ESTIMATING THE UNPAID CARE SECTOR IN SOUTH KOREA

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THE CARE WORK AND THE ECONOMY (CWE-GAM) PROJECT

The Care Work and the Economy (CWE-GAM) Project strives to reduce gender gaps in economic outcomes and enhance gender equality by illuminating and properly valuing the broader economic and social contributions of caregivers and integrating care in macroeconomic policymaking toolkits. We work to provide policymakers, scholars, researchers and advocacy groups with gender-aware data, empirical evidence, and analytical tools needed to promote creative, gender-sensitive macroeconomic and social policy solutions. In this era of demographic shifts and economic change, innovative policy solutions to chronic public underinvestment in care provisioning and infrastructures and the constraints that care work places on women's life and employment choices are needed more than ever. Sustainable development requires gender-sensitive policy tools that integrate emerging understandings of care work and its connection with labor supply, and economic and welfare outcomes.

Find out more about the project at www.careworkeconomy.org.

JOO YEOUN SUH

Suh's research works to shed light on the economic significance and societal contributions made, focusing on measurement and valuation issues regarding unpaid family care, including childcare and elder care, and building satellite accounts that add the value of care work to national accounting systems. She previously led a program at AARP to measure, depict, and promote the economic and social contributions made by Americans 50 and older and served as a fellow at the Institute for Women's Policy Research (IWPR), a leading national think tank that builds evidence to shape policies that influence and close inequality gaps to improve the economic well-being of families.

TABLE OF CONTENTS

LIST OF FIGURES & TABLES

1. INTRODUCTION

This paper describes in detail the methodology used to estimate the size of the unpaid care sector in South Korea, based on an input-based valuation approach. This estimate is then used for making the unpaid care sector visible in the Korean Social Accounting Matrix (SAM), which is used for developing a gendered dynamic GEM-Care General Equilibrium model for policy analysis.

Mainstream economists continue to define economic growth in terms of conventional measures such as market employment and income per capita. Women taking on full-time employment outside the home, therefore, has stimulated Gross Domestic Product (GDP) growth, while the social cost of a shift from informal to the formal economy has been ignored. The importance of fully recognizing the economic contributions of all forms of work – paid and unpaid – as a precondition for achieving gender equality has been proposed by feminist researchers since 1980s (Waring 1988, Folbre 1991). They have emphasized the need for empirical analysis of time devoted to unpaid care work, especially direct care of children, adults in need of assistance because of illness or disability, and the frail elderly.

Unpaid care work, i.e. household production, is the most significant part of production which is excluded from the production boundary of the system of national accounts (SNA) and hence, from the most commonly used economic indicator, Gross Domestic Product (GDP). The failure to recognize the economic value of unpaid care work leads to the belief that people who, without compensation, devote time to caring for others are unproductive or inactive and their unpaid activities fall outside the business of economic life. To be sure, unpaid household services and care work are now recognized in the landmark resolution for defining and measuring work passed during the 19th International Conference of Labour Statisticians (ICLS) in 2013. Nevertheless, the lack of recognition of unpaid care work in the national accounts hinders the promotion of gender equality at the macroeconomic level due to the importance of these accounts as instruments for policymaking.

A large amount of care work is performed every day by unpaid family members and friends, forming a vital part of the care sector in South Korea. A country with a strong family orientation, in South Korea the primary responsibility for the care of children and the elderly has traditionally been assigned to women, reinforcing the economic significance of gender. That is, women's unpaid care for their families and for members of their communities shapes both gender inequality and the larger process of economic development. This is true of other countries, as documented by the large body of studies seeking to measure unpaid care work. Despite those efforts, however, worldwide consensus on the methodology for estimating the value unpaid care labor has yet to be reached.

In this paper, I discuss the basic methodological features of an effort at measuring and valuing unpaid care work in Korea as well as challenges encountered in the exercise. This paper addresses the following questions: 1) how to define unpaid care work; 2) how to measure and value unpaid care work; 3) how to choose among different valuing approaches, including the output and input approaches; and 4) how measures of unpaid care work can be derived from time use data and which wage rates in labor force survey data would be preferable in the valuation.

The paper first explores the concept of unpaid care work and its two forms namely: direct or relational care activities and indirect care activities. It then examines the role of time use data in estimating the unpaid, direct or relational care labor time provided by household members and the various methods by which this form of unpaid care work can be measured and valued; the section also highlights some methodological and measurement issues. The input-based approach is then applied to the estimation of the imputed value of unpaid care provided by women and men aged 18 years and older based on the national Korean time use survey data and the Korean Labor Force survey for 2009 and 2014. A range of wage rates is used for the estimation and differences between women and men are highlighted. These estimates are then aggregated for the population of South Korea. This paper concludes with a brief commentary on the importance of measuring and valuing unpaid care work.

2. CONCEPTUAL FRAMEWORK OF MEASURING AND VALUING UNPAID CAREWORK

2.1 CONCEPTUAL FRAMEWORK

The recognition of the economic value of unpaid care work, carried out primarily by women, has led to calls for governments, international organizations, and other intergovernmental agencies to pay attention to measurement and valuation of all forms of unpaid work, especially unpaid care work. Care work is broadly defined by the 2018 ILO Report as involving those activities and relations that meet "the physical, psychological and emotional needs of adults and children, old and young, frail and able-bodied (ILO 2018, p. 6)." Unpaid care work therefore includes not only nurturing and relational activities in caring for children, the sick or disabled, and frail elderly (also referred as direct care or relational care), but also those activities for maintaining households such as cleaning, cooking meals, doing the laundry, and shopping (referred as indirect, or support care activities). In other words, they refer to a range of productive activities that sustains the current workforce, nurtures the future workforce, and cares for children and adults in need of support.

The invisibility of unpaid care work in economic terms is partly due to the limited notion of economic activity, which considers economic value as synonymous with monetary

value or what is paid in the market. For example, the International Labor Organization (ILO)'s definition of labor force and employment is work that is done for only pay or profit. In this framework, the production of services for own use, e.g. unpaid housework and unpaid care work, is recognized as work but one that remains outside the System of National Accounts (SNA) boundary and therefore not captured in Gross Domestic Product (GDP).[1] This is in contrast with the reconceptualization of the economy by feminist economists since the late seventies as involving all activities for human provisioning including those that are not directly connected with the market such as those for social reproduction and human maintenance (Beneria and Sen 1981; Cagatay, Elson and Grown 1995; Power 2004; Beneria, Berik and Floro 2016).

A useful conceptual framework for defining work revolves around the so-called third party criterion, introduced by Margaret Reid (1934) who designed a method for estimating the value of housework:

> [i]f an activity is of such character that it might be delegated to a paid worker, then that activity shall be deemed productive. …[H]ousehold production…consists of those unpaid activities which are carried on, by and for the members, which activities might be
>
> replaced by market goods, or paid services, if circumstances such as income, market conditions, and personal inclinations permit the service being delegated to someone outside the household group (Reid 1934, 11).

Using the third-person criterion, unpaid care is considered work because one could hypothetically hire someone else to perform it. It delineates it from non-work, although there are still some ambiguities such as among the very affluent and for those individuals who with very limited functions or are ill, who may pay/need someone to dress them or feed them. Whether or not one enjoys it, whether its production output is destined for the use of others or for one's own use, and whether it is remunerated or not, are irrelevant.

In addition to the issues associated with the exclusion of unpaid care work in the SNA boundary, there are additional challenges posed by the concept of unpaid care work. The first has to do with the degree of substitutability between unpaid care and paid care (or between money and time). Working parents, for example, are willing to pay for child care as a substitute for their own labor time. Yet, it would be either too costly or not desirable to hire someone to take care of one's own children for 24 hours a day. Another challenge has to do with the relationship between quality of care and the time spent in caregiving. Is the amount of care labor time provided to a person correlated with the quality of care? A related point is the question of productivity of care labor and what it means as well as how

[1] The ILO defines "production boundary" as consisting of the work that produces goods and services and recommends only the inclusion of the estimated value of certain activities such as production of food for own consumption and collecting fuel and water within the national income accounts.

is this measured. For this study's purpose however, we do not address these issues in the paper; rather, they serve as subjects of inquiry in future research.

2.2 CHALLENGES IN MEASURING UNPAID CARE WORK

Labor is the largest input to unpaid care work. In measuring it, this methodology relies principally on time-use data, derived from information provided by time-use survey respondents detailing their daily activities throughout a 24-hour period. The detailed accounting provided by this type of survey allows for a comprehensive documentation of all activities including tasks of. short duration. The length of time slots vary – 10 to 30 minutes – and some (but not all) time use surveys record additional information about secondary activities and other context variables including "who the respondent was with," the place where the activity took place, and the mode of transportation.

Time-use data, however, presents several measurement issues for estimating unpaid care work. First, time-use surveys are primarily designed to measure activities such as meal preparation, doing laundry, bathing the elderly or the sick, or feeding a child. In many cases, time-use data records only primary activities in response to the question "what were you doing?" in the given time slot. However, with respect to care work, measuring it solely in terms of time devoted to primary care activities would understate the temporal demands that children, disabled ill or frail elderly persons can impose. For example, a mother who takes responsibility for a young infant cannot leave that child unattended or unsupervised even when the child is taking a nap. Similarly, providing care for an adult suffering from a serious illness is a constant responsibility that may require only periodically performed activities – often taking less than 10 minutes at a time to complete – but which are engaged in multiple times a day.

