their disposal. In this formulation,

¹¹See GROSS & CRANDALL, *supra* note 9, at 20–61 (outlining motivations behind family management decisions).

¹²W. Keith Bryant & Cathleen D. Zick, *The Economics of Housepousery: An Essay on Household Work*, 15 J. FAM. & ECON. ISSUES 137, 155 (1994) (using term) [hereinafter Bryant & Zick, *Housepousery*].

¹³Gary S. Becker, *A Theory of the Allocation of Time*, 75 ECON. J. 493 (1965) (deriving equations that describe family's optimization of utility function).

¹⁴See *id.* at 493–517.

¹⁵See Bryant & Zick, *Housepousery*, *supra* note 12, at 138 (explaining theories derived by Becker, *supra* note 13, at 495). The following discussion of Becker's work largely follows that in Bryant & Zick's *Housepousery*.

¹⁶See *id.* at 138–39.

¹⁷See *id.* at 139.

¹⁸See *id.*

¹⁹See *id.*

²⁰See *id.*

families gain satisfaction from the output they produce but not from the production process itself.²¹

In Becker's model, households make both production decisions and consumption decisions.²² Production decisions involve choosing the combinations of various household members' time (e.g., time spent in meal preparation, caring for a child, working in the yard, going to see a film), purchased goods and services (e.g., food, children's clothing, lawn mowing services, movie tickets), and flows of services from household capital goods (e.g., houses, stoves, refrigerators, cars, lawn mowers, television sets) that are used in the activities the family prefers.²³ Consumption decisions involve choosing the particular array of activities the household wishes to pursue and the extent to which it wishes to pursue each preferred activity.²⁴

Several important behavioral hypotheses are generated from Becker's theoretical framework. First, it reveals that both the prices of purchased goods and services *and* the opportunity costs²⁵ of family members' time should influence the particular mix of purchased goods and time families use in each activity.²⁶ In essence, the full implicit price of any household activity is the marginal cost to the household of pursuing that activity. The marginal cost is made up of the added costs of time plus the added out-of-pocket costs of the purchased goods and services required to produce an added unit of the activity.²⁷ This implies that families can be observed adjusting the ratio of their time to purchased goods and services in each activity as the prices of purchased goods and services and/or the opportunity costs of family members' time change.²⁸ The model thus generates the hypothesis that the higher the opportunity costs of time relative to the prices of purchased goods and services, the less time intensive family activities will tend to be, and vice versa.²⁹

Second, it is posited that the opportunity costs of family members' time and the market prices of purchased goods and services are fundamentally affected by the technology of household and market production.³⁰ In Becker's model, technical change plays an important role in the conduct of particular activities and in the decision regarding whether an activity takes place in the household or in the marketplace.³¹ What may be prudent time-use decisions in the context of one set of technological constraints may be inefficient and dysfunctional in another.³²

²¹See *id.* at 140.

²²See *id.*

²³See *id.*

²⁴See *id.*

²⁵In economic terms, opportunity cost refers to the value of the next best use of that time or money resource. See *id.* at 161 n.3.

²⁶See *id.*

²⁷See *id.*

²⁸See *id.* at 139-40.

²⁹See *id.* at 140.

³⁰See *id.*

³¹See *id.*

³²For a detailed discussion of this point, see Bryant, *supra* note 4, at 117-26 (discussing effect of technology on family activities and use of human capital).

Finally, Becker's model makes the endogeneity of family time allocation decisions with respect to market and nonmarket time explicit.³³ That is, within the constraints placed on them by technology, their own resources, and the broad confines of societal norms, families have choice over their activities and how they pursue them. Given choice, it is hypothesized that family decisions regarding how much time each family member will spend in market work, housework, and leisure activities are all interrelated.³⁴ For example, based on Becker's theory, one could posit that the choice a wife makes about time spent in child care is not independent of the choice she makes with respect to the time she spends in market work. And furthermore, her choice regarding child care time may also be intertwined with her husband's choices regarding market work and child care.

It is worth noting that the household production model does not address the specifics of what role, if any, family preferences or larger social mores play in the allocation of time. Nevertheless, like the earlier labor economists, researchers using the household production formulation continue to include variables that are thought to approximate family preferences in their empirical models.³⁵ The absence of theoretical guidance regarding how to measure family preferences clouds the interpretation of these variables, however.

IV. TESTING THE APPLICABILITY OF HOUSEHOLD PRODUCTION THEORY IN UNDERSTANDING FAMILY TIME USE

Becker's model can be used to investigate a wide range of family time-use issues. For example, it can be used to investigate the trade-offs families make between meals purchased away from home and meals cooked at home. Or, one might adopt a household production framework to investigate family choices regarding commuting time and residential location. In the interest of parsimony, however, we focus on three major areas of time-use research that have been the topic of a number of investigations using the household production framework: market work, housework, and parent-child time.

A. Choices Regarding Market Work

In 1995, Americans spent an average of 34.5 hours per week in market work.³⁶ This figure is only four hours per week lower than the 1960 average.³⁷ Yet, such aggregate figures mask a considerable shift in the employment patterns of married women and men during this historical period. At the same time that average work hours declined only slightly, married women's labor force participation rates rose

³³See Bryant & Zick, *Housespousery*, *supra* note 12, at 140.