A growing number of national time use surveys such as the Korean Time Use Survey data collect information for "secondary activity". This is in response to the question "what else were you doing during the primary activity?" A mother might report that her primary activity is cooking dinner, while her secondary activity is talking with her children while she is preparing the meal. Previous research has shown that childcare measured only in terms of primary activity may capture no more than about 25 percent of time devoted to children (Ironmonger 2004). Yet, while including secondary care activity in measurements of the temporal burden of care is better than relying solely on primary care activity, doing so still fails to capture supervisory or "on call" (Folbre 2008).[2] Supervisory responsibilities typically take the form of constraints rather than a physical activity – being present in the house in order to keep an "eye on" or an "ear open" for a sick person, a frail elderly or a young child, can constrain the caregiver's choice of primary activity since location now becomes the main criterion for selection. For instance, even though infants sleep most of the time during

[2] See Valuing Children: Rethinking the Economics of Family by Nancy Folbre (2008) for more details.

the day, they wake up at random times and when they do, require an abled person's immediate attention. Because the nature of supervisory care makes questions framed around activities, whether primary or secondary, ill-suited to capture the time devoted to it, supervisory care time is often not recorded in time use data, leading to its underestimation. Second, some forms of activities are not easy for unpaid caregivers to report as "caregiving." Direct care work often consists of emotional or relational activity that involves talking and listening to recipients of care or taking them out to a social gathering or a religious event. Also, instrumental activities, such as making medical appointments for them over the phone, shopping for them online, and helping on their financial accounts or taxes are often not counted as caregiving. Given the nature of these activities, the respondent may inadvertently report them as leisure or social activities or use of technical devices media (talking on the phone or use of computer or tablets) even if they are performed to assist a dependent such as an elderly or disabled person. These factors also contribute to underestimates of time spent in unpaid care work.

Third, only a handful of national time-use surveys include all household members. And even where all members are included in the time use surveys, only those who are 10 years and older are included. While time-use surveys can be used to construct approximate measures of the total value of unpaid care work, measuring the value of unpaid care work across different types of households is difficult when data from only one or two members providing unpaid care are captured. The contribution of other household members, including older children and grandparents on childcare for example, has been documented and investigated in various studies (Aalto and Varjonen 2006; Craig and Bittman 2008).

Fourth, some unpaid care may be provided by non-household members. For example, some adult children provide care for their elderly parents who live nearby; parents may drop their child(ren) to the house of a relative (i.e., grandmother who has offered to look after their grandchild without pay). Such types of care work are often missed by time-use survey data, or if such activities are recorded, they can be misclassified as "volunteer work" or as part of social and non-work activities.

Fifth, many time-use surveys have been conducted in isolation from other household surveys, such as those collecting data on labor force and employment, consumer expenditures or household wealth. As a result, efforts to combine analysis of time use and employment, or time use and household expenditures have been quite limited. A few exceptions, however, exist such as the Thailand Time Use Survey data and the Australian Time Use Survey data (Ironmonger 1989; Gronau and Hamermesh 2006). The lack of data on household expenditure and household wealth in particular limits our understanding of the substitutability between time and money within the household, and this shortcoming also affects our understanding of economic growth and inequality in living standards.

2.3 CHALLENGES IN MEASURING UNPAID CARE WORK

The imperative to document and measure unpaid care work in order to make it economically visible and socially appreciated provides another key challenge: how to estimate the value of care labor time. Efforts to address this concern has resulted in the development of the following valuation methods: input-based and output-based method. The input-related method involves the imputation of a shadow value of labor time and the output-based method involves the imputation of market prices to goods and services produced by unpaid labor. Note that the latter is not necessarily the same as the value of unpaid care labor since the output-based method involves adding the sum of the value of all inputs (typically labor, raw materials, and capital) to generate the goods and services produced. For instance, making a home-cooked meal (e.g., a pot of Bolognese spaghetti) requires the cook's time (labor), a pot and gas (capital), and ingredients like meat, tomatoes, and spices (raw materials).

Two valuation techniques have been identified for estimating the value of unpaid labor to estimate labor input value: the "replacement cost" method or "opportunity cost" method. With respect to the replacement cost approach, one can ask what it would cost to hire either a substitute (e.g., a domestic worker), or a specialist (e.g., a cook) on an hourly basis in the market, and multiply their wage rate by the number of hours of cooking. If the wage for a cook is 15 dollars an hour and a woman spends an hour a day to make a pot of Bolognese spaghetti, the value of her time would be 15 dollars per day. On the other hand, if the domestic worker's hourly wage is $ 8 per hour, then the value of her time for cooking is $8.00. An annual estimate can be arrived upon by multiplying by 365 days (15 dollars per day x 365 = 5,475 dollars per year), assuming cooking needs to be done for 365 days. But while families can hire a housekeeper, a domestic worker, or a cook who can perform physical tasks such as cooking, cleaning the house, giving a bath, or changing diapers, it is more difficult to find a perfect or adequate substitute for other tasks, such as providing emotional support or tutoring a young child. Family members develop relationships and person-specific knowledge and skills that are qualitative dimensions of caregiving that are hard to measure and for which finding a quality-adjusted replacement is difficult. In that sense, there can be a significant difference between unpaid care labor (by a family member) and paid care labor. For instance, in the case of a child with a severe food allergy who requires a great deal of parental attention, a paid caregiver is unlikely to match her parents' knowledge and level of performance.

The preceding discussion highlights another concern regarding the replacement cost method: what is the appropriate adjustment for quality? Is a cook's wage suitable for valuing a mother's labor time? It is possible that a mother is either a terrible cook whose value should not match a hired cook's wage or a gourmet chef whose value should be adjusted higher than a cook's wage. This issue raises measurement problems; for now, a 25-percent deduction in the wage of specialists for certain household tasks like cooking, home repair, cleaning, and so on has been suggested, with admonitions to pay careful

attention to caregiving activities due to their lack of perfect substitutes (Bridgman et al., 2012; Landefeld, Fraumeni, and Vojtech 2009; Suh and Folbre 2016).

The opportunity cost method, on the other hand, asks what a woman who made a pot of Bolognese spaghetti could have earned in the labor market if she had worked for pay. This approach can produce a wide range of estimates, depending on the skills and earnings level of the unpaid care worker, and therefore has its own shortcomings. If a neurosurgeon who makes 200 dollars per hour cooked a pot of Bolognese spaghetti for one hour, under the opportunity cost method, the value of the spaghetti would be 200 dollars. But one can readily imagine that the neurosurgeon's spaghetti may well be inferior to a meal made by a cook who earns 15 dollars an hour.

Another issue with the opportunity cost method is that it reproduces any gender bias in earnings, resulting in a higher value for unpaid labor performed by a male household member, compared to that of a female household member. It is also difficult, if not impossible, to apply to those individuals who are not in the labor force such as a full-time housewife and mother.

In the output-based valuation method, the value of the produced output such as clean accommodation, cooked meals, clean clothes, child-care, elder care, or transport to a given destination, is imputed by asking what it would cost to purchase a comparable good or service in the market, such as a meal in a restaurant. Let us return to the Bolognese spaghetti example. For a pot of Bolognese spaghetti, the question of interest is what it would cost a family of four to eat at a comparable restaurant. By subtracting the cost of all other inputs, including raw materials, etc., one then arrives at an estimated market value of the labor input. Such comparison however may miss out other non-monetary dimensions of a cooked meal at home. For example, the preparation of family meals may provide higher nutritional value, and also generate greater family interaction. In this case, the Bolognese spaghetti meal cooked at home yield benefits that output-based valuation is ill-equipped to capture.

In practice, the limited availability of relevant data has led researchers to favor the input-based method. Some studies use different wage rates to generate a lower-bound and a higher-variant estimate, even though the market wage of an individual can be a poor proxy for the opportunity cost of an hour devoted to non-market household production. This study uses the input-based, replacement cost valuation method in imputing the value of unpaid care and performs a series of estimations using different wages.

3. METHODOLOGY

3.1 DATA SOURCES

Time Use Survey Data

Since 1999, Statistics Korea has administered the Korean Time Use Survey (KTUS) to a representative sample of the South Korean population every five years on randomly selected periods of two consecutive days. The KTUS is collected using a recall interview method (previous day) through a diary of activities in which all household respondents (aged 10 years and older) from each household report their primary and secondary activities for 24 hours in 10-minute intervals for two consecutive days from 12 a.m. the day before the interview to 12 a.m. of the day of the interview. For each reported activity, the interviewer asks how long the activity lasted, who was in the room or accompanied the respondent during the activity, and where the activity took place. The original sample for 2009 comprises 8,400 households (21,000 individuals aged 10 years and older) and 42,000 diary days; for 2014, the sample comprises 11,986 households and 53,976 diary days.

The KTUS consists of three parts, namely: household characteristics, individual characteristics, and the time-diary. It provides information on household characteristics relating to type of dwellings, location (urban/rural area), household income, and presence of preschool children and elderly person in the household; individual characteristics including sex, age, education status, marital status, employment status, occupation, and subjective evaluation of and reasons for time pressure and happiness. All household members aged 10 and higher respond to the time diary survey. For this study, we focus on the time diaries of women and men respondents aged 18 years and older. Appendix Tables 1 and 2 provide the average time per day (per month) spent on unpaid care work by female and male household members (18 years and older) in 2009 and 2014.