³⁴See *id.* at 155-59.

³⁵See *id.* at 161 n.2 (citing references for such studies).

³⁶See BUREAU OF LABOR STATISTICS, U.S. DEP'T OF LABOR, BULLETIN 2481, EMPLOYMENT, HOURS AND EARNINGS 2 (1996).

³⁷See BUREAU OF LABOR STATISTICS, U.S. DEP'T OF LABOR, 1 BULLETIN 2445, EMPLOYMENT, HOURS AND EARNINGS 3 (1996).

dramatically. In 1960, only 30.5% of all married women were in the labor force.³⁸ By 1995, that figure had more than doubled to 61.1%.³⁹ Among married women with at least one child under age six, the change in labor force participation rates was even more dramatic, rising from 18.6% in 1960 to 63.5% in 1995.⁴⁰ In contrast, during this same time period, the labor force participation rates declined for married men from 89.2% in 1960 to 77.5% by 1995.⁴¹

Can the household production model help us to understand the rather dramatic increase in women's market work and the decline in men's? Recall that the model stresses the importance of relative prices in explaining time allocation.⁴² In this context, economists have focused on (1) how wages have grown over this historical period, and (2) how the value of time spent in household activities has fallen over this historical period, particularly for women.

Changes in wage rates are hypothesized to have two potentially conflicting impacts on market work time. As the wage rate rises, the price of an individual's time goes up, and it becomes more expensive for the family to use that individual's time in home production activities. As a consequence, the family will substitute market goods and the time of other family members for this individual's home production time. This "substitution effect" is hypothesized to lead to an increase in market work time.⁴³ But, as the wage rate rises, family income also increases. This increase in family income translates into an increase in demand for all normally home produced goods and services, including those that require the individual's time. As a consequence, this "income effect" is posited to lead to a decline in market work time.⁴⁴ Thus, the net impact of an increase in an individual's wage on his or her market work depends on the relative strength of the substitution and income effects. Empirical evidence from a wide range of studies suggests that the substitution effect dominates the income effect for married women.⁴⁵ In contrast, the empirical evidence suggests that the reverse is generally true for men.⁴⁶

What, then, happened to married men's and married women's market wages over the past forty years? Throughout the twentieth century, the average wage rate was higher for men than for women.⁴⁷ Although the median annual full-time earnings

³⁸See BUREAU OF THE CENSUS, U.S. DEP'T OF COMMERCE, STATISTICAL ABSTRACT OF THE UNITED STATES 1996, 400 tbl.626 (116th ed. 1996) [hereinafter STATISTICAL ABSTRACT].

³⁹See *id.*

⁴⁰See *id.*

⁴¹See *id.* at 399 tbl.624.

⁴²See Bryant & Zick, *Housespousery*, *supra* note 13, at 139.

⁴³See W. Keith Bryant & Yan Wang, *American Consumption Patterns and the Price of Time: A Time-Series Analysis*, 24 J. CONSUMER AFF. 280, 298-303 (1990) (using statistical results to estimate roles of prices, female and male wages, and permanent income in affecting consumption patterns).

⁴⁴See *id.*

⁴⁵See Mark R. Killingsworth & James J. Heckman, *Female Labor Supply*, in HANDBOOK OF LABOR ECONOMICS 103, 185, 189-92 tbl.2.26 (Orley Ashenfelter & Richard Layard eds., 1986) (reviewing empirical studies of female labor supply).

⁴⁶See Pencavel, *supra* note 5, at 68-70, 69 tbl.1.19.

⁴⁷See JAMES P. SMITH & MICHAEL P. WARD, *WOMEN'S WAGES AND WORK IN THE TWENTIETH CENTURY* 75, 76 tbl.33 (Rand Publication Series No. R-3119-NICHD, 1984) (demonstrating that, contrary to previous findings, women's wages grew relative to men's during twentieth century).

(a close approximation to the hourly wage rate) grew for both men and women during this century,⁴⁸ between 1955 and 1985 the percentage growth was larger for women than for men.⁴⁹ The difference in their wage growth was fueled in part by the fact that, during this period, women's educational attainment grew at a faster rate than men's.⁵⁰ In addition, the demand for labor (which bids up wages) during this era grew fastest in the service sector which has historically employed more women.⁵¹

At the same time that women's market wage rates grew, the opportunity costs or "price" of full-time homemaking activities fell for married women who were not in the labor force.⁵² This happened in large part because total fertility rates plummeted from 3.45 children per woman in 1960 to 2.05 children per woman by 1993.⁵³ Historically, caring for children has been a major component of women's household production,⁵⁴ which means that as the fertility rate dropped so did the price of women's time in the home. In contrast, since married men have typically been much less involved in child care,⁵⁵ this decline in fertility would have had little impact on the value of their nonmarket time.

Economists thus appeal to the rise in married women's market wages, coupled with the decline in the value of women's time spent in household activities, to explain the dramatic increase in women's labor force participation.⁵⁶ At the same time, it is argued that the rise in married men's market wage rates, absent any significant change in the value of men's household production time, has contributed to the decline in their labor market time.⁵⁷ In the context of the household production model, changes in market work behavior are explained in large part by shifts in factors that are external to the family (e.g., rising market wage rates) and shifts in factors that are internal to the family (e.g., declining opportunity costs of household work time).

⁴⁸See Bryant & Wang, *supra* note 43, at 280 ("Since 1955 female wage rates have risen at the rate of 6.5% per year and male wage rates at 6.1 per year").

⁴⁹See *id.*

⁵⁰See STATISTICAL ABSTRACT, *supra* note 38, at 159 tbl.242. In 1960, 5.8% of all women and 9.7% of all men had a four-year college education or higher. By 1995, the corresponding figures were 20.2% and 26.0%, respectively. This represents a 348% increase in the percentage of women and a 268% increase in the percentage of men with at least a college education over this thirty-five-year period. See *id.*

⁵¹See *id.* at 410 tbl.641.

⁵²See Bryant & Zick, *Housespousery*, *supra* note 12, at 147-48.

⁵³See STATISTICAL ABSTRACT, *supra* note 38, at 77 tbl.94.

⁵⁴See Bryant and Zick, *Housespousery*, *supra* note 12, at 142 tbl.1.

⁵⁵See *id.*

⁵⁶See Killingsworth & Heckman, *supra* note 45, at 134-35.

⁵⁷See Pencavel, *supra* note 5, at 94-95.

B. Choices Regarding Household Work

Estimates of the average time spent in household work⁵⁸ by women and men vary considerably. For example, Juliet B. Schor estimates that, in 1987, married, full-time homemakers spent an average of forty-nine hours per week doing housework.⁵⁹ In contrast, Bryant and Zick used data from 1981 and reported that married women who were employed full time averaged about twenty-eight hours per week in housework, while those who were not employed averaged forty-two hours per week in housework.⁶⁰ Variations across studies in reports of typical time can be attributed to differences in (1) samples, (2) the methods used to gather the data, and/or (3) the historical period during which the data were gathered. More generally, reports of household work time may be subject to greater variability than reports of market work time because government agencies have only sporadically underwritten the collection of such data, and, as a consequence, there has been only moderate standardization of these surveys over the years.

The sporadic nature of family time-use data collection, coupled with changes over time in the methodologies associated with gathering such data, have made it challenging to analyze trends in housework. In addition, until the mid 1960s, data gathered on time spent in housework were limited to samples of married females.⁶¹ Thus, it is impossible to assess trends in men's or single individuals' housework time for the first half of this century.

Keith Bryant has conducted the most comprehensive analyses of trends in married women's housework time.⁶² Using data from the mid 1920s and the late 1960s, he estimated that average time spent daily in housework fell by about an hour over this forty-year period (i.e., from 7.35 hours per day to 6.31 hours per day).⁶³ Bryant used the household production model to examine what factors were associated with married women's housework time during these two eras. He also assessed the relative contributions that changes in household technology and married women's opportunity costs played in the downward shift in housework time.

Household production theory generates the prediction that technical change will have two distinct effects on the family. First, because technical change expands family choice, it acts like an increase in income. That is, it leads the family to increase its demand for such items as household cleanliness and higher quality and greater

⁵⁸Typically, housework is defined to include reports of time spent in food preparation, dishwashing, shopping, housecleaning, maintenance of home, yard, car and pets, care of clothing and household linens, construction of clothing, physical care of family members, nonphysical care of family members, and management. A few studies, however, separate physical and nonphysical care of family members from the remaining categories.

⁵⁹See SCHOR, *supra* note 2, at 87 (explaining that additional time spent in some household activities largely offsets technology-driven decreases in time spent doing other household activities).

⁶⁰See Bryant & Zick, *Housespousery*, *supra* note 12, at 142 tbl.1.

⁶¹See *id.* at 143.

⁶²W. Keith Bryant, *A Comparison of the Household Work of Married Females: The Mid 1920s and the Late 1960s*, 24 *FAM. & CONSUMER SCI. RES. J.* 358, 358-61 (1996) (applying household production model to explain factors controlling decrease in time women spent doing housework).

⁶³See *id.* at 370-72 tbl.6.

variety in meals eaten. Since this increased demand leads to more time being spent in household work to produce the added goods and services, technical change can actually increase the time spent in housework.

Second, technical change alters the efficient combination of labor and nonlabor inputs used to produce household goods and services, which may lead to the substitution of nonlabor for labor inputs in household production and a consequent decline in time spent in household work. Examples of this effect would include the substitution of modern laundry appliances for hired laundry help in the early part of the century and, more recently, the substitution of convenience foods for a wife's cooking times. Bryant estimates that this substitution effect outweighed the income effect in the case of historical changes in married women's housework time.⁶⁴ Indeed, he calculated that technical change spurred about 30% of the decline in married women's housework (or about eighteen minutes per day) that was observed over this forty-year period.⁶⁵

The remaining 70% of the decline (forty-four minutes per day) Bryant linked to the relative increase in both household income and the price of married women's time between the mid 1920s and the mid 1960s.⁶⁶ In turn, he noted that the major socioeconomic and demographic shifts that contributed to the relative increase in women's price of time included rising education and declining fertility.⁶⁷ Perhaps not surprisingly, these are the same factors that have been identified as precipitating the shift in married women's market work time.⁶⁸