Replacement Cost Wage Data

The input-based replacement-cost method is used for the valuation of the unpaid care work performed in Korean households. As explained previously, the replacement cost method uses the average hourly wage for a worker who performs similar tasks, then multiplies this hourly wage rate by the number of hours spent by the household member in a given month. The simplest approach applies a generalist wage (such as that of a domestic worker or a paid caregiver who carries out various household tasks including caregiving). Alternatively, a vector of wage rates of specialists such as a cook, preschool teacher, or home health aide can be applied. This exercise generates a lower and upper bound estimate of the value of unpaid care labor.

This paper draws on two generalist and specialist wages from the 2009 and 2014 Survey Report on Labor Conditions by Employment Type collected by the Ministry of Employment and Labor in Korea. The data contains the findings of an annual survey on working days, working hours, wages, and other employment-related information derived from a sample of about 33,000 establishments surveyed each year. The industry classification used for this survey is based on the 9th revision of the Korean Standard Industrial Classification (by Statistics Korea) and the occupational classification is based on the 6th revision of the Korean Standard Classification of Occupations. All wages in 2009 are converted to 2014 dollars using inflation factors provided by the Consumer Price Index (CPI). The CPI is calculated based on 480 goods and services from 38 cities in South Korea. Also, all wages used in the valuation are median wages.

For valuation based on the generalist-wage, replacement cost approach, two median, hourly wages for men and women are considered: a) that of domestic workers and helpers in infant rearing to obtain a lower-bound estimate, and b) that of professionals in education to impute an upper bound estimate.

As further refinement in the imputation of the value of unpaid care work, a vector of specialist wage rates for different types of care activities and supervisory care was applied, ranging from domestic chores and infant-rearing help (as noted above, also used as a lower-bound, generalist wage) to administrative and business support management occupations. Appendix Tables 3 and 4 provide, respectively, the median specialist wages for direct care (interactive and supervisory care activities) and for indirect care (support care activities such as cleaning, cooking food, etc).

Population Census

In terms of population size, the number of people 18 years and older (from Population Projections for Korea, based on Population Census data collected by Statistics Korea) was used to estimate the value of unpaid care work for 2009 and 2014. It is important to acknowledge that those who are younger than 18 years also contribute a significant amount of time in performing direct care work, but the threshold age of 18 years was selected for comparability with the estimation of the paid care sector.

The Population Projections for Korea (2010 – 2040) published in 2014 covered 17 cities and provinces on the basis of results from the National Population Projections and a special census of Sejong city. These statistics are part of the general statistics that are collected by Statistics Korea quinquennially. The Korean population aged 18 and older for 2009 numbered 18,722,127 women and 18,995,237 men, and for 2014, it numbered 20,411,737 women and 20,032,234 men.

3.2 CATEGORIES OF UNPAID CARE WORK

With the previously described methodological and measurement caveats regarding time-use survey data and the third-party criterion for work definition in mind, three types of unpaid care activities are considered in this paper: a) interactive care activities, b) supervisory care, which comprises direct care work, and c) support care activities, which comprise indirect care work. Table 1 provides examples of unpaid care activity categories in the 2009 and 2014 KTUS data. Interactive care activities are those that involve a caregiver's direct interaction with care recipients, engaging in activities that typically require personal contact and often require cooperation from a care recipient. A mother giving a child a bath, a daughter helping her elderly mother get dressed, and a brother helping his sister with her homework are all engaged in interactive care work.

Table 1. Categories and Examples of Unpaid Care Work Activities (2009 and 2014 KTUS)

Type of Unpaid Care	Activity Category	Detailed Activities
Interactive Care	Childcare	Physical care for young children (aged 0-9) Developmental care for young children (aged 0-9) Physical care for older children (aged 10-17) Developmental care for older children (aged 10-17)
	Adult care	Care for spouse Care for parents Care for other adults Travel related to care for children and adults
Supervisory	Secondary childcare Time with children	This is not overlapped with primary child care activities This is not overlapped with primary nor secondary child care activities
Support Care	Cooking and washing Laundry and alteration Home cleaning and Home repairs and Shopping Organizing and Other household Travel related to unpaid work	Cooking, washing dishes Doing laundry, alteration House cleaning, taking out rash Home repairs and maintenance Shopping for food, groceries Telephone calls for support care related issues, paying Other household chores Travel related to unpaid housework (excluding care work)

It should be noted that the KTUS neither assigns a separate category to supervisory care for children and elderly care recipients, nor contains explicit wording pertaining to

supervisory care within any of the listed categories. As a result, no direct measurement of supervisory care for both children and the elderly is provided in the KTUS. Nonetheless, there are two possible ways of deriving supervisory care time from the time diary. The first method involves the use of secondary activities information. Keeping in mind the caveat that supervisory care is more like a constraint rather than an actual activity, it can accompany the undertaking of other primary activities such as washing clothes, leisure, or personal care due to its complementary, albeit passive-minding nature. Some amount of supervisory child or elder care can thus be captured as secondary activities. In estimating care time for children, the inclusion of secondary activities can have large effects. Studies using the Australian, Canadian, and American time use survey data show that doing so results in estimates that are 2 to 5 times larger than estimates based on direct, interactive care activities alone (Bittman 2000; Folbre and Yoon 2009; Ironmonger 1994).

A second method relies on context information that some time use surveys such as KTUS also collect. It utilizes the response to the question "who else was there" while the respondent was engaged in an activity. This approach is often used in investigating the nature and magnitude of passive care or even interactive care activities. The KTUS contains limited information on "who else was there" because it requires household members to be actively engaged in activities in order to be counted as a participant in such activities. It should be noted, however, that even with the use of context information, the problem of underestimating the amount of time spent in care activities remains. Studies have shown, for example, that activities such as managing and organizing care for children, the sick/disabled, and frail elderly, and planning for children's or elderly's schedule are often performed in the absence of care recipients (Folbre and Yoon 2009). Although some information about supervisory care can be obtained from secondary activities and answers to the "who else was there" question in the KTUS, the amount of supervisory care time calculated for this analysis almost certainly represents a considerable underestimate. Moreover, supervisory care that is captured by the time use data only accounts for child care; that of care time for the sick, disabled, and elder are hardly captured and therefore excluded in the estimation.

Alongside interactive and supervisory care, there are other unpaid care activities – i.e., support care – that are essential to household maintenance and the well-being of its members. These indirect care activities, such as cooking, shopping, cleaning, and organizing the household, provide the vital backdrop without which more direct or relational forms of care would be difficult, if not impossible, to provide. Often other adults, as well as children and even the caregiver, benefit from support care.

3.3 A CLOSER LOOK AT INTERACTIVE CARE ACTIVITIES

The KTUS reports the amount of time that female and male members (aged 18 years and older) devote to care activities performed for children and adults needing assistance. Since not all adults lived with children or elders, less than half of men (21.9 percent) and women (42.2 percent) reported engaging in an interactive childcare or elder care activity on the survey day. [3] Interactive childcare consists of a variety of activities, including physical care (feeding, bathing, and so on) and developmental care (such as talking to or reading aloud to children). [4]

Figures 1a and 1b provide the average amount of time spent on different types of interactive care activities by women and men in 2009 and 2014 conditional on their engagement in such activities. The patterns of time spent on interactive childcare by men and women in 2009 and 2014 are similar. Travel time related to childcare consumes a non-trivial amount of time (46 minutes per day on average for men in 2009 and 47 minutes per day on average for women in 2009; 48 minutes for men in 2014 and 49 minutes for women in 2014); gender difference was smallest for time spent on traveling related to childcare. Of those who devoted time to interactive childcare, caring for young children (aged younger than 10) was more time demanding for both women and men compared to older children (aged between 10 and 17). Yet, the type of care for young children and older children was different. While time spent on physical care for young children was much greater than on their developmental care for both men and women, for older children, both men and women spent more time on developmental care compared to physical care (see Figure 1a and 1b).

[3] All analysis results from time use survey data are weighted by size of population.
[4] In this section, I only report on interactive care for children and adults in detail. Other types of unpaid care – supervisory care and support care – are available in the Appendix Table 1.

Figure 1a. Types of Interactive Child Care (average minutes per day, 2009, those who engaged in at least some time in these activities, aged 18 and older)

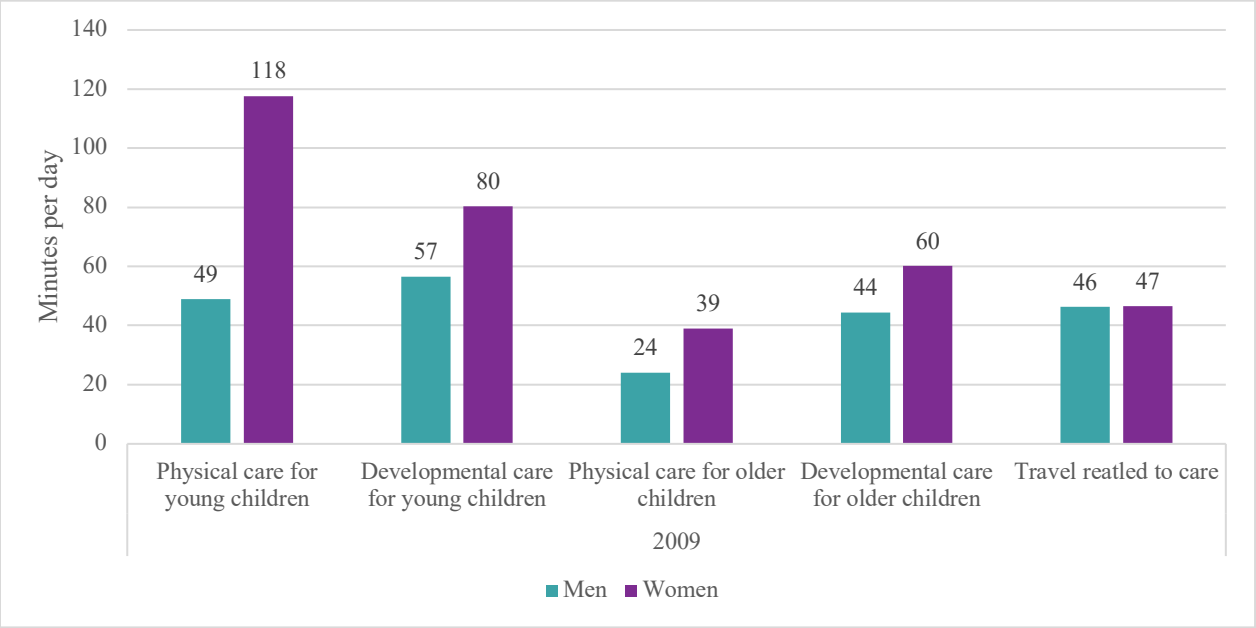
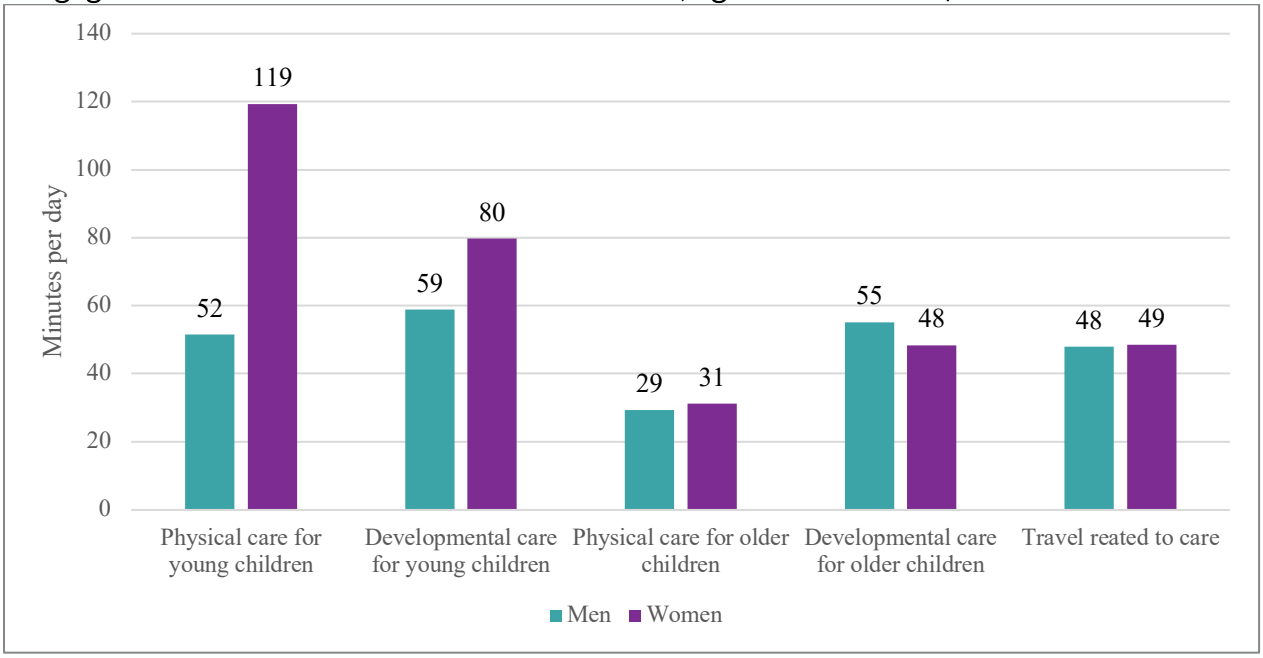


Figure 1b. Types of Interactive Child Care (average minutes per day, 2014, those who engaged in at least some time in these activities, aged 18 and older)



Not surprisingly, women spent more time in 2009 (2014) than men in child care activities on both weekdays – 2.1 hours on average for women vs. 0.9 hours for men (2.4 hours on average for women vs. 1.0 hour for men) and weekends – 2.0 hours on average for women vs. 1.3 hours for men (2.3 hours on average for women vs. 1.6 hours for men) as shown in Figure 2a (Figure 2b). However, women spent slightly less time in child care activities on an average weekend day compared to an average weekday – 2.1 hours per week day vs. 2.0 hours per weekend day (2.5 hours per weekday vs. 2.3 hours per weekend day). Men, on the other hand, spent more time in child care activities on weekends than on week days – 0.9 hours per week day vs. 1.3 hours per weekend day (1.0 hours per weekday vs. 1.6 hours per weekend day). It may be the case that men stepped in to take up the slack on weekends to care for children. While the time spent on child care by men on weekends was considerably less than that spent by women – 2.0 hours per weekend day vs. 1.3 hours per weekend day (2.3 hours per weekend day vs. 1.6 hours per weekend day) – 53 percent 2009] (60 percent) more time was devoted to child care by men on weekends compared to weekdays.

Figure 2a. Time Devoted to Interactive Care, by type of (average hours per day, 2009, those who engaged in at least some time in these activities, aged 18 and older)

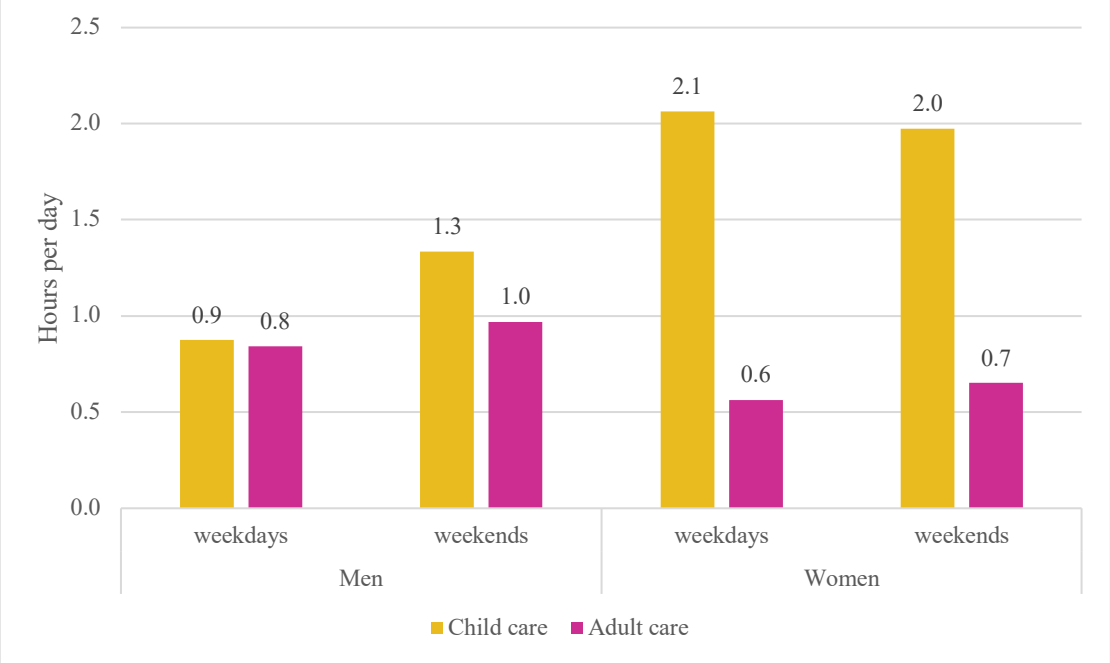
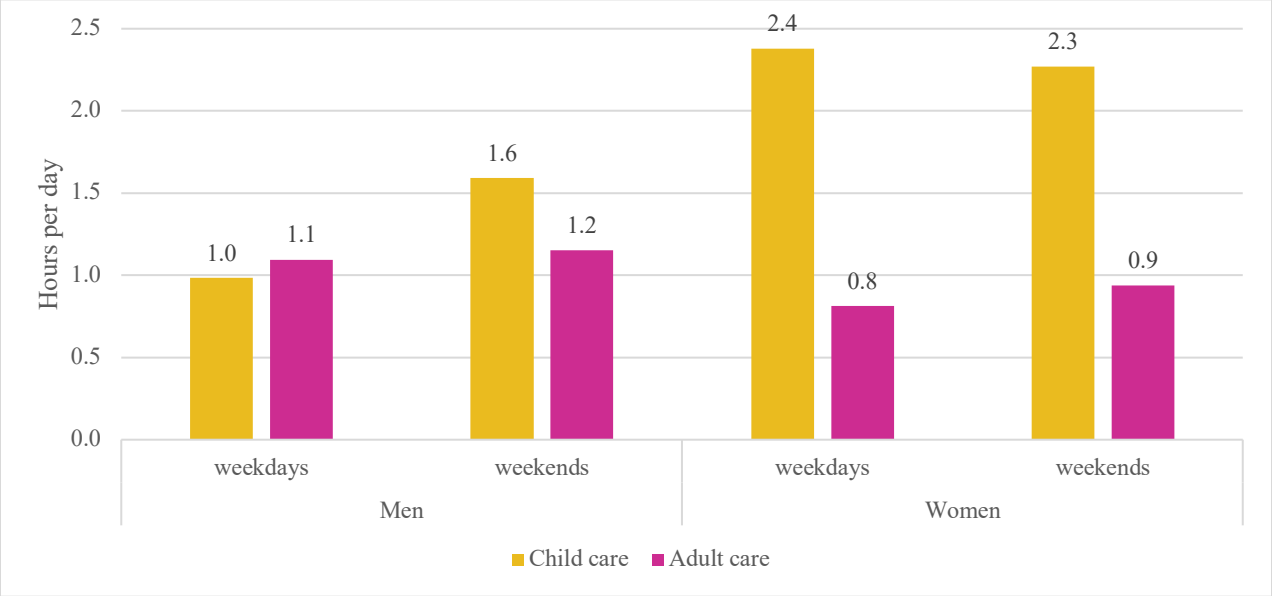