A second issue that has received attention by economists is the division of household work between wives and husbands. There is consensus that women typically spend much more time in housework activities than men. For example, John Robinson and Geoffrey Godbey reported that, in 1985, regardless of marital status, the average woman spent almost thirty-one hours per week in housework, while the average man spent only about sixteen hours per week.⁶⁹ Similarly, Zick and McCullough found that married women and men with two children averaged forty-four hours and fifteen hours per week in housework activities, respectively, in 1987–88.⁷⁰ Virtually all accounts depict gaps like these between men's and women's housework time. There is, however, little consensus regarding whether couples' division of labor within the home is growing more or less unequal over time.

Optimistic accounts show that during the past couple of decades married women have increased the time they spend in market work while decreasing the time they spend in household work.⁷¹ Concurrently, married men have decreased their market work and increased their housework contributions—particularly in the area of child

⁶⁴See *id.* at 375–76.

⁶⁵See *id.*

⁶⁶See *id.*

⁶⁷See *id.* at 375–78.

⁶⁸See *id.* at 382 n.14.

⁶⁹See JOHN P. ROBINSON & GEOFFREY GODBEY, *TIME FOR LIFE: THE SURPRISING WAYS AMERICANS USE THEIR TIME* 101 (1997).

⁷⁰See Cathleen D. Zick & Jane L. McCullough, *Trends in Married Couples' Time Use: Evidence from 1977–78 and 1987–88*, 24 *SEX ROLES* 459, 471 (1991).

⁷¹See *id.* at 484.

care.⁷² In contrast, more pessimistic accounts show that while married women have entered the labor force in increasing numbers during the past twenty years, there has been little decline in their housework commitments.⁷³ To the extent that their household work time has declined, there was generally no concomitant increase in the time their husbands spent in housework.⁷⁴

Zick and McCullough used the household production model to investigate (1) the extent to which the division of housework shifted between spouses over a ten-year period, and (2) the possible causes of any shifts that were observed.⁷⁵ They found that wives' housework time declined by an average of 3.5 hours per week (thirty minutes per day) between 1977-78 and 1987-88.⁷⁶ At the same time, husbands' average housework time increased by almost the same amount.⁷⁷ Based on their multivariate analyses, Zick and McCullough concluded that changes in family income and the increase in the wife's price of time relative to her husband's precipitated much of this shift.⁷⁸ They also found some evidence that technical change within the household contributed to the decline in women's housework time.⁷⁹

Thus, some empirical evidence supports the contention that the division of labor between husbands and wives within the household is becoming more equitable. However, given differences in their starting points and the pace at which change is occurring, a gender balance in housework time will not be reached for a long time.

C. Choices Regarding Parent-Child Time

For families with young children, child care is often the largest single component of household work. Typically, descriptive analyses reveal that the average time spent in focused physical and nonphysical care of young children by married women is about one hour per day.⁸⁰ The corresponding figure for married men is usually less than half an hour per day.⁸¹

⁷²See, e.g., Robin A. Douthitt, *The Division of Labor Within the Home: Have Gender Roles Changed?* 20 *SEX ROLES* 693, 693 (1989) (discussing whether division of labor in home remains constant); Jonathan Gershuny & John P. Robinson, *Historical Changes in the Household Division of Labor*, 25 *DEMOGRAPHY* 537, 537 (1988) (investigating change in housework time for men and women).

⁷³See Douthitt, *supra* note 72, at 693.

⁷⁴See ARLIE RUSSELL HOCHSCHILD, *THE SECOND SHIFT* (1989); see also SCHOR, *supra* note 2, at 103-04 (noting that "[w]omen are still doing about twice as much household work as men").

⁷⁵See Zick & McCullough, *supra* note 70, at 483.

⁷⁶See *id.* at 471.

⁷⁷See *id.*

⁷⁸See *id.* at 484-85.

⁷⁹See *id.* at 485 (stating that "growth in the ownership of home appliances" contributed to decline in wives' housework time).

⁸⁰See Douthitt, *supra* note 72, at 699.

⁸¹See Zick & McCullough, *supra* note 70, at 471. These figures are averaged across families with variations in both numbers of children and age of the youngest child and they refer to primary child care time. See Douthitt, *supra* note 72, at 695. Primary child care time is time when the parent's attention is fully occupied in the physical or nonphysical care of children.