Figure 2b. Time Devoted to Interactive Care, by type of (average hours per day, 2009, those who engaged in at least some time in these activities, aged 18 and older)



Interactive care for adults needing assistance seems to take up less time than care for children, on average. The needs of adults who require assistance are far more variable than those of young children – some need only a small amount of assistance, while others suffer extreme illness or infirmity and call for almost constant attention. One interesting finding in Figures 3a and 3b is that among men who provided care, the amount of time devoted to interactive care for adults by men was greater than that provided by women. This is true for both 2009 and 2014.

Interactive care for adults is divided by the type of care recipient: spouse, parents, and other adults (See Figures 3a and 3b). In 2009, both men and women spent more time on caring for parents (84 minutes per day for women and 78 minutes for men) compared to spouses (25 minutes for women and 36 minutes for men) and other adults (37 minutes for women and 51 minutes for men). Interestingly more men spent time for caring for spouses and other adults compared to women in 2009. However, in 2014, both men and women spent more time on caring for other adults (77 minutes per day for women and 75 minutes for men) compared to time spent on spouse (25 minutes for women and 52 minutes for men) and parents (65 minutes for women and 58 minutes for men).

Figure 3a. Time devoted to Caring for Adults – Household adults and Non-Household adults (average hours per day, 2009, those who engaged in at least some time in these activities, aged 18 and older)

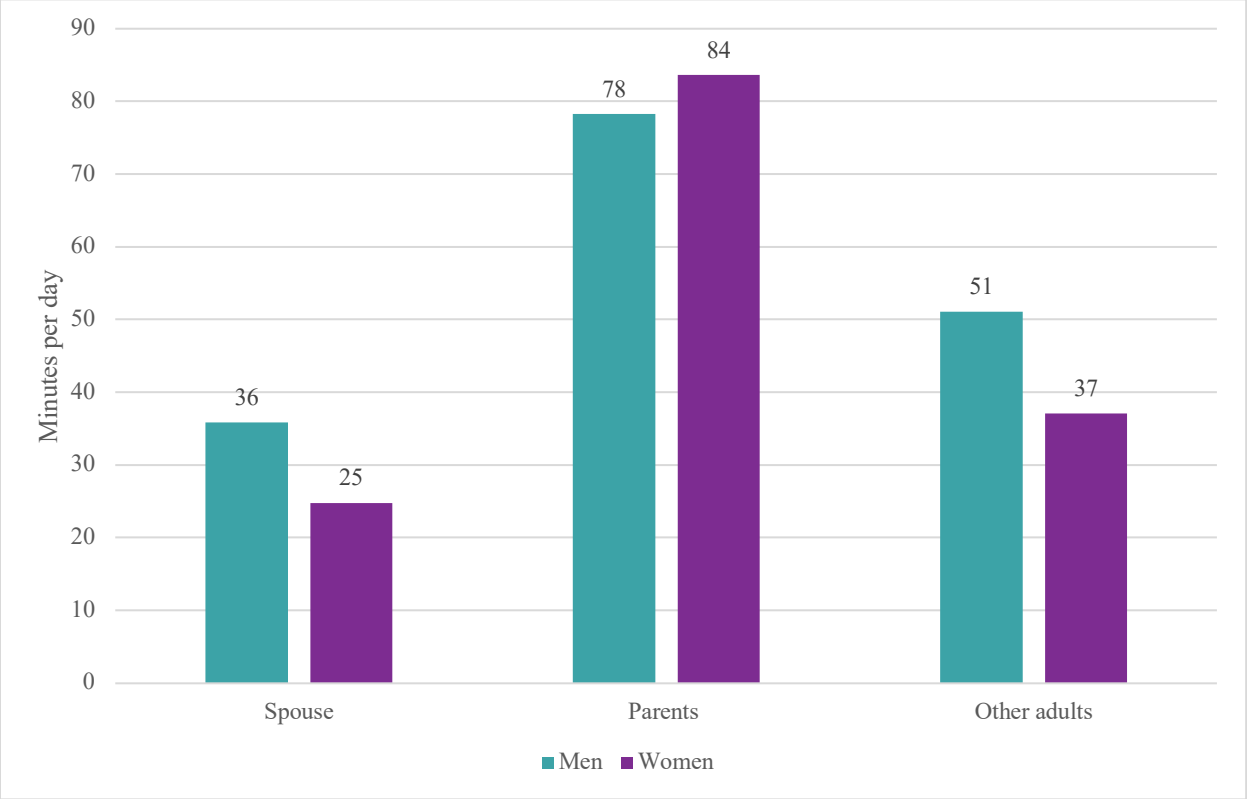
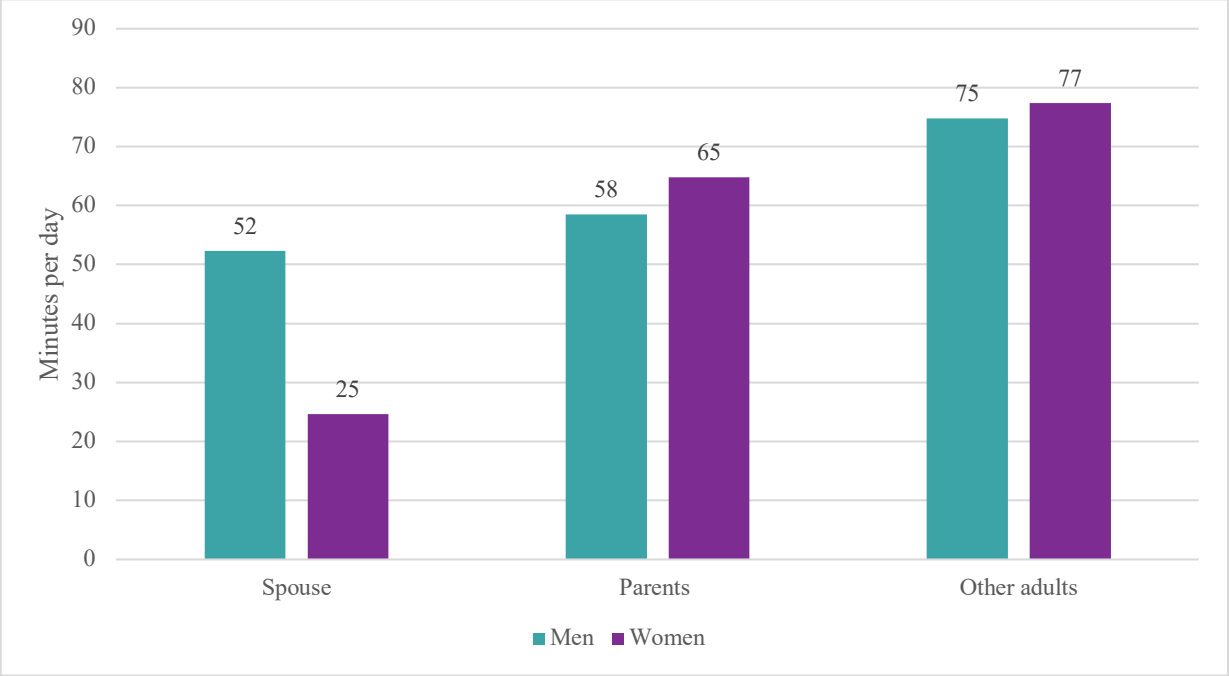


Figure 3b. Time devoted to Caring for Adults – Household adults and Non-Household adults (average hours per day, 2014, those who engaged in at least some time in these activities, aged 18-64)



4. IMPUTED VALUE OF UNPAID CARE WORK IN SOUTH KOREA

This section provides the results of estimating the value of unpaid care work for 2009 and 2014. It is worth reiterating at the outset that the market does not provide perfect substitutes for the unpaid care provided by household members. In addition, many paid caregivers in the labor market do not earn wages that fully reflect the value of their services. Also, while this analysis includes supervisory care, given its unavailability in the Korean time-use data, the total value of unpaid care work is almost certainly underestimated. As a result, estimates of the market value of unpaid care based on market wages represent only an approximate lower bound.

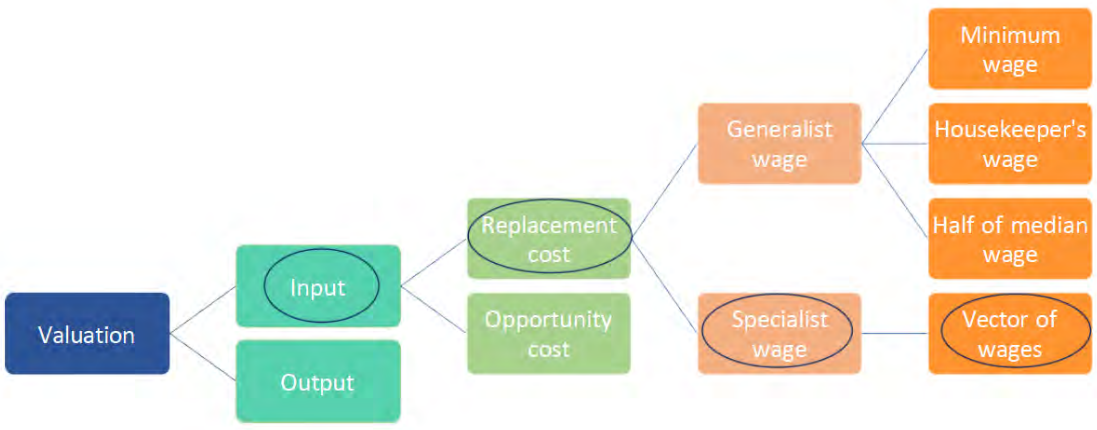
The diagram shown in Figure 4 depicts the input-valuation replacement-cost method using the specialist wage in estimating the total contribution of unpaid care work by both men and women. The monetary value of unpaid care work performed by people aged 18 years and older was computed using the following procedure:

$$V = \sum_{i=1}^{N} \sum_{j=1}^{M} P_i T_{ij} W_j$$

V = Annual monetary value of unpaid care work
N = Sample size
M = Number of unpaid care work activities
P_i = Sampling weight to extrapolate to whole target population
T_{ij} = Number of hours spent on unpaid care work from the group of activities j per 24-hour period scaled up to annually for the individual i
W_j = Hourly wage of the specialized occupations in group j and hourly wage of the generalist (a domestic worker and professionals in education). For valuation using generalist wage j=1.

The daily time spent on different unpaid care work recorded in minutes was first scaled up to annual figures in hours by multiplying by 365 and then dividing the resulting figures by 60 to convert to hours.

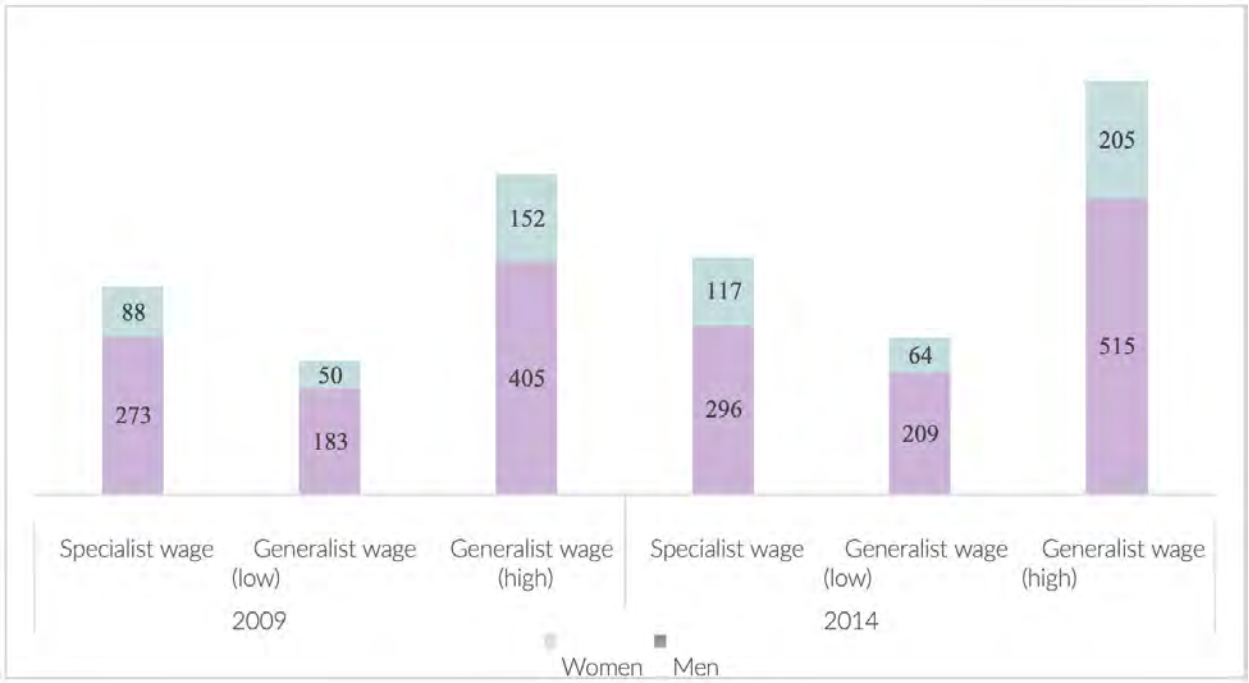
Figure 4. Methods of Valuing Unpaid Care Work



Appendix Tables 5 and 6 provide the estimated annual values for total unpaid care work provided by women and men aged 18 years and older in 2009 and 2014, using the generalist wage approach. Appendix Tables 7 and 8 provide the estimates using specialist wage approach. The time spent on unpaid care work drawn from the time-use survey data allows input-based replacement-cost valuation based on the market value of labor.

Using the generalist wage method, the total estimated value of unpaid household and care work by both men and women in 2009 ranged from 232.6 billion USD (lower bound using domestic worker' wages) to 557.2 billion USD (upper bound using wages of professionals in education). For 2014, the lower bound and upper estimates are 273.5 billion dollars and 719.6 billion, respectively. Of the total, women's contribution accounted for between 72 percent to 79 percent (see Appendix Table 7 and 8). The specialist wage method yields an estimate of about 412.7 billion dollars for the total value of time devoted to unpaid care work in Korea in 2014 (representing an increase from 361.7 billion dollars in 2009), using the vector of specialists' wages. The value of interactive care and supervisory care alone comes to 86.9 billion dollars for women and 51.6 billion dollars for men in 2014, and 74.4 billion dollars for women and 36.6 billion dollars for men in 2009 (see Figure 5).

Figure 5. Average Annual Amount and Value of Time Devoted to Unpaid Care Work in Korea in 2009 and 2014



Again, the value of unpaid care work only accounts for labor input in care provisioning; it ignores the intermediate goods, capital, and raw materials that are used as inputs. The value of unpaid care work by adults 18 and over ranges from about 22 percent of GDP to about 59 percent of GDP in Korea depending on the wages used in the imputation of its shadow value for 2009 and 2014 (see Figure 6). Adults (aged 18 and older) in Korea provided about 87 million hours of unpaid care

per day in 2009 and 92 million hours in 2014.[5] Translated into people and dollars, 11 million workers would need to be hired on any given day – working 8-hour shifts – to provide paid replacement for the unpaid time that individuals spent, on average, on unpaid care work. The equivalent number of paid workers required to do this work at 8 hours per day would be about 10.6 million – almost 16 times the 670,000 paid care workers currently working in Korea.[6]

Figure 6. Value of Unpaid Care Work as a Share of GDP in Korea

[5] The population estimates are derived from the following website, http://www.index.go.kr/potal/main/EachDtlPageDetail.do?idx_cd=1010.

[6] The number of paid care workers are drawn from the survey report on labor conditions by employment type. The number of paid caregivers used in this report are the number of employees in health, social welfare, religion related occupations. The report is available at http://laborstat.molab.go.kr/newOut/renewal/statreport/onlinepublist.jsp?cd=8&koen=ko&select=4&P_ID=3&rptId

5. CONCLUSION

Unpaid care work undertaken by women and men in South Korea is large, and equivalent to a significant proportion of GDP. Accounting only for labor input and ignoring intermediate goods, capital, and raw materials, the value of unpaid care work by adults aged 18 and older ranges from about 22 percent to about 59 percent of GDP in Korea depending on the market wage (generalist low wage, generalist high wage, or a vector of specialist wages) used in the imputation. This study's findings show that adults (aged 18 and older) in Korea provided about 87 million hours of unpaid care per day in 2009 and 92 million hours in 2014, which can be translated into 11 million workers assuming 8-hour shifts to provide paid replacement for the unpaid care time.

Aside from its size and estimated value, unpaid care is a vital service that sustains society, reproduce and nurtures the labor force, and contributes to economic progress. Imagine what would happen if those providing unpaid care labor decided to withdraw their services today. Recent developments in South Korea, such as the continued ageing of the population and decline in fertility rates, signal growth in care needs as well as the increasing difficulty of households in meeting these care demands. South Korea is not unique in this regard. The estimation of the value of unpaid care demonstrates its importance to the economy. This holds true for South Korea and most everywhere else. Its integration and visibility in macroeconomic models for policy analysis is critical in promoting government support for care provisioning, and can help address the unintended, adverse effects of macroeconomic policies on labor supply, the workload of women, and economic development. Sustained efforts at estimating the cost of unpaid caregiving – such as by improving time-use survey design to better capture supervisory care – are crucial in obtaining a more accurate picture of the care burden borne by households, and in particular, women. Macroeconomic policy informed by such knowledge will more effectively push the development agenda forward to address the critical issue of care.