Interest in parental child care time and its determinants has grown as more women have moved out of the home and into the labor force.⁸² On the positive side, this shift in women's employment patterns has allowed some families with children to maintain or even improve their real incomes during the past couple of decades.⁸³ This shift may also have provided children with more nonsexist role models—especially if the fathers have picked up some of the care that the mothers previously provided. On the negative side, the increase in mothers' labor force participation rates has probably translated into a reduction in mothers' child care time. This may have deleterious consequences for children. Developmental research suggests that there is a positive relationship between parent-child time and children's developmental and educational outcomes.⁸⁴ As a consequence, child welfare advocates have begun to sound an alarm, proclaiming that today's middle-class children may be increasingly at risk because of employment-induced parental "time deficits" that earlier generations did not face.⁸⁵

Little systematic research has been done on parental time spent in child care activities and its correlates. Bryant and Zick have done the only historical analysis of the trends in parents' primary child care time.⁸⁶ Using time-use data from the 1920s and early 1980s, their research revealed no discernible change in the amount of time mothers in intact families with one or more children spent in direct child care: in the mid 1920s, the average was 1.2 hours per day and in 1981 the average was 1.29 hours per day.⁸⁷ Moreover, because of the decline in fertility, these mothers' primary child care time had actually risen from thirty minutes to sixty minutes *per child*, per day.⁸⁸

The fact that mothers' primary child care time has changed little over this century may be surprising to some, especially in light of the dramatic rise in married women's labor force participation rates and the moderate decline in household work during this historical period. Society tends to view family life in earlier eras as more idyllic—particularly for children. The stereotypical vision is one where all mothers were full-time homemakers who spent large amounts of time nurturing children. Yet, in this earlier era, household chores such as cooking and cleaning were hard, physically demanding activities that likely left little time for more nurturing child care

⁸²See W. Keith Bryant & Cathleen D. Zick, *Are We Investing Less in the Next Generation? Historical Trends in Time Spent Caring for Children*, 17 J. FAM. & ECON. ISSUES 365, 366 (1996) [hereinafter Bryant & Zick, *Historical Trends*].

⁸³See SUZANNE M. BIANCHI & DAPHNE SPAIN, *AMERICAN WOMEN IN TRANSITION* 205 (1986).

⁸⁴See, e.g., Jay Belsky & David Eggebeen, *Early and Extensive Maternal Employment and Young Children's Socioeconomic Development: Children of the National Longitudinal Survey of Youth*, 53 J. MARRIAGE & FAM. 1083, 1095 (1991) (finding that full-time maternal employment during child's first or second year correlated with "lower levels of adjustment" than reduced maternal employment); Martha J. Moorehouse, *Linking Maternal Employment Patterns to Mother-Child Activities and Children's School Competence*, 27 DEVELOPMENTAL PSYCHOL. 295, 295 (1991) (relating maternal employment to mother-child activities and school outcomes for first graders).

⁸⁵SYLVIA ANN HEWLETT, *WHEN THE BOUGH BREAKS: THE COST OF NEGLECTING OUR CHILDREN* 15 (1991).

⁸⁶See Bryant & Zick, *Historical Trends*, *supra* note 82, at 365.

⁸⁷See *id.* at 372.

⁸⁸See *id.*

activities.⁸⁹ Because families were larger and more likely to have multiple generations living together, it is also likely that a great deal of child care was done by older siblings and/or grandparents.

Cross-sectional analyses of Bryant and Zick that make use of 1981 time-use data revealed that employed mothers in two-parent families devoted less time to direct child care than their counterparts not employed outside the home.⁹⁰ Indeed, Bryant and Zick estimated that, when her youngest child was under age one, an employed mother spent almost two hours less each day in primary child care activities compared to an otherwise similar, nonemployed mother.⁹¹ Bryant and Zick found that husbands of employed women with very young children picked up some child care responsibilities, but the substitution was far from one-for-one.⁹²

While the differences in child care time between employed and non-employed mothers may raise concerns regarding children's developmental outcomes, it is important to remember that parents do interact with children in contexts other than focused child care activities. Yet we know very little about parents' time spent with children while eating meals, doing housework, or going to a movie. In addition, we know little about the trade-offs parents may make between primary, focused child care time, and more passive, secondary child care time.⁹³

Zick and Bryant have recently completed two studies that investigated patterns of primary and secondary child care time and parent-child time in shared activities. In one analysis, they used the household production model and time-diary data from 1977 to 1978 to assess the mix of parents' primary and secondary child care time.⁹⁴ They found that secondary child care time comprised about one-third of all parental child care time for both mothers and fathers.⁹⁵ Time spent in both primary and secondary child care was significantly influenced by the age of the youngest child in the home, the mother's value of time, income, and residential location.⁹⁶ Zick and Bryant's simulations revealed that mothers of two children, spaced three years apart, spent an average of somewhere between 13,729 and 15,439 hours in primary and secondary care time for these two children over the twenty-one-year period (from the birth of the first child to the point where the second child reaches age eighteen).⁹⁷ The analogous calculations for the fathers were much lower, in the range of 4,150 to 4,415 hours.⁹⁸

⁸⁹For a detailed discussion of the physical demands of housework, see RUTH SCHWARTZ COWAN, *MORE WORK FOR MOTHER: THE IRONIES OF HOUSEHOLD TECHNOLOGY FROM THE OPEN HEARTH TO THE MICROWAVE* 20-25 (1983).

⁹⁰See Bryant & Zick, *Historical Trends*, *supra* note 82, at 384 tbl.6.

⁹¹See *id.* at 381 tbl.4.

⁹²See *id.*

⁹³See Cathleen D. Zick & W. Keith Bryant, *A New Look at Parents' Time Spent in Child Care: Primary and Secondary Time Use*, 25 SOC. SCI. RES. 260, 260 (1996) (defining primary and secondary child care).

⁹⁴See *id.* at 262.

⁹⁵See *id.* at 260.

⁹⁶See *id.*

⁹⁷See *id.* at 276.

⁹⁸See *id.*

In their second analysis, Zick and Bryant examined the time spent by parents and children in both child care and non-child-care-related activities.⁹⁹ They looked at the three non-child-care-related activities that are most likely to be shared and that have the greatest potential for enriching children's development. These are shared household work activities, shared meals, and shared leisure activities. They found that mothers who spent more time in market work shared less traditionally defined (i.e., primary) child care time.¹⁰⁰ But, as a mother's time in market work increased, both mother-child and father-child shared housework and shared leisure time increased.¹⁰¹ This suggests that as mother's market work time increases, the mix of parent-child time changes. Only future research that examines possible links between specific types of parent-child activities and children's developmental, educational, and/or social outcomes will answer whether this shift is good or bad for children.

V. LIMITATIONS OF HOUSEHOLD PRODUCTION THEORY AS APPLIED TO FAMILY TIME USE

The household production model provides useful insights about the interrelationships between external forces, such as wages and technical change, and family time use. This method is less useful, however, for understanding how family preferences and internal family dynamics affect family time use. For example, as discussed in Section IV-B, the average married woman spends more time in housework and less time in market work than her male counterpart. Unfortunately, household production theory provides few insights about what behavioral mechanisms within the family might lead to this sexual division of labor.

Researchers have used household production theory to generate theorems regarding the specialization of function and division of labor within the household. Specifically, in the simplest formulation where there are but two activities—paid work and housework—the spouse with the comparative advantage in the market (i.e., the spouse with the higher wage rate) will specialize in paid work, while the spouse with the comparative advantage in home production will specialize in household work.¹⁰² Note that this is a gender-neutral hypothesis. Thus, this hypothesis alone cannot be used to explain the typical sexual division of labor within the family unless it is augmented with additional assumptions or facts.

One fact that can be brought to bear on the issue is that women have historically faced wage discrimination in the labor market.¹⁰³ Such discrimination biases women's comparative advantage toward housework and away from market work. As such, this is an example of an external force that likely impacts the sexual division of labor within the family.

⁹⁹See W. Keith Bryant & Cathleen D. Zick, *An Examination of Parent-Child Shared Time*, 58 J. MARRIAGE & FAM. 227, 227 (1996) [hereinafter, Bryant & Zick, *Parent-Child Shared Time*].

¹⁰⁰See *id.* at 236.

¹⁰¹See *id.*

¹⁰²See Bryant, *supra* note 4, at 143-45.

¹⁰³See CLAUDIA GOLDIN, UNDERSTANDING THE GENDER GAP: AN ECONOMIC HISTORY OF AMERICAN WOMEN *passim* (1990).

An internal force that may explain the sexual division of labor within the family is the fact that parents may *assume* that females are more productive in the home while males are more productive in the market. Such parental beliefs could generate the expectation that daughters will spend more of their lives in housework and sons will spend more of their lives in market work. In turn, this expectation may influence parental preferences regarding the types and amounts of human capital investments that their children make (e.g., parents may prefer that their daughters learn how to cook while their sons learn how to use computers).¹⁰⁴ Household production theory sheds little light on the internal mechanisms that shape such beliefs and preferences, seriously limiting this theory.

A second limitation of the theory is that it assumes that family members gain satisfaction only from the output they produce and not from the process of spending time in a home production activity. Intuitively, such an assumption is patently false. Indeed, we can point to numerous counter-examples. Parents clearly gain satisfaction from both the process of child rearing as well as the adult child they ultimately “produce.” Likewise, many people enjoy the time they spend at work. Indeed, research shows that married women have greater self-esteem when in the presence of adults, rather than children,¹⁰⁵ suggesting that one reason women seek employment outside of the home is because they enjoy the work environment. It seems clear that to achieve a more complete understanding of the factors that influence family time use, economists must adapt the household production model to accommodate process satisfaction.

A final limitation relates to the applications of the household production theory. To date, virtually all applications have addressed only one dimension of time: *primary* time spent in various activities. As such, the research makes no attempt to understand other elements of time use such as (1) the level of effort that is involved, or (2) the value of the “product” that is produced by combining time and energy in a specific activity. For example, while we know that married women’s housework time has declined moderately over this century, we know little about how the physical and mental demands of housework have changed during this era. Nor do we know if the value of home-produced goods and services has risen or fallen over this century.

One way of measuring changes in the level of effort involved in housework would be to examine shifts in the mix of primary and secondary housework time. Presumably, technical change, rising family income, and increases in the value of women’s time have all served to transform some households’ tasks from ones that once required large amounts of primary time and little, if any, secondary time, to tasks that require less primary time but perhaps more secondary time. For example, doing laundry by hand seventy years ago required large amounts of primary laundry time and no secondary laundry time, while today’s automatic washers and dryers require very little primary laundry time but moderate amounts of secondary laundry time.

¹⁰⁴See W. KEITH BRYANT, *THE ECONOMIC ORGANIZATION OF THE HOUSEHOLD* 184–89 (1990). These specialized human capital investments will reinforce any comparative advantages that may already exist and create even larger incentives to specialize further.