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APPENDIX

Appendix Table 1. Time Devoted to Care Work by Gender (2009 and 2014 KTUS)

			Daily Minutes		Daily Hours		Monthly Minutes		Monthly Hours	
			2009	2014	2009	2014	2009	2014	2009	2014
Women	Childcare	Physical care for young children (aged	17.27	19.57	0.29	0.33	518.1	587.1	8.64	9.79
		Developmental care for young children (aged 0- 9)	9.024	10.58	0.15	0.18	270.7	317.4	4.51	5.29
		Physical care for older children (aged	7.383	2.352	0.12	0.04	221.5	70.6	3.69	1.18
		Developmental care for older children (aged 10- 17)	5.31	1.223	0.09	0.02	159.3	36.7	2.66	0.61
		Secondary childcare	4.341	1.347	0.07	0.02	130.2	40.4	2.17	0.67
		Time with children	4.245	11.69	0.07	0.19	127.4	350.7	2.12	5.85
	Adult care	Care for spouse	3.371	1.705	0.06	0.03	101.1	51.2	1.69	0.85
		Care for parents	1.509	0.365	0.03	0.01	45.3	11.0	0.75	0.18
		Care for other adults	1.645	4.11	0.03	0.07	49.4	123.3	0.82	2.06
	Travel related to care for children and adults		6.549	5.459	0.11	0.09	196.5	163.8	3.27	2.73
	Total care work		60.6	58.4	1.01	0.97	1819.4	1752.0	30.32	29.20
Men	Childcare	Physical care for young children (aged	2.75	3.375	0.05	0.06	82.5	101.3	1.38	1.69
		Developmental care for young children (aged 0- 9)	3.906	4.597	0.07	0.08	117.2	137.9	1.95	2.30
		Physical care for older children (aged	0.828	0.416	0.01	0.01	24.8	12.5	0.41	0.21
		Developmental care for older children (aged 10- 17)	1.026	0.243	0.02	0.00	30.8	7.3	0.51	0.12
		Secondary childcare	1.079	0.421	0.02	0.01	32.4	12.6	0.54	0.21
		Time with children	5.239	12.48	0.09	0.21	157.2	374.4	2.62	6.24
	Adult care	Care for spouse	0.775	0.783	0.01	0.01	23.3	23.5	0.39	0.39
		Care for parents	1.083	0.165	0.02	0.00	32.5	5.0	0.54	0.08
		Care for other adults	0.55	1.679	0.01	0.03	16.5	50.4	0.28	0.84
	Travel related to care for		3.693	2.772	0.06	0.05	110.8	83.2	1.85	1.39
	Total		20.9	26.9	0.35	0.45	627.9	807.9	10.46	13.47

Appendix Table 2. Time Devoted to Unpaid Care Work by Gender (2009 and 2014 KTUS)

Respondent	Care Activity	Daily Minutes		Daily Hours		Monthly Minutes		Monthly Hours	
		2009	2014	2009	2014	2009	2014	2009	2014
Women	Cooking and washing dishes	88.68	85.97	1.48	1.43	2660.4	2579.1	44.34	42.99
	Laundry and alteration	21.37	14.96	0.36	0.25	641.1	448.8	10.69	7.48
	Home cleaning and trash	32.12	37.17	0.54	0.62	963.6	1115.1	16.06	18.59
	Home repairs and	4.262	0.667	0.07	0.01	127.9	20.0	2.13	0.33
	Shopping	16.05	18.84	0.27	0.31	481.5	565.2	8.03	9.42
	Organizing and managing	2.006	1.421	0.03	0.02	60.2	42.6	1.00	0.71
	Other household chores	0.231	3.757	0.00	0.06	6.9	112.7	0.12	1.88
	Childcare	38.98	33.72	0.65	0.56	1169.4	1011.6	19.49	16.86
	Adult care	6.525	6.18	0.11	0.10	195.8	185.4	3.26	3.09
	Travel related to unpaid	19.34	17.15	0.32	0.29	580.2	514.5	9.67	8.58
	Total unpaid work	229.6	219.8	3.83	3.66	6886.9	6595.1	114.78	109.92
Men	Cooking and washing dishes	9.431	11.03	0.16	0.18	282.9	330.9	4.72	5.52
	Laundry and alteration	1.69	1.501	0.03	0.03	50.7	45.0	0.85	0.75
	Home cleaning and trash	7.979	10.31	0.13	0.17	239.4	309.3	3.99	5.16
	Home repairs and	4.849	1.578	0.08	0.03	145.5	47.3	2.42	0.79
	Shopping	4.633	6.953	0.08	0.12	139.0	208.6	2.32	3.48
	Organizing and managing	1.415	0.795	0.02	0.01	42.5	23.9	0.71	0.40
	Other household chores	0.169	2.77	0.00	0.05	5.1	83.1	0.08	1.39
	Childcare	8.51	8.63	0.14	0.14	255.3	258.9	4.26	4.32
	Adult care	2.408	2.627	0.04	0.04	72.2	78.8	1.20	1.31
	Travel related to unpaid	8.614	7.57	0.14	0.13	258.4	227.1	4.31	3.79
	Total unpaid work	49.7	53.8	0.83	0.90	1490.9	1612.9	24.85	26.88

Appendix Table 3. Median Specialist Wages for Interactive and Supervisory Care, 2009 and 2014 (in dollars)

	Care Category	Occupation code	2009						2014			
			Monthly Wage (in 2009 dollars)		Hourly Wage (in 2009 dollars)		CPI-adjusted (in 2014 dollars)		Monthly Wage (in 2014 dollars)		Hourly Wage (in 2014 dollars)	
			Men	Women	Men	Women	Men	Women	Men	Women	Men	Women
Generalist Wage												
Lower Bound	Unpaid Care Work	Domestic chores and infant rearing help	1,940	1,210	7.81	6.32	8.77	7.09	1,419	1,084	9.5	8.4
Upper Bound	Unpaid Care Work	Professionals in education (25)	4,283	2,421	23.95	13.99	26.89	15.70	4,817	2,858	31.7	19.1
Specialist Wage												
Child care	Physical care for children aged 0 - 9	Health, social welfare and religion related occupations (24)	3,762	2,032	19.84	10.75	22.27	12.07	4,150	2,250	24.0	13.3
	Developmental care for children aged 0 - 9	Professionals in education (25)	4,283	2,421	23.95	13.99	26.89	15.70	4,817	2,858	31.7	19.1
	Physical care for children aged 10 - 17	Health, social welfare and religion related occupations (24)	3,762	2,032	19.84	10.75	22.27	12.07	4,150	2,250	24.0	13.3
	Developmental care for children aged 10 - 17	Professionals in education (25)	4,283	2,421	23.95	13.99	26.89	15.70	4,817	2,858	31.7	19.1
	Secondary childcare (not-overlapped with any primary childcare	Domestic chores and infant rearing help (951)	1,940	1,210	7.81	6.32	8.77	7.09	1,419	1,084	9.5	8.4
	Time with children (not-overlapped with any primary childcare	Domestic chores and infant rearing help (951)	1,940	1,210	7.81	6.32	8.77	7.09	1,419	1,084	9.5	8.4
Adult care	Care for spouse	Health, social welfare and religion related occupations (24)	3,762	2,032	19.84	10.75	22.27	12.07	4,150	2,250	24.0	13.3
	Care for parents	Health, social welfare and religion related occupations (24)	3,762	2,032	19.84	10.75	22.27	12.07	4,150	2,250	24.0	13.3
	Care for other adults	Health, social welfare and religion related occupations (24)	3,762	2,032	19.84	10.75	22.27	12.07	4,150	2,250	24.0	13.3
Travel related to care for children and adults		Transport and leisure service occupations (43)	2,603	2,006	13.25	10.80	14.88	12.12	3,058	2,732	16.3	14.7

Appendix Table 4. Median Wages for Unpaid Care Activities (other than care), 2009 and 2014 (in dollars)

Unpaid work categories	Occupation code	2009						2014			
		Monthly Wage		Hourly Wage		CPI-Adjusted Hourly Wage		Monthly Wage		Hourly Wage	
		Men	Women	Men	Women	Men	Women	Men	Women	Men	Women
Cooking and washing dishes	Cooking and food service occupations (44)	2,134	1,442	10.03	7.11	11.26	7.99	2,220	1,602	11.60	8.88
Laundry and alteration	Textile, clothing and leather relates trade occupations (72)	2,071	1,290	10.24	6.35	11.49	7.13	2,622	1,679	14.43	9.53
Home cleaning and trash	Cleaner and sanitation workers (941)	1,616	1,099	8.14	6.27	9.14	7.04	1,824	1,238	10.27	7.78
Home repairs and maintenance	Elementary workers (9)	1,678	1,237	7.37	6.35	8.27	7.13	1,999	1,480	9.91	8.64
Shopping	Household chores and cooking attendants and sales related elementary	1,550	1,254	7.68	6.32	8.63	7.09	1,901	1,473	10.09	8.76
Organizing and managing	Administrative and business support management occupations (12)	5,976	5,203	33.05	29.41	37.11	33.02	8,385	6,319	51.41	38.51
Other household chores	Household chores and cooking attendants and sales related elementary	1,550	1,254	7.68	6.32	8.63	7.09	1,901	1,473	10.09	8.76
Travel related to unpaid work	Transport and leisure service occupations	2,603	2,006	13.25	10.80	14.88	12.12	3,058	2,732	16.34	14.68

Appendix Table 5. Generalist Wage Valuation for Unpaid Care Work by Gender and Year (low wage)