¹⁰⁵See A. Wells, *Variations in Mothers’ Self-Esteem in Daily Life*, 55 *J. PERSONALITY & SOC. PSYCH.* 661, 664–65 (1988).

Research on the tradeoffs made between primary and secondary housework would expand our understanding of how the physical and mental effort associated with work in the home is being altered.

The need for research on the value of what is produced in the home is driven in part by the need to improve the national income and product accounts.¹⁰⁶ The omission of household production data from the national income and product accounting system has long been criticized,¹⁰⁷ but research on this topic remains quite scarce. Incorporation of the value of household work into the measures of national productivity is important because it would lead to improved assessments of trends in the health of the economy, family economic well-being, and income inequality in this country.

VI. FAMILY TIME USE AND PUBLIC POLICY

No one is likely to dispute the notion that family well-being is linked to family time use. The decisions we make about how much we work outside of the home, how much we work inside of the home, and how much we "play," all have implications for family welfare. Household production theory can be used to generate a series of hypotheses about external forces (e.g., market wages, income, technical change) that influence the allocation of time within the family and, for the most part, these hypotheses are supported by the empirical analyses. In turn, this work provides insights about how shifts in public policies may affect family time use.

For example, overwhelming evidence demonstrates that increases in married women's wages precipitate a shift from housework to market work.¹⁰⁸ Given this causal relationship, we can identify a number of public policies that have either directly or indirectly served to raise women's wages and therefore have shifted women's time from the home to the market. Direct policies targeted at raising wages include comparable worth legislation, affirmative action legislation, and increases in the federally mandated minimum wage. Policies that may have indirectly contributed to the shift in women's time allocation by raising women's wages include tax reform efforts that have lowered the marginal income tax rates and public efforts aimed at increasing access to higher education (e.g., student grant and student loan programs).

Other public policies aim to alter time use directly. For example, the Personal Responsibility and Work Opportunity Reconciliation Act of 1996¹⁰⁹ replaced Aid to

¹⁰⁶The national income and product accounts are summary measures of the nation's economic income and output. See BUREAU OF THE CENSUS, U.S. DEP'T OF COMMERCE, STATISTICAL ABSTRACTS OF THE UNITED STATES 1997, 443 (1997).

¹⁰⁷See, e.g., Martin Murphy, *Comparative Estimates of the Value of Household Work in the United States for 1976*, 28 REV. INCOME & WEALTH 29, 29 (1982) (deriving aggregate and per person estimates of value of household work); Martin Murphy & Janice Peskin, *Women at Work in the Home*, 1 (1981) (unpublished paper presented at the American Statistical Association Meetings on file with the author); Cathleen D. Zick & W. Keith Bryant, *Shadow Wage Assessments of the Value of Home Production: Patterns from the 1970s*, 11 LIFESTYLES: FAM. & ECON. ISSUES 143, 158 (1990) (including value of household work to measure married couple's economic well-being).

¹⁰⁸See Killingsworth & Heckman, *supra* note 45, at 189-92 tbl.2.26.

¹⁰⁹Pub. L. No. 104-193, 110 Stat. 2105 (1996).

Families with Dependent Children ("AFDC") with the Temporary Assistance to Needy Families ("TANF") program.¹¹⁰ TANF differs from AFDC in both its funding mechanisms and its eligibility requirements for low-income families.¹¹¹ One critical difference from a time-use perspective is that TANF eligibility is linked closely to work outside of the home while AFDC eligibility was not.¹¹² TANF's so-called "work requirement" leads low-income single women with dependent children to increase the time they spend in market work. Research using the household production framework suggests that such a policy will also have consequences for how these women allocate their nonmarket time.¹¹³ As these low-income women's market work time increases, their housework and child care time will likely decline. Simultaneously, the increase in income that results from this additional labor market time should lead to an increase in parental time spent in child care and other parent-child shared activities. Thus, on balance, the net impact of TANF's work requirements on nonmarket time use remains ambiguous. Empirical research is needed to determine which of these effects dominates.

Other examples of public policies that directly and indirectly alter family time use are current child custody and child support policies. Judicial decisions regarding the living arrangements of children whose parents divorce have obvious direct implications for parent-child time: custodial parents spend more time with their children while noncustodial parents spend less time with their children after a divorce. More subtle, perhaps, are the implications of child support policies upon family time use.

The 1988 Family Support Act¹¹⁴ required all states to adopt numeric child support guidelines to determine child support obligations and income withholding mechanisms for all child support obligations.¹¹⁵ One of the primary goals of this federal legislation was to improve the economic adequacy of child support.¹¹⁶ Yet, the structure of child support policies also has the potential to impact family time use. This point is best illustrated using Wisconsin child support policies as an example because Wisconsin's policies have been the subject of considerable evaluation research.¹¹⁷

¹¹⁰See *id.* § 103 (codified as amended at 42 U.S.C. §§ 601-619 (1997)).