		2009					2014				
		Monthly Hours	Hourly Wage	Annual Values Per Capita	Annual Values	Annual Values (in billion)	Monthly Hours	Hourly Wage	Annual Values Per Capita	Annual Values	Annual Values (in billion)
Women	Interactive and	30.32	7.09	2,581.13	48,324,258,695.38	48.32	29.20	7.78	2726.16	55,645,634,770.73	55.65
	Support care	84.46	7.09	7,189.09	134,595,096,312.22	134.60	80.72	7.78	7535.74	153,817,527,158.42	153.82
	Total unpaid	114.78	7.09	9,770.22	182,919,355,007.60	182.92	109.92	7.78	10261.90	209,463,161,929.15	209.46
Men	Interactive and	10.46	8.77	1,100.99	20,913,533,813.88	20.91	13.47	9.91	1601.32	32,077,961,605.74	32.08
	Support care	14.38	8.77	1,513.42	28,747,740,183.08	28.75	13.42	9.91	1595.49	31,961,232,177.30	31.96
	Total unpaid	24.85	8.77	2,614.41	49,661,273,996.96	49.66	26.88	9.91	3196.81	64,039,193,783.04	64.04

Appendix Table 6. Generalist Wage Valuation for Unpaid Care Work by Gender and Year (high wage)

		2009					201				
		Monthly Hours	Hourly Wage	Annual Values Per Capita	Annual Values	Annual Values (in billion)	Monthly	Hourly Wage	Annual Values Per Capita	Annual Values	Annual Values (in
Women	Interactive and	30.32	15.70	5,713.35	106,966,141,497.25	106.97	29.	19.12	6698.73	136,732,745,978.25	136.73
	Support care	84.46	15.70	15,913.11	297,927,345,512.40	297.93	80.	19.12	18516.86	377,961,235,496.86	377.96
	Total unpaid care	114.78	15.70	21,626.47	404,893,487,009.65	404.89	109.	19.12	25215.59	514,693,981,475.11	514.69
Men	Interactive and	10.46	26.89	3,376.86	64,144,266,665.21	64.14	13.	31.71	5124.16	102,648,351,991.39	102.65
	Support care	14.38	26.89	4,641.83	88,172,698,537.51	88.17	13.	31.71	5105.51	102,274,821,914.71	102.27
	Total unpaid care	24.85	26.89	8,018.69	152,316,965,202.72	152.32	26.	31.71	10229.67	204,923,173,906.09	204.92

Appendix Table 7. Specialist Wage Valuation for Interactive and Supervisory Care Work by Gender and Year

			200					201				
			Monthly Hours	Hourly	Annual Values Per Capita	Annual Values	Annual Values (in	Monthly Hours	Hourly	Annual Values Per	Annual Values	Annual Values (in billion)
Women	Childcare	Physical care for young children (aged	8.64	12.07	1250.66	23,414,965,536.8	23.41	9.79	13.3	1566.99	31,985,047,044.8	31.99
		Developmental care for young children (aged 0-	4.51	15.70	850.12	15,916,079,292.8	15.92	5.29	19.1	1213.55	24,770,679,482.3	24.77
		Physical care for older children (aged	3.69	12.07	534.66	10,009,999,453.3	10.01	1.18	13.3	188.33	3,844,089,455.7	3.84
		Developmental care for older children (aged 10-	2.66	15.70	500.24	9,365,512,083.8	9.37	0.61	19.1	140.28	2,863,378,167.0	2.86
		Secondary childcare	2.17	7.09	184.75	3,458,960,987.3	3.46	0.67	8.4	67.50	1,377,696,026.4	1.38
		Time with children	2.12	7.09	180.67	3,382,467,033.1	3.38	5.85	8.4	585.76	11,956,396,844.0	11.96
	Adult care	Care for spouse	1.69	12.07	244.12	4,570,460,267.7	4.57	0.85	13.3	136.52	2,786,637,977.0	2.79
		Care for parents	0.75	12.07	109.28	2,045,928,372.6	2.05	0.18	13.3	29.23	596,552,998.0	0.60
		Care for other adults	0.82	12.07	119.13	2,230,319,531.4	2.23	2.06	13.3	329.09	6,717,350,196.9	6.72
	Travel related to care for children		3.27	12.12	476.26	8,916,604,327.8	8.92	2.73	14.7	480.84	9,814,736,321.7	9.81
	Total care		30.32		4449.88	83,311,296,886.9	83.31	29.20		4738.09	96,712,564,514.2	96.71
Men	Childcare	Physical care for young children (aged	1.38	22.27	367.53	6,981,390,947.1	6.98	1.69	24.0	485.20	9,719,739,266.2	9.72
		Developmental care for young children (aged 0-	1.95	26.89	630.23	11,971,308,022.0	11.97	2.30	31.7	874.67	17,521,609,821.5	17.52

		Physical care for older children (aged	0.41	22.27	110.66	2,102,033,346.9	2.10	0.21	24.0	59.81	1,198,047,862.1	1.20
		Developmental care for older children (aged 10-	0.51	26.89	165.54	3,144,537,130.2	3.14	0.12	31.7	46.24	926,202,128.9	0.93
		Secondary childcare	0.54	8.77	56.76	1,078,202,636.7	1.08	0.21	9.5	23.93	479,328,560.3	0.48
		Time with children	2.62	8.77	275.60	5,235,128,465.3	5.24	6.24	9.5	709.31	14,209,074,662.6	14.21
	Adult care	Care for spouse	0.39	22.27	103.58	1,967,482,903.2	1.97	0.39	24.0	112.57	2,254,979,509.7	2.25
		Care for parents	0.54	22.27	144.74	2,749,398,689.3	2.75	0.08	24.0	23.72	475,187,253.0	0.48
		Care for other adults	0.28	22.27	73.51	1,396,278,189.4	1.40	0.84	24.0	241.38	4,835,390,289.7	4.84
	Travel related to care for children and		1.85	14.88	329.68	6,262,399,924.9	6.26	1.39	16.3	271.84	5,445,497,316.6	5.45
	Total care		10.46		2257.84	42,888,160,255.6	42.89	13.47		2848.66	57,065,056,670.9	57.07

Appendix Table 8. Specialist Wage Valuation for Support Care Work by Gender and Year

		2009					2014				
		Monthly Hours	Hourly Wages	Annual Value	Annual Values	Annual Values (in Billion)	Monthly	Hourly	Annual Values Per	Annual Value	Annual Values (in Billion)
Women	Cooking and washing dishes	44.34	7.99	4,249	79,556,649,014.9	79.56	42.99	8.88	4,578.08	93,446,588,842.15	93.45
	Laundry and	10.69	7.13	913	17,108,416,509.8	17.11	7.48	9.53	855.80	17,468,441,268.22	17.47
	Home cleaning and trash	16.06	7.04	1,356	25,393,969,804.1	25.39	18.59	7.78	1,735.38	35,422,095,245.54	35.42
	Home repairs and	2.13	7.13	182	3,414,730,859.6	3.41	0.33	8.64	34.60	706,179,342.66	0.71
	Shopping	8.03	7.09	682	12,786,490,138.8	12.79	9.42	8.76	990.53	20,218,417,125.22	20.22
	Organizing and	1.00	33.02	397	7,440,398,689.1	7.44	0.71	38.51	328.31	6,701,392,767.19	6.70
	Other household	0.12	7.09	9.83	184,029,858.0	0.18	1.88	8.76	197.53	4,031,878,616.74	4.03
	Travel related to unpaid	19.49	12.12	2,834	53,072,108,214.6	53.07	8.58	14.68	1,510.60	30,833,985,696.67	30.83
	Childcare (Interactive and			3,501	65,547,984,387.3	65.55			3,762.41	76,797,287,020.47	76.80
	Adult care			472	8,846,708,171.8	8.85			494.84	10,100,541,172.04	10.10
	Total Unpaid Work			14.60	273,351,485,648.5	273.35			14,488.08	295,726,807,096.92	295.73
Men	Cooking and washing dishes	4.72	11.26	637	11,932,294,289.2	11.93	5.52	11.60	768.01	15,676,342,274.31	15.68
	Laundry and	0.85	11.49	116	2,181,776,233.7	2.18	0.75	14.43	129.96	2,652,709,377.43	2.65
	Home cleaning and trash	3.99	9.14	437	8,191,597,340.1	8.19	5.16	10.27	635.32	12,967,962,864.55	12.97

Home repairs and	2.42	8.27	240	4,504,324,877.5	4.50	0.79	9.91	93.79	1,914,387,506.85	1.91
Shopping	2.32	8.63	239	4,489,804,036.5	4.49	3.48	10.09	420.94	8,592,205,749.92	8.59
Organizing and	0.71	37.11	315	5,898,042,374.6	5.90	0.40	51.41	245.23	5,005,499,875.50	5.01
Other household	0.08	8.63	8.75	163,776,577.2	0.16	1.39	10.09	167.70	3,423,041,841.98	3.42
Travel related to unpaid	4.31	14.88	768	14,397,160,227.3	14.40	3.79	16.34	742.35	15,152,726,812.15	15.15
Childcare (Interactive and			1,606	30,512,600,548.5	30.51			2,199.16	44,054,002,301.81	44.05
Adult care			321	6,113,159,782.0	6.11			377.67	7,565,557,052.54	7.57
Total Unpaid Work			4,692	88,384,536,287.1	88.38			5,780.12	117,004,435,657.02	117.00