¹¹¹See *id.*

¹¹²See 42 U.S.C. § 607 (Supp. 1997). Under the TANF block grant system, states must demonstrate that specified percentages of the TANF recipients are working outside of the home. In 1999, states must demonstrate that 30% of their TANF recipients are working twenty or more hours per week. See *id.* If they do not meet this standard, their block grant may be cut. Both the hours and the percentage thresholds will go up over time. See *id.*

¹¹³See Bryant & Zick, *supra* note 99, at 236.

¹¹⁴Pub. L. No. 100-485, 102 Stat. 2343 (1988).

¹¹⁵See *id.* §§ 101, 103 (codified as amended at 42 U.S.C. § 666 (1988)).

¹¹⁶See Robert G. Williams, *An Overview of Child Support Guidelines in the United States*, in CHILD SUPPORT GUIDELINES: THE NEXT GENERATION 1, 1 (Margaret Campbell Haynes ed., 1994).

¹¹⁷See, e.g., Rebecca A. Maynard, *Child Support Assurance: Design Issues, Expected Impacts, and Political Barriers as Seen from Wisconsin*, 13 J. POL'Y ANALYSIS & MGMT. 802-03 (1994) (evaluating aspects of Wisconsin child support guidelines); Judith A. Seltzer & Irwin Garfinkel, *Inequality in Divorce Settlements: An Investigation of Property Settlements and Child Support Awards*, 19 SOC. SCI. RES. 82-111 (1990) (same); Tom Corbett et al., *Public Opinion About a Child Support Assurance System*, 62

The Wisconsin Percentage of Income Standard is based on the concept that both parents have a legal obligation to share their incomes with their children, and that obligation does not change if one parent's income changes.¹¹⁸ In Wisconsin, child support awards are thus typically set as a percentage of the noncustodial parent's gross income.¹¹⁹ Furthermore, automatic employer withholding of child support from earnings has been in place since 1987.¹²⁰

Researchers using the household production model have hypothesized that Wisconsin's percentage of income child support formula, coupled with its withholding requirement, should affect noncustodial parents' paid employment time.¹²¹ Specifically, the income effect of such a policy should lead noncustodial parents to increase their work hours. At the same time, because the tax is a percentage of income, it lowers the hourly wage earned by noncustodial parents, which should lead noncustodial parents to substitute nonmarket activities for market work. Thus, the overall effect is ambiguous.

Empirical work by Maurice MacDonald, using data from court records in twenty Wisconsin counties both before and after the implementation of the withholding requirements, suggests that the income effect of mandatory withholding dominates.¹²² That is, he found noncustodial parents increased their hours of paid work in the range of 0 to 10% because of the withholding requirement.¹²³ MacDonald notes that for his sample this translates into an average increase of six hours of paid work per week.¹²⁴ Thus, while the primary goal of Wisconsin's mandatory withholding requirement is to increase child support compliance, it has also likely served to shift the mix of paid work, household work, and leisure activities for noncustodial parents.

Public policies have the potential to influence family time use. The household production model provides useful insights regarding how the structuring of a particular policy may influence the amount of time family members spend at work and at home. Additionally, in some instances, the model can even be used to assess how a policy may alter the mix of nonmarket time in the family. The ability to predict how these external forces influence family time use is clearly one of the theory's strongest assets.

SOC. SERVICE REV. 632-648 (1988) (same).

¹¹⁸See WIS. STAT. ANN. § 767.25(1)(a),(1j) (West Supp. 1997).

¹¹⁹See *id.* This percentage is 17% for one child, 25% for two children, 29% for three children, 31% for four children, and 34% for five or more children. See WISC. ADMIN. CODE § HHS 80.03 (1987). No adjustments are made for the income of the custodial parent or special child care expenditures, unless a specific request for an exception is made and allowed. For further details, see *id.* at §§ HHS 80.01-80.05; WIS. STAT. ANN. § 767.25 (West 1998).

¹²⁰See Maurice MacDonald, *Child Support Reform and Noncustodial's Labor Supply*, in PROCEEDINGS OF THE 36TH ANNUAL CONFERENCE OF THE AMERICAN COUNCIL ON CONSUMER INTERESTS 184 (Mary L. Carsky ed., 1990).

¹²¹See *id.*

¹²²See *id.*

¹²³See *id.* at 187-88.

¹²⁴See *id.* at 187.

VI. CONCLUSION

Household production theory has been the catalyst for considerable research on family time use during the past thirty years. This body of work provides insights regarding how shifts in income, prices (including the value of men's and women's time), and household technology serve to alter the mix of adult time use within the context of the family setting. Yet, the household production model provides only a limited understanding of how individual preferences affect family time use and ignores the potential influence of process benefits on time allocation. In addition, in its current formulation, the model has rarely been used to generate insights regarding other aspects of time use such as level of effort required or the economic value of what is being produced. The model does, however, provide critical guidance regarding how public policies, either directly or indirectly, may alter family time use.

Future work using the household production model should continue to capitalize on the public policy insights that can be gleaned from applying this framework to family time use. Examples of issues ripe for research using this approach include questions regarding (1) the optimal design of workplace family policies (e.g., flex-time arrangements, on-site day care) from the perspective of balancing work-family time, (2) the impact of welfare reform on the time-use patterns of low-income, single-parent families, and (3) the incorporation of the economic value of household work into the national income accounts.